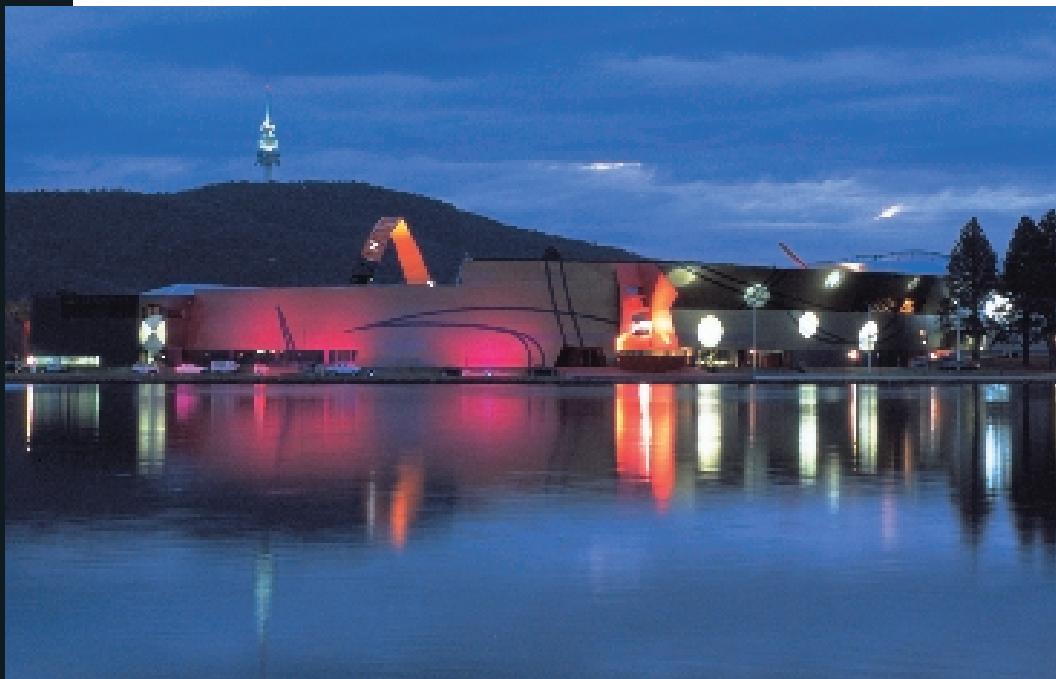




**2002**

# **YEAR BOOK AUSTRALIA**



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**2002**

**YEAR BOOK  
AUSTRALIA**



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AUSTRALIA**

Dennis Trewin  
Australian Statistician

NUMBER 84

AUSTRALIAN BUREAU OF STATISTICS  
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# Preface

Year Book Australia is the principal reference work produced by Australian Bureau of Statistics (ABS). It provides a comprehensive and detailed statistical overview of various aspects of the economy and social conditions in Australia, together with their administrative and legislative background. In addition, it contains descriptive matter dealing with Australia's government, international relations, defence, geography and climate.

The first Official Year Book of the Commonwealth was published in 1908, although individual Australian States and colonies had been producing year books for several decades previously.

The statistics contained in this 84th edition are the most recent available at the time of its preparation. More detailed and, in many cases, more recent statistics are available in the publications of the ABS and other organisations. The sources of information are shown throughout and at the end of chapters of the Year Book, while the ABS *Catalogue of Publications and Products* (1101.0) lists all current publications of the ABS.

ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued co-operation is very much appreciated.

Particular thanks and appreciation are extended to those organisations which have kindly supplied material for inclusion in this 2002 edition of Year Book Australia.

I also take the opportunity to extend my thanks to the many ABS staff who contribute each year to the preparation and production of the Year Book.

Australian Bureau of Statistics  
Canberra  
January 2002

Dennis Trewin  
Australian Statistician



# Introduction

**Y**ear Book Australia provides a comprehensive overview of the economic and social conditions of contemporary Australia. It is a statistically oriented publication with sufficient background information to establish a context for the statistics and to assist in understanding and interpreting them.

Many of the statistics are derived from the ABS, the official statistical agency which produces the Year Book. However, a great deal of the information is also contributed by other, predominantly government, organisations. The official nature of the contributors to the Year Book ensures a high degree of objectivity and reliability in the picture presented of contemporary Australia.

The Year Book also presents some historical and international perspectives on Australia.

This current (84th) edition is the latest in a long series of Year Books extending back to the first edition in 1908. This series provides a valuable source of information on the state of Australia at any point in this period.

*Year Book Australia 2002* is also available on CD-ROM. Its contents are included in *Australia Now — A Statistical Profile* on the ABS Internet site at <http://www.abs.gov.au>. The Year Book is also the source for *Australia at a Glance* (1309.0).

## Finding information

The contents pages at the beginning of the Year Book and preceding each chapter provide a guide to the broad subjects contained in each chapter. The index assists in locating information on more specific subjects. A list of Special Articles which have appeared in previous editions is contained at the end of the Year Book. A collection of Special Articles is included in *Australia Now — A Statistical Profile* on the ABS Internet site.

The tables and graphs in a chapter are numbered and the text is cross-referenced, as necessary, to the table or graph to which it relates.

## Further information

While the statistics and descriptive information contained in the Year Book provide a comprehensive overview of Australia, they represent only a relatively small part of the statistics and other information available.

The Year Book is aimed primarily at providing a ready and convenient source of reference, both to those familiar and unfamiliar with a particular subject. In other words, because of the range of subjects, and limitations on the size of the Year Book, it aims at breadth rather than depth of information.

For those requiring information in greater depth, the Year Book also serves as a directory to more detailed sources, with the source shown for each statistical table, graph and map. Where the ABS is the source, the title and catalogue number of the relevant publication are quoted. For other sources, the name of the organisation is shown, and the publication title where appropriate. Relevant ABS and other publications are also listed at the end of each chapter, together with a selection of relevant Internet sites. A useful complementary publication is the ABS *Catalogue of Publications and Products* (1101.0) which lists all current publications and products of the ABS.

Year Books or Statistical Summaries produced by the ABS for each State or Territory provide information similar to that contained in Year Book Australia, for the State or Territory concerned.

In many cases, the ABS can also provide information which is not published or which is compiled from a variety of published and unpublished sources. Information of this kind may be obtained through the Information Consultancy Service. Charges are generally made for such information. Inquiries may be made by contacting the Inquiries Section in the nearest ABS office.

The annual reports of government departments and agencies also provide a valuable source of more detailed information on subjects covered in the Year Book.

In this regard, the bulk of the contents of this edition of the Year Book were finalised before the release of the Administrative Arrangements Order on 26 November 2001 which promulgated new administrative arrangements regarding matters to be dealt with by Commonwealth Departments and legislation administered by their Ministers. That Order affected the matters to be dealt with by five Departments contributing information to and featuring in this Year Book. The information supplied by those Departments related to past performance, and so their former names have been retained in this edition. The next edition

will, of course, reflect their new names and responsibilities. The Departments affected (new names in brackets) are:

- Department of Education, Training and Youth Affairs (Department of Education, Science and Training)
- Department of Employment, Workplace Relations and Small Business (Department of Employment and Workplace Relations)
- Department of Health and Aged Care (Department of Health and Ageing)
- Department of Immigration and Multicultural Affairs (Department of Immigration and Multicultural and Indigenous Affairs)
- Department of Industry, Science and Resources (Department of Industry, Tourism and Resources)

For a variety of reasons, it is not possible for all statistics in the Year Book to relate to the latest or the same year. Readers wishing to obtain or clarify the latest available statistics should contact the relevant source.

### Comments from readers

The ABS endeavours to keep the balance of the contents of the Year Book in line with the ever-changing nature of the nation. For this reason comments on the adequacy and balance of the contents of the Year Book are welcomed and should be directed to the attention of the Editor of the Year Book, Australian Bureau of Statistics, Locked Bag 10, Belconnen ACT 2616.

### Symbols and abbreviations

The following symbols, where shown in columns of figures of elsewhere in tables, mean:

- n.a. not available
- n.y.a not yet available
- nil or rounded to zero
- . not applicable
- n.p. not available for separate publication (but included in totals where applicable)
- n.e.i. not elsewhere included
- n.e.c. not elsewhere classified
- n.e.s. not elsewhere specified

*	subject to high standard errors and should be used with caution
**	subject to sampling variability too high for practical purposes (i.e. relative standard error greater than 50%)
~	approximately
\$m	\$ million
\$b	\$ billion (thousand million)

The following abbreviations are used for the titles of the Australian States and Territories and Australia:

NSW	New South Wales
Vic.	Victoria
Qld	Queensland
WA	Western Australia
SA	South Australia
Tas.	Tasmania
NT	Northern Territory
ACT	Australian Capital Territory
Aust.	Australia

Yearly periods shown, for example, as 2000, refer to the year ended 31 December 2000; those shown, for example, as 1999–2000, refer to the year ended 30 June 2000. Other yearly periods are specifically indicated. The range of years shown in the table headings, for example, 1901 to 1998–99, indicates the period covered, but does not necessarily imply that each intervening year is included or that the yearly period has remained the same throughout the series.

Values are shown in Australian dollars (\$) or cents (c) unless another currency is specified.

Where figures have been rounded, discrepancies may occur between sums of the component items and totals.

# 1

# Geography and climate

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## Introduction

**G**eography is the science of the earth's form, its physical features, climate and population, and how they relate to each other. The first part of this chapter describes Australia's land forms and topographic features and how they were formed. The second part describes the island continent's wide range of climatic conditions. The third part discusses water resources, a major factor in land form and climate which impacts on many aspects of life in Australia.

## Geography of Australia

### Position and area

Australia comprises a land area of about 7,692,030 square kilometres (see table 1.1). The land lies between latitudes 10°41' South (Cape York) and

43°39' South (South East Cape, Tasmania) and between longitudes 113°09' East (Steep Point, Western Australia) and 153°39' East (Cape Byron, New South Wales). The most southerly point on the mainland is South Point (Wilson's Promontory) 39°08' South. The latitudinal distance between Cape York and South Point is about 3,180 kms, while the latitudinal distance between Cape York and South East Cape, Tasmania, is 3,680 kms. The longitudinal distance between Steep Point and Cape Byron is about 4,000 kms.

The area of Australia is almost as great as that of the United States of America (excluding Alaska), about 50% greater than Europe (excluding the former USSR) and 32 times greater than the United Kingdom. Tables 1.2 and 1.3 show the area of Australia in relation to areas of other continents and selected countries.

### 1.1 AREA, COASTLINE, TROPICAL AND TEMPERATE ZONES, AND STANDARD TIMES

State/Territory	Estimated area		Length of coastline(a)	% of total area		Standard times	
	Total	Total area		Tropical zone	Temperate zone	Meridian selected	Ahead of GMT(b)
New South Wales	800 640	10.41	2 140	..	100	150°E	10.0
Victoria	227 420	2.96	2 510	..	100	150°E	10.0
Queensland(c)	1 730 650	22.50	13 350	54	46	150°E	10.0
South Australia	983 480	12.79	5 070	..	100	142°30' E	9.5
Western Australia	2 529 880	32.89	20 780	37	63	120°E	8.0
Tasmania	68 400	0.89	4 880	..	100	150°E	10.0
Northern Territory	1 349 130	17.54	10 950	81	19	142°30' E	9.5
Australian Capital Territory	2 360	0.03	..	..	100	150°E	10.0
Jervis Bay Territory	70	..	60	..	100	150°E	10.0
<b>Australia</b>	<b>7 692 030</b>	<b>100.00</b>	<b>59 740</b>	<b>39</b>	<b>61</b>	..	..

(a) Includes islands. (b) Greenwich Mean Time. During daylight saving periods, an hour should be added to the times in this column.  
(c) Queensland does not have daylight saving.

Source: Bureau of Meteorology and AUSLIG.

## 1.2 AREAS OF CONTINENTS

	Area '000 km <sup>2</sup>
Continents	
Asia	44 614
Africa	30 319
North, Central America and West Indies	24 247
South America	17 834
Europe	10 600
Australia and Oceania	8 504
<b>Total land mass (excluding Antarctic continent)</b>	<b>135 774</b>

Source: Encyclopaedia Britannica; World Book Encyclopedia.

## 1.3 AREAS OF SELECTED COUNTRIES

	Area '000 km <sup>2</sup>
<b>COUNTRIES (SEVEN LARGEST)</b>	
Russia	17 075
Canada	9 976
China	9 596
United States of America	9 629
Brazil	8 511
Australia	7 692
India	3 287
<b>SELECTED OTHER COUNTRIES</b>	
Belarus	208
France	547
Germany	357
Indonesia	1 919
Japan	377
Kazakhstan	2 717
Papua New Guinea	462
New Zealand	269
Ukraine	604
United Kingdom	244

Source: Encyclopaedia Britannica; World Book Encyclopedia; AUSLIG.

## Landforms and their history

Australia is the lowest, flattest and, apart from Antarctica, the driest of the continents. Unlike Europe and North America, where some landscapes date back to 'only' 20,000 years ago, when great ice sheets retreated, the age of landforms in Australia is generally measured in many millions of years. This fact gives Australia a very distinctive physical geography. Map 1.4 shows the elevation of the Australian continent.

The continent can be divided into three parts:

- the Western Plateau;
- the Central Lowlands; and
- the Eastern Highlands.

The Western Plateau consists of very old rocks (some over 3,000 million years old), and much of it has existed as a landmass for over 500 million years. Several parts have individual plateau names (e.g. Kimberley, Hamersley, Arnhem Land, Yilgarn). In the Perth area, younger rocks along a coastal strip are separated from the rest by the Darling Fault escarpment. The Nullabor Plain is virtually an uplifted sea floor, a limestone plain of Miocene age (about 25 million years).

The Central Lowlands stretch from the Gulf of Carpentaria through the Great Artesian Basin to the Murray–Darling Plains. The Great Artesian Basin is filled with sedimentary rocks which hold water that enters in the wetter Eastern Highlands.

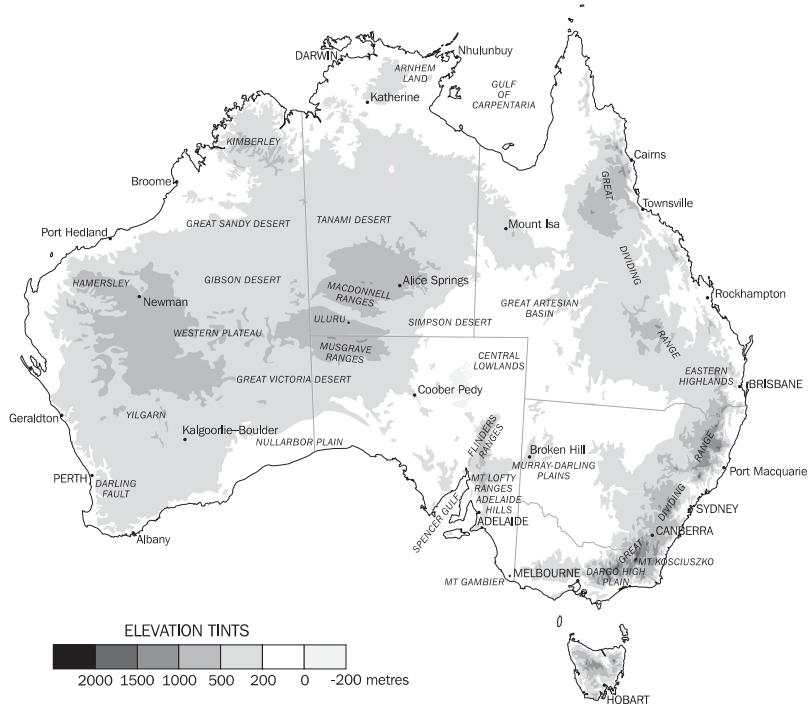
Much of the centre of Australia is flat, but there are numerous ranges (e.g. Macdonnells, Musgrave) and some individual mountains of which Uluru (Ayers Rock) is probably the best known. Faulting and folding in this area took place long ago. The area was worn to a plain, and the plain was uplifted and then eroded to form the modern ranges on today's plain. In looking at Uluru, one remarkable thing is not so much how it got there, but that so much has been eroded from all around to leave it there.

In the South Australian part of the Central Lowlands, fault movements are more recent, and the area can be considered as a number of blocks that have been moved up and down to form a series of ranges (Mt Lofty, Flinders Ranges) and hills (such as the Adelaide Hills), with the downfaulted blocks occupied by sea (e.g. Spencer Gulf) or lowlands including the lower Murray Plains.

The Eastern Highlands rise gently from central Australia towards a series of high plateaus, and even the highest part around Mt Kosciuszko (2,228 metres) is part of a plateau.

There are a few younger faults and folds, such as the Lake George Fault near Canberra, and the Lapstone Monocline near Sydney.

### 1.4 AUSTRALIA, Elevation



Source: AUSLIG 1996.

Some plateaus in the Eastern Highlands are dissected by erosion into rugged hills, and the eastern edges of plateaus tend to form high escarpments. Many of these are united to form the Great Escarpment that runs from northern Queensland to the Victorian border. Australia's highest waterfalls (Wollombi on the Macleay, Wallaman Falls on a tributary of the Herbert, Barron Falls near Cairns, and Wentworth Falls in the Blue Mountains) all occur where rivers flow over the Great Escarpment. For most of its length the Great Dividing Range (separating rivers flowing to Central Australia from rivers flowing to the Pacific) runs across remarkably flat country. In eastern Victoria, however, the old plateau has been eroded into separate High Plains (such as Dargo High Plain).

The present topography results from a long landscape history which can be started in the Permian, about 290 million years ago, when much of Australia was glaciated by a huge ice cap. After the ice melted, parts of the continent subsided and were covered with sediment to form sedimentary basins such as the Great Artesian

Basin. By early Cretaceous times, about 140 million years ago, Australia was already so flat and low that a major rise in sea level divided it into three landmasses as the shallow Cretaceous sea spread over the land.

In the following Tertiary times, Australia can be regarded as a landscape of broad swells varied by a number of sedimentary basins (Murray, Gippsland, Eucla, Carpentaria, Lake Eyre and other basins). These slowly filled up and some are now sources of coal or oil. The Eastern Highlands were uplifted about this time.

Throughout the Tertiary, volcanoes erupted in eastern Australia. Some individual volcanoes were the size of modern Vesuvius, and huge lava plains covered large areas. Volcanic activity continued up to a few thousand years ago in Victoria and Queensland. Australia's youngest volcano is Mt Gambier in South Australia, about 6,000 years old.

Between 55 and 10 million years ago, Australia drifted across the surface of the earth as a plate, moving north from a position once adjacent to Antarctica. There have been many changes in the climate of Australia in the past, but oddly these do not seem to be due to changing latitude (associated with global scale plate movements). Even when Australia was close to the South Pole, the climate was relatively warm and wet, and this persisted for a long time despite changes in latitude. It was probably under this climate that the deep weathered, iron-rich profiles that characterise much of Australia were formed. Aridity only seems to have set in after Australia reached its present latitude, and the northern part was probably never arid.

Today a large part of Australia is arid or semiarid. Sand dunes are mostly longitudinal and are aligned with dominant wind directions associated with the regular passage of high pressure cells (anticyclones). These 'highs' rotate anticlockwise and track at about 28°S in winter and 38°S in summer, resulting in predominantly south-east to easterly flows in the north and north-west to westerly flows in the south. Looking down from above, the south-east Trade Winds or 'Trades' would be those winds in the top right hand quarter of a hypothetical, stationary 'high' centred on the Australian continent.

The dunes are mostly fixed now. Stony deserts or gibber plains (covered with small stones or 'gibbers') are areas without a sand cover and occupy a larger area than the dune fields. Salt lakes occur in many low positions, in places following lines of ancient drainage. They are often associated with lunettes, dunes formed on the downwind side of lakes. Many important finds of Aboriginal prehistory have been made in lunettes. Despite the prevalence of arid conditions today, real aridity seems to be geologically young, with no dunes or salt lakes older than a million years.

The past few million years were notable for the Quaternary ice age. There were many glacial and interglacial periods (over 20) during this time, the last glacial period occurring about 20,000 years ago. In Tasmania there is evidence of three different glaciations: the last glaciation, one sometime in the Quaternary, and one in the Tertiary. On the mainland there is evidence of only the last glaciation, and the ice then covered only 25 square kilometres, in the vicinity of Mt Kosciuszko.

The broad shape of Australia has been influenced over long periods by earth movements associated with large tectonic processes. However, much of the detail has been carved by river erosion. A significant number of Australia's rivers, like the

Diamantina River, drain inland. While they may be eroding their valleys near their highland sources, their lower courses are filling up with alluvium, and the rivers often end in salt lakes which are dry for most of the time. Other rivers reach the sea, and have dissected a broad near-coast region into plateaus, hills and valleys. Many of the features of the drainage pattern of Australia have a very long history, and some individual valleys have maintained their position for hundreds of millions of years. The salt lakes of the Yilgarn Plateau in Western Australia are the remnants of a drainage pattern that was active before continental drift separated Australia from Antarctica.

During the last ice age, sea level was more than 100 metres lower than it is today; the current outer reef area of the Great Barrier Reef would have been the coast at that time. The rivers tended to cut down to the lower level, especially towards the sea. When the sea level rose again, some of the lower valleys were drowned, making fine harbours — like Sydney Harbour — while others tended to fill with alluvium as the sea rose — making the typical lowland valleys around the Australian coast.

Coastal geomorphology is also largely the result of the accumulation of sediment in drowned coasts. In some areas, such as Ninety Mile Beach (Victoria) or the Coorong (South Australia), there are beaches made simply from this accumulation. In much of the east there is a characteristic alternation of rocky headland and long beach, backed by plains filled with river and marine sediments.

The offshore shape of Australia, revealed in isobath contours, results mainly from the pattern of break-up of the super-continent of which Australia was once a part. In some areas, such as the Great Australian Bight, there is a broad continental shelf bounded by a steeper continental slope. In other areas, like south-east New South Wales around Merimbula and much of the Tasmanian coastline, the continental shelf is very narrow, sometimes coming to within 20 nautical miles of the coast. The Queensland coast is bounded by a broad plateau on which the Great Barrier Reef has grown in only the last two million years. In South Australia, the continental shelf is grooved by submarine canyons.

The Australian landforms of today are thus seen to result from long continued processes in a unique setting, giving rise to typical Australian landscapes, which in turn provide the physical basis for the distribution and nature of biological and human activity in Australia.

## Rivers and lakes

As can be inferred from the elevation and relief map (map 1.4), the rivers of Australia may be divided into two major classes: those of the coastal margins with moderate rates of fall, and those of the central plains with very slight fall. Of the rivers of the east coast, the longest in Queensland are the Burdekin and the Fitzroy, while the Hunter is the longest coastal river of New South Wales. The longest river system in Australia is the Murray–Darling which drains part of Queensland, the major part of New South Wales and a large part of Victoria, finally flowing into the arm of the sea known as Lake Alexandrina, on the eastern side of the South Australian coast. The length of the Murray is about 2,520 kms, and the Darling and Upper Darling together are also just over 2,000 kms long. The rivers of the north-west coast of Australia, for example the Murchison, Gascoyne, Ashburton, Fortescue, De Grey, Fitzroy, Drysdale and Ord, are of considerable length. So also are those rivers in the Northern Territory, for example the Victoria and Daly, and those on the Queensland side of the Gulf of Carpentaria, such as the Gregory, Leichhardt, Cloncurry, Gilbert and Mitchell. The rivers of Tasmania have short and rapid courses, as might be expected from the configuration of the land.

There are many types of lake in Australia, the largest being drainage sumps from the internal rivers. In dry seasons, these lakes finally become beds of salt and dry mud. The largest are Lake Eyre 9,500 square kilometres, Lake Torrens 5,900 square kilometres and Lake Gairdner 4,300 square kilometres.

Other lake types are glacial, most common in Tasmania; volcanic crater lakes, predominantly in Victoria and Queensland; fault angle lakes, of which Lake George near Canberra is a good example; and coastal lakes formed by marine damming of valleys.

## Climate of Australia

The island continent of Australia features a wide range of climatic zones, from the tropical regions of the north, through the arid expanses of the interior, to the temperate regions of the south.

Widely known as ‘The Dry Continent’, the land mass is relatively arid, with 80% having a median rainfall less than 600 mm per year and 50% less than 300 mm (the average is 450 mm). Seasonal fluctuations can be large, with temperatures ranging from above 50°C to well below zero.

However, extreme minimum temperatures are not as low as those recorded in other continents, due to Australia’s relatively low latitude, the lack of high mountains to induce orographic cooling (which is in the order of  $-0.6^{\circ}\text{C}/100\text{ m}$  increase in elevation) and because of the large expanse of relatively warm surrounding oceans.

Although the climate can be described as predominantly continental, the insular nature of the land mass produces modifications to the general continental pattern.

Australia experiences many of nature’s more extreme phenomena, particularly droughts, floods, tropical cyclones, severe storms and bushfires.

## Climatic controls

The generally low relief of Australia is evident in the elevation and relief map (map 1.4). Compared to other continents, Australia causes little obstruction to the atmospheric systems which control the climate. A notable exception is the eastern uplands which modify the atmospheric flow, sometimes causing the ‘Easterly Dip’ which is evident in some surface pressure charts.

In the winter half of the year (May–October) anticyclones, or high pressure systems, pass from west to east across the continent and may remain almost stationary over the interior for several days. These anticyclones may be 4,000 kms wide and, in the Southern hemisphere, rotate anticlockwise. Northern Australia is thus influenced by mild, dry south-east winds, and southern Australia experiences cool, moist westerly winds. The westerlies, and the frontal systems associated with extensive depressions (lows, sometimes called extra-tropical cyclones) travelling over the Southern Ocean, have a controlling influence on the climate of southern Australia during the winter season, causing rainy periods. Periodic north-west cloud bands in the upper levels of the atmosphere over the continent may interact with southern systems to produce rainfall episodes, particularly over eastern areas. Cold outbreaks, particularly in south-east Australia, occur when cold air of Southern Ocean origin is directed northwards by intense depressions having diameters up to 2,000 kms. Cold fronts associated with the southern depressions, or with secondary depressions over the Tasman Sea, may produce strong winds and large day-to-day variations in temperature in southern areas, particularly in south-east coastal regions.

In the summer half of the year (November–April) the anticyclones travel from west to east on a more southerly track across the southern fringes of Australia, directing easterly winds generally over the continent. Fine, warmer weather predominates in southern Australia with the passage of each anticyclone. Heat waves occur when there is an interruption to the eastward progression of the anticyclone ('blocking') and winds back northerly and later north-westerly. Northern Australia comes under the influence of summer disturbances associated with the southward intrusion of warm moist monsoonal air from north of the intertropical convergence zone, resulting in a hot rainy season. Southward dips of the monsoonal low pressure trough sometimes spawn tropical depressions, and may prolong rainy conditions over northern Australia for up to three weeks at a time.

Tropical cyclones are strong, well-organised low pressure systems of tropical origin where average surface winds are expected to reach at least gale force (speed equivalent of 63–87 km/h) — gusts can be up to 50% higher than the average. Winds associated with severe tropical cyclones reach at least hurricane force (119 km/h) — the highest wind speed recorded in Australia was 267 km/h, which occurred with Tropical Cyclone Vance (March 1999). Tropical cyclones develop over the seas around northern Australia where sea surface temperatures exceed 26°C in summer.

Interestingly, tropical cyclones do not usually form within 5° (or so) north or south of the Equator because the Coriolis Force associated with the rotation of the Earth is close to zero in this zone and this 'twist' is important for cyclone formation. Their frequency of occurrence and the tracks they follow vary greatly from season to season. On average, about three cyclones per season directly affect the Queensland coast, and about three affect the north and north-west coasts. Tropical cyclones approaching the coast usually produce very heavy rain and high winds in coastal areas. Some cyclones move inland, losing intensity but still producing widespread heavy rainfall and, occasionally, moderate to severe damage.

The climate of eastern and northern Australia is influenced by the Southern Oscillation (SO), a see-sawing of atmospheric pressure between the northern Australian/Indonesian region and the central Pacific Ocean. This Oscillation is one of the most important causes of climatic variation after the annual seasonal cycle over eastern and northern Australia. The strength of the SO is

defined by the Southern Oscillation Index, which is a measure of the difference in sea level atmospheric pressure between Tahiti in the central Pacific and Darwin in northern Australia. At one extreme of the Oscillation, the pressure is abnormally high at Darwin and abnormally low at Tahiti. Severe and widespread drought over eastern and northern Australia generally accompanies this extreme. These conditions generally commence early in the year, last for about 12 months, and have a recurrence period of two to seven years.

The above extreme is sometimes immediately preceded or followed by the opposite extreme where pressures at Darwin are abnormally low and those at Tahiti are abnormally high. In this case, rainfall is generally above average over eastern and northern Australia.

The SO is linked to sea surface temperatures (SSTs) in the Pacific Ocean. Dry extreme SO years are accompanied by above normal SSTs in the central and/or eastern equatorial Pacific and vice versa. Dry extreme years are called El Niño years (El Niño is 'baby boy' in Spanish). Wet extreme years are called La Niña years (La Niña is 'baby girl'). Continuing research into the El Niño/La Niña phenomenon is revealing the connectivity between atmospheric circulation, sea surface temperatures, currents (surface as well as deep currents) and their interaction with the land masses. An article in the *Geography and climate* chapter of *Year Book Australia 1998* provides further detail.

## Rainfall and other precipitation

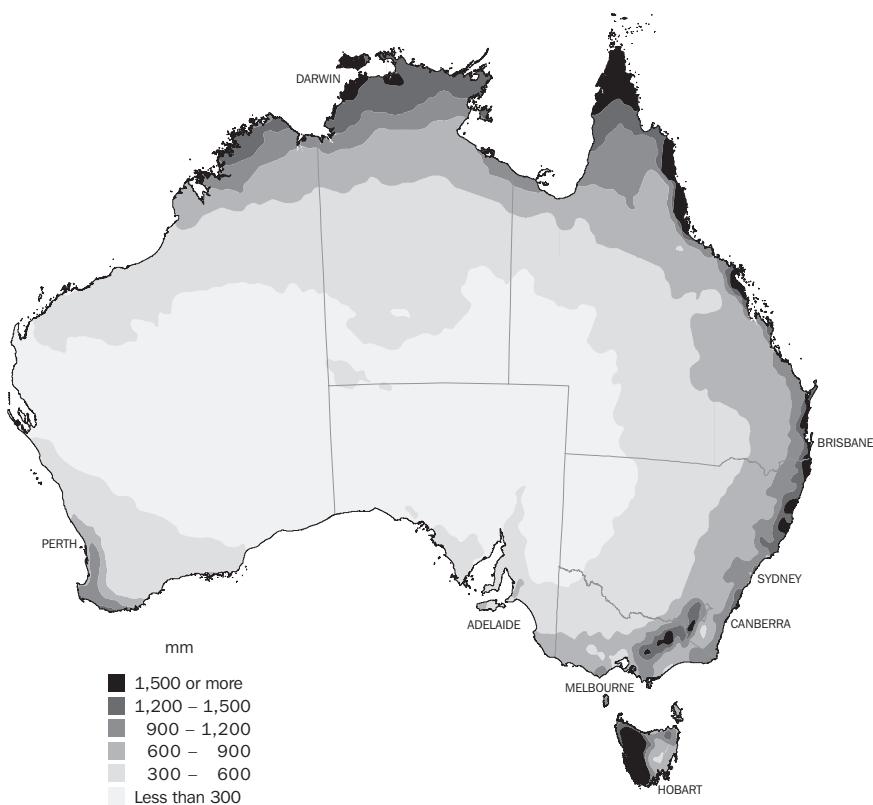
### Annual

The area of lowest rainfall is in the vicinity of Lake Eyre in South Australia, where the median annual rainfall is only about 100 mm. Another very low rainfall area is in Western Australia in the region of the Giles–Warburton Range, which has a median annual rainfall of about 150 mm. A vast region, extending from the west coast near Shark Bay across the interior of Western Australia and South Australia to south-west Queensland and north-west New South Wales, has a median annual rainfall of less than 200 mm. This region is not normally exposed to moist air masses for extended periods and rainfall is irregular, averaging only one or two days per month. However, in favourable synoptic situations, which occur infrequently over extensive parts of the region, up to 400 mm of rain may fall within a few days and cause widespread flooding.

The region with the highest median annual rainfall is the east coast of Queensland between Cairns and Cardwell, where Happy Valley has a median of 4,436 mm (43 years from 1956 to 2000 inclusive) and Babinda a median of 4,092 mm (84 years from 1911 to 2000 inclusive). The mountainous region of western Tasmania also has a high annual rainfall, with Lake Margaret having a median of 3,565 mm (76 years to 1987 inclusive).

The Snowy Mountains area in New South Wales also has a particularly high rainfall. While there are no gauges in the wettest area, on the western slopes above 1,800 metres elevation, runoff data suggest that the median annual rainfall in parts of this region exceeds 3,000 mm. Small pockets with median annual rainfall exceeding 2,500 mm also exist in the mountainous areas of north-east Victoria and some parts of the east coastal slopes. Map 1.5 shows average annual rainfall over the Australian continent.

### 1.5 AVERAGE ANNUAL RAINFALL



Source: Bureau of Meteorology.

## Seasonal

As outlined earlier, the rainfall pattern of Australia is strongly seasonal in character, with a winter rainfall regime in the south and a summer regime in the north.

The dominance of rainfall over other climatic elements in determining the growth of specific plants in Australia has led to the development of a climatic classification based on two main parameters, median annual rainfall and the incidence of seasonal rainfall.

Evaporation and the concept of rainfall effectiveness are taken into account to some extent in this classification, by assigning higher median annual rainfall limits to the summer zones than to the corresponding uniform and winter zones. The main features of the seasonal rainfall are:

- marked wet summer (the 'Monsoon') and dry winter of northern Australia;
- wet summer and relatively dry winter of south-eastern Queensland and north-eastern New South Wales;
- uniform rainfall in south-eastern Australia — much of New South Wales, parts of eastern Victoria and southern Tasmania;
- marked wet winter and dry summer of south-west Western Australia and, to a lesser extent, much of the remainder of southern Australia directly influenced by westerly circulation (sometimes called a 'Mediterranean' climate); and
- arid area comprising about half the continent extending from the north-west coast of Western Australia across the interior and reaching the south coast at the head of the Great Australian Bight.

Figure 1.6 comprises individual graphs showing the monthly rainfall for all capital cities, as well as for Alice Springs and Davis Base in Antarctica.

Darwin shows the rainfall distribution pattern typical of the wet summer and dry winter seen in far northern Australia, and Brisbane the wet summer/relatively dry winter typical of southeastern Queensland. By contrast, Adelaide and Perth show the wet winter/dry summer pattern whereas Sydney, Melbourne, Canberra and Hobart show a relatively uniform pattern of rainfall throughout the year. Alice Springs shows a low rainfall pattern throughout the year typical of arid inland areas.

Precipitation at Davis Base is mainly as snow, but is measured as water after melting. The pattern reflects the very low precipitation levels on the Antarctic continent.

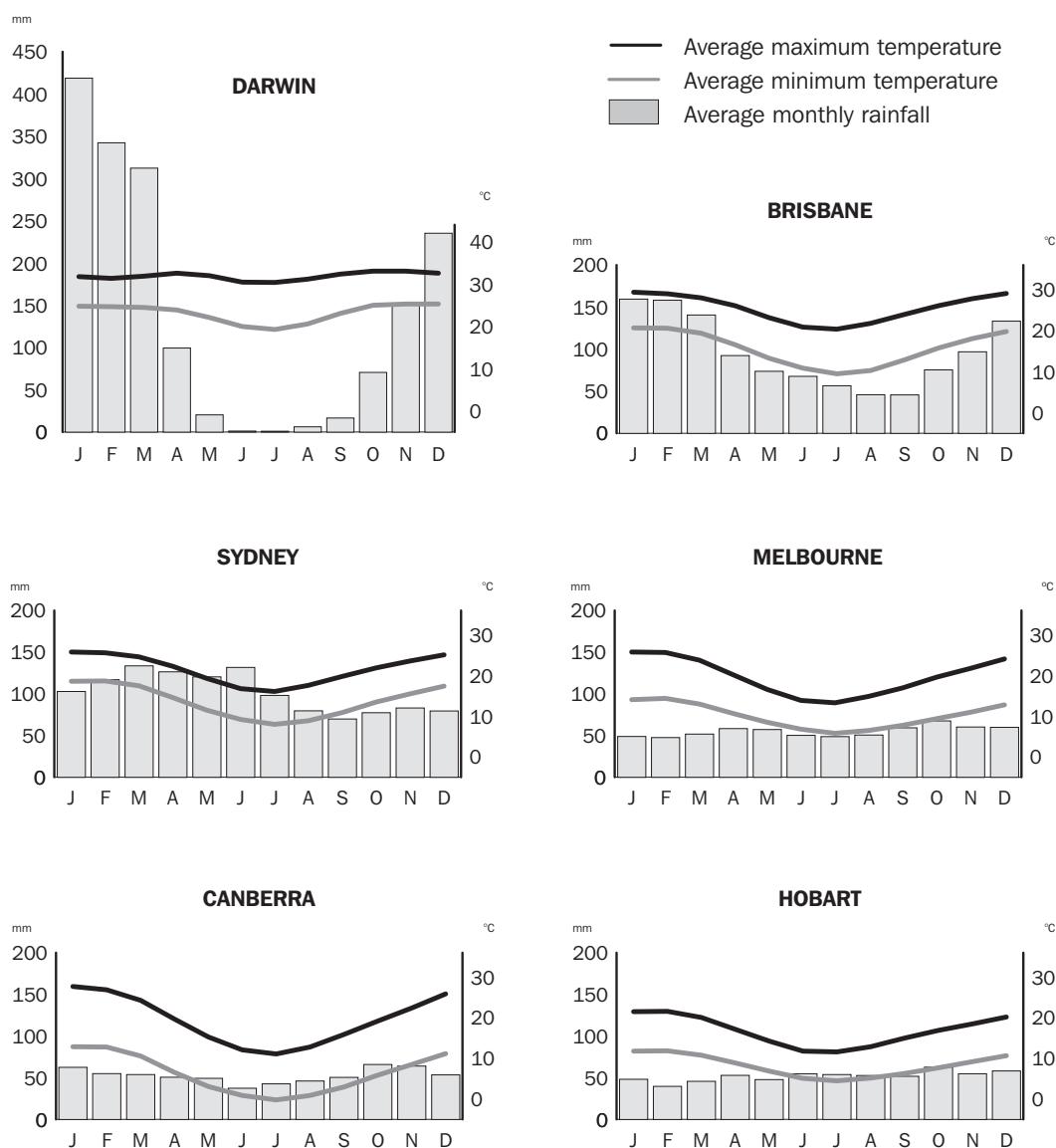
## Rainday frequency

A rainday occurs when more than 0.2 mm of rain falls in 24 hours, usually from 9 a.m. to 9 a.m. the next day. The frequency of raindays exceeds 150 per year in much of Tasmania (with a maximum of over 250 in western Tasmania), southern Victoria, parts of the north Queensland coast and in the extreme south-west of Western Australia. Over most of the continent the frequency is less than 50 raindays per year. The area of low rainfall with high variability, extending from the north-west coast of Western Australia through the interior of the continent, has less than 25 raindays per year. In the high rainfall areas of northern Australia, the number of raindays is about 80 per year, but heavier falls occur in this region than in southern regions.

## Rainfall intensity

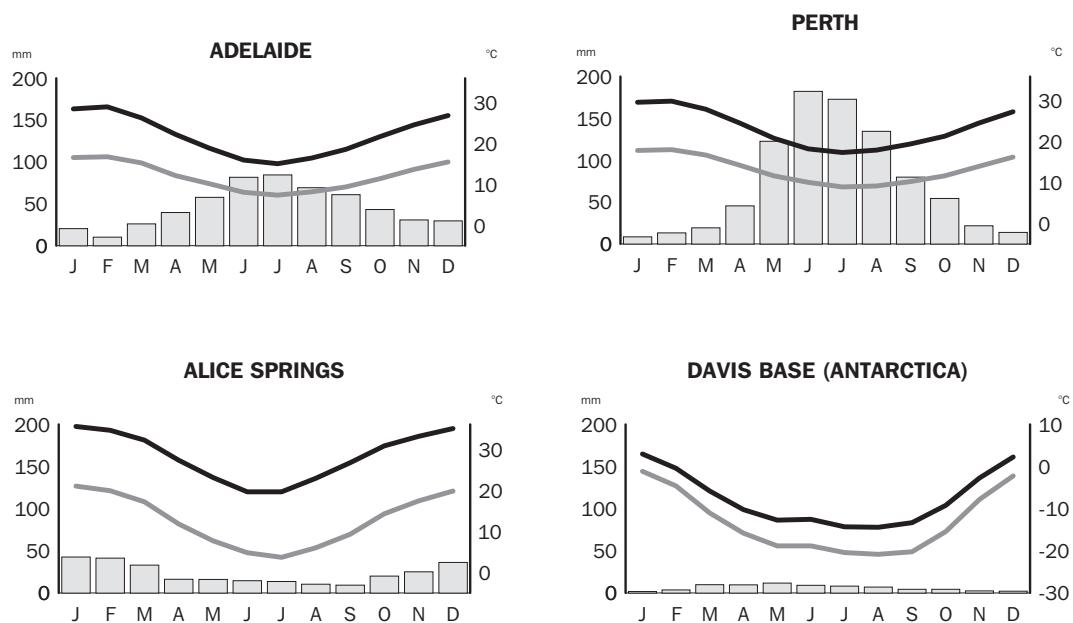
The values in table 1.7 represent intensities over only small areas around the recording points because turbulence and exposure characteristics of the measuring gauge may vary over a distance of a few metres. The highest 24 hour (9 a.m. to 9 a.m.) falls are listed in table 1.8. Most of the very high 24 hour falls (above 700 mm) have occurred in the coastal strip of Queensland, where a tropical cyclone moving close to mountainous terrain provides ideal conditions for spectacular falls.

**1.6 MONTHLY RAINFALL(a) AND AVERAGE(a) MAXIMUM AND MINIMUM TEMPERATURES, Capital Cities, Alice Springs and Davis Base, Antarctica**



...continued

**1.6 MONTHLY RAINFALL(a) AND AVERAGE(a) MAXIMUM AND MINIMUM TEMPERATURES, Capital Cities, Alice Springs and Davis Base, Antarctica — *continued***



(a) The number of years covered by the averages vary by location. The longest time span of observations is 154 years for Brisbane; the shortest is 19 years for Adelaide.

Source: Bureau of Meteorology.

**1.7 HIGHEST RAINFALL INTENSITIES**

Station	Period of record	Years of complete records	Period in hours				
			1	3	6	12	24
Adelaide	1897–2000	96	59	133	141	141	141
Alice Springs	1951–1998	46	75	87	109	160	207
Brisbane	1911–1998	87	99	142	182	266	327
Broome	1948–2000	49	157	322	429	470	497
Canberra	1937–2000	40	40	57	67	76	135
Carnarvon	1956–2000	41	44	64	83	99	121
Charleville	1953–1999	42	48	75	88	118	142
Darwin (airport)	1953–2000	42	89	160	214	263	380
Esperance	1963–1998	31	39	50	51	76	86
Hobart	1911–1999	88	28	56	87	117	168
Meekatharra	1953–2000	42	60	67	81	111	120
Melbourne	1873–2000	107	75	91	91	97	130
Mildura	1953–2000	42	53	60	68	68	91
Perth	1946–1992	45	33	63	87	113	121
Sydney	1913–2000	83	120	191	197	244	340
Townsville	1953–1999	44	131	253	361	482	564

Source: Pluviograph records in Bureau of Meteorology archives.

**1.8 HIGHEST DAILY RAINFALLS(a)**

State/Territory	Amount mm	Date
New South Wales		
Dorrigo (Myrtle Street)	809	21.2.1954
Cordeaux River	573	14.2.1898
Victoria		
Tanybryn	375	22.3.1983
Club Terrace	285	24.6.1998
Queensland(b)		
Beerwah (Cronhamhurst)	907	3.2.1893
Finch Hatton PO	878	18.2.1958
South Australia		
Motpena	273	14.3.1989
Nilpena	247	14.3.1989
Western Australia		
Roebourne (Whim Creek)	747	3.4.1898
Roebuck Plains	568	6.1.1917
Tasmania		
Cullenswood	352	22.3.1974
Mathinna	337	5.4.1929
Northern Territory		
Roper Valley Station	545	15.4.1963
Angurugu (Groote Eylandt)	513	28.3.1953
Australian Capital Territory		
Lambrigg	182	27.5.1925

(a) The standard daily rainfall period is 9 a.m. to 9 a.m.  
 (b) Bellenden Ker (Top Station) has recorded a 48 hour total of 1,947 mm on 4–5 January 1979, including 960 mm from 3 p.m. on the 3rd to 3 p.m. on the 4th. No observation was made at 9 a.m. on the 4th.

Source: Bureau of Meteorology.

**1.9 HIGHEST ANNUAL RAINFALLS**

State/Territory	Station	Year	Amount mm
NSW	Tallowood Point	1950	4 540
Vic.	Falls Creek SEC	1956	3 739
Qld	Bellenden Ker (Top Station)	1979	11 251
SA	Aldgate State School	1917	1 853
WA	Armadale (Jarrahdale PO)	1917	2 169
Tas.	Lake Margaret	1948	4 504
NT	Pirlangimpi	1998	2 762

Source: Bureau of Meteorology.

The highest annual rainfalls are listed by State/Territory in table 1.9.

**Thunderstorms and hail**

A thunderday at a given location is a calendar day on which thunder is heard at least once. The average annual number of thunderdays varies from 88 per year near Darwin to less than 10 per year over parts of the southern regions. Convectional processes during the summer wet season cause high thunderstorm incidence in northern Australia. The generally high incidence

of thunderdays (40–60 annually) over the eastern upland areas is caused mainly by orographic uplift of moist air streams.

Hail, mostly of small size (less than 10 mm diameter), occurs with winter-spring cold frontal activity in southern Australia. Summer thunderstorms, particularly over the uplands of eastern Australia, sometimes produce large hail (greater than 10 mm diameter). Large hail capable of piercing light-gauge galvanised iron occurs at irregular intervals and sometimes causes widespread damage.

**Snow**

Generally, snow covers much of the Australian Alps above 1,500 metres for varying periods from late autumn to early spring. Similarly, in Tasmania the mountains are covered fairly frequently above 1,000 metres in these seasons. The area, depth and duration are highly variable. Light snowfalls can occur in these areas at any time of year. In some years, snow falls in the altitude range of 500–1,000 metres. Snowfalls at levels below 500 metres are occasionally experienced in southern Australia, particularly in the foothill areas of Tasmania and Victoria, but falls are usually light and short lived. In some seasons, parts of the eastern uplands above 1,000 metres from Victoria to south-eastern Queensland have been covered with snow for several weeks. On sheltered slopes around Mt Kosciuszko (2,228 metres) small areas of snow may persist through summer, but there are no permanent snowfields.

**Temperature****Average temperatures**

Average annual air temperatures range from 28°C along the Kimberley coast in the extreme north of Western Australia to 4°C in the alpine areas of south-eastern Australia. Although annual temperatures may be used for broad comparisons, monthly temperatures are required for detailed analyses.

July is the month with the lowest average temperature in all parts of the continent. The months with the highest average temperature are January or February in the south and December in the north (except in the extreme north and north-west where it is November). The slightly lower temperatures of mid-summer in the north are due to the increase in cloud during the wet season.

Average monthly maximum and minimum temperatures for all capital cities, and also for Alice Springs and Davis Base in Antarctica, are shown in figure 1.6.

Temperatures in Darwin in tropical northern Australia are relatively constant throughout the year. In other cities, there is a greater seasonal variation between summer and winter months. The seasonal variation in temperature, as well as the difference between maximum and minimum value in any month, is greater for the inland cities of Canberra and Alice Springs than it is for the coastal cities, where proximity to the ocean moderates temperature extremes.

### Average monthly maxima

In January, average maximum temperatures exceed 35°C over a vast area of the interior and exceed 40°C over appreciable areas of the north-west. The consistently hottest part of Australia in terms of summer maxima is around Marble Bar in Western Australia (150 kilometres south-east of Port Hedland) where the average is 41°C and daily maxima during summer may exceed 40°C consecutively for several weeks at a time.

In July, a more regular latitudinal distribution of average maxima is evident. Maxima range from 30°C near the north coast to 5°C in the alpine areas of the south-east.

### Average monthly minima

In January, average minima range from 27°C on the north-west coast to 5°C in the alpine areas of the south-east. In July, average minima fall below 5°C in areas south of the tropics (away from the coasts). Alpine areas record the lowest temperatures; the July average low is -5°C.

### Extreme maxima

The highest extreme maxima in Australia are recorded in two regions: the Pilbara and Gascoyne regions of north-western Western Australia; and a broad belt extending from south-western Queensland across South Australia into south-eastern Western Australia. Many stations in this region have exceeded 48°C. Extreme temperatures in this southern belt are higher than those further north, due to the long trajectory over land of hot north-west winds from northern Australia, and the lower moisture levels in summer compared with northern Australia.

Most other stations in mainland Australia, except those near parts of the Queensland or Northern Territory coasts or above 500 metres elevation, have extreme maxima between 43 and 48°C.

Most Tasmanian stations away from the north coast have extreme maxima between 35 and 40°C. The lowest extreme maxima are found in northern Tasmania (e.g. 29.5°C at Low Head, near George Town) and at high elevations (e.g. 27.0°C at Thredbo (Crackenback)).

While high temperatures are more common inland than they are near the coast, the highest temperatures recorded differ little between the two, except in Queensland, the Northern Territory and northern Tasmania. Notable extreme maxima observed near the coast include 50.5°C at Mardie and 49.1°C at Roebourne in Western Australia, and 49.4°C at Whyalla and 47.9°C at Ceduna in South Australia.

Extreme maximum temperatures recorded at selected stations, including the highest recorded in each State/Territory, are shown in table 1.10.

### 1.10 EXTREME MAXIMUM TEMPERATURES

Station	°C	Date
New South Wales		
Wilcannia	50.0	11.1.1939
Victoria		
Swan Hill(a)	49.4	18.1.1906
Queensland		
Cloncurry(a)	53.1	16.1.1889
South Australia		
Oodnadatta	50.7	2.1.1960
Western Australia		
Mardie	50.5	20.2.1998
Tasmania		
Bushy Park(a)	40.8	26.12.1945
Hobart	40.8	4.1.1976
Northern Territory		
Finke	48.3	2.1.1960
Australian Capital Territory		
Canberra (Acton)	42.8	11.1.1939

(a) Under review due to possible faulty equipment.

Source: Bureau of Meteorology.

### Extreme minima

The lowest temperatures in Australia have been recorded in the Snowy Mountains, where Charlotte Pass (elevation 1,760 metres) recorded -23.0°C on 28 June 1994 (see table 1.11). Outside the Snowy Mountains, the lowest extreme minima on the Australian mainland are found above 500 metres elevation in the tablelands and ranges of New South Wales, eastern Victoria and southern Queensland. Many stations in this region have recorded -10°C or lower, including -14.6°C at Gudgenby and -14.5°C at Woolbrook.

Temperatures below  $-10^{\circ}\text{C}$  have also been recorded in central Tasmania. At lower elevations, most inland places south of the tropics have extreme minima between  $-3$  and  $-7^{\circ}\text{C}$ , and such low temperatures have also occurred in favoured locations within a few kilometres of southern and eastern coasts, such as Sale ( $-5.6^{\circ}\text{C}$ ), Bega ( $-8.1^{\circ}\text{C}$ ), Grove ( $-7.5^{\circ}\text{C}$ ) and Taree ( $-5.0^{\circ}\text{C}$ ).

In the tropics, extreme minima below  $0^{\circ}\text{C}$  have been recorded at many places away from the coast, as far north as Herberton ( $-5.0^{\circ}\text{C}$ ). Some locations near tropical coasts, such as Mackay ( $-0.8^{\circ}\text{C}$ ), Townsville ( $0.1^{\circ}\text{C}$ ) and Kalumburu ( $0.3^{\circ}\text{C}$ ) have also recorded temperatures near  $0^{\circ}\text{C}$ . In contrast, some exposed near-coastal locations, such as Darwin, have never fallen below  $10^{\circ}\text{C}$ , and Thursday Island, in the Torres Strait, has an extreme minimum of  $16.1^{\circ}\text{C}$ .

Territory and the Marble Bar–Nullagine area of Western Australia have recorded the most prolonged heat waves. Marble Bar is the only known station in the world where temperatures of more than  $37.8^{\circ}\text{C}$  ( $100^{\circ}\text{F}$ ) have been recorded on as many as 161 consecutive days (30 October 1923 to 7 April 1924).

Heat waves are experienced in the coastal areas from time to time. During 11–14 January 1939, for example, a severe heat wave affected south-eastern Australia: Melbourne had a record of  $45.6^{\circ}\text{C}$  on the 13th and Sydney a record of  $45.3^{\circ}\text{C}$  on the 14th. This heatwave also set record high temperatures in many other centres in New South Wales, Victoria and South Australia.

The Kimberley district of Western Australia is the consistently hottest part of Australia in terms of annual average maximum temperature. Wyndham, for example, has an annual average maximum of  $35.6^{\circ}\text{C}$ .

### 1.11 EXTREME MINIMUM TEMPERATURES

Station	°C	Date
New South Wales		
Charlotte Pass	-23.0	18.6.1994
Victoria		
Mount Hotham	-12.8	30.7.1931
Queensland		
Stanthorpe	-11.0	4.7.1895
South Australia		
Yongala	-8.2	20.7.1976
Western Australia		
Booylgoor Springs	-6.7	12.7.1969
Tasmania		
Shannon	-13.0	30.6.1983
Butlers Gorge	-13.0	30.6.1983
Tarraleah	-13.0	30.6.1983
Northern Territory		
Alice Springs	-7.5	12.7.1976
Australian Capital Territory		
Gudgenby	-14.6	11.7.1971

Source: Bureau of Meteorology.

### Heat waves

Periods with a number of successive days having a temperature higher than  $40^{\circ}\text{C}$  are relatively common in summer over parts of Australia. With the exception of the north-west coast of Western Australia, however, most coastal areas rarely experience more than three successive days of such conditions. The frequency increases inland, and periods of up to ten successive days have been recorded at many inland stations. This figure increases to more than 20 days in parts of western Queensland and north-west Western Australia. The central part of the Northern

### Other aspects of climate

#### Frost

The frequency of frost, which can cause serious losses of agricultural crops, depends on a number of factors. In coastal areas the relatively warm ocean temperatures ameliorate those on land, while distance from the Equator and elevation above sea level are major cooling influences. In addition, variations in topography can lead to local effects such as the accumulation of cold air in frost hollows. Hence frost hazard is greatest in areas which are away from the coast, are at relatively high elevations and have complex terrain which allows cold air drainage down slopes.

Parts of Australia most subject to frost are the eastern uplands from north-eastern Victoria to the western Darling Downs in southern Queensland where there may be more than ten nights a month with readings of  $0^{\circ}\text{C}$  (or under) for three to five months of the year. On Tasmania's Central Plateau similar conditions occur for three to six months of the year. Frosts may occur within a few kilometres of the coasts except in the Northern Territory and most of the north Queensland coasts.

Frosts may occur at any time of the year over most of Tasmania, large areas of the tablelands of New South Wales and much of inland Victoria, particularly the north-east. Frosts start in April and end in October over most of the interior of the continent, and on the highlands of Queensland as far north as the Atherton Plateau.

Minimum temperatures below 0°C can be experienced in most of the subtropical interior in June and July.

The median frost period over the continent varies from over 200 days per year in the south-eastern uplands areas south of the Hunter Valley, to none in northern Australia. The annual frost period generally decreases from about 100 days inland to below 50 days towards the coast in the southern regions of the continent, but there is widespread local variation. In Tasmania the frost period exceeds 300 days on the uplands and decreases to 100 days near the coast.

## Humidity

Australia is a dry continent in terms of the water vapour content or humidity of the air, and this element may be compared with evaporation to which it is related. Moisture content can be expressed by a number of parameters, of which the most commonly known is relative humidity. This can be thought of as the relative evaporating power of the air; when the humidity is low, a wet surface, like our skin, can evaporate freely. When it is high, evaporation is retarded. People can feel this as discomfort or even stress as the body's ability to perspire (and hence cool) decreases with increasing relative humidity. The combination of high temperature and high humidity is potentially dangerous for people who are active in such conditions.

The main features of the relative humidity pattern are:

- over the interior of the continent there is a marked dryness during most of the year, notably towards the northern coast in the dry season (May–October);
- the coastal fringes are comparatively moist, although this is less evident along the north-west coast of Western Australia where continental effects are marked;
- in northern Australia, the highest values occur during the summer wet season (December–February) and the lowest during the winter dry season (June–August); and
- in most of southern Australia the highest values are experienced in the winter rainy season (June–August) and the lowest in summer (December–February).

## Global radiation

Global (short wave) radiation includes that radiation energy reaching the ground directly from the sun and that received indirectly from the sky, scattered downwards by clouds, dust particles, etc.

A high correlation exists between daily global radiation and daily hours of sunshine. On the north-west coast around Port Hedland, where average daily global radiation is the highest for Australia (640 milliwatt hours), average daily sunshine is also highest, being approximately ten hours. Sunshine is more dependent on variations in cloud coverage than is global radiation, since the latter includes diffuse radiation from the sky as well as direct radiation from the sun. An example is Darwin where, in the dry month of July, sunshine approaches twice that of the wet (cloudy) month of January, but global radiation amounts for the two months are comparable.

## Sunshine

Sunshine here refers to bright or direct sunshine. Australia receives relatively large amounts of sunshine although seasonal cloud formations have a notable effect on its spatial and temporal distribution. Cloud cover reduces both incoming solar radiation and outgoing long wave radiation, and thus affects sunshine, air temperature and other climatic elements on the Earth's surface.

Most of the continent receives more than 3,000 hours of sunshine a year, or nearly 70% of the total possible. In central Australia and the mid-west coast of Western Australia, totals slightly in excess of 3,500 hours occur. Totals of less than 1,750 hours occur on the west coast and highlands of Tasmania; this amount is only 40% of the total possible per year (about 4,380 hours).

In southern Australia, the duration of sunshine is greatest about December when the sun is at its highest elevation, and lowest in June when the sun is lowest. In northern Australia, sunshine is generally greatest over the period August to October prior to the wet season, and least over the period January to March during the wet season.

## Cloud

Seasonal changes in cloudiness vary with the distribution of rainfall. In the southern parts of the continent, particularly in the coastal and low-lying areas, the winter months are generally more cloudy than the summer months. This is due to the formation of extensive areas of stratiform cloud and fog during the colder months, when the structure of the lower layers of

the atmosphere favours the physical processes resulting in this type of cloud. Particularly strong seasonal variability of cloud cover exists in northern Australia where skies are clouded during the summer wet season and mainly cloudless during the winter dry season. Cloud coverage is greater near coasts and on the windward slopes of the eastern uplands of Australia and less over the dry interior.

## Fog

The formation of fog depends on the occurrence of favourable meteorological elements — mainly temperature, humidity, wind and cloud cover. The nature of the local terrain is important for the development of fog and there is a tendency for this phenomenon to persist in valleys and hollows. The incidence of fog may vary significantly over distances as short as one kilometre.

Fog in Australia tends to be more common in the south than the north, although parts of the east coastal areas are relatively fog-prone even in the tropics. Incidence is much greater in the colder months, particularly in the eastern uplands. Fog may persist during the day, but rarely until the afternoon over the interior. The highest fog incidence at a capital city is at Canberra which has an average of 47 days per year on which fog occurs, 29 of which are in the period May to August. Brisbane averages 20 days of fog per year. Darwin averages only two days per year, in the months of July and August.

## Winds

The mid-latitude anticyclones are the chief determinants of Australia's two main prevailing wind streams. In relation to the west-east axes of the anticyclones these streams are easterly to the north and westerly to the south. The cycles of development, motion and decay of low-pressure systems to the north and south of the anticyclones result in diversity of wind-flow patterns. Wind variations are greatest around the coasts where diurnal land and sea-breeze effects are important.

Orography affects the prevailing wind pattern in various ways, such as the channelling of winds through valleys, deflection by mountains and cold air drainage from highland areas. An example of this channelling is the high frequency of north-west winds at Hobart caused by the north-west to south-east orientation of the Derwent River Valley.

Perth is the windiest capital with an average wind speed of 15.6 km/h; Canberra is the least windy with an average wind speed of 5.4 km/h.

The highest wind speeds and wind gusts recorded in Australia have been associated with tropical cyclones. The highest recorded gust was 267 km/h at Learmonth, Western Australia on 22 March 1999 (occurring with Tropical Cyclone Vance); gusts reaching 200 km/h have been recorded on several occasions in northern Australia with cyclone visitations. The highest gusts recorded at Australian capitals were 217 km/h at Darwin and 156 km/h at Perth.

## Droughts

Drought, in general terms, refers to an acute deficit of water supply to meet a specified demand. The best single measure of water availability in Australia is rainfall, although parameters such as evaporation and soil moisture are significant, even dominant in some situations. Demands for water are very diverse, hence the actual declaration of drought conditions for an area will generally also depend on the effects of a naturally occurring water deficit on the principal local industries.

Since the 1860s there have been ten major Australian droughts. Some of these major droughts could be described as periods consisting of a series of dry spells of various lengths, overlapping in time and space, and totalling up to about a decade. The drought periods of 1895–1903 (the so-called 'Federation drought'), 1958–68, 1982–83 and 1991–95 were the most devastating in terms of their extent and effects on primary production. The latter drought resulted in a possible \$5b cost to Australia's economy, and \$590m in drought relief by the Commonwealth Government. The remaining major droughts occurred in 1864–66 (and 1868), 1880–86, 1888, 1911–16, 1918–20 and 1939–45.

In this same period, several droughts of lesser severity caused significant losses over large areas of some States. They occurred in 1922–23 and 1926–29, 1933–38, 1946–49, 1951–52, 1970–72, 1976 and 1997–2000.

South-eastern Australia (New South Wales, southern Queensland, Victoria, Tasmania and the settled parts of South Australia) contains about 75% of the nation's population, and droughts affecting this region have a markedly adverse impact on the economy. There have been nine severe droughts in south-eastern Australia since 1888, and these were encompassed within the major Australian droughts specified above, except for the severe drought in 1972. Drought definitions, and the area of coverage and length of droughts, together with related information, may be obtained from *Year Book Australia 1988*.

## Floods

Widespread flood rainfall may occur anywhere in Australia, but it has a higher incidence in the north and in the eastern coastal areas. It is most economically damaging along the shorter streams flowing from the eastern uplands eastward to the seaboard of Queensland and New South Wales. These flood rains are notably destructive in the more densely populated coastal river valleys of New South Wales — the Tweed, Richmond, Clarence, Macleay, Hunter and Nepean–Hawkesbury — all of which experience relatively frequent flooding.

Although chiefly caused by summer rains, they may occur in any season.

The great Fitzroy and Burdekin river basins of Queensland receive flood rains during the summer wet seasons. Much of the run-off due to heavy rain in north Queensland west of the eastern uplands flows southward through the normally dry channels of the network of rivers draining the interior lowlands into Lake Eyre. This widespread rain may cause floods over an extensive area, but it soon seeps away or evaporates, occasionally reaching the lake in quantity. The Condamine and other northern tributaries of the Darling also carry large volumes of water from flood rains south through western New South Wales to the Murray, and flooding occurs along their courses at times.

Flood rains occur at irregular intervals in the Murray–Murrumbidgee system of New South Wales and Victoria, the coastal streams of southern Victoria and the north coast streams of Tasmania.

## Water resources

Rainfall, or the lack of it, is the most important single factor determining land use and rural production in Australia. The scarcity of both surface and ground water resources, together with the low rates of precipitation which restrict agriculture (quite apart from economic factors), has led to extensive programs to regulate supplies by construction of dams, reservoirs, large tanks and other storages.

The major topographical feature affecting the rainfall and drainage patterns in Australia is the absence of high mountain barriers. Australia's topographical features encompass sloping

tablelands and uplands along the east coast Main Divide, the low plain and marked depression in the interior, and the Great Western Plateau.

Only one-third of the Australian land area drains directly to the ocean, mainly on the coastal side of the Main Divide and inland with the Murray–Darling system. With the exception of the latter, most rivers draining to the ocean are comparatively short, but account for the majority of the country's average annual discharge. Surface drainage is totally absent from some arid areas of low relief.

Australia's large area (just under 7.7 million square kilometres) and latitudinal range (3,680 kms) have resulted in climatic conditions ranging from alpine to tropical. Two-thirds of the continent are arid or semi-arid, although good rainfalls (over 800 mm annually) occur in the northern monsoonal belt under the influence of the Australian–Asian monsoon, and along the eastern and southern highland regions under the influence of the great atmospheric depressions of the Southern Ocean. The effectiveness of the rainfall is greatly reduced by marked alternation of wet and dry seasons, unreliability from year to year, high temperatures and high potential evaporation.

The availability of water resources controls, to a large degree, the possibility and density of settlement; this in turn influences the quality of the water through production and disposal of waste. Most early settlements were established on the basis of reliable surface water supplies and, as a result, Australia's population is concentrated along the coast, mainly in the comparatively fertile, well-watered east, south-east and far south-west.

As settlement spread into the dry inland grazing country, the value of reliable supplies of underground water was realised. Observations of the disappearance of large quantities of the rainfall precipitated on the coastal ranges of eastern Australia eventually led to the discovery of the Great Artesian Basin which has become a major asset to the pastoral industry. Development, however, has not been without costs. Significant environmental degradation and deterioration in water quality are becoming evident. Table 1.12 summarises Australia's major ground water resources.

### 1.12 AUSTRALIA'S MAJOR GROUND WATER RESOURCES, By State/Territory

State/Territory	Area of aquifers km <sup>2</sup>	Ground water resource						Abstraction during 1983–84
		Major divertible resource					Total	
		Fresh GL	Marginal GL	Brackish GL	Saline GL	Total GL	Abstraction during 1983–84	
New South Wales	595 900	881	564	431	304	2 180	242	
Victoria	103 700	469	294	69	30	862	146	
Queensland	1 174 800	1 760	683	255	144	2 840	962	
South Australia	486 100	102	647	375	86	1 210	504	
Western Australia	2 622 000	578	1 240	652	261	2 740	355	
Tasmania	7 240	47	69	8	—	124	5	
Northern Territory	236 700	994	3 380	43	10	4 420	2 238	
<b>Australia</b>	<b>5 226 440</b>	<b>4 831</b>	<b>6 877</b>	<b>1 833</b>	<b>835</b>	<b>14 376</b>	<b>2 238</b>	

Source: Australian Water Resources Council, 1987.

Permanent rivers and streams flow in only a small part of the continent. The average annual discharge of Australian rivers has been recently assessed at 387 thousand gigalitres, of which 100 thousand gigalitres are now estimated to be exploitable on a sustained yield basis. This is small in comparison with river flows on other continents.

In addition, there is a pronounced concentration of run-off in the summer months in northern Australia, while the southern part of the continent has a distinct, if somewhat less marked, winter maximum.

Even in areas of high rainfall, large variability in flow means that, for local regional development, most streams must be regulated by surface

storage. However, in many areas evaporation is so great that storage costs are high in terms of yield. Extreme floods also add greatly to the cost of water storage, because of the need for adequate spillway capacity.

Table 1.13 provides a broad comparison of rainfall and run-off by continent. Map 1.14 shows the location of Australia's Drainage Divisions, and table 1.15 summarises Australia's surface water resources by Drainage Division. The Drainage Division with the highest intensity of run-off is Tasmania with 13% of the total from only 0.8% of the area. Conversely, the vast area of the Western Plateau (2,450,000 square kilometres, approximately 32% of Australia) has no significant run-off at all.

### 1.13 RAINFALL AND RUN-OFF OF THE CONTINENTS

Continent	Area km <sup>2</sup>	Average yearly rainfall		Run-off mm	Run-off %	Run-off km <sup>3</sup>
		mm	mm			
Africa	30 300 000	690	260	38	7 900	
Asia	45 000 000	600	290	48	13 000	
Australia	7 700 000	465	57	12	440	
Europe	9 800 000	640	250	39	2 500	
North America	20 700 000	660	340	52	6 900	
South America	17 800 000	1 630	930	57	16 700	

Source: Department of Resources and Energy, 1983.

## 1.14 LOCATION OF DRAINAGE DIVISIONS



Source: Australian Water Resources Council, 1987.

## 1.15 SURFACE WATER RESOURCES, By Drainage Division

Drainage division	Area km <sup>2</sup>	Mean annual run-off GL	Per cent mean annual run-off %	Mean annual outflow GL	Volume diverted GL
North-East Coast	451 000	73 411	19.0	n.a.	3 182
South-East Coast(a)	274 000	42 390	10.9	40 591	1 825
Tasmania(b)	68 200	45 582	11.8	45 336	451
Murray-Darling(a)	1 060 000	23 850	6.2	5 750	12 051
South Australian Gulf(c)	82 300	952	0.2	797	144
South-West Coast	315 000	6 785	1.8	5 925	373
Indian Ocean	519 000	4 609	1.2	3 481	12
Timor Sea	547 000	83 320	21.5	81 461	48
Gulf of Carpentaria	641 000	95 615	24.7	14 748	52
Lake Eyre	1 170 000	8 638	2.2	n.a.	7
Bulloo-Bancannia	101 000	546	0.1	—	<1
Western Plateau	2 450 000	1 486	0.4	n.a.	1
<b>Total</b>	<b>(d) 7 680 000</b>	<b>387 184</b>	<b>100.0</b>	<b>..</b>	<b>18 147</b>

(a) South-East Coast and Murray-Darling Division. The volume diverted represents the sum of available data (New South Wales has not reported water use for unregulated surface water management areas). (b) Tasmanian Division. Volume diverted does not include the HYDRO scheme diversions. (c) South Australian Gulf Division. Mean annual outflow includes the flow from surface water management areas Willochra Creek and Lake Torrens, which do not flow to the sea but flow into the terminal lake, Lake Torrens. (d) Total area differs slightly from that in table 1.1, due to improvements in mapping reflected in that table, but not in this table.

Source: National Land and Water Resources Audit, 2000.

To summarise, the mean annual run-off across Australia is 387 thousand gigalitres. The portion of run-off able to be diverted for use is very low compared to that in other continents, and results from the high variability of stream flow, high rates of evaporation and the lack of storage sites on many catchments. On an Australia-wide basis, only about a quarter of the divertible resource has currently been developed for use; much of the remaining resource is available in remote regions where development is impractical and uneconomic. In areas such as the Murray–Darling Division, where water is scarce, there are few resources not yet developed, and management is focusing on greater efficiency in water use.

Water resources are assessed within a framework comprising four levels:

- the *total* water resource is the volume of water present in the environment, measured as mean annual run-off for surface water, and mean annual recharge for ground water;
- the *divertible* resource is the portion of run-off and recharge which can be developed for use;
- the *developed* resource is the portion of the divertible resource which has been developed for use; and
- resource *utilisation* is a measure of the portion of the developed resource which is actually used.

Emphasis is given to the second level of assessment, the divertible resource, as the prime measure of the resource. The divertible resource is defined as the average annual volume of water which, using current technology, could be removed from developed or potential surface water or ground water sources on a sustained basis, without causing adverse effects or long-term depletion of storages.

Australia's water resources are managed by a large number of resource management agencies, irrigation authorities, metropolitan water boards, local government councils and private individuals. State authorities dominate the assessment and control of water resources as, under the Commonwealth Constitution, primary responsibility for management of water rests with the individual State Governments. The Commonwealth Government is responsible for matters relating to the Territories, and participates indirectly through financial assistance or directly in the coordination or operation of interstate projects through bodies such as the Murray–Darling Basin Commission.

A description of the management, main storage and use of water resources across the States and Territories is contained in the chapter *Water resources* in the 1994 and earlier editions of Year Book Australia.

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Bureau of Meteorology, <http://www.bom.gov.au>

Bureau of Rural Sciences, <http://www.affa.gov.au/outputs/ruralscience.html>

Department of Natural Resources and Environment, Victoria, <http://www.nre.vic.gov.au>

Department of Primary Industries, Water and Environment, Tasmania, <http://www.dpiwe.tas.gov.au>

NSW Department of Land and Water Conservation, <http://www.dlwc.nsw.gov.au>

National Land and Water Resources Audit, <http://www.nlwra.gov.au>

Queensland Department of Natural Resources, <http://www.dnr.qld.gov.au/longpdk>

South Australia Department of Primary Industry and Resources, <http://www.pir.sa.gov.au>

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Water and Rivers Commission, Western Australia, <http://www.wrc.wa.gov.au>

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## Introduction

Australia has a federal system of government within which there are four divisions: Commonwealth, State, Territory and local government.

This chapter outlines the basic features of the Australian system of government, including:

- the constitutional basis of government;
- the Sovereign;
- the Governor-General;
- the Commonwealth Parliament;
- the Commonwealth Government;
- the Australian Public Service;
- Commonwealth elections;
- State government;
- Territory government — self-governing;
- Territory government — non-self-governing;
- local government; and
- the party system.

It also provides details of the Commonwealth Ministry, and of the State and Territory political leaders.

## The constitutional basis of government

Australia is a constitutional democracy based on a federal division of powers. The constitutional basis of government consists of:

- the Commonwealth Constitution, including amendments made to that Constitution;
- legislation passed by the Commonwealth, State and Territory Parliaments;
- High Court judgments;
- State and Territory Constitutions, including amendments; and
- Significant conventions of responsible government adopted from the system of government in use in the UK (the 'Westminster' system) that are in use at both the Commonwealth and State levels of government.

## Commonwealth Constitution

The national constitution is found in the *Commonwealth of Australia Constitution Act 1900* (UK), a British Act that became law in July 1900 and came into force on 1 January 1901.

Amendment of the written Commonwealth Constitution is by Act of Parliament followed by public referendum. Any proposed law for the alteration of the Constitution must be passed by an absolute majority of each House of Parliament (except in circumstances specified in Section 128 of the Constitution which permits a referendum to proceed if passed by only one chamber). It must also be submitted to a referendum of the electors in each State and Territory. An amendment must be approved by a majority of the voters in a majority of the States and by a majority of all voters.

Since 1901, 44 proposals have been submitted to referenda. The consent of the electors has been given in regard to eight matters:

- the election of Senators (1906);
- State debts (1910 and 1928);
- social services (1946);
- Aboriginal people (1967); and
- Senate casual vacancies, retirement age for federal judges, and the right of Territory electors to vote in constitutional referenda (all 1977).

On 6 November 1999 a vote to establish Australia as a republic was put to a national referendum. The proposal was defeated, with 54.9% of electors voting against it.

Each State and Territory has its own Constitution found in legislation. Where a law of a State is inconsistent with a law of the Commonwealth, the latter law prevails and the former law is, to the extent of the inconsistency, invalid (for State and Territory government, see later sections).

## The Sovereign

Since 7 February 1952, the Australian Sovereign has been Queen Elizabeth the Second.

## The Governor-General

The Governor-General is the representative of the Sovereign, appointed by the Sovereign on the advice of the Australian Prime Minister.

## Powers and functions

The Governor-General exercises the executive power of the Commonwealth of Australia on the advice of the Prime Minister. Certain other powers and functions conferred by the Constitution include the powers to:

- appoint times for holding the sessions of the Parliament;
- prorogue Parliament;
- dissolve the House of Representatives;
- cause writs to be issued for general elections of members of the House of Representatives;
- assent in the Queen's name to a proposed law passed by both houses of the Parliament;
- choose and summon Executive Councillors, who hold office during the Governor-General's pleasure; and
- appoint Ministers of State for the Commonwealth of Australia.

In addition, the Governor-General, as the Queen's representative, is Commander-in-Chief of the Defence Forces. Many Acts of the Commonwealth Parliament provide that the Governor-General may make regulations to give effect to such Acts. The Governor-General may also be authorised by statute to issue proclamations, for example, to declare an Act in force. The Governor-General has been given power by statute to legislate for certain of the Australian Territories.

The Governor-General also has what are referred to as 'reserve powers'. These may be used without the advice of the Prime Minister, but are used only in times of political uncertainty.

## Holders of office

The present Governor-General is His Excellency the Right Reverend Dr Peter John Hollingworth, AO, OBE.

Those persons who have held the office of Governor-General from the inception of the Commonwealth of Australia until 1988 are pictured in *Year Book Australia 1988*. Pictures of all holders of the office can be found in the *Government* section of *Australia Now* on the ABS Internet site, <http://www.abs.gov.au>.

## The Commonwealth Parliament

Commonwealth legislative power is vested in the Commonwealth Parliament, comprising the House of Representatives (150 members) and the Senate (76 members).

### The powers of Parliament

Apart from the constitutional requirement that all financial legislation must originate in the House of Representatives, and that the Senate cannot amend such legislation, the two houses have similar powers. The fact that the Senate can reject financial legislation makes it one of the most powerful upper houses in the world.

Australia having a federal system means that the powers of the Commonwealth Parliament are limited to areas of national importance. Among the powers granted by the Constitution are trade and commerce, taxation, postal services, foreign relations, defence, immigration, naturalisation, quarantine, currency and coinage, weights and measures, copyright, patents and trade marks. High Court decisions and Commonwealth-State agreements have seen the Commonwealth gain influence in regard to various matters including industrial relations, financial regulation, companies and securities, health and welfare, and education.

### The functions of Parliament

Parliament has five primary functions:

- to provide for the formation of a government;
- to make the law;
- to provide a forum for popular representation;
- to scrutinise the actions of government; and
- to provide a forum for the alternative government.

The *formation of a government* is the most important outcome of a general election. Either the government is returned, by virtue of retaining a majority of seats in the House of Representatives, or the opposition party or coalition of parties wins a majority of seats, resulting in the formation of a new government. The Prime Minister always sits in the House of Representatives.

The Hon. J. W. Howard, MP (Liberal Party of Australia) has been Prime Minister since 1996.

More than half of Parliament's time is taken up with the *consideration of proposed legislation*. Between 150 and 250 bills are passed each year. Most bills are not contentious, either being 'machinery' legislation necessary for the orderly processes of government, or bills that propose alterations to existing legislation. Most of the bills are government bills; private members' legislation is rare.

The *representation of the people* is an important role of Members of the House of Representatives and Senators. Looking after their constituents occupies a great deal of their time. The relative importance of this role may be judged by the high proportion of time spent by MPs in their electorates and away from Parliament. During the 1990s the Parliament averaged 64 sitting days per year.

The *scrutiny* function is seen most obviously in the formal periods of Question Time, in both houses, that are a part of each day's sitting. Question Time is the best-known part of parliamentary proceedings, and is attended by many of the visiting public. Less well-known is the activity of a range of parliamentary committees which are established in order that Parliament's legislative, inquiry and scrutiny functions can be carried out more thoroughly and with the benefit of expert advice. These committees undertake the scrutiny of government operations as well as frequent inquiries into a range of current issues.

In Westminster system governments, such as Australia's, the Opposition has a recognised and formal status, being recognised in the Standing Orders of the Parliament and in legislation. The Opposition is seen as the *alternative government* and typically forms a 'shadow Cabinet' of MPs who prepare themselves to take on the reins of government. The Opposition also has the role of acting as the main critic of the government and of offering to the community an alternative set of policies.

In November 2001 the Hon. S.F. Crean, MP (Australian Labor Party) became Leader of the Opposition.

## The Commonwealth Government

### Prime Minister

After an election, the Governor-General sends for the leader of the party, or coalition, which has secured a majority in the House of Representatives, and commissions that person to assume the office of Prime Minister and to form a government. The incoming Prime Minister then goes about the

process of finding members of his or her parliamentary party or coalition to serve as Ministers in the Government.

The office of Prime Minister is not recognised by the formal Constitution, being a conventional part of the constitutional arrangements.

The Prime Minister has the following powers:

- nomination of the Governor-General;
- is the sole source of formal advice for Governor-General;
- advises the Governor-General when Parliament should be dissolved;
- has responsibility for setting the date for House of Representatives elections;
- allocates positions in the Cabinet; and
- is chairperson of Cabinet.

### Ministers

It is customary for all Ministers to be Members of Parliament, and if a Minister is not, it is obligatory for that Minister to become an MP within three months of his/her appointment. Reshuffles of the Ministry may occur at any time between elections. Ministers are invariably members of the same party or coalition as the Prime Minister.

The 55 Commonwealth Ministries since Federation are listed in table 2.1.

In most cases, new governments are formed after general elections have been held to determine the composition of the House. A new government could also be formed on any occasion between elections if the majority party changes its leader, or loses its majority (e.g. as a result of a by-election), or is defeated in an important vote in the House.

### Cabinet

In practice, Government policy is determined by the most senior Ministers meeting in a body known as Cabinet. Such meetings are chaired by the Prime Minister. The Governor-General does not attend such meetings. Cabinet is not a body that is recognised by the formal Constitution, being a conventional part of the constitutional arrangements. Despite this, Cabinet effectively controls not only the legislative programme, but also the Departments of State. In effect, therefore, Cabinet is the dominant political and administrative element in Australia's national government.

Ministers not included in Cabinet are referred to collectively as the Outer Ministry.

Particulars of the Second Howard Ministry, comprising Cabinet Ministers and the Outer Ministry, are shown in table 2.2.

## 2.1 COMMONWEALTH MINISTRIES SINCE 1901(a)

	Ministry	Period of office	Party
1.	Barton	1 January 1901 to 24 September 1903	PROTECTIONIST
2.	Deakin	24 September 1903 to 27 April 1904	PROTECTIONIST
3.	Watson	27 April 1904 to 17 August 1904	ALP
4.	Reid-McLean	18 August 1904 to 5 July 1905	FREE TRADE-PROTECTIONIST
5.	Deakin	5 July 1905 to 13 November 1908	PROTECTIONIST
6.	Fisher	13 November 1908 to 2 June 1909	ALP
7.	Deakin	2 June 1909 to 29 April 1910	PROTECTIONIST-FREE TRADE-TARIFF REFORM
8.	Fisher	29 April 1910 to 24 June 1913	ALP
9.	Cook	24 June 1913 to 17 September 1914	LIB
10.	Fisher	17 September 1914 to 27 October 1915	ALP
11.	Hughes	27 October 1915 to 14 November 1916	ALP
12.	Hughes	14 November 1916 to 17 February 1917	NATIONALIST LABOUR
13.	Hughes	17 February 1917 to 8 January 1918	NATIONALIST
14.	Hughes	10 January 1918 to 9 February 1923	NATIONALIST
15.	Bruce-Page	9 February 1923 to 22 October 1929	NATIONALIST-CP
16.	Sculpin	22 October 1929 to 6 January 1932	ALP
17.	Lyons	6 January 1932 to 7 November 1938	UAP
18.	Lyons	7 November 1938 to 7 April 1939	UAP
19.	Page	7 April 1939 to 26 April 1939	CP-UAP
20.	Menzies	26 April 1939 to 14 March 1940	UAP
21.	Menzies	14 March 1940 to 28 October 1940	UAP-CP
22.	Menzies	28 October 1940 to 29 August 1941	UAP-CP
23.	Fadden	29 August 1941 to 7 October 1941	CP-UAP
24.	Curtin	7 October 1941 to 21 September 1943	ALP
25.	Curtin	21 September 1943 to 6 July 1945	ALP
26.	Forde	6 July 1945 to 13 July 1945	ALP
27.	Chifley	13 July 1945 to 1 November 1946	ALP
28.	Chifley	1 November 1946 to 19 December 1949	ALP
29.	Menzies	19 December 1949 to 11 May 1951	LIB-CP
30.	Menzies	11 May 1951 to 11 January 1956	LIB-CP
31.	Menzies	11 January 1956 to 10 December 1958	LIB-CP
32.	Menzies	10 December 1958 to 18 December 1963	LIB-CP
33.	Menzies	18 December 1963 to 26 January 1966	LIB-CP
34.	Holt	26 January 1966 to 14 December 1966	LIB-CP
35.	Holt	14 December 1966 to 19 December 1967	LIB-CP
36.	McEwen	19 December 1967 to 10 January 1968	LIB-CP
37.	Gorton	10 January 1968 to 28 February 1968	LIB-CP
38.	Gorton	28 February 1968 to 12 November 1969	LIB-CP
39.	Gorton	12 November 1969 to 10 March 1971	LIB-CP
40.	McMahon	10 March 1971 to 5 December 1972	LIB-CP
41.	Whitlam	5 December 1972 to 19 December 1972	ALP
42.	Whitlam	19 December 1972 to 11 November 1975	ALP
43.	Fraser	11 November 1975 to 22 December 1975	LIB-CP
44.	Fraser	22 December 1975 to 20 December 1977	LIB-CP
45.	Fraser	20 December 1977 to 3 November 1980	LIB-CP
46.	Fraser	3 November 1980 to 7 May 1982	LIB-CP
47.	Fraser	7 May 1982 to 11 March 1983	LIB-CP
48.	Hawke	11 March 1983 to 13 December 1984	ALP
49.	Hawke	13 December 1984 to 24 July 1987	ALP
50.	Hawke	24 July 1987 to 4 April 1990	ALP
51.	Hawke	4 April 1990 to 20 December 1991	ALP
52.	Keating	20 December 1991 to 24 March 1993	ALP
53.	Keating	24 March 1993 to 11 March 1996	ALP
54.	Howard	11 March 1996 to 21 October 1998	LIB-NPA
55.	Howard	21 October 1998	LIB-NPA

(a) Up to November 2001. At the election on 10 November 2001 the Liberal-National Party coalition was returned to office.

Source: Department of the Parliamentary Library.

**2.2 SECOND HOWARD MINISTRY — At October 2001**

CABINET MINISTERS	
Prime Minister	The Hon. J. W. Howard, MP
Minister for Transport and Regional Services and Deputy Prime Minister	The Hon. J. D. Anderson, MP
Treasurer	The Hon. P. H. Costello, MP
Minister for Trade	The Hon. M. A. Vaile, MP
Minister for the Environment and Heritage and Leader of the Government in the Senate	Senator the Hon. R. M. Hill
Minister for Communications, Information Technology & the Arts, & Deputy Leader of the Government in the Senate	Senator the Hon. R. K. R. Alston
Minister for Defence, and Leader of the House	The Hon. P. K. Reith, MP
Minister for Foreign Affairs	The Hon. A. J. G. Downer, MP
Minister for Health and Aged Care	The Hon. M. R. L. Wooldridge, MP
Minister for Finance and Administration	The Hon. J. J. Fahey, MP
Minister for Education, Training and Youth Affairs and Minister Assisting the Prime Minister for the Public Service	The Hon. Dr D. A. Kemp, MP
Minister for Industry, Science and Resources	The Hon. N. H. Minchin, MP
Attorney-General	The Hon. D. R. Williams, AM, QC, MP
Minister for Immigration and Multicultural Affairs and Minister Assisting the Prime Minister for Reconciliation	The Hon. P. M. Ruddock, MP
Minister for Agriculture, Fisheries and Forestry	The Hon. W. E. Truss, MP
Minister for Family and Community Services and Minister Assisting the Prime Minister for the Status of Women	Senator the Hon. A. E. Vanstone
Minister for Employment, Workplace Relations and Small Business	The Hon. A. J. Abbott, MP
OUTER MINISTRY	
Minister for Forestry and Conservation, and Minister Assisting the Prime Minister	The Hon. C. W. Tuckey, MP
Minister for Regional Services, Territories and Local Government	Senator the Hon. I. D. Macdonald
Assistant Treasurer	Senator the Hon. C. R. Kemp
Minister for Financial Services and Regulation	The Hon. J. B. Hockey, MP
Minister for the Arts and the Centenary of Federation, and Deputy Leader of the House	The Hon. P. J. McGauran, MP
Minister for Veterans' Affairs and Minister Assisting the Minister for Defence	The Hon. B. C. Scott, MP
Minister for Aged Care	The Hon. B. K. Bishop, MP
Special Minister of State	Senator the Hon. E. Abetz
Minister for Sport and Tourism	The Hon. J. M. Kelly, MP
Minister for Justice and Customs	Senator the Hon. C. M. Ellison
Minister for Community Services	The Hon. L. J. Anthony, MP
Minister for Employment Services	The Hon. M.T. Brough, MP
Minister for Small Business	The Hon. I. E. Macfarlane, MP
Parliamentary Secretary to the Cabinet	Senator the Hon. W. D. Heffernan
Parliamentary Secretary to the Minister for Transport and Regional Services	Senator the Hon. R. L. D. Boswell
Parliamentary Secretary to the Minister for Foreign Affairs, and Parliamentary Secretary to the Minister for Immigration and Multicultural Affairs	Senator the Hon. K. C. L. Patterson
Parliamentary Secretary to the Minister for the Environment and Heritage	The Hon. Dr S. N. Stone, MP
Parliamentary Secretary to the Minister for Communications, Information Technology and the Arts, and Manager of Government Business in the Senate	Senator the Hon. I. G. Campbell
Parliamentary Secretary to the Minister for Defence	The Hon. Dr B. J. Nelson, MP
Parliamentary Secretary to the Minister for Health and Aged Care	Senator the Hon. G. E. J. Tambling
Parliamentary Secretary to the Minister for Finance and Administration	The Hon. P. N. Slipper, MP
Parliamentary Secretary to the Minister for Education, Training and Youth Affairs	The Hon. P. M. Worth, MP
Parliamentary Secretary to the Minister for Industry, Science and Resources	Mr W. G. Entsch, MP
Parliamentary Secretary to the Minister for Reconciliation and Aboriginal and Torres Strait Islander Affairs	The Hon. C. A. Gallus, MP
Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry	Senator the Hon. J. M. Troeth

Source: Department of the Parliamentary Library.

## The Australian Public Service

The Australian Public Service provides policy advice to the Commonwealth Government and facilitates the delivery of programs to the community. The Australian Public Service is part of the broader public sector, which includes parliamentary staff, statutory authorities, a separate public service for each of the States and Territories and local government employees. As at February 2001, some 1,427,500 Australians, 15.7% of the employed work force, worked in the public sector.

There are currently eighteen departments in the Australian Public Service. Each department is managed by a chief executive officer, or Secretary, who is responsible to the relevant Minister for the efficient, effective and ethical use of resources. The Minister, in turn, takes political responsibility for the actions of the department. Each department administers particular legislation that is specified in Administrative Arrangements. The management of financial and human resources is governed by legislation such as the *Financial Management and Accountability Act 1997* and the *Public Service Act 1999*. Public servants are required to uphold the values and standards of behaviour specified in the *Public Service Act 1999*. These include responsiveness to the Government, high ethical standards, accountability, impartiality, merit in employment, integrity, courtesy, lawfulness, confidentiality and the proper use of resources. As well as answering to the relevant Minister, the Australian Public Service is accountable to the Australian community through a variety of mechanisms including parliamentary committees, administrative law, the Ombudsman and the Auditor-General.

Over the last two decades, the Australian Public Service has undergone substantial change, both in its internal management processes and in its methods of service delivery. Examples of management changes include the introduction of accrual budgeting in the 1999–2000 Budget, an emphasis on reaching performance targets, the costing of government ‘outputs’, the imposition of capital use charges, the devolution of responsibility to departments and more flexible

employment practices. Examples of changes to service delivery include the trend towards providing information and other services on the Internet, increased contracting of service delivery to the private sector and the establishment of customer service charters.

Public resources are harnessed by the public sector to give practical effect to government policies. Traditionally, this process has been known as public administration. Increasingly, it is known as public management, reflecting the growing expectation that public sector managers will take responsibility for achieving results, as well as the increasing emphasis on efficiency.

## Commonwealth elections

### Franchise

Any Australian citizen 18 and over, or British subject who was on the Commonwealth Roll as at 25 January 1984, is qualified to enrol and vote at Commonwealth elections. Residence in an electorate for a period of one month before enrolment is necessary to enable a qualified person to enrol. Enrolment and attendance at a polling place on polling day (except under certain lawful exceptions) are compulsory for all eligible persons.

### Parliamentary terms

Members of the House of Representatives are elected for a maximum term of three years, though elections may be called earlier. Senators have fixed terms of six years. Normally half the Senate retires every three years, and elections for the Senate are usually held at the same time as elections for the House of Representatives, though they need not be.

At times of disagreement between the House of Representatives and the Senate, both houses may be dissolved and an election called for both houses. Six of the forty Commonwealth elections have been double dissolution elections.

Table 2.3 shows the number and terms of all parliaments since Federation.

### 2.3 COMMONWEALTH PARLIAMENTS(a)

Number of Parliament	Date of opening	Date of dissolution
First	9 May 1901	23 November 1903
Second	2 March 1904	5 November 1906
Third	20 February 1907	19 February 1910
Fourth	1 July 1910	23 April 1913
Fifth	9 July 1913	30 July 1914(b)
Sixth	8 October 1914	26 March 1917
Seventh	14 June 1917	3 November 1919
Eighth	26 February 1920	6 November 1922
Ninth	28 February 1923	3 October 1925
Tenth	13 January 1926	9 October 1928
Eleventh	6 February 1929	16 September 1929
Twelfth	20 November 1929	27 November 1931
Thirteenth	17 February 1932	7 August 1934
Fourteenth	23 October 1934	21 September 1937
Fifteenth	30 November 1937	27 August 1940
Sixteenth	20 November 1940	7 July 1943
Seventeenth	23 September 1943	16 August 1946
Eighteenth	6 November 1946	1 October 1949
Nineteenth	22 February 1950	19 March 1951(b)
Twentieth	12 June 1951	21 April 1954
Twenty-first	4 August 1954	4 November 1955
Twenty-second	15 February 1956	14 October 1958
Twenty-third	17 February 1959	2 November 1961
Twenty-fourth	20 February 1962	1 November 1963
Twenty-fifth	25 February 1964	31 October 1966
Twenty-sixth	21 February 1967	29 September 1969
Twenty-seventh	25 November 1969	2 November 1972
Twenty-eighth	27 February 1973	11 April 1974(b)
Twenty-ninth	9 July 1974	11 November 1975(b)
Thirtieth	17 February 1976	8 November 1977
Thirty-first	21 February 1978	19 September 1980
Thirty-second	25 November 1980	4 February 1983(b)
Thirty-third	21 April 1983	26 October 1984
Thirty-fourth	21 February 1985	5 June 1987(b)
Thirty-fifth	14 September 1987	19 February 1990
Thirty-sixth	8 May 1990	8 February 1993
Thirty-seventh	4 May 1993	29 January 1996
Thirty-eighth	30 April 1996	31 August 1998
Thirty-ninth	10 November 1998	8 October 2001(a)

(a) As at October 2001. Parliament was dissolved on 8 October 2001 and an election called for 10 November 2001, for the House of Representatives and half the Senate. At that election the Liberal-National Party coalition was returned to office.

(b) A dissolution of both the Senate and the House of Representatives.

Source: Department of the Parliamentary Library.

## Electorates

For the purpose of House of Representatives elections each State or Territory is divided into single-member electorates corresponding in number to the number of members to which the State or Territory is entitled. In Senate elections the whole State or Territory constitutes a single electorate.

Redistributions of House of Representatives electorates must be held at least every seven years. A redistribution must take into account current and projected enrolments, community of economic, social and regional interests, means of communication and travel, physical features and area, and existing electorate

boundaries. Within each State and Territory the electorates must, as far as possible, be equal in numbers of electors. There is usually a variation in size of electorates from one State or Territory to another.

The Electoral Commissioner determines the representation entitlements of the States and Territories during the thirteenth month after the first meeting of a new House of Representatives. Determinations are based on the latest population statistics as provided by the Australian Statistician. The representation entitlements of the States and Territories at the 1999 determination are shown in table 2.4, which also shows the total size of the House of Representatives at the time of the next

election. Tasmania has a constitutional entitlement to five members of the House of Representatives based on it being a State at the time of Federation in 1901. The Australian Capital Territory and the Northern Territory have gained representation since 1901, and current legislation provides a minimum representation of one member of the House of Representatives for each.

#### 2.4 REPRESENTATION ENTITLEMENTS(a)

State/Territory	no.	Seats
New South Wales	50	
Victoria	37	
Queensland	27	
Western Australia	15	
South Australia	12	
Tasmania	5	
Australian Capital Territory	2	
Northern Territory	2	
<b>Total</b>	<b>150</b>	

(a) 1999 Determination.

Source: Department of the Parliamentary Library.

#### 1998 election

First preference votes cast for the major political parties in each State and Territory at the 1998 election for each House of the Commonwealth Parliament are shown in table 2.5.

Parliament was dissolved on 8 October 2001 and an election called for 10 November 2001, for the House of Representatives and half the Senate. At that election the Liberal-National Party coalition was returned to office. The final tally of votes recorded was not available at time of printing of this edition of Year Book Australia. It will be included in the next edition.

The numbers of electors enrolled for the 1998 election are shown in table 2.6.

The state of the parties in the Commonwealth Parliament at October 2001 is shown in table 2.7.

#### 2.5 COMMONWEALTH PARLIAMENTARY ELECTIONS, Votes Recorded — 3 October 1998

	HOUSE OF REPRESENTATIVES				
	NSW	Vic.	Qld	SA	
First preference votes					
Australian Labor Party	1 489 021	1 261 289	719 743	319 267	
Liberal Party	1 131 545	1 053 990	615 153	389 382	
National Party	293 126	77 385	199 185	4 796	
Country Liberal Party	—	—	—	—	
Pauline Hanson's One Nation	332 510	105 798	285 983	90 773	
Australian Democrats	154 496	171 091	80 003	93 905	
The Greens	98 647	59 383	47 440	4 576	
Unity — Say No to Hanson	57 666	29 265	—	—	
Christian Democratic Party	38 023	3 793	11 243	3 521	
Others	116 110	80 687	34 625	19 771	
Formal votes	3 711 144	2 842 682	1 993 375	925 991	
Informal votes	1 554 859	103 524	68 659	44 074	
<i>Total votes recorded</i>	<i>3 866 003</i>	<i>2 946 205</i>	<i>2 062 034</i>	<i>970 065</i>	
	WA	Tas.	NT	ACT	Aust.
First preference votes					
Australian Labor Party	377 545	150 384	38 469	98 588	4 454 306
Liberal Party	397 836	117 377	—	59 424	3 764 707
National Party	13 596	—	—	—	588 088
Country Liberal Party	—	—	36 014	—	36 014
Pauline Hanson's One Nation	96 708	7 553	7 401	9 895	936 621
Australian Democrats	41 364	10 024	4 658	14 394	569 935
The Greens	52 674	17 091	2 753	8 145	290 709
Unity — Say No to Hanson	321	—	—	—	87 252
Christian Democratic Party	8 336	—	—	—	64 916
Others	54 395	5 048	1 642	4 237	316 515
Formal votes	1 042 775	307 477	90 937	194 683	1 109 063
Informal votes	45 509	9 819	3 951	5 743	436 138
<i>Total votes recorded</i>	<i>1 088 284</i>	<i>317 296</i>	<i>94 888</i>	<i>200 426</i>	<i>11 545 201</i>

...continued

**2.5 COMMONWEALTH PARLIAMENTARY ELECTIONS, Votes Recorded — 3 October 1998 — *continued***

	SENATE			
	NSW	Vic.	Qld	SA
First preference votes				
Australian Labor Party	1 452 560	1 153 100	654 623	303 299
Liberal-National Party	1 375 563	1 076 844	—	—
Liberal Party	—	—	570 692	383 637
National Party	—	—	190 662	4 445
Country Liberal Party	—	—	—	—
Pauline Hanson's One Nation	361 009	117 048	297 245	91 910
Australian Democrats	275 910	279 806	156 451	117 619
The Greens	81 612	70 872	42 264	20 895
Christian Democratic Party	58 079	13 881	28 826	9 598
Unity — Say No to Hanson	61 607	20 603	9 487	—
Senator Harradine Group	—	—	—	—
Others	89 385	111 006	53 460	15 413
Formal vote	3 755 725	2 843 160	2 003 710	946 816
Informal votes	128 596	111 686	62 859	27 424
Total votes recorded	3 884 321	2 954 846	2 066 569	974 240
	WA	Tas.	NT	ACT
				Aust.
First preference votes				
Australian Labor Party	368 878	128 377	38 259	83 867
Liberal-National Party	—	—	—	2 452 407
Liberal Party	408 748	104 268	—	61 385
National Party	13 429	—	—	208 536
Country Liberal Party	—	—	36 063	—
Pauline Hanson's One Nation	110 294	11 655	8 657	9 621
Australian Democrats	68 095	12 107	5 119	32 833
The Greens	61 063	17 905	4 232	6 385
Christian Democratic Party	10 264	945	—	923
Unity — Say No to Hanson	2 271	—	—	93 968
Senator Harradine Group	—	24 254	—	—
Other	21 036	8 866	672	2 021
Formal votes	1 064 078	308 377	93 002	197 035
Informal votes	29 354	9 704	1 887	3 952
Total votes recorded	1 093 432	318 081	94 889	200 987
11 587 365				

Source: Department of the Parliamentary Library.

**2.6 COMMONWEALTH PARLIAMENTARY ELECTIONS, Electors Enrolled — 3 October 1998**

State/Territory	no.
New South Wales	4 076 081
Victoria	3 081 632
Queensland	2 188 024
South Australia	1 013 989
Western Australia	1 149 619
Tasmania	330 121
Northern Territory	105 048
Australian Capital Territory	209 536
Australia	12 154 050

Source: Department of the Parliamentary Library.

**2.7 STATE OF THE PARTIES, Commonwealth Parliament — October 2001**

	no.
House of Representatives	
Australian Labor Party	67
Liberal Party	63
National Party	15
Independent	3
<i>Total</i>	148
Senate	
Australian Labor Party	29
Liberal Party	31
National Party	3
Country Liberal Party	1
Australian Democrats	9
Greens	1
Pauline Hanson's One Nation	1
Independent	1
<i>Total</i>	76

Source: Department of the Parliamentary Library.

## State government

Each State experienced a period of colonial self-government prior to the achievement of Federation. The fact of Australia having a federal system of government means that significant powers are held by the State and Territory Governments.

### State Governors

The Governor is the representative of the Sovereign, appointed by the Sovereign on the advice of the relevant State Premier. The Governor exercises the executive power of his or her State on the advice of the Premier. Other powers and functions are similar to the powers exercised at the Commonwealth level by the Governor-General.

In addition, Governors have been invested with various statutory functions by State Constitutions and the *Commonwealth Australia Act 1986*, as well as under the Acts of the Parliaments of the States. Governors may administer the prerogative of mercy by the reprieve or pardon of criminal offenders, and may remit fines and penalties due to the Crown in right of their State.

In the performance of his/her functions generally, the Governor of a State acts on the advice of Ministers of State for that State.

The Governor also has what are referred to as 'reserve powers'. These may be used without the advice of the Premier, but are used only in times of political uncertainty.

### 2.8 GOVERNORS OF THE STATES — November 2001

State	Governor
New South Wales	Her Excellency the Professor Marie Bashir, AC
Victoria	His Excellency the Honourable John Landy, AC, MBE
Queensland	His Excellency Major-General Peter Arnison, AO
Western Australia	His Excellency Lieutenant-General John Murray Sanderson, AC, AM
South Australia	Her Excellency Mrs Marjorie Jackson Nelson, AC, MBE
Tasmania	His Excellency the Honourable Sir Guy Green, AC, KBE

Source: Department of the Parliamentary Library.

### 2.9 PREMIERS, States — November 2001

State	Premier
New South Wales	The Hon. R. J. Carr, MP (ALP)
Victoria	The Hon. S. P. Bracks, MP (ALP)
Queensland	The Hon. P. Beattie, MP (ALP)
Western Australia	The Hon. R. Court, MP (LP)
South Australia	The Hon. R. G. Kerin, MP (LP)
Tasmania	The Hon. J. A. Bacon, MP (ALP)

Source: Department of the Parliamentary Library.

The Governors of the States at November 2001 are shown in table 2.8.

## State Governments

Each State is governed by a Ministry headed by a Premier. The State Cabinet, chaired by the Premier, is the centre of political and administrative power in each State.

Each State has a formal Opposition, with the same role as at the Commonwealth level, headed by an Opposition Leader.

Tables 2.9 and 2.10 set out the State Premiers and Opposition Leaders at November 2001.

### State Parliaments

Five of the six Australian States have a bicameral Parliament. In Queensland there is a single house. The lower houses in New South Wales, Victoria, Queensland and Western Australia are entitled Legislative Assembly. In South Australia and Tasmania the term is House of Assembly. The title of all upper houses is Legislative Council.

The members of the Parliaments of each State are elected by the residents of that State using either the alternative vote (preferential voting) or the single transferable vote variant of proportional representation.

### 2.10 OPPOSITION LEADERS, States — November 2001

State	Opposition Leader
New South Wales	K. A. Chikarovski, MP (LP)
Victoria	The Hon. D. Napthine, MP (LP)
Queensland	M. J. Horan, MP (NP)
Western Australia	The Hon. C. J. Barnett, MP (LP)
South Australia	The Hon. M. Rann, MP (ALP)
Tasmania	The Hon. B. Cheek, MP (LP)

Source: Department of the Parliamentary Library.

The state of the parties in each of the State and Territory Parliaments is set out in table 2.11.

The extent of State legislative powers is defined by the Commonwealth and State Constitutions, and includes education, police, public health, public transport, agriculture, roads and the overseeing of local government.

### **2.11 STATE OF THE PARTIES, States and Territories — October 2001**

State/Territory	no. of seats
<b>NEW SOUTH WALES</b>	
<b>Legislative Assembly</b>	
Australian Labor Party	55
Liberal Party	20
National Party	13
Independent	5
<i>Total</i>	93
<b>Legislative Council</b>	
Australian Labor Party	16
Liberal Party	9
National Party	4
Christian Democratic Party	2
Greens	2
Australian Democrats	1
Pauline Hanson's One Nation	1
Others	7
<i>Total</i>	42
<b>VICTORIA</b>	
<b>Legislative Assembly</b>	
Australian Labor Party	44
Liberal Party	35
National Party	6
Independent	3
<i>Total</i>	88
<b>Legislative Council</b>	
Australian Labor Party	24
Liberal Party	14
National Party	6
<i>Total</i>	44
<b>QUEENSLAND</b>	
<b>Legislative Assembly</b>	
Australian Labor Party	66
National Party	11
Liberal Party	3
City Country Alliance	3
Independent	6
<i>Total</i>	89

...continued

### **2.11 STATE OF THE PARTIES, States and Territories — October 2001 — continued**

State/Territory	no. of seats
<b>SOUTH AUSTRALIA</b>	
<b>House of Assembly</b>	
Liberal Party	24
Australian Labor Party	21
National Party	1
Independent	1
<i>Total</i>	47
<b>Legislative Council</b>	
Liberal Party	10
Australian Labor Party	6
Australian Democrats	3
Independent	3
<i>Total</i>	22
<b>WESTERN AUSTRALIA</b>	
<b>Legislative Assembly</b>	
Liberal Party	16
Australian Labor Party	32
National Party	5
Independent	4
<i>Total</i>	57
<b>Legislative Council</b>	
Liberal Party	12
Australian Labor Party	13
National Party	1
Greens	5
Pauline Hanson's One Nation	3
<i>Total</i>	34
<b>TASMANIA</b>	
<b>House of Assembly</b>	
Australian Labor Party	14
Liberal Party	10
Greens	1
<i>Total</i>	25
<b>Legislative Council</b>	
Australian Labor Party	5
Independent	10
<i>Total</i>	15
<b>NORTHERN TERRITORY</b>	
<b>Legislative Assembly</b>	
Australian Labor Party	13
Country Liberal Party	10
Independent	2
<i>Total</i>	25
<b>AUSTRALIAN CAPITAL TERRITORY</b>	
<b>Legislative Assembly</b>	
Australian Labor Party	8
Liberal Party	7
Australian Democrats	1
Greens	1
<i>Total</i>	17

Source: Department of the Parliamentary Library.

## Territory government

### Self-governing

The Australian Capital Territory and the Northern Territory are self-governing polities with powers almost matching those of the original States. The Northern Territory has been working towards full Statehood, though a referendum on the question was rejected by Northern Territory voters in 1998. Norfolk Island controls its own treasury and raises revenue under its own system of laws. Generally, Commonwealth laws do not apply to Norfolk Island unless expressed to do so, but where any Norfolk Island legislation is in conflict with ordinances made by the Governor-General, such legislation is deemed null and void. Norfolk Islanders may enrol for Commonwealth elections in the electoral division they nominate, with some exceptions.

The Northern Territory and Norfolk Island both have an Administrator of the Territory, appointed by the Governor-General (table 2.12).

### 2.12 ADMINISTRATORS, Territories — October 2001

Territory	Administrator
Northern Territory	The Hon. John Christopher Anictomatis, OAM
Norfolk Island	The Hon. Anthony J. Messner

Source: Department of the Parliamentary Library.

The Australian Capital Territory has neither Administrator nor Governor. Each Territory has an elected Legislative Assembly, with a wide range of powers. Each Territory has a government headed by a Chief Minister (table 2.13). The Northern Territory and the Australian Capital Territory have an Opposition headed by an Opposition Leader (table 2.14).

### 2.13 CHIEF MINISTERS, Territories — October 2001

Territory	Chief Minister
Northern Territory	C. M. Martin, MLA (ALP)
Australian Capital Territory	The Hon. J. Stanhope, MLA (ALP)
Norfolk Island	R. Nobbs

Source: Department of the Parliamentary Library.

### 2.14 OPPOSITION LEADERS, Territories — September 2001

Territory	Opposition Leader
Northern Territory	The Hon. D. G. Burke, MLA (CLP)
Australian Capital Territory	The Hon. G. Humphries, MLA (LP)

Source: Department of the Parliamentary Library.

### Non self-governing

Jervis Bay Territory, and the external territories of the Cocos (Keeling) Islands, Christmas Island, Coral Sea Islands and Ashmore and Cartier Islands make up the non self-governing Territories of Australia.

The resident communities in each of Jervis Bay Territory, the Cocos (Keeling) Islands and Christmas Island are provided with an extensive range of government services. Each of the Cocos (Keeling) Islands and Christmas Island has an elected local government, and residents may vote in Commonwealth Parliamentary elections in the electoral division of Lingiari. Residents of Jervis Bay are enrolled in the electoral division of Fraser, ACT.

### Local government

Local government has a limited constitutional position in Australia, being organised under State or Territory legislation upon broadly similar lines across Australia. The main variation is the existence of various councils in the Northern Territory that are based on rural Aboriginal communities. There are no local councils in the Australian Capital Territory, where the Territory Government has direct responsibility for local services. Local government in Australia is unlike that in many other political systems, for it provides an unusually narrow range of services.

Each State and the Northern Territory has a number of local government areas, known variously as cities, towns, municipalities, boroughs, shires or districts. The generic local body is the council. In May 2001 there were 684 local councils. Most councillors and aldermen are elected by local residents, though councils may be dismissed by State Governments and occasionally are.

Within each local government area various local services are provided, though there are many variations between States as well as between urban and rural councils. The Brisbane City Council is responsible for the provision of services across most of Brisbane; by contrast, many small rural councils provide a relatively small number of services. Among the local responsibilities are the management of health, sanitary and garbage services, road, street and bridge construction, water supply and sewerage, museums, fire brigades, harbour services and local libraries. The scope of local government duties differs a great deal around the nation, for in all States many of these duties are performed either directly by the State Government or through semi-government authorities, known in Australia as statutory authorities. The provision of household water, for instance, is typically undertaken by a statutory authority operating under State legislation.

## Political parties

### The party system

An Australian party system had begun to develop during the last years of the colonial period in the 1890s, to the extent that most seats in the first Parliament were won by candidates from just three major groups. The outline of the modern system can be seen as early as 1909 when a fusion of the major non-Labor parties formed the first Liberal Party. This was confirmed in the election in the following year, which saw the election dominated by the Liberal and Australian Labor Parties. In 1922 the Country Party won a significant number of seats and shared in a coalition government, and since that time the Australian party system has been dominated by the contest between Labor and a coalition of the Liberal and National (formerly Country) Parties. Many minor parties have contested House of Representatives elections, but have not seriously threatened the dominance of the three major parties.

Since 1949 the use of proportional representation for Senate elections has given minor parties a realistic chance of winning Senate seats, and the major parties have rarely controlled the upper house since the election of 1964.

## Parties and Parliament

The idea that Parliament ‘controls’ Ministers, as well as government policy and the departments and statutory bodies which implement these policies, is a concept which had more relevance in the nineteenth century than it does today. Stable majority party government in the twentieth century is perhaps the main reason for the decline in absolute parliamentary control as well as for the decline in the influence of Parliament relative to that of the Executive.

The impact of parties can be seen clearly in the operations of each house of Parliament, particularly in the legislative process. Many questions and queries may be raised in the House of Representatives, and amendments are often moved. However, because governments enjoy a majority in the House, questions may be avoided, amendments cannot be forced, and whether or not the Opposition’s views are accepted depends on the wishes of the government of the day.

It is a different story in the Senate, where no government has enjoyed a majority since 1981. If the Government wants legislation to be passed by the Senate it often has to agree to amendments proposed by the Opposition and minor parties. It is for this reason that the Senate is far more active than the House in sending proposed legislation to committees.

## National anthem and colours of Australia

A national song poll was held on 21 May 1977. Voting was preferential and, after the distribution of preferences, ‘Advance Australia Fair’ became the national song of Australia.

His Excellency, the Governor-General of the Commonwealth of Australia, issued the following Proclamation on 19 April 1984:

I, SIR NINIAN MARTIN STEPHEN, Governor-General of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, hereby declare:

(a) that the anthem ‘God Save The Queen’ shall henceforth be known as the Royal Anthem and be used in the presence of Her Majesty The Queen or a member of the Royal Family;

(b) that the National Anthem shall consist of the tune known as 'Advance Australia Fair' with the following words:

*Australians all let us rejoice,  
For we are young and free,  
We've golden soil and wealth for toil;  
Our home is girt by sea;  
Our land abounds in nature's gifts  
Of beauty rich and rare,  
In history's page, let every stage  
Advance Australia Fair.  
In joyful strains then let us sing,  
Advance Australia Fair.*

*Beneath our radiant Southern Cross  
We'll toil with hearts and hands;  
To make this Commonwealth of ours  
Renowned of all the lands;  
For those who've come across the seas  
We've boundless plains to share;  
With courage let us all combine  
To Advance Australia Fair.  
In joyful strains then let us sing,  
Advance Australia Fair.*

(c) that the Vice-Regal Salute to be used in the presence of His Excellency the Governor-General shall consist of the first four bars and the last four bars of the tune known as Advance Australia Fair;

(d) that the National Anthem shall be used on all official and ceremonial occasions, other than occasions on which either the Royal Anthem or the Vice-Regal Salute is used; and

(e) that green and gold (Pantone Matching System numbers 116C and 348C as used for printing on paper) shall be the national colours of Australia for use on all occasions on which such colours are customarily used.

## Reference notes

The Australian Constitution is reproduced in Year Book Australia from time to time, the latest being the 1998 edition.

In *Year Book Australia 1924* the names are given of each Ministry up to the Bruce-Page Ministry together with the names of the successive holders of portfolios therein. *Year Book Australia 1953* contains a list which covers the period between 9 February 1923, the date on which the Bruce-Page Ministry assumed power, and 31 July 1951, showing the names of all persons who held office in each Ministry during that period. The names of members of subsequent Ministries are listed in issues of *Year Book Australia 1953* to 1975–76 inclusive, and in successive issues from 1980.

For further details of referendums see *Year Book Australia 1966*, pages 66–68, *Year Book Australia 1974*, pages 90–91, *Year Book Australia 1977–78*, pages 72–73 and *Year Book Australia 1986*, pages 55–56.

Particulars of voting at Senate elections and elections for the House of Representatives up to 1996 appear in earlier issues of *Year Book Australia*. Full details are contained in the Election Statistics issued by the Electoral Commissioner following each election.

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Parliament of Australia, <http://www.apb.gov.au>

- Department of the Parliamentary Library, <http://www.apb.gov.au/library>
- Hansard, <http://www.apb.gov.au/bansard>
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## Introduction

**A**ustralia's international relations are driven by its core national interests — the security of the Australian nation and the economic wellbeing of the Australian people.

Important elements of Australia's international relations are the priority accorded to the Asia Pacific, and especially to the countries of East Asia, the strengthening of bilateral relationships with the United States, Japan, Indonesia and China, the commitment to further international trade liberalisation, and strong support for the World Trade Organization (WTO) and Asia Pacific Economic Cooperation (APEC). Australia has global interests which require broad international engagement, and the priority Australia attaches to its relationships with the countries of the Asia Pacific does not diminish the important interests Australia pursues in the Americas, Europe and elsewhere.

In addition to maintaining and developing strong bilateral relationships, Australia's international interests are advanced through participation in regional and global institutions and forums. For example, the negotiation of multilateral trade agreements enhances access to foreign markets for Australian exports. Australia also has a strong national interest in helping to guard against the spread of weapons of mass destruction, especially in the Asia-Pacific region. It has therefore been active globally and regionally in support of the development of, and adherence to, international non-proliferation and disarmament regimes.

Our international relations are also shaped by economic globalisation and the revolution in international communications. Globalisation offers opportunities for internationally competitive economies, but also brings challenges for political and economic management. It has profound implications for trade and economic policy. It blurs the division between foreign and domestic policy, increases competitive pressures in markets, and makes globally based trade rules and disciplines even more important.

Relations with Asia have a profound influence on Australian foreign and trade policy. Australia's engagement with the countries of Asia is extensive and has been built over many decades. We engage with our region for a number of reasons. What happens in our own region will

affect us more deeply and more quickly than events that occur in most other areas of the world. Australia has substantial trade and economic interests at stake in the region. Even with the effects of the East Asian economic crisis, East Asia takes more than 50% of all our exports, and even more is transported through the region to markets elsewhere in the world. Australia continues to seek closer engagement with Asia because of the profound benefits that flow from our relations with countries of the region and the realisation of our mutual interests.

## Australia's credentials and place in the international system

In its international relations, Australia uses its assets — economic, strategic and cultural — as well as an international reputation as a responsible, constructive and practical country. The values which Australia brings to its international relations are the values of a liberal democracy. These have been shaped by national experience and given vigour through cultural diversity. They include the rule of law, freedom of the press, the accountability of the government to an elected parliament, and a commitment to a 'fair go'.

In terms of Gross Domestic Product per capita, Australia ranks eleventh in the world. We have a modern industrial economy with a sophisticated manufacturing and services base. And the Australian economy has been performing strongly, especially through the challenge of the East Asian financial crisis and slower economic growth in some of our leading export markets. Over the past decade, Australia has had the fifth fastest growing economy in the Organisation for Economic Co-operation and Development (OECD), outperforming the United States, Canada and most of the European Union.

Australia has a strong skills base, high quality education and training institutions, advanced physical infrastructure, and adoption and usage rates for information technology which are among the highest in the world. Our strong civil institutions underpin a free society and encourage free enterprise. Australia's cultural diversity gives Australian society a vigour and capacity to adapt rapidly to new opportunities. It is also a rich source of language and other skills which help us do business in a global economy.

Australia's defence capability is significant in regional terms. Australia has a broadly based alliance relationship with the United States, whose strategic engagement and commitment underwrite the stability of East Asia.

## **Australia's bilateral relationships**

As a nation with global interests, Australia deals with countries in many regions. The countries which most substantially engage Australia's interests are those which are influential in shaping Australia's strategic environment, as well as being significant trading and investment partners. Foremost among these are the three major powers and largest economies of the Asia-Pacific region — the United States, Japan and China — and Australia's near neighbour, Indonesia. Significant Australian interests are also engaged in Australia's relationships with the other states of the Association of South East Asian Nations (ASEAN), the European Union and its member states, the Republic of Korea, and, in the South Pacific, New Zealand and Papua New Guinea.

### **United States**

Australia shares a relationship with the United States based on a strong commitment to democracy, security and an open trading system. The relationship complements and reinforces Australia's practical commitment to the Asia Pacific, as well as strengthening the engagement of the United States in the region, an engagement which has assumed great importance as the countries of the Asia Pacific, particularly those in East Asia, continue to undergo change.

These shared strategic interests and values are underpinned by the dynamic trade and investment links between Australia and the United States. The United States is Australia's second largest trading partner and largest source of investment, as well as a key regional and global partner in achieving more open markets through the WTO and APEC. People-to-people ties, including educational and cultural links, are extensive and wide-ranging, with over 600,000 business visitors and tourists travelling between Australia and the United States each year.

### **Japan**

Japan occupies a vital strategic position in North-East Asia and continues to play a primary economic and political role in our immediate region. Australia works hard to encourage close dialogue with Japan on a wide range of economic, political and strategic issues and the development, to the extent possible, of policies which are mutually reinforcing. Japan continues to be Australia's major trading partner, accounting for some 16% by value of our total trade (exports plus imports) in 2000. It is a significant investor in Australia and our largest source of in-bound tourism.

Australia's partnership with Japan reflects the broad alignment of Australian and Japanese strategic, political and economic interests in the Asia-Pacific region. Like Australia, Japan supports the long-term strategic engagement of the United States in the Asia-Pacific region and recognises the fundamental contribution that it makes to regional stability. Japan also shares our interest in advancing the APEC forum as the primary vehicle for economic cooperation in the Asia Pacific region. The Australia-Japan Conference for the 21st Century was held in Sydney on 29 and 30 April 2001 to chart new directions — strategic, economic, cultural, educational and scientific — for the relationship. The Conference Declaration, 'The Sydney Declaration for Australia-Japan Creative Partnership', set out a comprehensive action agenda: to strengthen economic relations, including through a trade and investment facilitation agreement; to expand dialogue and cooperation on security; and to increase people-to-people links. The Prime Minister's visit to Japan in August 2001 built further on these links.

### **China**

China's importance to Australia grows along with China's increasing economic, political and strategic engagement with the Asia-Pacific region and the global economy. China's relations with the countries of the Asia-Pacific region are critically important to the maintenance of regional peace and security. In particular, China's relations with Japan and the United States play a vital role in shaping the security context for the entire region. It is in Australia's national interest actively to encourage and support Chinese participation in dialogue and cooperation on regional security issues. During 2000–01 the exchange of high-level visits started by the visit of Chinese President Jiang Zemin to Australia in late 1999 continued, with six Australian ministers and the Deputy Prime Minister visiting China.

The trade and investment relationship between Australia and China is expanding. China is Australia's third largest merchandise trade partner. China's entry into the WTO will open up new opportunities for Australia, both in terms of greater market access for Australian goods and services and by encouraging China to integrate further into the global economy and abide by international trade rules.

Mutual economic and trade interests are increasingly underpinned by the strengthening of broader bilateral ties including cultural, educational, scientific and people-to-people links. With different cultures and traditions, Australia and China do not always share the same view, but regular dialogue and government-to-government exchanges have been established on a range of issues — from human rights to security issues — in a bid to discuss differences of opinion. The one-China policy will continue to be a fundamental element of the bilateral relationship within which Australia pursues important economic and trade interests with Taiwan.

## **Indonesia**

Indonesia is one of Australia's nearest neighbours and as such has long been recognised as one of our most important relationships. Australia maintains a large-scale bilateral program of economic, technical and humanitarian assistance to Indonesia.

Australia's relationship with Indonesia is now back on track after strains caused by developments in East Timor. Australia maintains good links with key players in Indonesia and the relationship remains strong in many areas, despite short-term political pressures. The visit to Australia by the Indonesian President, Abdurrahman Wahid, in 2001 was an important indication of the overall health of the bilateral relationship, which was further strengthened by Prime Minister Howard's early visit to meet Wahid's successor, President Megawati Soekarnoputri, in August 2001.

## **East Timor**

Australia has worked closely with the United Nations and the East Timorese people to assist the future development of East Timor. Australia led the multinational force, INTERFET, which was mandated by the United Nations to stabilise the situation following the vote for independence on 30 August 1999. We have

continued to contribute to the UN Peacekeeping Force which took over from INTERFET, and have worked closely with the UN Transitional Administration in East Timor (UNTAET) in the lead-up to granting of full independence. Constituent Assembly elections were held in August 2001, but the UNTAET mandate was extended until 31 January 2002 to allow the East Timorese Government to establish itself.

Australia moved swiftly to respond to East Timor's development needs and is one of the country's major aid donors. In July 2001 Australia, East Timor and the United Nations agreed to the Timor Sea Arrangement, which is estimated to give East Timor more than \$7b in revenue from existing and planned oil and gas developments in the area.

## **The Republic of Korea**

The Republic of Korea (ROK) is one of Australia's most important regional partners and we have worked closely with the ROK to promote common interests in the Asia-Pacific region. Korea was Australia's fourth largest trading partner in 2000. Australia has a vital interest in rapprochement on the Korean Peninsula and welcomed the historic June 2000 summit meeting between the two Korean leaders. Working closely with key regional partners, we seek to promote stability in North Asia through increased bilateral dialogue with North Korea. Australia's resumption of diplomatic relations with North Korea, announced in May 2000, will enable us to promote broader regional stability.

## **Association of South East Asian Nations (ASEAN)**

ASEAN is the key regional political institution in South-East Asia and has been instrumental in promoting regional political harmony and stability for over 30 years. Australia values greatly its close relationship with ASEAN as a grouping, and with its member states (Brunei Darussalam, Burma, Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Viet Nam). Australia's relations with ASEAN cover trade and investment, as well as cooperation in the technical, cultural, defence and educational fields. Australia is also actively involved in the ASEAN Regional Forum, which promotes regional security dialogue and confidence building, as well as the ASEAN Post-Ministerial Conference.

## The South Pacific

The South Pacific region, in which Australia has been closely involved for a long time, has been undergoing a period of uncertainty and change, with political crises in Fiji and Solomon Islands. These problems have been produced by a combination of traditional communal frictions, colonial-era decisions and mistakes, and the global pressures which bear especially heavily on small, isolated states. They are problems which will not be solved easily or quickly. Australia currently provides over \$500m annually to the independent countries of the region in development assistance — more than any other donor — and, along with New Zealand, maintains an extensive diplomatic network in island capitals.

A shared background and experience, and a multi-faceted relationship, incline Australia naturally towards a unique partnership with New Zealand, which is Australia's fourth largest export market.

Australia has a long-standing, close relationship with Papua New Guinea (PNG), whose location makes it of strategic importance to Australia. Pursuing a constructive and productive bilateral relationship is a high priority for Australia and we will continue to support a process of sustainable economic development in PNG, aimed at enhancing its self-reliance. Australia has played a strong role in supporting the peace process in Bougainville, particularly through the Peace Monitoring Group. We have also contributed significantly to the restoration of peace in Solomon Islands, through facilitating ceasefire and peace talks and by leading an International Peace Monitoring Team to Solomon Islands.

Australia's engagement in the South Pacific will remain both broad and deep, and Australia will continue to support local efforts both to advance development and, where necessary, restore stability, in cooperation with those other countries and institutions which have their own long-term relationships with the region.

## India

India has growing strategic and economic importance in global and regional affairs and is an important dialogue partner for Australia in a range of international forums. The Indian Foreign Minister visited Australia in June 2001 and Australia's future focus will be on expanding further the bilateral trade and economic relationship and security dialogue.

## Europe

Australia has close ties with many of the countries of Europe. We share important social, cultural, historical and political experiences. The European Union is a leading participant in key forums such as the Group of Eight (G8), and the states of Europe make valuable contributions to leading multilateral organisations such as the UN, the WTO and the OECD. As one of the key economic centres of the world, Europe is important to Australia's trading interests. The EU as a single market is Australia's largest merchandise trading partner and the largest foreign investor in Australia. The United Kingdom is the second largest single country investor in Australia and is Australia's second largest destination for outward investment, reflecting historical and cultural links between the United Kingdom and Australia. We also continue to cooperate closely in the Commonwealth.

The key central and south-eastern European markets for Australia are Poland, Hungary, the Czech Republic and Romania, while the smaller transition economies — Slovenia, the Slovak Republic and Bulgaria — also offer some trade opportunities for Australia. Membership of European institutions — the EU and the North Atlantic Treaty Organisation (NATO) — by these central and eastern European countries would lead to them becoming more important bilateral partners for Australia.

## Canada and Latin America

The close historical and cultural ties Australia has with Canada will continue to be the basis for an active trade and investment relationship, and close cooperation on international issues.

In Latin America, our efforts are focused on expanding Australia's trade and investment relations. The size and diversity of the markets in the region offer significant opportunities for Australian exporters and investors. As well as supporting the efforts of individual Australian businesses in Latin America, the Australian Government pursues a productive relationship with Latin American countries on a range of international political issues.

## The Middle East and Africa

Australia has growing commercial interests in the Middle East, a significant destination for Australian agriculture, services and manufactures exports. Australia's most significant relationship in Africa is with South Africa, which is a growing market for Australia's commercial interests and provides a base for trade with all the countries of the Southern African Development Community.

## Australia's security interests

Australia's national security and its economic interests are inextricably linked to the security and stability of the Asia Pacific region. The key components of Australia's security strategy are maintaining a strong national defence capability, the security alliance with the United States, developing bilateral defence and security relationships with the countries throughout the Asia Pacific, and strengthening multilateral security links in the region, especially the ASEAN Regional Forum (ARF).

Regular bilateral security dialogues with countries in the Asia Pacific, and with key partners beyond the region, provide an opportunity to share views on a wide range of regional and global security issues, promote transparency and reinforce Australia's commitment to working cooperatively with regional countries on security issues. Australia has increased the number of countries with which it has such dialogues, as part of its long-term strategy of promoting shared security perceptions in the Asia-Pacific region.

The ARF is an important means of encouraging a sense of strategic community in the region. It complements the central role of bilateral links in dealing with global and regional security issues, and has an important role in encouraging regional support for international regimes against the proliferation of weapons of mass destruction and their missile delivery systems. One of the features of the ARF in 2000 was the participation for the first time of the Democratic People's Republic of Korea (DPRK). Australia has been very much part of the process of seeking to engage the DPRK more constructively with the regional and international community, including through an exchange of high-level visits. Australia announced the re-establishment of diplomatic relations with the DPRK in May 2000.

Global issues can also have significant security implications for Australia. The risk of global conflict diminished considerably with the end of the Cold War, but other potential threats remain. Conflicts in Europe, the Middle East and South Asia have the potential to disrupt global security.

Australia has made a major contribution to the significant progress in establishing international regimes to prevent the proliferation of nuclear, chemical and biological weapons and of missiles. Australia's future efforts will be concentrated on ensuring that these regimes are implemented and remain effective and, where necessary, are strengthened. Australia will continue to encourage adherence to the international regime banning the use, stockpiling, production and transfer of anti-personnel landmines. These efforts will continue to be complemented by Australia's commitment to practical measures such as landmine clearance, victim assistance and mine clearance technology programs.

## Australia's economic interests

Australia's economic wellbeing and growth depend on a competitive domestic economy and access to foreign markets. Trade policy, industry policy and microeconomic reform go hand in hand to provide Australian business with the competitive foundations and opportunities to thrive in an increasingly globalised marketplace.

As with Australia's security interests, Australia's economic interests are most closely engaged in the Asia-Pacific region. In 2000, 55% of Australia's merchandise exports went to East Asian countries and 74% to APEC members, the destination also for over half of Australia's foreign direct investment. East Asian markets are, and will remain, important for Australia.

Australian trade policy combines an integrated set of bilateral, regional and multilateral efforts aimed at advancing Australia's commercial interests, including by achieving the best possible market access outcomes for Australian business. To this extent, Australia's trade strategies focus on reducing barriers to Australian goods, services and investment in foreign markets, developing those markets, and promoting Australia as a supplier of goods, services and investment.

Australia is pursuing a linkage between the economic relations agreement we share with New Zealand (Closer Economic Relations or CER) and the ASEAN Free Trade Area, as well as discussing bilateral Free Trade Agreements with countries in the region, such as Singapore.

The WTO is of particular significance to Australia because it is the major forum for global trade liberalisation and, through its rules and disciplines, provides a predictable and more transparent environment for business, and a means of resolving trade disputes. Australia is, and will continue to be, an active player in the WTO, including as an advocate for continued global market opening and as the leader of the Cairns Group of agricultural fair traders.

The failure of the Ministerial-level meeting of the WTO in Seattle in December 1999 to reach agreement to launch a new round of multilateral trade negotiations was a setback. The launch of a new round in Doha remains a major trade policy focus for Australia. Despite the disappointing outcome in Seattle, Australia achieved strong developing country support for ambitious agriculture reform proposals, and previously mandated agriculture and services negotiations were subsequently begun. Australia will continue its efforts to build consensus in the international community for the launch of a new round. In the longer term, Australia's objectives in the WTO are to ensure that the system remains relevant to the needs of Australian business by extending the rules and disciplines to new areas of importance; to focus the WTO work program on key market access issues; to seek to make world trade in agriculture free from distortion by subsidies and domestic support; and to increase access for Australia's exports of agricultural products.

The strong Asia Pacific orientation of Australia's trade and the importance of liberalising and facilitating trade in the region make APEC a significant regional forum in which Australia participates. APEC economies committed themselves, in the Declaration by Leaders in Bogor in 1994, to free and open trade and investment by 2010 for industrialised economies and by 2020 for developing economies. Australia remains committed to this goal, the implementation of which, if met, would bring considerable long-term benefits for Australia and the region. Australia is working in the short and medium term to ensure substantial progress in the liberalisation programs of individual APEC economies.

Attention to financial sector issues has been given added impetus as economies undertake reform and restructuring following the East Asian economic crisis. There has also been increased recognition of the importance of direct business participation in APEC activities. This not only helps ensure that APEC is tackling the most important impediments to trade, investment and economic growth in the region, but can be a powerful force in encouraging APEC economies to push ahead with difficult reform decisions.

APEC's contribution, however, goes beyond trade and investment, and economic and technical cooperation issues. It is the only regional forum which brings together leaders from across the Asia-Pacific. These meetings contribute to habits of consultation and dialogue, and the development of personal relationships, which strengthen trust and confidence among regional countries.

## **Australia's engagement with the United Nations (UN) system**

Australia pursues important national interests in the bodies that comprise the UN system. These interests are engaged primarily in the General Assembly and its committees as well as specialised agencies like the World Health Organization (WHO), and affiliated organisations such as the International Atomic Energy Agency.

The UN is important to Australia in the core areas of international security and disarmament, environment, human rights and development assistance. Australia plays a strong role in these and other UN areas such as agriculture, refugees, health and meteorology. Australia has also been active in ensuring the acceptance of arms control treaties, such as the Comprehensive Test Ban Treaty, by the UN General Assembly, and in international environmental negotiations. The emphasis in the latter is on working towards international action which contributes to sustainable development, while protecting Australia's national interests.

An ongoing priority for Australia is the reform of the UN so that it can effectively manage growing demands with static or declining real resources. One element of the reform program is to improve financial management. In line with Australia's broader desire for reform of the UN, the Government decided in 2000 to promote reform of the UN treaty committee system.

## Australia's human rights policy

In pursuing human rights objectives, Australia gives priority to practical efforts that can directly improve the human rights situation on the ground. These include development cooperation programs, assisting in establishing national human rights institutions, encouraging bilateral, regional and multilateral discussion of human rights issues, and working to develop and strengthen the effectiveness of regional and international human rights institutions and instruments.

In mid-1998, Australia established a Centre for Democratic Institutions at the Australian National University in Canberra, with the mission "To harness the best of Australia's democratic experience in support of developing countries' needs for good governance". The Centre's core business is to design and deliver short, intensive, high-level training programs in support of the democratic process and the strengthening of civil society.

## Role of DFAT in Australia's international relations

The Department of Foreign Affairs and Trade (DFAT) is the principal source of advice to the Government on foreign and trade policy issues and is the agency primarily responsible for implementing the Government's foreign and trade policies.

Its aim is to advance the interests of Australia and Australians internationally.

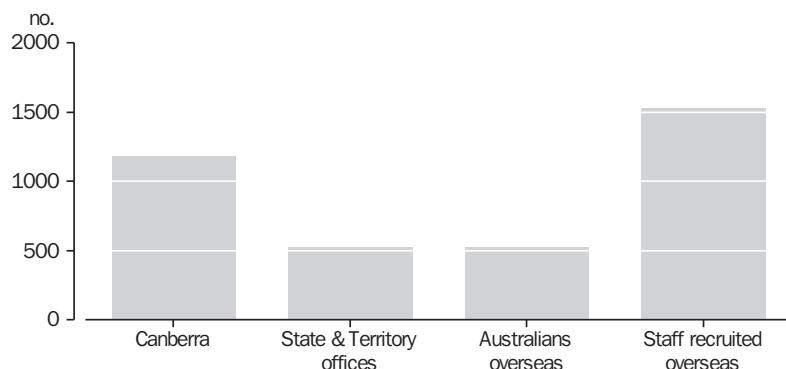
Its goals are to:

- enhance Australia's security;
- contribute to growth in Australia's economy, employment and standard of living;
- assist Australian travellers and Australians overseas;
- strengthen global cooperation in ways that advance Australia's interests; and
- foster public understanding of Australia's foreign and trade policy and to project a positive image of Australia internationally.

## Location and number of DFAT staff

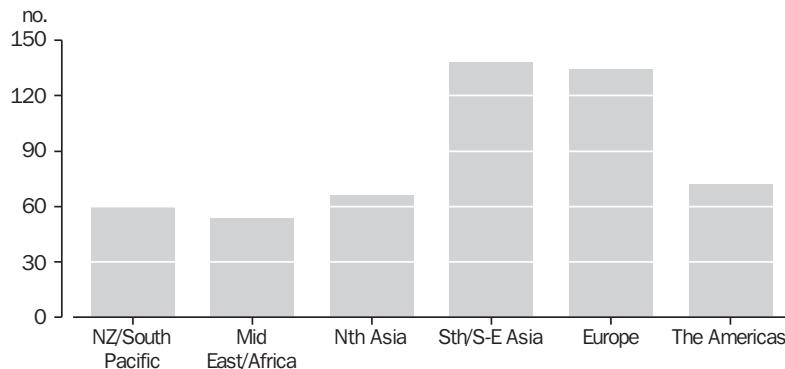
Graph 3.1 shows the location of DFAT staff. Graph 3.2 shows the number of Australia-based DFAT staff overseas by broad region.

**3.1 LOCATION OF DFAT STAFF — January 2001**



Source: Department of Foreign Affairs and Trade.

### 3.2 AUSTRALIA-BASED DFAT STAFF OVERSEAS, By Region — January 2001



Source: Department of Foreign Affairs and Trade.

## Public information services

The Department of Foreign Affairs and Trade provides a wide range of information services to the Australian public, and promotes Australia overseas. The department's public diplomacy objectives are to ensure that Australians are kept informed about Australia's foreign and trade policies, and have the opportunity to contribute to them, and to promote an accurate, positive and up-to-date image of Australia internationally.

Detailed information about Australia's foreign and trade policy can be accessed through the DFAT website, <http://www.dfat.gov.au>. The department also produces hard copy publications on many foreign and trade policy issues, which are available from the department or from Commonwealth Government bookshops. Departmental officials provide a large number of media briefings on issues of the day. Key information available from the department electronically is listed in the section *Further references*.

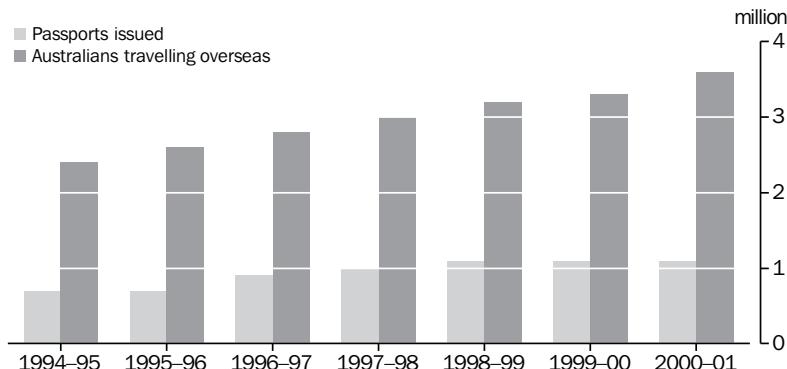
The image other countries have of Australia influences judgments about a multitude of issues, including the quality of Australian goods and services, investment and tourism decisions, and Australia's credibility as an international partner. It is therefore very important that the image of Australia received by other countries is contemporary, accurate and positive. While Australia benefits from a generally positive image internationally, DFAT promotes better understanding of some of the less well known aspects of modern Australia, including our technical capabilities, record of innovation and achievement in science and industry, and our cultural diversity.

The Sydney 2000 Olympics provided a unique opportunity to promote Australian capabilities and to update international perceptions about Australia. Through the international media, targeted business and dignitary visits programs, international conferences, sports marketing linkages and other opportunities, Australia's hosting of the Olympics was used to advance Australia's international interests.

## Services to the Australian community

The principal international services provided to the Australian community are consular and passport services provided by the Department of Foreign Affairs and Trade. The department provides 24-hour consular and passport services to Australians travelling overseas and their families in Australia through its network of overseas missions and honorary consulates, a consular operations centre and consular cooperation arrangements with other countries. These services include assisting Australians who are hospitalised, imprisoned or require welfare assistance overseas; helping family members when Australian travellers die or go missing; and, when required, coordinating evacuations from international trouble spots. Consular services are now available to Australians at 160 points world-wide. Through media briefings and regularly updated travel advisories, Australian travellers are kept informed about international developments, including potential trouble spots, and the extent to which the Australian Government can assist them. The department is also responsible for implementing bilateral consular agreements with Canada and China.

### 3.3 AUSTRALIANS TRAVELLING OVERSEAS AND PASSPORTS ISSUED



Source: Department of Foreign Affairs and Trade.

The department is responsible for providing secure travel documents to eligible Australians under the authority of the *Passports Act 1938*. Passport services are provided through passport offices located in Australia's major cities and diplomatic and consular missions overseas. Access to passport information is available through the Australian Passport Information Service, which operates seven days a week including after hours, and interview services are provided through Australia Post and its network of 1,600 outlets throughout Australia. While Australia is already a world leader in providing secure passport services, the department is working to improve the service still further.

In 2000-01 an estimated 3.6 million Australians travelled abroad, and DFAT issued 1.088 million passports (graph 3.3). During 2000-01 the department provided consular assistance to 25,000 Australians in difficulty and notarial services to a further 42,000 Australians.

## Australia's overseas aid program

The Australian Overseas Aid Program aims to advance our national interest by assisting developing countries to reduce poverty and achieve sustainable development. Australian aid

focuses on providing practical, well-targeted development assistance to the Asia-Pacific region and responds selectively to needs in South Asia, Africa and the Middle East. The aid program is an integral part of Australia's engagement in the Asia-Pacific region and a practical demonstration of our commitment to helping build regional stability and prosperity. The aid program is also an expression of the conviction of the Australian people that it is right for Australia to help the millions of people, especially among our neighbours, whose lives are afflicted by extreme poverty.

In 2001-02 the Australian Government will provide an estimated \$1.725b in Official Development Assistance (ODA). Australia's ODA/GNP ratio for 2001-02 is estimated to be 0.25%, above the latest (2000) donor average of 0.22%.

Further information and publications on the Australian Government aid program can be sourced from the Internet sites <http://www.ausaid.gov.au> and <http://globaled.ausaid.gov.au> of the Australian Agency for International Development (see next section), and the Internet site of the Australian Centre for International Agricultural Research (ACIAR), <http://www.aciar.gov.au>.

## The Australian Agency For International Development (AusAID)

AusAID administers the majority of Australia's aid program. It is an administratively autonomous agency within the Foreign Affairs and Trade portfolio. AusAID's principal organisational functions are: to provide professional policy advice and support to the Government on aid policy, program directions and international development issues; and to develop and implement programs of assistance in partnership with partner countries.

## Key sectors of the aid program

The aid program provides assistance in five key sectors: governance; agriculture and rural development; health; education; and infrastructure. Activities in these sectors are underpinned by a commitment to environmental sustainability and gender equity.

Country and regional strategies, which are developed in consultation with partner governments, are the primary means through which sectorial priorities are translated into programs on the ground. Strategies take account of partner government priorities, Australia's strengths, and the activities of other donors. Within the sectoral framework, development assistance programs in partner countries comprise a range of activities. These include the provision of Australian goods and services, training and academic student scholarships, food aid and support for non-government organisations (NGOs).

Details of the Australian aid flow are set out in table 3.4

## Country programs

### Papua New Guinea

Australia's aid program with Papua New Guinea (PNG) is the largest aid program Australia has with any one country. The program in PNG focuses on strengthening governance, improving social indicators in health and education, building prospects for sustainable economic growth, and consolidating the peace process in Bougainville.

Over the last decade Australian aid to PNG has undergone fundamental changes, with untied budget support replaced by jointly programmed activities. The new Treaty on Development

Co-operation between Australia and PNG came into effect in July 2000. The new Treaty links performance and achievement against defined benchmarks more closely to future funding decisions. This will deliver greater contestability to the aid program.

### The Pacific region

Pacific Island Countries (PICs) face significant development challenges as a result of their economic and environmental vulnerability. Countries in the Pacific lack diversity in terms of production and export sectors, making them especially vulnerable to economic shocks and crop failure. Already facing the dual challenges of expanding populations and limited viable agricultural land, PICs are particularly susceptible to natural disasters and environmental deterioration. Furthermore, as small countries they often lack adequate capacity in their public or private sectors to cope with the range of challenges presented by the rapidly globalising world. They do not have access to a sufficiently large pool of people with the technical, administrative and managerial skills a modern state requires. Addressing the social and economic causes of actual and potential political instability is another important issue for PICs, as the events of 2000 demonstrated.

Australia's long-term objective is to help Pacific Island Countries achieve the maximum possible degree of self-reliance. The aid program aims to achieve five principal outcomes for PICs: better governance; stronger economic growth; greater capacity; better service delivery; and environmental integrity.

In 2001–02 Australian assistance to Pacific Island Countries will focus on support for governance and economic reform, education and training, health, environment and natural resource management and the private sector. For example, in Solomon Islands the aid program will help to provide for basic services, and support a range of recovery, reconstruction and rehabilitation activities. Economic reform will be a focus of Australia's aid program in Tonga and Vanuatu, and in Samoa activities will be directed at improving opportunities for Samoans dependent on the village economy, particularly young people and those living in remote locations. In Fiji, Australia's sanctions policy has allowed a continued focus on basic health and education, along with small scale projects aimed at helping poorer communities. Assistance will also be provided to increase public confidence in the law and justice sector.

### 3.4 AUSTRALIAN AID FLOW, By Region/Partner Country — 2001–02(a)

Region/partner country	\$m
Papua New Guinea	342.9
Pacific	
Fiji	(b)
Vanuatu	19.5
Solomon Islands	(b)
Samoa	15.1
Tonga	11.8
Kiribati	10.7
Other & Regional	52.4
Total Pacific	164.6
East Asia	
Indonesia	121.5
East Timor	
Aid program total flows	40.4
Other government department flows	81.4
Viet Nam	73.3
Philippines	63.5
China	56.0
Cambodia	38.5
Thailand	25.0
Lao PDR	18.8
Other & Regional	33.0
Total East Asia	551.6
South Asia	
Bangladesh	37.0
India	20.5
Sri Lanka	11.0
Nepal	7.9
Pakistan	4.5
Other & Regional	11.2
Total South Asia	92.0
Africa & Other	
Africa	76.0
Middle East	9.9
Other	44.8
Total Africa & Other	130.7
Reconciliation to ODA	
Core contributions to multilateral organisations, other ODA	443.2
<b>Total Official Development Assistance(c) 1 725.0</b>	

(a) Budget Estimate for 2001–02. (b) To be determined within overall Pacific allocations. (c) Cash basis.

Source: AusAID.

### East Asia

Recovery from the East Asian financial crisis is progressing at different speeds. For some governments in our region, the tumult of the East Asian financial crisis has passed, but few countries can afford to be complacent in the face of a more complex and demanding international environment. This requires a two-pronged approach from the Australian aid program: to improve the social and economic conditions for the poorest and most vulnerable, and to assist governments in our region to strengthen their resilience to future economic shocks, especially in the wake of the slowdown of the world economy. Australia is supporting a

re-intensification of reform efforts, particularly strengthening financial markets, facilitating trade and improving government transparency.

The aid program in Indonesia is Australia's second largest. Over the period 2001 to 2003 Australian aid will contribute to poverty reduction, sustainable economic recovery and democratisation in Indonesia. Key sectors for Australian assistance in East Timor are education and training, health, rural development, water supply and sanitation, and governance. Australian aid will help to build East Timorese capacity to govern a stable and democratic nation. In Viet Nam, activities in rural development will help the rural poor to benefit from the delivery of quality health, agriculture and infrastructure services, while in the Philippines Australian aid will focus on rural incomes, the environment, education and health. Support for other major programs in China, Cambodia and Thailand continues.

The aid program also targets high priority development needs in East Asia that require a response at the regional level, including in partnership with ASEAN. In 2002 assistance will increasingly focus on regional governance, health and trans-boundary issues.

### South Asia

In South Asia, Australia has bilateral programs with Bangladesh, India, Sri Lanka, Nepal, Pakistan, Maldives and Bhutan. Core areas of focus for these programs include: strengthening the capacity of governments to manage the delivery of more effective services; improving health outcomes, especially preventing the spread of HIV/AIDS; strengthening primary education, especially for girls; and supporting efforts to improve natural resource management (especially water) and rural development.

### Africa and the Middle East

Intractable poverty and epidemic illness, particularly HIV/AIDS, dominate the African development agenda. Australian development assistance is primarily focused on poverty reduction in Mozambique and South Africa. Assistance is given to partner governments to develop and implement more effective policies and programs, and funding is provided to Australian NGOs to help fight the spread of HIV/AIDS in the region. Australian assistance to the Middle East focuses on the social and economic advancement of Palestinians in the West Bank and Gaza. Currently the focus of assistance is on meeting the humanitarian needs of Palestinian refugee camp communities throughout the region.

## Global programs

### Multilateral and international organisations

Australia's support for multilateral and international organisations extends the reach of the aid program and leverages the benefits Australia's assistance can deliver. Australia supports a range of development banks, United Nations agencies, including the World Food Program, United Nations Children's Fund and United Nations Development Program, as well as Commonwealth development agencies. Through support to international health programs Australia addresses persistent global health challenges, including tuberculosis, poor reproductive health, HIV/AIDS and polio, and emerging challenges such as non-communicable diseases and violence against women. In 2002 Australia will also continue to support international environment programs including the Global Environment Facility and the Montreal Protocol Multilateral Fund, to address the challenges of climate change, conservation of biological diversity, ozone layer depletion and protection of the marine environment.

### Emergency and humanitarian assistance

In close cooperation with its international and domestic development partners, Australia aims to deliver quick, effective and targeted assistance to those caught in conflict and emergency situations. In 2001–02, Australia will focus on response to humanitarian crises and conflict prevention in the Asia-Pacific region. This regional focus will be in the context of a continued strong global response to international humanitarian crises as they emerge. Initiatives in emergency assistance will include mainstreaming disaster preparedness and conflict prevention into bilateral development programs, ensuring a smoother transition between relief, recovery and development activities and greater emphasis on vulnerability reduction and supporting local capacities for peace.

### Non-government organisation (NGO) activities and volunteer programs

#### Non-government organisations

Non-government organisations (NGOs) play a key role in the provision of Australian aid to developing countries. Through their strong links with communities in developing countries and partnerships with local organisations, NGOs are

well placed to strengthen civil society and build longer-term sustainable development at the grass roots level. Under the AusAID/NGO Cooperation Program (ANCP) the aid program supplements funds provided by the community, enhancing the scale and effectiveness of NGO activities and providing NGOs with the capacity to respond to their own regional and sectoral priorities.

#### Volunteer programs

Volunteers help to reduce poverty through skills transfer and institutional strengthening, and heighten Australian community participation and interest in the aid program. Four agencies currently receive grant funding under AusAID's Volunteer Programs: Australian Volunteers International (AVI), AESOP Business Volunteers, Inter-serve and the Paulian Lay Missionary Society (PALMS). In addition, the Australian Youth Ambassadors for Development Program develops partnerships with Australian organisations, and with education, community and government sectors through the placement of young Australians on development assignments throughout the Asia-Pacific region.

### Australian Centre for International Agricultural Research (ACIAR)

The Australian Centre for International Agricultural Research (ACIAR) is a statutory authority within the Foreign Affairs and Trade portfolio. It assists Australian researchers and institutions and international research centres to develop solutions to agricultural problems in order to reduce poverty, improve food security and enhance natural resources management in developing countries and Australia. Collaboration with researchers in developing countries is integral to all ACIAR projects, and ACIAR provides training and infrastructure to help build the capacity of these countries to undertake and apply research.

The total appropriation for ACIAR in 2001–02 is \$45.4m. This funding will support more than 180 bilateral research projects in 27 countries, with a primary focus in the Asia-Pacific region. During 2001–02, Australia will strengthen support for Indonesia and the Philippines by implementing a suite of new projects. Research activities will also commence in the new partner countries of East Timor and the Democratic People's Republic of Korea. ACIAR is working closely with AusAID on institution-building initiatives in Viet Nam, Cambodia and PNG and on rural development programs in PNG, India and southern Africa. ACIAR also supports

19 International Agricultural Research Centres through grants that link them to Australia's agricultural research organisation.

## The network of Australian diplomatic and consular missions overseas

DFAT manages an extensive network of Australian diplomatic and consular missions abroad (tables 3.5 to 3.8), supporting Australia's international interests and providing consular and passport services. The department's central office is in Canberra and it also maintains offices in all of the State capitals and in Darwin, as well as Newcastle and Thursday Island.

### 3.5 AUSTRALIAN EMBASSIES, HIGH COMMISSIONS AND CONSULATES MANAGED BY DFAT(a) — July 2001

Country	Post
Argentina	Buenos Aires
Austria	Vienna
Bangladesh	Dhaka
Barbados	Bridgeport
Belgium	Brussels
Brazil	Brasilia
Brunei	Bandar Seri Begawan
Burma	Rangoon
Cambodia	Phnom Penh
Canada	Ottawa
Chile	Santiago de Chile
China, Peoples Republic of	Beijing Guangzhou Hong Kong Shanghai
Croatia	Zagreb
Cyprus	Nicosia
Denmark	Copenhagen
Egypt	Cairo
Federated States of Micronesia	Pohnpei
Fiji	Suva
France	Paris
Germany	Berlin
Greece	Athens
Hungary	Budapest
India	New Delhi
Indonesia	Bali Jakarta
Iran	Tehran
Ireland	Dublin

For footnotes see end of table.

...continued

### 3.5 AUSTRALIAN EMBASSIES, HIGH COMMISSIONS AND CONSULATES MANAGED BY DFAT(a) — July 2001 — continued

Country	Post
Israel	Tel Aviv
Italy	Rome
Japan	Tokyo
Jordan	Amman
Kenya	Nairobi
Kiribati	Tarawa
Korea, Republic of	Seoul
Laos	Vientiane
Lebanon	Beirut
Malaysia	Kuala Lumpur
Malta	Valetta
Mauritius	Port Louis
Mexico	Mexico City
Nepal	Kathmandu
Netherlands	The Hague
New Caledonia	Noumea
New Zealand	Wellington
Nigeria	Lagos
Pakistan	Islamabad
Papua New Guinea	Port Moresby
Philippines	Manila
Poland	Warsaw
Portugal	Lisbon
Russia	Moscow
Samoa	Apia
Saudi Arabia	Riyadh
Singapore	Singapore
Solomon Islands	Honiara
South Africa	Pretoria
Spain	Madrid
Sri Lanka	Colombo
Sweden	Stockholm
Switzerland	Geneva
Thailand	Bangkok
Tonga	Nuku'alofa
Turkey	Ankara
United Arab Emirates	Abu Dhabi
United Kingdom	London
United States of America	Honolulu Los Angeles New York Washington
Croatia	Port Vila
Cyprus	Vatican City(b)
Denmark	Caracas
Egypt	Hanoi
Federated States of Micronesia	Ho Chi Minh City
Fiji	Belgrade
France	Harare
Germany	
Greece	
Hungary	
India	
Indonesia	
Iran	
Ireland	

(a) The Department of Foreign Affairs and Trade manages the Australian Mission in Dili. This is expected to become an embassy when the UN-administered territory of East Timor becomes an independent State. In Taipei, the Australian Chamber of Commerce and Industry maintains an office, the staff of which includes employees on leave without pay or seconded from the Department of Foreign Affairs and Trade, Austrade, the Department of Education, Training and Youth Affairs, and the Department of Immigration and Multicultural Affairs. (b) Embassy to the Holy See.

Source: Department of Foreign Affairs and Trade.

**3.6 MULTILATERAL MISSIONS**

	Post
OECD	Paris
UN	Geneva
	New York
	Vienna
WTO	Geneva

*Source: Department of Foreign Affairs and Trade.*

**3.7 CONSULATES MANAGED BY AUSTRADE**

Country	Post
Brazil	Sao Paulo
Canada	Toronto
Germany	Frankfurt
India	Mumbai
Italy	Milan
Japan	Fukuoka Nagoya Osaka Sapporo Sendai
New Zealand	Auckland
Peru	Lima
Romania	Bucharest
Turkey	Istanbul
United Arab Emirates	Dubai
United States of America	Atlanta San Francisco

*Source: Department of Foreign Affairs and Trade.*

**3.8 CONSULATES HEADED BY HONORARY CONSULS**

	Post
Angola	Luanda
Bolivia	La Paz
Brazil	Rio de Janeiro
Bulgaria	Sofia
Canada	Vancouver
Colombia	Bogota
Czech Republic	Prague
Ecuador	Guayaquil
Estonia	Tallin
Finland	Helsinki
Former Yugoslav Republic of Macedonia	Skopje
French Polynesia	Papeete
Greece	Thessalonika
Indonesia	Balikpapan Kupang Medan Pusan
Korea, Republic of	Riga
Latvia	Vilnius
Lithuania	Malaysia
Malaysia	Kota Kinabalu Kuching Penang
Mexico	Guadalajara Monterrey
Mozambique	Maputo
Norway	Oslo
Pakistan	Karachi
Papua New Guinea	Lae
Russia	Vladivostok
Slovenia	Ljubljana
South Africa	Durban
Spain	Barcelona Seville
Thailand	Chiang Mai
Ukraine	Kiev
United Kingdom	Edinburgh
United States of America	Boston Denver Houston Miami
Uruguay	Montevideo

*Source: Department of Foreign Affairs and Trade.*

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Much information about Australia's foreign and trade policy can be accessed through the DFAT website, <http://www.dfat.gov.au>. The Department also produces hard copy publications on many foreign and trade policy issues, which are available from the Department (Tel: +61 (02) 6261 1111) or from Commonwealth Government bookshops. The website contains a browsable list of topic categories, as well as a continually updated current issues list. Documents of interest can be found on the website by using its search facility. They include:

- *Department of Foreign Affairs and Trade Annual Report 1999–2000.*
- *Department of Foreign Affairs and Trade Corporate Plan 2000–2002.*
- *Trade Outcomes and Objectives Statement 2000.*
- *Portfolio Budget Statements 2001–2002.*
- *Hints for Australian Travellers.*
- *In the National Interest: White Paper on Australia's Foreign and Trade Policy.*

More detailed information about Australia's bilateral relationships can be found at <http://www.dfat.gov.au/geo/fs>

For specific trade and investment information see <http://www.dfat.gov.au/facts/index> and <http://www.tradewatch.dfat.gov.au>

For publications by the East Asian Analytical Unit see <http://www.dfat.gov.au/eaau>

For a list of DFAT statistical publications see <http://www.dfat.gov.au/publications/statistics>

For consular and passport information see <http://www.dfat.gov.au/travel/index>

For information on Australia's international treaty commitments see <http://www.austlii.edu.au/au/other/dfat>

For information on Australia's human rights policy see <http://www.dfat.gov.au/br>

For information on Australia's international environmental activities see <http://www.dfat.gov.au/environment>

## Related Internet sites

Australian Agency for International Development (AusAID), <http://www.ausaid.gov.au>. AusAID's site contains a range of information, including:

- hot topics, <http://www.ausaid.gov.au/bottopics>
- country information, <http://www.ausaid.gov.au/country>
- publications, <http://www.ausaid.gov.au/publications>. The site also contains the report of the committee of review on the Australian overseas aid program (the Simons Report), at <http://www.ausaid.gov.au/publications/pdf/simons/simons.pdf>
- Global Education, <http://globaled.ausaid.gov.au>

Australian Centre for International Agricultural Research, <http://www.aciar.gov.au>

Australian Safeguards and Non-proliferation Office, <http://www.asno.dfat.gov.au>

Australian Trade Commission (Austrade), <http://www.austrade.gov.au>. There are separate home pages geared to Australian users, <http://www.austrade.gov.au/Australian> and international users, <http://www.austrade.gov.au/international>

Business in APEC, <http://www.bizappec.gov.au>

Export Finance and Insurance Corporation (EFIC), [http://www.dfat.gov.au/trade/export\\_finance\\_policy](http://www.dfat.gov.au/trade/export_finance_policy)



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## Introduction

This chapter profiles the role and activities of the Defence organisation in Australia (referred to hereafter as 'Defence'). In particular, it focuses on the impact and importance of the Defence White Paper on such issues as capability, resources and people. The chapter includes a range of statistical data, and an article on the history of Defence since Federation.

## Resources

Defence spending has remained steady over the past decade, despite the end of the Cold War and a more fluid and uncertain strategic environment. As shown in graphs 4.1 and 4.2, although Defence outlays have risen gradually since 1994–95, as a percentage of GDP they declined from 1992–93 to 1996–97 before flattening out at about 2%.

The White Paper *Defence 2000 — Our Future Defence Force* (see the article) establishes that defending Australia in the 21st century will require a greater funding commitment than in the past. To that end, the Government has provided an increase in defence funding of \$5.1b over four years, starting with a \$507m increase in 2001–02. The military enhancements announced in the White Paper follow a major review of Australia's defence requirements. Defence has been provided with a Capability Plan and funding projection for the development of Australia's armed forces over the

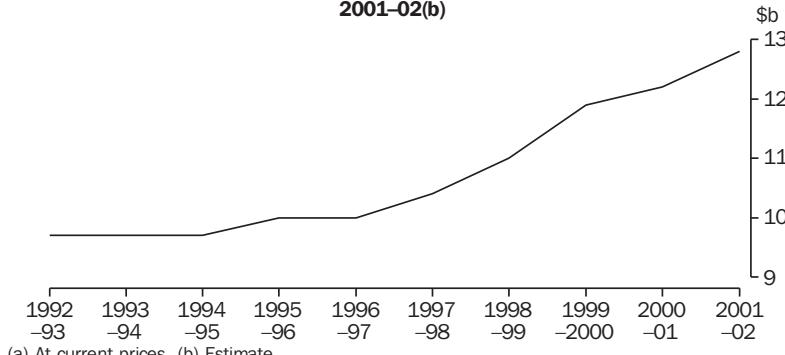
next decade. In all, defence spending over the next ten years is forecast to increase by a total of \$27.6b, averaging around 3% per annum growth in real terms, bringing total spending over the period to around \$160b.

Graph 4.3 reflects the importance of people to Australia's defence capability. It also shows an increased commitment to investment (capital outlay) in the late 1990s, which mainly comprises the purchase of specialist military equipment (the so-called 'sharp end' of defence). In the meantime, 'operating' expenditure has declined as a percentage of defence expenditure.

Over the past decade, defence spending by Australia's traditional strategic partners, the United States and the United Kingdom, has declined steadily with the end of the Cold War and the subsequent reduction of their military forces. The United States' defence spending as a percentage of GDP has declined from 5% to 3%, and the United Kingdom's spending as a percentage of GDP has dropped from 4% to 2.5%. Australia has spent less on defence as a percentage of GDP than either of these countries.

From a regional perspective, Australia has tended to spend more on defence than its neighbours. Key regional players, such as Indonesia, Thailand, Malaysia, Singapore, the Philippines and New Zealand, all spend less than Australia. Table 4.4 compares Australia's defence spending with that by key South East-Asian countries during the 1990s.

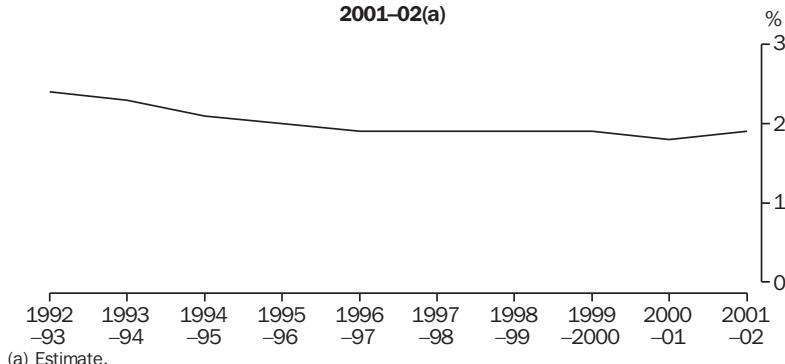
**4.1 DEFENCE OUTLAYS(a) — 1992–93 to 2001–02(b)**



(a) At current prices. (b) Estimate.

Source: Department of Defence.

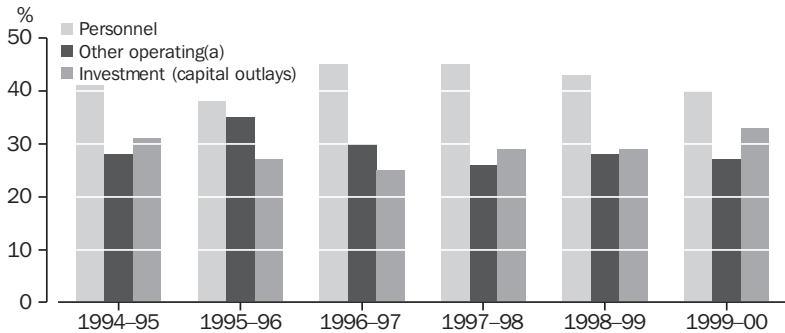
**4.2 DEFENCE OUTLAYS, Proportion of GDP — 1992–93 to 2001–02(a)**



(a) Estimate.

Source: Department of Defence.

**4.3 DEFENCE OUTLAYS, By Category(a) — 1994–95 to 1999–2000**



(a) Figures drawn from the cash flow statements of successive Defence Annual Reports, 1994–95 to 1999–00. (b) 'Other Operating' expenditure includes: suppliers; subsidies, benefits and grants; interest and other financing costs; and other goods and services.

Source: Department of Defence.

**4.4 DEFENCE OUTLAYS(a) IN REAL TERMS, Selected Countries**

Country	1990 \$b	1991 \$b	1992 \$b	1993 \$b	1994 \$b	1995 \$b	1996 \$b	1997 \$b
Australia	6.02	6.51	6.63	6.82	7.00	7.11	7.17	7.14
Malaysia	1.45	2.00	2.02	2.17	2.24	2.40	2.49	2.26
Indonesia	2.02	2.07	2.18	2.28	2.45	2.63	2.89	2.92
Singapore	2.88	2.93	3.21	3.22	3.40	3.35	3.83	4.01
Thailand	2.87	2.93	3.35	3.29	3.62	3.80	3.77	3.57
Philippines	1.37	1.31	1.40	1.17	0.97	1.02	1.01	1.42

(a) \$US at 1995 prices.

Source: Department of Defence.

## The White Paper: Defence 2000 —Our Future Defence Force

Released in December 2000, the White Paper outlines the Government's long-term security direction and military capability enhancement framework. It identifies the most important priorities for Defence and establishes the priority task for the Australian Defence Force as 'the defence of Australia'. Importantly, it sets the Government's priorities for capability development and its funding commitment for Defence for the next ten years.

The White Paper establishes five strategic objectives to which Defence contributes:

- ensuring the defence of Australia and its direct approaches;
- fostering stability, integrity and cohesion in our immediate neighbourhood;
- working with nations in South East Asia to maintain stability and cooperation;
- supporting strategic stability in the wider Asia Pacific region; and
- supporting the efforts of the international community in upholding global security.

As outlined in the White Paper, Australia's strategic environment is shaped by the interrelated trends of globalisation and the primacy of the United States, while the evolution of the United Nations (UN) is also significant. These trends are generally positive from a security perspective, although countervailing pressures (such as nationalism and regionalism) are also prevalent. For the

region, the economic dynamism of the Asia Pacific is expected to present significant opportunities and challenges, with relationships between major powers (China, Japan, India, Russia, and the United States) the most critical issue. South East Asia remains an area of great promise, despite a number of economic, political and social challenges.

Australia remains one of the world's most secure countries, thanks to its geography, good regional relations, a strong armed force, and a close alliance with the United States. The likelihood of an attack on Australia is low. A full-scale invasion is the least likely military contingency Australia might face. A major attack, including the seizure of territory and damage to Australia's population, infrastructure and economy, is only a remote possibility. Minor attacks on Australia may be possible, but would be credible only in a major dispute.

However, significant shifts in Australia's strategic environment could introduce a major risk and would require a fundamental shift in our strategic planning. Moreover, increased instability in the nearer region could require simultaneous deployments of Australian forces, stretching resources. Therefore, Defence keeps a close watch on the strategic environment, relying upon the intelligence agencies and the Department of Foreign Affairs and Trade. Updated strategic analysis is produced quarterly to inform strategic judgement and to help set priorities for capability development.

## Defence outcome and outputs

The Government's Defence outcome is "the defence of Australia and its national interests". This reflects Australia's defence requirements in a complex strategic environment, and the reality that activities inimical to Australian security and national interests may not involve the use of armed force.

Defence reports to the Government in relation to six 'outputs' (the products or services produced by Defence). These outputs are:

- Defence operations;
- Navy capabilities;
- Army capabilities;
- Air Force capabilities;
- Strategic policy; and
- Intelligence.

Further information on Defence's outcome and outputs is contained in the Minister for Defence's 2001–02 Portfolio Budget Statements (see the Bibliography).

## Current capability

Defence maintains a force structure with the following major combat elements:

- a surface combatant force of six guided missile frigates, three Anzac frigates (rising to eight), together with onboard helicopters, supported by a replenishment ship and an oiler supply ship;
- five Collins-class submarines (rising to six);
- six high-readiness Army battalions supported by a range of fire support, logistics and transport assets and a number of lower-readiness units able to provide personnel for sustainment and rotation;
- a re-roled and re-tasked Reserve Force designed to sustain, reinforce and, to a lesser degree, rotate personnel and equipment;
- special forces consisting of the Special Air Services Regiment, a high-readiness commando battalion and a reserve commando battalion;
- a fighter force of three front-line F/A-18 squadrons, supported by training squadrons, air-to-air refuelling aircraft, a wide-area surveillance system, and a range of ground radars and other support elements;
- an air strike force of two F-111 squadrons; and
- a maritime patrol force of two P3C Orion squadrons.

These major combat elements are integrated through a number of well developed command, communications and intelligence systems.

As well as developing capabilities to deal with major attacks for which significant warning might be expected, Defence maintains some forces at high readiness, able to respond to contingencies that might arise with little warning.

In accordance with the White Paper, the Australian Defence Force will be developed for the defence of Australia and for operations in its immediate region. Forces provided for coalition operations in support of wider interests will be drawn from this base. Air or naval forces would be more suitable for higher-intensity operations — Australia's land forces will not be developed for major continental-scale warfare operations against well-armed adversaries possessing significant armour capabilities.

## Defence operations

Defence is involved in a number of security and surveillance operations around the world, encompassing South-East and Central Asia, the Western Pacific, the Middle East, Europe and Africa. Defence is also involved in a number of non-military operations, including operations against illegal immigration and smuggling and foreign fishing incursions into Australia's sub-Antarctic exclusive economic zone. Of continuing importance is the provision of Australian forces in support of the United Nations Transitional Administration in East Timor (Operation Tanager), where Defence has committed approximately 1,600 personnel. Details of current Australian Defence Force operations are contained in Defence's statutory reporting documents, which can be found at <http://www.defence.gov.au/budget>.

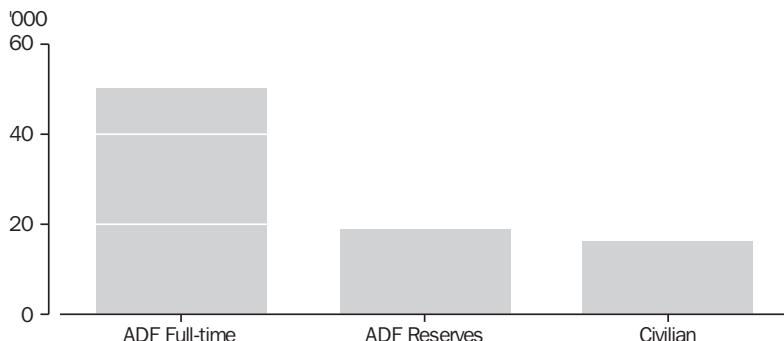
## Future capability

Consistent with the strategic priorities in the Defence White Paper, a significant capital acquisition program is being pursued to increase the capability of Australia's armed forces.

Major capital investment projects include the purchase of airborne early warning and control aircraft and the upgrading of the Collins class submarines to a higher level of capability. Improved air-to-air refueling capabilities are also considered vital. Estimated expenditure on new projects is \$509m in 2001–02, \$829m in 2002–03 and \$1,181m in 2003–04.

These acquisitions will be crucial in meeting several future challenges. Firstly, Defence needs to recognise growing regional defence capabilities. Examples include increasing air-combat capabilities and the proliferation of more capable anti-ship missiles. Secondly, Defence needs to meet the challenge of block obsolescence, as several key platforms (including patrol boats, support ships, guided missile frigates, maritime patrol aircraft, and F/A-18 and F-111 aircraft) will need to be replaced over the coming twenty years. Defence has already begun planning to meet these challenges. Extensive planning is required as the maintenance and management of defence capabilities is a long-term process. The replacement of some platforms may take up to 10 years, with the new platform having a life of over 30 years. Quantum jumps in technology can accelerate obsolescence, making the development and maintenance of defence capabilities a very complex and demanding process.

#### 4.5 DEFENCE TOTAL STAFFING — 2000–01(a)



(a) Estimate.

Source: Department of Defence.

## People

With over eighty-five thousand people, Defence is one of Australia's largest employers. As is shown in graph 4.5, the majority of Defence employees (59%) are full-time Australian Defence Force (ADF) personnel. Of these, nearly half (24,469) are Army personnel, with the Navy and the Air Force employing 12,396 and 13,471 people respectively. In addition to full-time ADF personnel, a significant proportion (22%) are employed in the ADF Reserves (largely Army personnel) (table 4.6). A further 19% are civilians.

The ADF has experienced difficulty in recent years in maintaining personnel numbers, particularly in specialist areas, due to relatively high separation rates and an inability to achieve recruiting targets. Although recruitment has improved, Defence faces significant demographic challenges in reversing these trends. Measures being taken include:

- Changing the role of the Reserves to better complement the role of the permanent forces. Following changes to Reserves legislation, the Government will allow wider employment options for enlisted Reservists and, in turn, provide increased support to Reservists and their employers.
- Improving opportunities for young Australians to participate in the Australian Services Cadet Scheme. To this end, the Government has allocated an additional \$6m per annum, bringing total funding to \$30m per annum.

#### 4.6 AUSTRALIAN DEFENCE FORCE STAFFING — 2000–01(a)

Department	ADF Full-time(b)	ADF Reserves(c)
Navy	12 396	2 101
Army	24 488	16 087
Air Force	13 471	1 647
<b>Total</b>	<b>50 355</b>	<b>19 835</b>

(a) Estimate. (b) Average strength. (c) Actual strength of reservists who rendered paid service in 2000–01.

Source: Department of Defence.

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## **Internet site**

Department of Defence, <http://www.defence.gov.au>

For documents of interest available on this site, see the site references in the Bibliography.

# 100 years of Defence

Australia's Centenary of Federation involved a comprehensive program of Defence participation in official celebrations throughout 2001.

Beginning with the Federation Day celebration in Sydney on 1 January 2001, Defence took part in many events to highlight the vital role it has played, and continues to play, in shaping the nation.

Australians are proud of their Defence Force and its many achievements over the last 100 years. Australia's armed forces have earned an enviable reputation for resilience, resourcefulness and compassion. This has been demonstrated in two world wars and numerous other deployments. In recent years, ADF personnel have made an essential contribution to stability in the nearer region and around the globe, as well as helping Australia's community, friends and neighbours whenever required to participate in emergency rescues and respond to natural disasters.

As well as celebrating the Centenary of Federation in 2001, Defence also celebrated the 100th anniversary of the Australian Army, the 90th anniversary of the Royal Australian Navy, and the 80th anniversary of the Royal Australian Air Force.

The Department of Defence was established on 1 March 1901, along with six other new departments, and was located in Melbourne's Victoria Barracks. The States' naval and military forces, which numbered over 30,000 personnel (although only 1,750 were full-time), were transferred to Commonwealth control at the same time. The Department was small and its role mainly administrative, as matters concerning Australia's security remained the prerogative of the British Government.

Defence experienced some early problems in establishing its structure and mandate. Extensive parliamentary debate meant that the Defence Act was not proclaimed until 1 March 1904, even though the first Defence Bill was introduced in June 1901. Debate over defence policy continued throughout the first decade of Federation, as a young Australia sought to establish its security role and purpose in the new century. Eventually, Australia turned to the United Kingdom for protection by adopting an 'Imperial defence'

policy. Notwithstanding, Australia established Naval and Military Boards in 1905, and also founded the Central Flying School and Royal Military College Duntroon in 1911.

Australia responded quickly to the call to arms for the First World War. Official notification of the prospect of war was received from London on 29 July 1914, and the first stage of mobilisation was ordered on 2 August 1914 (three days before the official declaration of war). The lead elements of the first Australian Imperial Force (AIF) embarked in the last week of September 1914, less than eight weeks later. By the end of the war, the expeditionary force comprised nearly 330,000 Australian men and women, of whom approximately 60,000 did not return.

The end of the First World War did not mean the end of Defence's work. Finding employment for the tens of thousands of returned soldiers presented a major challenge, as did using the wartime experience to prepare Australia better for future threats. Coming to terms with new technology was also problematic. Examples included the advent of mechanised and armoured warfare, and the emerging force of air power. To cope with the latter, the Air Board was established in 1920 and the Royal Australian Air Force was founded in 1921. Moreover, Defence had to meet these challenges with reduced staff and a shrinking budget.

The Great Depression of the early 1930s exacerbated these funding pressures, and there were reductions to defence expenditure. The Depression also reactivated the old fear of Japan, and Australia again turned to its 'great and powerful friend', the United Kingdom, for protection. By supporting British-led 'Imperial foreign policy' and 'Imperial defence' (which leaned heavily on sea-power and the Singapore strategy) Australia sought to ensure its future security. However, as the 1930s wore on, Britain became increasingly preoccupied with Nazi Germany, focusing spending on homeland defence through the Royal Air

Force. With a declining British focus on Asia, cracks began to appear in Australia's policy of 'Imperial defence'.

The 1930s also saw the rise to prominence of Frederick (later Sir Frederick) Shedden, who became Secretary of Defence in 1937. Shedden became Defence's longest-serving Secretary, guiding policy through a tumultuous period including the Second World War, the onset of the Cold War, and Australia's commitment to the Korean War and the Malayan Emergency. Shedden was also a staunch defender of 'Imperial defence' and Australia's close ties with Britain, which would have major implications for Australian strategic policy throughout the 1940s and 1950s.

World War Two broke out in September 1939, sparking the rapid expansion and reorganisation of Defence. Such change continued throughout the war. As is shown in table S1.1, Defence administration was divided into four separate departments in 1939 — Navy, Army, Air, and the Department of Defence Co-ordination (each headed by separate Ministers). The Department of Supply and Development had been established earlier in the year in anticipation of the coming conflict, and soon underwent radical change. The urgency of war made a number of its functions important enough to warrant new, separate agencies: the Departments of Munitions (created in 1940) and Aircraft Production (created in 1941). The Department of War Organisation of Industry was created in 1941, which was part of Prime Minister Menzies' "prospectus of an unlimited war effort". The Military Board was suspended in 1942 and an Australian Commander-in-Chief was appointed. The Department of Post-War Reconstruction was established in 1942 to begin planning for the end of hostilities. A number of departmental renamings also took place during the war, leading to the Department of Supply and Shipping, and a return to the Department of Defence.

From a national security perspective, the Second World War was extremely traumatic. Not only did Australia suffer around 27,000 war dead, it was threatened with invasion and had its northern reaches bombed. Moreover, Australia's traditional great-power ally, the United Kingdom, was defeated in Asia and soon reassessed its security role in the region.

This led Australia to look to another 'great and powerful friend', the United States. Thus began

Australia's most important defence relationship since the end of the Second World War.

The war's end brought with it many more challenges and opportunities. Again, using the wartime experience to prepare Australia better for future threats was important, as was coming to terms with the advent of new technology and the arrival of the 'atomic age'. These considerations were made within the broader debate over the development of a 'new world order', which was eventually based on international institutions such as the UN (established in 1945) and the Bretton Woods system (including the foundation of the International Monetary Fund and World Bank, established in 1944). The late 1940s also saw the beginning of the end of French, Dutch and British colonies in Asia, which presented Australia with a more complex strategic environment.

This environment was complicated further with the growing fear in Australia of communism. During 1948 communist activity aimed at gaining independence for Malaya caused a State of Emergency to be declared by the British Government, and Australian forces were deployed to counter the threat during 1950. The new Menzies Government (elected in 1949) was so concerned by communism that the Cabinet believed a Third World War was likely within three years. The outbreak of the Korean War in June 1950 heightened these fears; however, as the conflict ground into a stalemate, analysts decided that a 'Cold War' was more likely than global conflict. Australia had been quick to support the American-led UN force in Korea (both politically and militarily), and the alliance was cemented with the ANZUS (Australia, New Zealand, United States) Treaty of 1951. Efforts to maintain close ties with Britain continued with the deployment of forces to the Commonwealth Far East Strategic Reserve in the Malayan Emergency of 1955. However, Britain's and Australia's strategic priorities began to diverge soon after. Britain focused on the North Atlantic Treaty Organisation, granted independence to Malaya in 1957 (amid increasing talk of withdrawal from 'east of Suez'), and began negotiating its entrance to the European Economic Community. Meanwhile, Australian strategy became increasingly focused on South-East Asia, and the strategic

concepts of ‘forward defence’ and the ‘containment of communism’.

The late 1950s also saw major changes in Defence, with Sheddren retiring after 19 years as Secretary and the Department’s move from Melbourne to Canberra. Furthermore, a Prime Ministerial Directive issued in 1958 gave overall responsibility for defence policy to the Department of Defence. However, the existence of separate Departments of the Navy, the Army, and the Air Force, and the continuing influence on strategic policy from External Affairs and the Prime Minister’s Department, tended to blur the lines of responsibility.

The 1960s brought more challenges, most notably the ‘Confrontation’ between Indonesia and the newly-formed Federation of Malaysia, and the Vietnam war. Australia’s commitment to Vietnam began in May 1962 with the deployment of advisers and Army instructors, and slowly escalated throughout the decade. By the end of the commitment in 1972, around 50,000 Australians had served in Vietnam with 501 killed or missing presumed dead.

The 1960s also saw the seemingly inevitable change in Australia’s major defence relationship, as Britain’s withdrawal from Asia was finally made official with the endorsement of the ‘East of Suez’ policy in July 1967. At the same time, Australia sought to strengthen its ties with the United States through Prime Ministerial visits to Washington and an increased commitment to Vietnam. However, with President Nixon’s Guam Doctrine of “no more Asian entanglements” (announced in July 1969), Australia was expected to assume greater responsibility for regional security. Hence, Australia was compelled to move towards a more self-reliant strategic posture.

As Australia made this change, it became apparent that the Government would need more sustained and systematic advice about the development and employment of its armed forces. The contribution of Sir Arthur Tange (Secretary between 1970 and 1979) is especially notable, as he deliberately set out to attract highly talented people to Defence who would lay the intellectual and conceptual foundations of Australian strategic policy. Tange also pushed for a more fundamental reorganisation of Defence and, when Labor took office in December 1972, one Minister assumed responsibility for the Departments of Defence, Navy, Army and Air. More importantly, in 1973, a single Department of

Defence was created by the amalgamation of these departments.

The Whitlam Labor Government (1972–75) made a strong impression on defence and strategic policy, although these were not high priorities for Labor when it came to office. Whitlam oversaw the completion of the withdrawal from Vietnam (which had been initiated by the previous Coalition Government), ended conscription, ratified the Nuclear Non-Proliferation Treaty, recognised Communist China, and opposed upgrades to the US base at Diego Garcia (but continued to support ANZUS). These changes required a reassessment of Australia’s strategic policy, a process which was complicated by the Timor crisis of 1974–75.

The return of the Coalition to power in 1975 saw a gradual re-strengthening of the American alliance, although self-reliance was still advocated. Prime Minister Fraser was concerned about the USSR’s strategic intentions in the region, and his suspicions were seemingly vindicated by the invasion of Cambodia by Vietnam (a Soviet ally) and the Soviet invasion of Afghanistan in 1979.

The election of the Hawke Labor Government in March 1983 did not fundamentally alter Australia’s defence policy or strategic direction. The ANZUS treaty remained crucial despite some public opposition to American bases and disagreements between New Zealand and the United States over nuclear weapons. Kim Beazley became Minister for Defence in 1984, with a strong academic background in strategic and international affairs. A year later he commissioned Paul Dibb (a former Director of Defence Intelligence) to write a Defence review, which would be used to inform Labor’s 1987 Defence White Paper, *The Defence of Australia*.

Robert Ray took over from Beazley in 1990, overseeing Australia’s commitments to the Gulf War, Cambodia, Somalia, Rwanda and Bougainville. With the demise of the Soviet Union and the end of the Cold War, this was another important time in international strategic affairs which would have major implications for Australia’s strategic environment and defence policy. The November 1994 White Paper,

*Defending Australia*, was an attempt to reflect these changes, stressing the end of the Cold War, the growing importance of Asia, and the need for defence self-reliance.

The election of the Howard Coalition Government in 1996 meant further changes for Defence. At the organisational level, the Coalition initiated the Defence Efficiency Review (which aimed to eradicate duplication, improve decision-making processes, and focus spending on the 'sharp end' of Defence), the accepted recommendations of which became the Defence Reform Program. At the operational level, the Coalition has continued to oversee the commitment to Bougainville, as well as committing Australian forces to East Timor and the Solomon Islands in support of UN missions. At the strategic level, the

Coalition wanted a more flexible and mobile defence force, able to deploy into the region to help Australia's neighbours and allies. These strategic changes were considered necessary to meet the challenges of post-Cold War instability, and were enshrined in the 2000 White Paper, *Defence 2000 – Our Future Defence Force*.

Australia enters the 21st century as one of the world's most secure countries. This has come at a cost, with the loss of nearly 90,000 men and women in the service of their country since Federation. Defence will continue to work to ensure the security of Australia both now and into the future.

### S1.1 DEFENCE ORGANISATION, Evolution through World War Two

Year	Event
1939	Separate Departments of Defence Coordination, Navy, Army, Air, and Supply and Development created.
1940	Department of Munitions created (abolished 1948).
1941	Department of Aircraft Production created (abolished 1946). Department of War Organisation of Industry created (abolished 1945).
1942	Military Board suspended and Commander-in-Chief of Australian Military Forces appointed. 'Coordination' dropped from title of Department of Defence Coordination. Department of Post-War Reconstruction established (abolished 1950). Name of Department of Supply and Development changed to Department of Supply and Shipping (abolished 1948).
1946	Military Board reinstated.

Source: *Department of Defence*.

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## Introduction

**P**opulation statistics are measures of the size, growth, composition and distribution of the population as well as the components that shape population change. Although population statistics are not in themselves indicators of wellbeing, they underpin the discussion of a wide range of issues relating to the population, including immigration, multiculturalism, ageing and population sustainability.

The changing size and distribution of Australia's population have implications for service provision and delivery in areas such as health, education, housing and the labour market. Population trends underlie many social changes and assist in the planning of social and economic policy.

The principal source of data on the Australian population is the Census of Population and Housing, which has been conducted at five-yearly intervals since 1961. The most recent census was in 2001.

## Population size and growth

This section examines the size, growth, distribution and age structure of the Australian population. There is an emphasis on changes over time, especially changes in the growth rate of the population.

As shown in table 5.1, Australia's estimated resident population at June 2000 was just over 19 million, an increase of 1.2% over the previous year. The slightly higher growth rate in 1999–2000 was due to a 16% increase in net overseas migration over the previous year (from 85,100 to 99,100 persons).

Australia's growth rate of 1.2% for the 12 months to June 2000 was slightly below the overall world growth rate of 1.3%. As shown in table 5.2, growth rates for Japan (0.2%), Germany (0.3%), the United Kingdom (0.3%) and New Zealand (0.5%) were considerably lower than that of Australia. In contrast, the populations of Singapore (with a growth rate of 3.6%), Papua New Guinea (2.5%), Hong Kong (1.8%), Indonesia (1.7%) and India (1.6%) grew at faster rates than Australia's population.

## Population size

Australia's population of 19.2 million at June 2000 was around 2 million greater than in 1990 and over 15 million more than the 1901 population of 3.8 million. Graph 5.3 shows the growth in Australia's population since 1788. The main component of Australia's population growth has been natural increase (the difference between births and deaths), which has contributed about two-thirds of the total growth since the beginning of the twentieth century. Net overseas migration has also contributed to natural increase, albeit indirectly, through children born to migrants. Components of population growth are discussed in more detail in the next section.

### 5.1 ESTIMATED RESIDENT POPULATION AND COMPONENTS OF POPULATION CHANGE(a) — 1995–2000

Year ended 30 June	Population								
	Births(a) '000	Deaths(a) '000	Natural increase(a) '000	Net permanent and long-term movement '000	Category jumping(b) '000	Net overseas migration(c) '000	At end of period '000	Increase '000	Increase %
1995	258.2	126.2	132.0	93.0	-12.9	80.1	18 071.8	217.0	1.2
1996	250.4	126.4	124.0	109.7	-5.5	104.1	18 310.7	239.0	1.3
1997	253.7	127.3	126.4	94.4	-7.3	87.1	18 524.2	213.4	1.2
1998	249.1	129.3	119.9	79.2	7.2	86.4	18 730.4	206.2	1.1
1999	250.0	128.3	121.7	96.5	-11.4	85.1	18 937.2	206.8	1.1
2000	248.5	127.7	120.8	107.3	-8.2	99.1	19 157.0	219.9	1.2

(a) Numbers of births and deaths are on a year of occurrence basis and differ from the Births and Deaths sections of this chapter.

(b) An adjustment for the effect of persons whose duration of stay (category) differs from their stated intentions, entailing a reclassification from short-term to permanent/long-term or vice versa. (c) Sum of the net permanent and long-term movement plus category jumping.

Source: Australian Demographic Statistics (3101.0).

Table 5.4 shows that population growth has not occurred evenly across the States and Territories. At Federation, South Australia had nearly twice the population of Western Australia, which in turn had only slightly more people than Tasmania. However, in 1982 Western Australia surpassed South Australia as the fourth most populous State.

### **Population growth**

Population growth results from natural increase and net overseas migration (net permanent and long-term arrivals and departures plus an adjustment for category jumping).

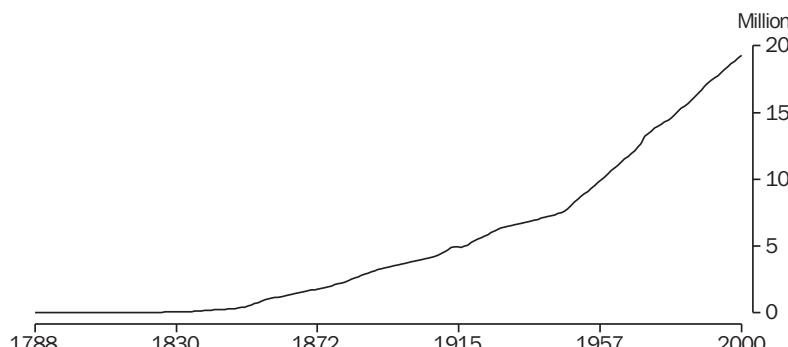
Australia's population grew from 3.8 million at the turn of the century to 19.2 million in 2000. During the 1950s Australia experienced consistently high rates of growth, with an average annual increase of 2.4% from the beginning of 1950 to the end of 1959, while during the 1930s Australia experienced relatively low growth (0.9%).

### **5.2 POPULATION SIZE AND RATE OF GROWTH FOR SELECTED COUNTRIES**

Country	Population as at June		
	1999	2000	Increase
	million	million	%
Australia	18.9	19.2	1.2
China	1 250.5	1 261.8	0.9
Canada	31.0	31.3	1.0
Germany	82.6	82.8	0.3
Hong Kong (SAR of China)	7.0	7.1	1.8
India	997.9	1 014.0	1.6
Indonesia	221.1	224.8	1.7
Japan	126.3	126.6	0.2
Korea, Republic of	47.0	47.5	0.9
New Zealand	3.8	3.8	0.5
Papua New Guinea	4.8	4.9	2.5
Singapore	4.0	4.2	3.6
Taiwan	22.0	22.2	0.8
United Kingdom	59.4	59.5	0.3
United States of America	273.1	275.6	0.9
<b>World</b>	<b>6 002.5</b>	<b>6 080.1</b>	<b>1.3</b>

Source: Australian Demographic Statistics (3101.0); Statistics New Zealand, National Population Estimates; US Bureau of the Census, International Data Base.

### **5.3 POPULATION OF AUSTRALIA**



Source: Official Year Book of the Commonwealth of Australia 1901-1910; Australian Demographic Trends (3102.0); Australian Demographic Statistics (3101.0).

#### 5.4 POPULATION, Australia's States and Territories — 1901 to 2000

As at 30 June	NSW '000	Vic. '000	Qld '000	SA '000	WA '000	Tas. '000	NT '000	ACT '000	Aust. '000
1901	1 361.7	1 203.0	502.3	356.1	188.6	171.7	4.8	..	<b>3 788.1</b>
1910	1 634.2	1 278.7	594.7	395.4	271.2	189.8	3.4	..	<b>4 367.4</b>
1920	2 067.7	1 511.9	748.7	486.5	330.2	209.3	4.1	2.2	<b>5 360.5</b>
1930	2 529.5	1 784.7	912.1	573.1	429.1	220.0	5.1	9.0	<b>6 462.6</b>
1940	2 777.0	1 900.1	1 028.0	599.2	473.3	240.2	8.0	13.8	<b>7 039.5</b>
1950	3 193.4	2 208.1	1 196.2	709.5	557.1	275.9	14.7	23.8	<b>8 178.7</b>
1960	3 832.5	2 857.4	1 495.9	945.3	722.1	343.9	25.6	52.4	<b>10 275.0</b>
1970	4 522.3	3 444.9	1 792.7	1 158.0	991.4	387.7	78.8	131.5	<b>12 507.3</b>
1980	5 171.5	3 914.3	2 265.9	1 308.4	1 269.1	423.6	118.2	224.3	<b>14 695.4</b>
1990	5 834.0	4 378.6	2 899.3	1 432.1	1 613.0	462.2	163.7	282.2	<b>17 065.1</b>
1999	6 396.7	4 707.6	3 506.9	1 492.4	1 857.6	470.8	192.7	309.3	<b>18 937.2</b>
2000	6 463.5	4 765.9	3 566.4	1 497.6	1 883.9	470.4	195.5	310.8	<b>19 157.0</b>

Source: Australian Historical Population Statistics (3105.0.65.001).

Natural increase has been the main source of the growth since the turn of the century, contributing two-thirds of the total increase between 1901 and 2000. Net overseas migration, while a significant source of growth, is more volatile, fluctuating under the influence of government policy as well as political, economic and social conditions in Australia and the rest of the world.

The yearly growth rates due to natural increase and net overseas migration from 1901 to 2000 are shown in graph 5.5.

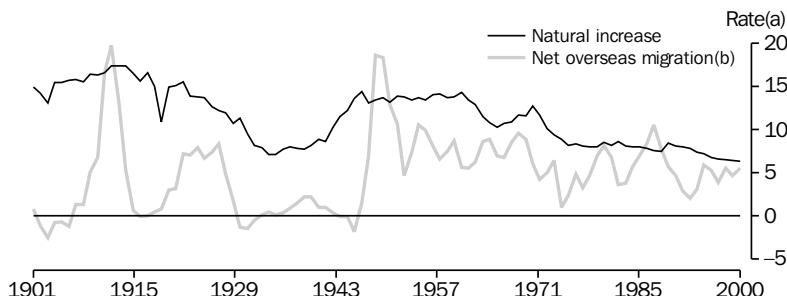
In 1901 the rate of natural increase was 14.9 persons per 1,000 population. Over the next four decades the rate increased (to a peak of 17.4 per thousand population in the years 1912, 1913 and 1914) then declined (to a low of 7.1 per thousand population in 1934 and 1935). In the mid to late 1940s the rate increased sharply as a result of the beginning of the baby boom and the

immigration of many young people who then had children in Australia, with a plateau of rates of over 13.0 persons per 1,000 population for every year from 1946 to 1962.

Since 1962, falling fertility has led to a fall in the rate of natural increase. In 1971 the rate of natural increase was 12.7 persons per 1,000 population; a decade later it had fallen to 8.5. In 1996 the rate of natural increase fell below seven for the first time, with the downward trend continuing in the late 1990s. ABS population projections indicate that continued low fertility, combined with the increase in deaths from an ageing population, will result in natural increase falling below zero sometime in the mid 2030s.

Since 1901, the crude death rate has fallen from about 12.2 deaths per 1,000 population to 6.7 in 2000. Crude birth and death rates from 1901 to 2000 are shown in graph 5.6.

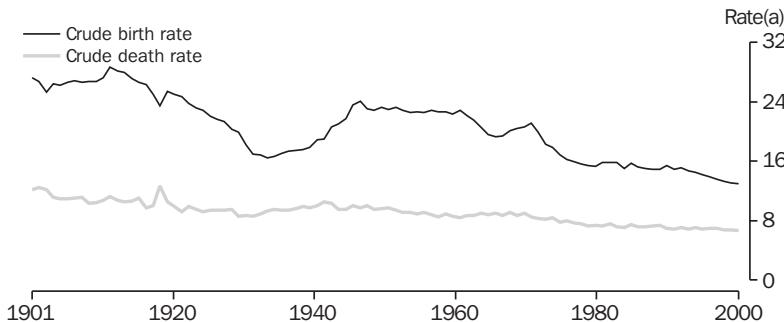
#### 5.5 COMPONENTS OF POPULATION GROWTH



(a) Rate per 1,000 population. (b) Excludes movements of troops for the periods 1914 to 1920 and 1939 to 1947.

Source: Australian Historical Population Statistics (3105.0.65.001); Australian Demographic Statistics (3101.0).

## 5.6 COMPONENTS OF NATURAL INCREASE



(a) Rate per 1,000 population.

Source: Australian Historical Population Statistics (3105.0.65.001); Australian Demographic Statistics (3101.0).

## Aboriginal and Torres Strait Islander population

There are no accurate estimates of the population of Australia before European settlement. Many estimates were based on post-1788 observations of a population already reduced by introduced diseases and other factors. In 1930 the anthropologist Radcliffe-Brown postulated a minimum figure of 300,000. In 1980 L.R. Smith estimated the absolute minimum pre-1788 population at 315,000. Other estimates have put the figure at over 1 million, while recent archaeological finds suggest that a population of 750,000 could have been sustained.

Whatever the size of the Indigenous population before European settlement, it declined dramatically under the impact of new diseases, repressive and often brutal treatment, dispossession, and social and cultural disruption and disintegration (*Year Book Australia 1994*). The decline of the Indigenous population continued well into the twentieth century.

Changing social attitudes, political developments, improved statistical coverage, and a broader definition of Indigenous origin have all contributed to the increased likelihood of people identifying as being of Aboriginal or Torres Strait Islander origin. This is reflected in the large increases in the number of people who are identified as Indigenous in each Census, increases in excess of those which can be attributed to natural increase in the Indigenous

population. If there is no future change in Indigenous identification, the Indigenous population is projected to be 469,000 in 2006. On the other hand, if the change in propensity to identify as Indigenous between the 1991 and 1996 Censuses continues then the Indigenous population is projected to reach 649,000 in 2006 — an increase of over 50% over the 1996 estimate. Table 5.7 shows the distribution of the Indigenous population between 1901 and 1996, and projections for 2001 and 2006.

Graph 5.8 shows the very young age structure of the Indigenous population. In 1996, the median age of the Indigenous population was 20 years, compared with 34 years for the total population. With 40% of the population aged under 15, and 3% aged over 65, the Indigenous population of 1996 had a younger age structure than that of the total Australian population at the beginning of this century.

This age structure is largely a product of high fertility and high mortality among the Indigenous population. During the 1960s Indigenous women had, on average, about six children each but by the 1980s this had fallen to about three children each, compared to 1.9 for all Australian women. The high mortality experienced by the Indigenous population is reflected in their life expectancy at birth, which in 1997–99 was about 56 years for males and 63 years for females — around 20 years less than the respective life expectancies of all males and females in Australia in 1997 to 1999.

### 5.7 ESTIMATES OF THE INDIGENOUS POPULATION — At 30 June

State/Territory	1901(a)		1991(b)		1996(c)		2001(d)		2006(d)	
	no.	%	no.	%	no.	%	no.	%	no.	%
New South Wales	7 434	8.0	75 020	26.5	109 925	28.5	121 142	28.4	132 716	28.3
Victoria	652	0.7	17 890	6.3	22 598	5.9	24 586	5.8	26 541	5.7
Queensland	26 670	28.6	74 214	26.2	104 817	27.2	118 749	27.8	133 288	28.4
South Australia	5 185	5.6	17 239	6.1	22 051	5.7	24 313	5.7	26 633	5.7
Western Australia	30 000	32.1	44 082	15.6	56 205	14.6	61 505	14.4	66 976	14.3
Tasmania	157	0.2	9 461	3.3	15 322	4.0	16 644	3.9	18 023	3.8
Northern Territory	23 235	24.9	43 273	15.3	51 876	13.4	56 364	13.2	60 610	12.9
Australian Capital Territory	..	..	1 616	0.6	3 058	0.8	3 589	0.8	4 149	0.9
<b>Australia(e)</b>	<b>93 333</b>	<b>100.0</b>	<b>282 979</b>	<b>100.0</b>	<b>386 049</b>	<b>100.0</b>	<b>427 094</b>	<b>100.0</b>	<b>469 135</b>	<b>100.0</b>

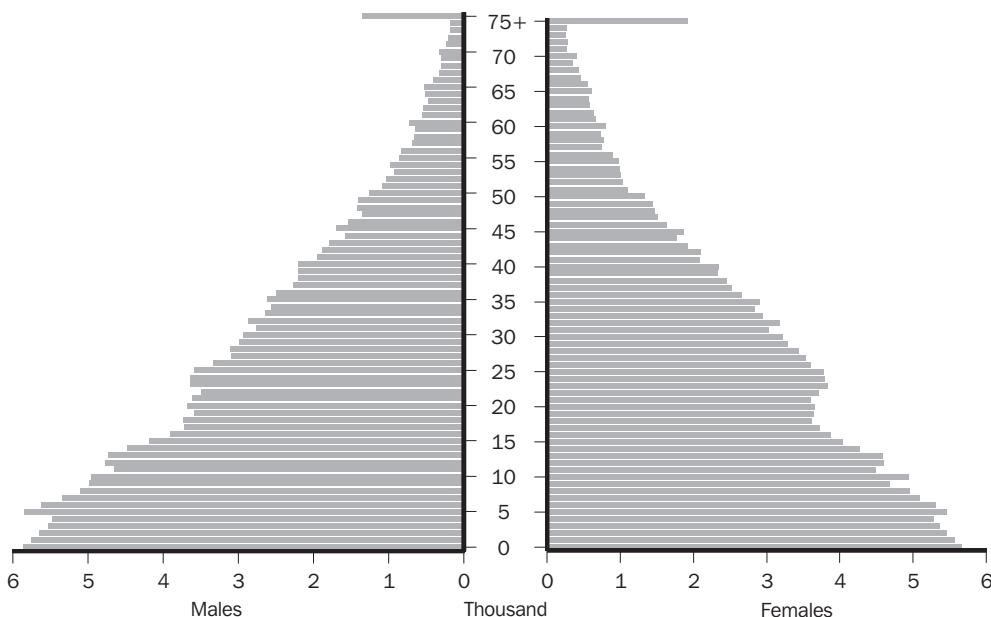
(a) Estimates in 1901 based on separate State Censuses. WA number was estimated without an enumeration of the Indigenous population. (b) Estimate based on the 1991 Census of Population and Housing. (c) Estimate based on the 1996 Census of Population and Housing. (d) Projection based on low series, which assumes no further increase in propensity to identify as Indigenous from 1996. (e) Includes Jervis Bay.

Source: Experimental Estimates of the Aboriginal and Torres Strait Islander Population (3230.0); Experimental Projections of the Aboriginal and Torres Strait Islander Population (3231.0); Population Issues, Indigenous Australians (4708.0).

While most of the total Australian population is concentrated along the east and (to a lesser extent) the south west coasts, the Indigenous population is much more widely spread. About 90% of Australia's Indigenous population live in areas covering 25% of the continent whereas 90% of Australia's total population are contained within just 2.6% of the continent. This reflects the fact that Indigenous people are much more likely

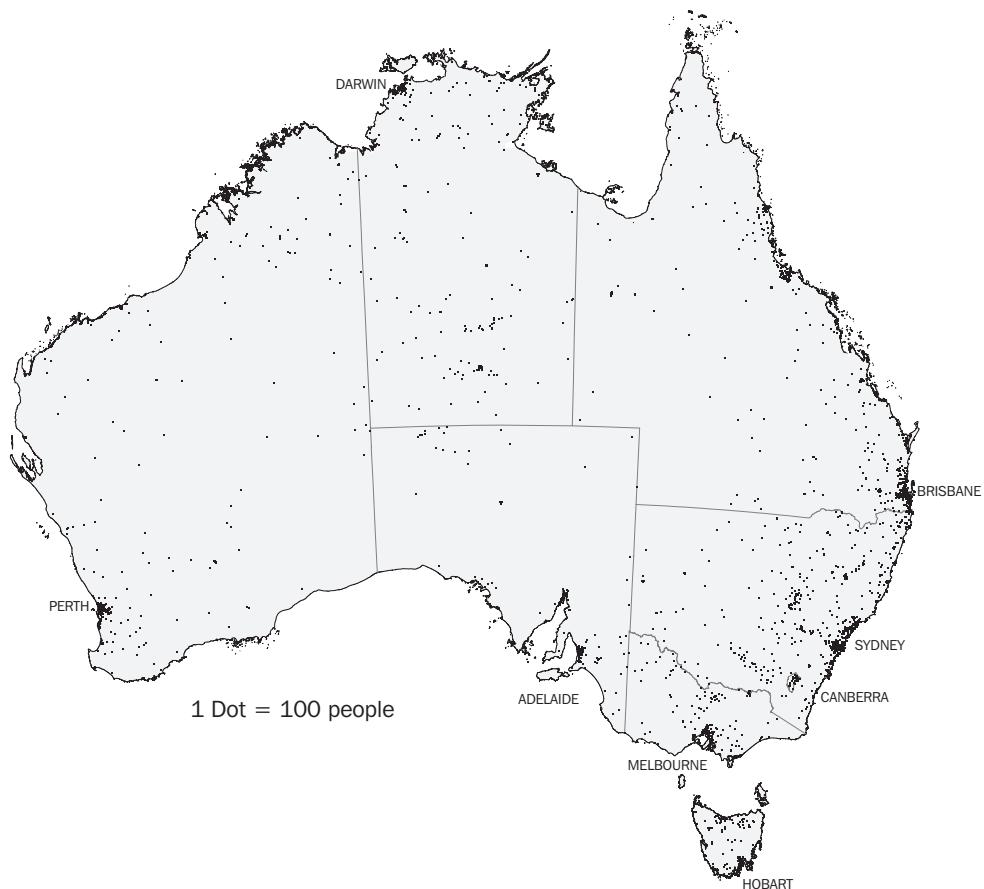
to live in remote areas than the rest of the population, and that there is a higher level of urbanisation among the non-Indigenous population than the Indigenous population. Approximately half of the continent of Australia contains just 0.3% of the total population, compared to 3.1% of the Indigenous population (see maps 5.9 and 5.14).

### 5.8 AGE STRUCTURE OF THE INDIGENOUS POPULATION — 1996



Source: ABS data available on request, Experimental Population Estimates.

## 5.9 DISTRIBUTION OF INDIGENOUS POPULATION(a) — 1996



(a) Represents a random distribution within Statistical Local Area boundaries.

Source: 1996 Census of Population and Housing.

## Population projections

The ABS has published projections of the Australian population to the year 2101, based on a combination of assumptions concerning future levels of births, deaths and migration. Three main series of projections have been produced, based on differing levels of these variables.

Series I assumes an annual net overseas migration gain of 110,000, high net internal migration gains and losses for States and Territories, and a total fertility rate of 1.75 babies per woman by 2008–09, then remaining constant. Series II assumes an annual net overseas migration gain of 90,000, medium net internal migration gains and losses for States and Territories, and a total fertility rate falling to 1.6 babies per woman by 2008–09, then remaining constant. Series III

assumes an annual net overseas migration gain of 70,000, generally small net internal migration gains and losses for States and Territories, and a total fertility rate falling to 1.6 births per woman in 2008–09, then remaining constant. All series assume that the 1986 to 1996 rate of improvement in life expectancy of 0.30 years per year for males and 0.22 years for females continues for the next five years and then declines gradually, resulting in life expectancy at birth of 83.3 years for males and 86.6 years for females in 2051. After this it is assumed to remain constant.

Graph 5.10 shows that Australia's population is projected to grow from 19 million in 1999 to around 19.4 million in 2001 and between 24.1 and 28.2 million in 2051. By 2101 the population is

projected to rise to between 22.6 and 31.9 million. The rate of population growth is projected to vary at different times during the projection period, with a clear long-term declining trend from 1.2% in 1998–99 to between 0.0% and 0.4% by 2050–51 and to between –0.1% and 0.2% by 2100–01. The reason for this slowing in growth is mainly a projected decline in the natural increase (births minus deaths) of the population. This decline is largely a result of the increasing number of deaths occurring in a rapidly ageing population as well as the low and declining fertility.

The populations of most States and of the Territories are expected to increase over the projection period, with the largest increases projected for the Northern Territory (between 36% and 163%), followed by Queensland (between 53% and 106%) and Western Australia (between 44% and 87%) which are well above those of Australia (between 27% and 49%).

Tasmania and South Australia are the only States where the population is projected to decline under each projection series. Tasmania's population is projected to decline by between 7% and 51% by 2051, from 470,300 in 1999 to between 231,300 and 435,700 in 2051. South Australia's population is projected to be between 1,410,500 and 1,477,100 persons in 2051, a decline of between 1% and 6% from its 1999 level of 1,493,100.

These projections are summarised in table 5.11.

The projections show that the ageing of the population, already evident, is set to continue. The 1999 median age of 34.9 years is projected to increase to between 43.6 and 46.5 years in 2051 and to between 44.0 and 46.6 years in 2101.

The age structure of the population will change noticeably by 2101. Graph 5.12 shows a heavier concentration in the ages 50 years and over and smaller increases or slight declines in the younger ages.

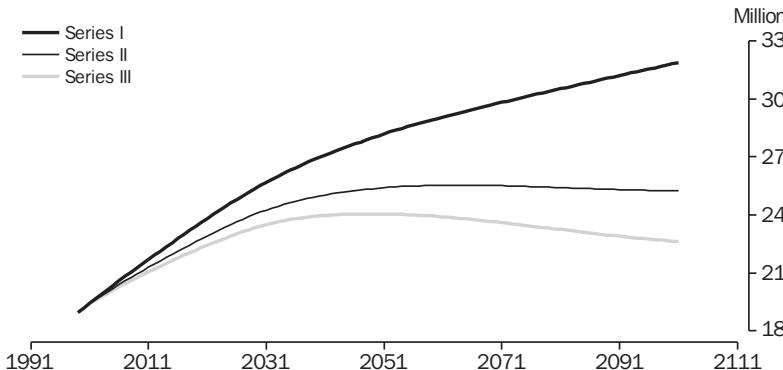
The proportion of the population aged 65 years and over is expected to increase substantially, from 12% in 1999 to between 24% and 27% in 2051 and to between 25% and 28% in 2101. The proportion aged 85 years and over is expected to almost quadruple, from 1.3% in 1999 to around 5% in 2051 and around 6% in 2101.

Table 5.13 summarises changes from 1901 to 1999, and projections to 2101, in population size, age structure, and proportion living in capital cities.

## Population distribution

Most of Australia's population is concentrated in two widely separated coastal regions. By far the largest of these, in terms of area and population, lies in the south-east and east. The smaller of the two regions is in the south-west of the continent. In both coastal regions the population is concentrated in urban centres, particularly the State and Territory capital cities. Half the area of the continent contains only 0.3% of the population, and the most densely populated 1% of the continent contains 84% of the population. The distribution of Australia's population is shown in map 5.14.

### 5.10 PROJECTED POPULATION OF AUSTRALIA — As at 30 June



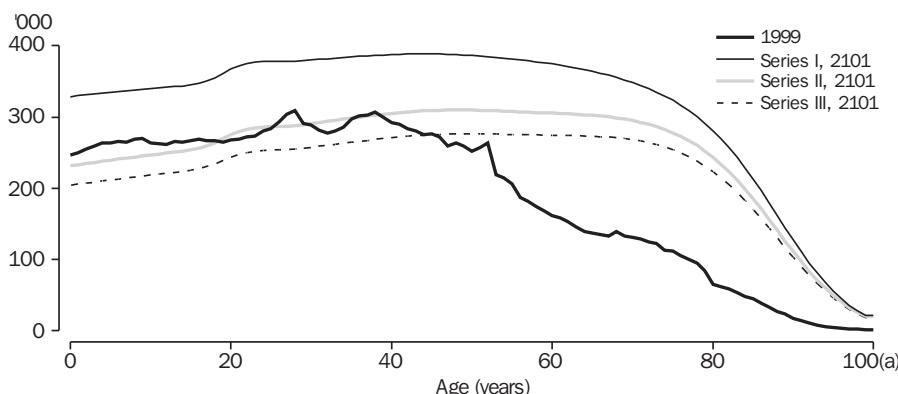
Source: Population Projections Australia, 1999 to 2101 (3222.0).

**5.11 ACTUAL AND PROJECTED POPULATION — As at 30 June**

	1999		2021			2051		
	Actual	'000	Series I	'000	Series II	'000	Series III	'000
Capital city/balance of State								
Sydney	4 041.4	5 143.2	5 039.7	4 986.9	6 215.8	5 857.8	5 704.7	
Balance of New South Wales	2 370.3	2 696.0	2 560.7	2 493.7	2 785.8	2 390.0	2 206.0	
<i>Total New South Wales</i>	<i>6 411.7</i>	<i>7 839.2</i>	<i>7 600.4</i>	<i>7 480.6</i>	<i>9 001.6</i>	<i>8 247.8</i>	<i>7 910.7</i>	
Melbourne	3 417.2	4 101.6	4 081.8	4 177.5	4 492.6	4 393.2	4 638.8	
Balance of Victoria	1 295.0	1 324.9	1 337.3	1 371.5	1 135.5	1 154.0	1 238.3	
<i>Total Victoria</i>	<i>4 712.2</i>	<i>5 426.5</i>	<i>5 419.0</i>	<i>5 549.0</i>	<i>5 628.1</i>	<i>5 547.2</i>	<i>5 877.1</i>	
Brisbane	1 601.4	2 364.4	2 215.5	2 083.3	3 311.0	2 864.1	2 510.9	
Balance of Queensland	1 910.9	2 824.7	2 593.2	2 453.0	3 917.9	3 237.2	2 862.8	
<i>Total Queensland</i>	<i>3 512.3</i>	<i>5 189.1</i>	<i>4 808.7</i>	<i>4 536.3</i>	<i>7 229.0</i>	<i>6 101.3</i>	<i>5 373.7</i>	
Adelaide	1 092.9	1 142.2	1 172.3	1 221.2	1 031.1	1 102.2	1 228.6	
Balance of South Australia	400.2	421.3	390.5	367.7	392.0	308.3	248.5	
<i>Total South Australia</i>	<i>1 493.1</i>	<i>1 563.6</i>	<i>1 562.8</i>	<i>1 588.9</i>	<i>1 423.1</i>	<i>1 410.5</i>	<i>1 477.1</i>	
Perth	1 364.2	1 929.5	1 817.5	1 725.2	2 565.4	2 231.5	1 981.8	
Balance of Western Australia	496.8	682.6	650.7	611.0	912.3	806.3	692.7	
<i>Total Western Australia</i>	<i>1 861.0</i>	<i>2 612.1</i>	<i>2 468.2</i>	<i>2 336.2</i>	<i>3 477.7</i>	<i>3 037.8</i>	<i>2 674.5</i>	
Hobart	194.2	202.0	187.1	169.0	186.7	146.2	99.7	
Balance of Tasmania	276.1	283.1	254.9	239.3	249.0	173.1	131.6	
<i>Total Tasmania</i>	<i>470.3</i>	<i>485.2</i>	<i>442.0</i>	<i>408.3</i>	<i>435.7</i>	<i>319.3</i>	<i>231.3</i>	
Darwin	88.1	145.4	129.3	104.5	242.8	192.2	121.2	
Balance of Northern Territory	104.8	163.2	135.8	123.2	263.9	177.4	141.8	
<i>Total Northern Territory</i>	<i>192.9</i>	<i>308.7</i>	<i>265.1</i>	<i>227.7</i>	<i>506.6</i>	<i>369.6</i>	<i>263.0</i>	
<i>Total Australian Capital Territory</i>	<i>310.2</i>	<i>397.9</i>	<i>356.5</i>	<i>309.6</i>	<i>489.3</i>	<i>371.7</i>	<i>248.3</i>	
<i>Total Capital Cities</i>	<i>12 109.5</i>	<i>15 426.1</i>	<i>14 999.5</i>	<i>14 777.3</i>	<i>18 534.7</i>	<i>17 159.0</i>	<i>16 533.9</i>	
<i>Total States and Territories</i>								
Balance(a)(b)	6 857.3	8 399.7	7 927.0	7 662.9	9 660.0	8 249.6	7 525.1	
<b>Total Australia(b)</b>	<b>18 966.8</b>	<b>23 825.9</b>	<b>22 926.4</b>	<b>22 440.2</b>	<b>28 194.7</b>	<b>25 408.5</b>	<b>24 059.0</b>	

(a) Excludes balance of ACT. (b) Includes Other Territories.

Source: Population Projections, Australia 1999 to 2051 (3222.0).

**5.12 AGE STRUCTURE OF THE POPULATION**

(a) The 100 years age group includes all ages 100 years and over and therefore is not strictly comparable with single year ages in the rest of the graph.

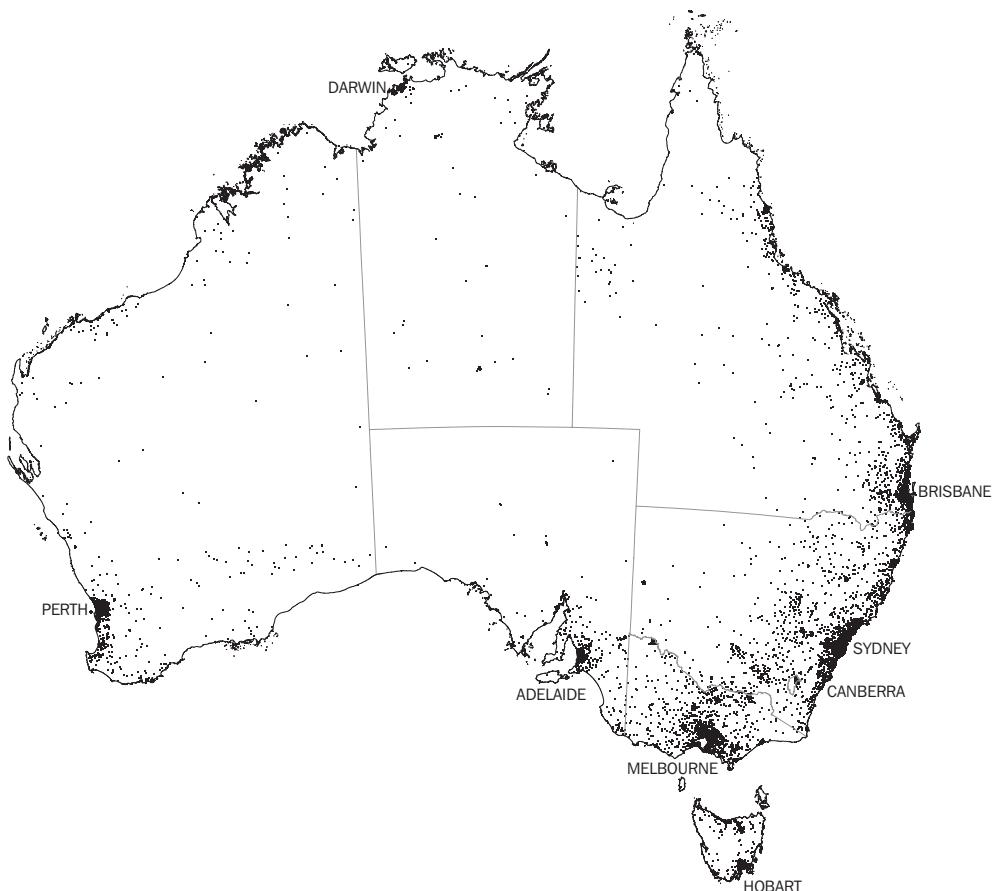
Source: Population Projections Australia, 1999 to 2101 (3222.0); Population by Age and Sex (3201.0).

**5.13 POPULATION, Summary Indicators — 1901–2101**

Indicator	Units	1901	1947	1971	1999	2021(a)	2051(a)	2101(a)
Total population	'000	3 773.8	7 579.4	13 067.3	18 966.8	22 926.4	25 408.5	25 254.1
Proportion of population aged								
0–14 years	%	35.1	25.1	28.7	20.7	16.1	14.4	14.4
15–64 years	%	60.8	66.8	63.0	67.1	65.5	59.6	58.6
65–84 Years	%	3.9	7.7	7.8	11.0	16.3	21.0	21.3
85+ Years	%	0.1	0.4	0.5	1.3	2.1	5.1	5.7
Males per 100 females	no.	110.1	100.4	101.1	99.1	99.2	98.8	99.4
Median age	years	22.5	30.7	27.5	34.9	41.2	46.0	46.1
Proportion living in capital cities	%	36.8	51.2	63.2	63.8	65.4	67.5	n.a.

(a) Series II population projections.

Source: Census of the Commonwealth of Australia, 1911; Australian Demography, 1947; Australian Demographic Statistics (3101.0); Population Projections, Australia 1999 to 2101 (3222.0).

**5.14 POPULATION(a) DISTRIBUTION, AUSTRALIA — 2000**

(a) Estimated resident population.

Source: Regional Population Growth, Australia and New Zealand (3218.0).

While New South Wales remains the most populous State, with 6.5 million people at June 2000, the fastest growth has occurred in the Northern Territory and Queensland, with increases of 10.1% and 9.2% respectively in the five years to 2000. In contrast, the population of South Australia grew by just 1.9% over the same period and Tasmania declined by 0.7% (see table 5.15).

The main factor changing the distribution of Australia's population is internal migration. During 1999–2000, 367,390 people moved from one State or Territory to another, a similar level to the previous year. In 1999–2000 only Victoria and Queensland recorded net interstate migration gains. Tasmania's population declined by about 430 people, as natural increase in the State was offset by continued net interstate loss (see table 5.16).

#### 5.15 ESTIMATED RESIDENT POPULATION, By State and Territory

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
As at 30 June	'000	'000	'000	'000	'000	'000	'000	'000	'000
1995	6 127.0	4 517.4	3 265.1	1 469.4	1 733.8	473.7	177.6	304.8	18 071.8
1996	6 204.7	4 560.2	3 338.7	1 474.3	1 765.3	474.4	181.8	308.3	18 310.7
1997	6 272.8	4 605.2	3 397.1	1 479.7	1 797.9	473.5	186.9	308.0	18 524.2
1998	6 333.5	4 654.9	3 453.5	1 486.4	1 829.1	471.7	189.9	308.1	18 730.4
1999	6 396.7	4 707.6	3 506.9	1 492.4	1 857.6	470.8	192.7	309.3	18 937.2
2000	6 463.5	4 765.9	3 566.4	1 497.6	1 883.9	470.4	195.5	310.8	19 157.0

Source: Australian Demographic Statistics (3101.0).

#### 5.16 POPULATION GROWTH RATES

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Year ended 30 June	%	%	%	%	%	%	%	%	%
NATURAL INCREASE									
1995	0.70	0.70	0.82	0.54	0.87	0.63	1.66	1.08	0.74
1996	0.66	0.63	0.77	0.51	0.80	0.53	1.59	1.00	0.69
1997	0.69	0.63	0.77	0.47	0.80	0.52	1.50	0.99	0.69
1998	0.63	0.60	0.73	0.45	0.76	0.44	1.51	0.92	0.65
1999	0.64	0.58	0.71	0.45	0.79	0.56	1.45	0.95	0.65
2000	0.65	0.57	0.69	0.44	0.75	0.46	1.42	0.85	0.64
NET OVERSEAS MIGRATION									
1995	0.59	0.43	0.33	0.20	0.62	0.07	0.27	0.04	0.45
1996	0.78	0.57	0.40	0.25	0.71	0.08	0.32	0.13	0.58
1997	0.60	0.46	0.38	0.21	0.69	0.05	0.30	-0.02	0.48
1998	0.56	0.45	0.41	0.23	0.71	0.02	0.34	-0.03	0.47
1999	0.58	0.46	0.34	0.14	0.66	0.02	0.50	-0.16	0.45
2000	0.64	0.53	0.46	0.23	0.70	0.08	0.45	-0.08	0.52
NET INTERSTATE MIGRATION									
1995	-0.22	-0.49	1.26	-0.48	0.30	-0.56	0.22	-0.16	..
1996	-0.24	-0.28	1.00	-0.42	0.23	-0.55	0.18	-0.22	..
1997	-0.19	-0.10	0.60	-0.31	0.35	-0.77	0.98	-1.04	..
1998	-0.22	0.03	0.53	-0.22	0.26	-0.84	-0.23	-0.88	..
1999	-0.23	0.09	0.50	-0.19	0.10	-0.78	-0.48	-0.39	..
2000	-0.24	0.14	0.54	-0.32	-0.04	-0.63	-0.46	-0.27	..
TOTAL POPULATION GROWTH(a)									
1995	1.10	0.66	2.45	0.22	1.81	0.16	2.41	1.10	1.22
1996	1.27	0.95	2.25	0.33	1.82	0.16	2.42	1.13	1.32
1997	1.10	0.99	1.75	0.37	1.85	-0.20	2.78	-0.08	1.17
1998	0.97	1.08	1.66	0.46	1.74	-0.38	1.62	0.01	1.11
1999	1.00	1.13	1.55	0.40	1.55	-0.19	1.47	0.40	1.10
(2000)	1.04	1.24	1.70	0.35	1.41	-0.09	1.42	0.50	1.16

(a) Differences between the total growth rate and the sum of natural increase and net migration rates arise from retrospective adjustments (which are made after each Census) to eliminate any intercensal discrepancy.

Source: Australian Demographic Statistics (3101.0).

**5.17 ESTIMATED RESIDENT POPULATION IN MAJOR POPULATION CENTRES — As at 30 June(a)**

Major population centre	1995 '000	2000 '000	1995–2000(b) %
Capital City Statistical Division			
Sydney	3 821.2	4 085.6	1.3
Melbourne	3 243.7	3 466.0	1.3
Brisbane	1 486.7	1 626.9	1.8
Adelaide	1 074.7	1 096.1	0.4
Perth	1 271.7	1 381.1	1.7
Hobart	195.0	194.2	-0.1
Darwin	80.4	90.0	2.3
Canberra	304.5	310.5	0.4
Other			
Newcastle(c)	458.2	483.3	1.1
Gold Coast-Tweed(c)	340.7	404.3	3.5
Canberra-Queanbeyan(c)	341.2	350.1	0.5
Wollongong(c)	252.8	264.4	0.9
Sunshine Coast(c)	150.5	178.0	3.4
Geelong(c)	151.6	157.9	0.8
Townsville(c)	121.1	130.0	1.4
Cairns(c)	102.9	115.6	2.4
Launceston(c)	98.6	98.3	0.0
Albury-Wodonga(c)	92.0	94.8	0.6
Toowoomba City(d)	85.9	87.6	0.4
Ballarat(c)	78.5	82.0	0.9
Burnie-Devonport(c)	79.1	78.1	-0.3
Bendigo(c)	73.8	77.2	0.9
Bathurst-Orange(c)	71.2	74.2	0.8
La Trobe Valley(b)	76.3	73.4	-0.8
Mackay(c)	59.4	66.2	2.2
Rockhampton(c)	64.3	63.9	-0.1
Hastings(e)	56.1	62.9	2.3
Coffs Harbour(e)	56.2	60.5	1.5
Bundaberg(c)	53.0	56.3	1.2
Wagga(e)	55.9	55.7	-0.1
Mildura(c)	40.6	44.1	1.7
Greater Taree(e)	43.5	44.1	0.3
Shepparton(c)	41.1	43.3	1.0
Lismore(e)	43.6	43.0	-0.3
Gladstone(c)	36.5	39.6	1.6
Dubbo(e)	36.1	37.8	0.9
Tamworth(e)	35.7	35.7	0.0
Kalgoorlie/Boulder(e)	28.8	32.0	2.2

(a) Based on 2000 Statistical Local Area boundaries. (b) Average annual growth rate. (c) Statistical District. (d) Statistical Subdivision. (e) Statistical Local Area.

Source: Australian Demographic Statistics (3101.0).

Table 5.17 sets out the estimated resident population in the major population centres at June 1995 and 2000. About 70% of Australia's population growth between 1995 and 2000 occurred in the capital cities, the most significant increases being on the outskirts of these metropolitan regions. Of all the capital cities, Sydney and Melbourne had the largest growth in the five years to 2000, with increases of 264,000 and 222,000 people respectively. The fastest capital city population growth over the 1995–2000 period occurred in Darwin, by an average of 2.3% per year. Brisbane and Perth had

the next fastest growth rates, with average annual growth rates of 1.8% and 1.7% respectively. While much of the capital city growth has tended to occur on the urban fringes of the capitals, spectacular growth rates in the inner city areas have been a dramatic feature within Australia's two largest capitals. From 1995 to 2000 the inner city Local Government Area (LGA) of Sydney grew by an average of 15% per year (population of 24,900 in 2000) while the LGA of Melbourne (population of 52,000 in 2000) had annual average growth of 6.6%.

Other major population centres experiencing significant population increases between 1995 and 2000 were Gold Coast–Tweed and Sunshine Coast which grew by 3.5% and 3.4% respectively, while Cairns and Kalgoorlie–Boulder increased by an average 2.4% and 2.2% per year respectively. Rapid population growth was also recorded in most LGAs elsewhere along the Queensland and New South Wales coastline and in some LGAs in the south-west corner of Western Australia.

Some areas of Australia have experienced significant population decline in recent years. While some of the population declines have occurred in established suburbs within capital cities and major urban centres, the fastest population decline has occurred in rural areas. Most of this decline has been caused by net migration loss. Such population loss is associated with technological, social and economic changes and industry restructuring in local economies.

In 1911, 43% of Australians lived in rural areas. This proportion fell steadily and in 1976 14% of the population lived in rural areas. Between 1976 and 1991 the decline appeared to have halted, with a slight increase in the proportion of people living in rural areas (see graph 5.18), which may have been due to people moving to rural areas surrounding the cities, but still working in the city. However, the 1996 Census showed that, once again, the rural population had decreased as a proportion of the total population.

## Population age-sex structure

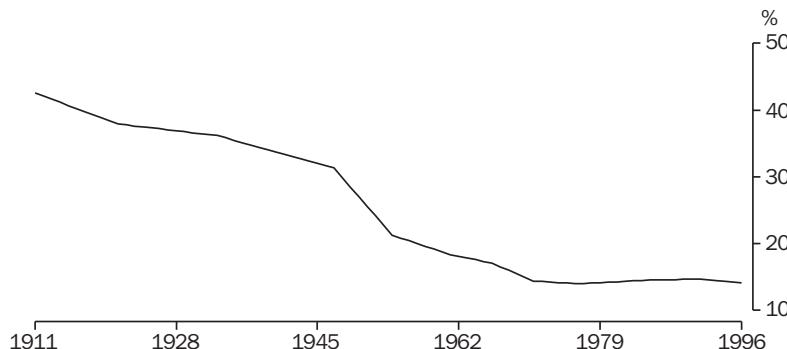
Since the turn of the century the population at all ages has grown significantly, but it has also aged. This is illustrated in graph 5.19 for the years 1901 and 2001.

Since the first half of the 20th century, Australians have been having smaller families. This is reflected in a fall in the proportion of children (aged under 15) within the population from 35% in 1901 to around 21% in 2000. Conversely, the proportion of the population aged 65 and over has increased markedly, from 4% in 1901 to 12% in 2001. These features are shown in graph 5.20.

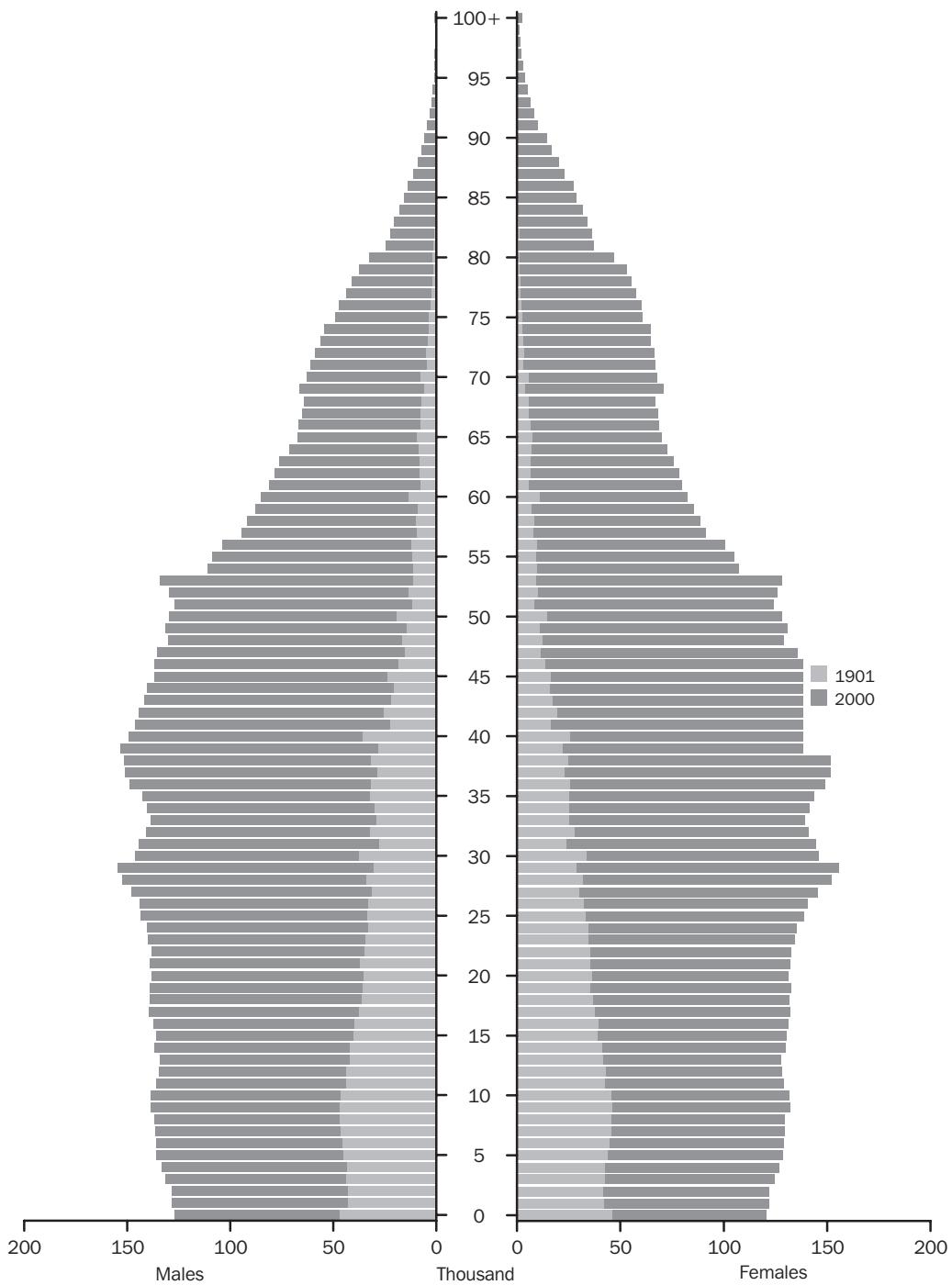
## Births

Since 1901 Australia has experienced two long periods of fertility decline: from 1907 to 1934, and from 1962 to the present. For the first decade of the 20th century the total fertility rate remained at around 3.7 to 4.0 babies per woman, then consistently declined over the next two and a half decades. By 1934, during the Great Depression, the total fertility rate had fallen to 2.1 babies per woman. It then increased during the second half of the 1930s, as women who had deferred childbearing in the Depression years began to have children. Fertility increased through World War II and the 1950s, and peaked in 1961 when the total fertility rate reached 3.5 babies per woman (see graph 5.21).

**5.18 RURAL POPULATION, Percentage of Total Population**

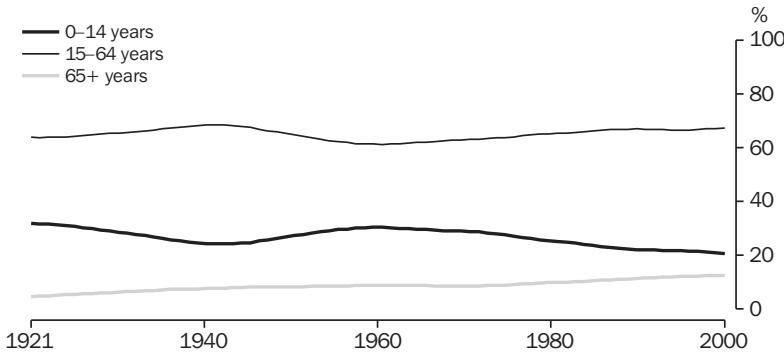


Source: ABS data available on request, *Census of Population and Housing*.

**5.19 PROFILE OF AUSTRALIA'S POPULATION, By Age and Sex — 1901 and 2000**

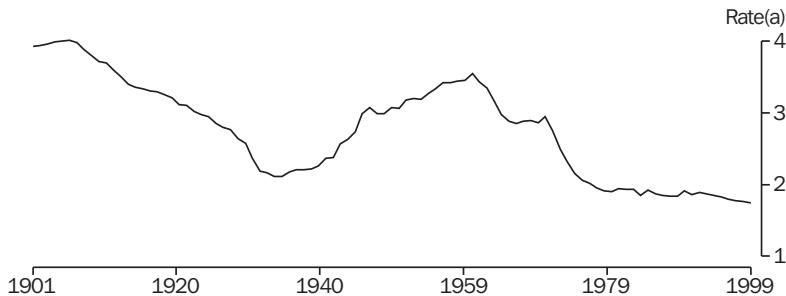
Source: Census of the Commonwealth of Australia, 1911; Population by Age and Sex, Australian States and Territories (3201.0).

## 5.20 PROPORTION OF POPULATION IN AGE GROUPS



Source: Australian Demography (Commonwealth Bureau of Census and Statistics);  
Australian Demographic Statistics (3101.0).

## 5.21 TOTAL FERTILITY RATE



(a) Average number of babies per woman according to the age-specific fertility rates for each year.

Source: 'A century of population change in Australia', Professor Graeme Hugo in Year Book Australia 2001 (1301.0); Australian Demographic Trends (3102.0); Births, Australia (3301.0).

After the 1961 peak the total fertility rate fell rapidly to 2.9 babies per woman in 1966. This fall can be attributed to changing social attitudes, in particular a change in people's perception of desired family size, facilitated by the contraceptive pill becoming available.

During the 1970s the total fertility rate dropped again, falling to below replacement level in 1976, where it has remained since. This fall was more marked than the fall in the early 1960s and has been linked to the increasing participation of women in education and the labour force, changing attitudes to family size, lifestyle choices and the greater access to abortion.

According to the United Nations, the world average total fertility rate for 1995–2000 stands at 2.7 babies per woman, declining from the relatively constant five births per woman that existed until the late 1960s and early 1970s. However, total fertility

rates for individual countries vary remarkably. Many factors can influence a country's fertility rate, such as differences in social and economic development and the prevalence of contraceptives. In general, developing countries have higher fertility rates while developed countries usually have lower rates.

Australia's total fertility rate for 1999, of 1.75 babies per woman, is one of the lowest in the world and well below the world's average. Compared to other developed countries, Australia's total fertility rate is among those of the middle ranked nations. According to the United Nations' estimated average total fertility rates for 1995–2000, Italy and Spain have the lowest total fertility rate (1.2) followed by Germany and Hong Kong (1.3). In contrast, the Middle Eastern and African countries have relatively highest fertility rates, with Yemen (7.6) and Somalia (7.3) the highest.

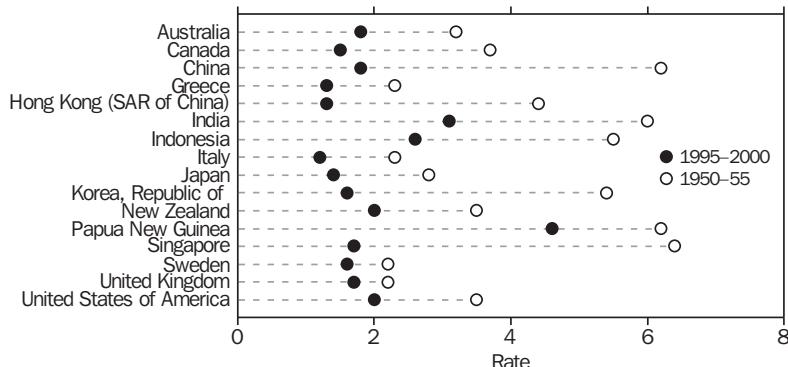
Over the past fifty years the total fertility rate has declined for most countries. Of the selected countries shown in graph 5.22, the total fertility rates of the Asian countries have shown the largest declines: Singapore declined at an annual average rate of 2.9% per annum, China by 2.7% and Viet Nam by 1.9% between 1950–55 and 1995–2000.

Women continue to delay childbearing. The median age at childbearing has increased from 26.5 years in 1979 to 28.2 years in 1989, then to 29.7 years in 1999. In 1979 most births were to

women aged 26 years, with 8.2% of all births occurring at this age. In 1999, most births were by women aged 28 and 29 years, each with 7.4% of all births. Over the past 20 years there has been a fall in the proportion of births to teenage mothers, from 8.2% in 1979 to 4.7% in 1999. Conversely, the proportion of births to women aged 40 years and above has increased, from 0.8% in 1979 to 2.5% in 1999.

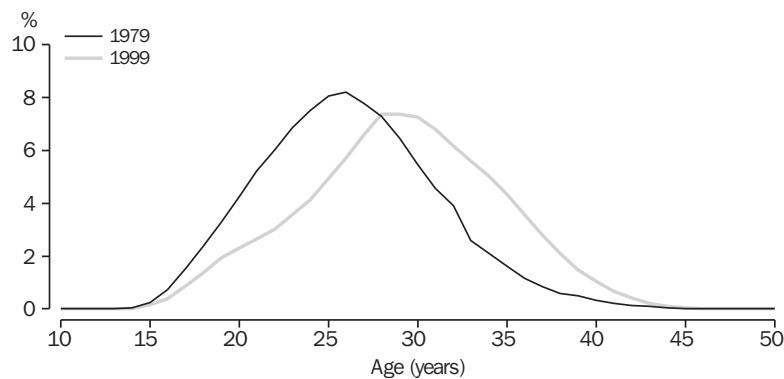
Table 5.24 brings together summary measures of fertility for Census years between 1901 and 1986, and individual years between 1990 and 1999.

### 5.22 INTERNATIONAL TOTAL FERTILITY RATES, Selected years



Source: United Nations, World Population Prospects, 1998 revision.

### 5.23 AGE DISTRIBUTION OF WOMEN HAVING BABIES



Source: Births, Australia (3301.0).

**5.24 SELECTED SUMMARY MEASURES OF FERTILITY**

Year ended 31 December	Registered births no.	Crude birth rate(a) %	Total fertility rate(b) %	Ex-nuptial births(c) %
1901	102 945	27.2	3.93(d)	n.a.
1911	122 193	27.2	3.69(d)	5.8
1921	136 198	25.0	3.12	4.7
1933	111 269	16.8	2.17	4.7
1947	182 384	24.1	3.08	4.0
1954	202 256	22.5	3.19	4.0
1961	239 986	22.8	3.55	5.1
1966	223 731	19.3	2.89	7.4
1971	276 361	21.6	2.95	9.3
1976	227 810	16.2	2.06	10.1
1981	235 842	15.8	1.94	13.2
1986	243 408	15.2	1.87	16.8
1990	262 648	15.4	1.91	21.9
1991	257 247	14.9	1.86	23.0
1992	264 151	15.1	1.89	24.0
1993	260 229	14.7	1.86	24.9
1994	258 051	14.5	1.85	25.6
1995	256 190	14.2	1.83	26.6
1996	253 834	13.9	1.80	27.4
1997	251 842	13.6	1.78	28.1
1998	249 616	13.3	1.76	28.7
1999	248 870	13.1	1.75	29.2

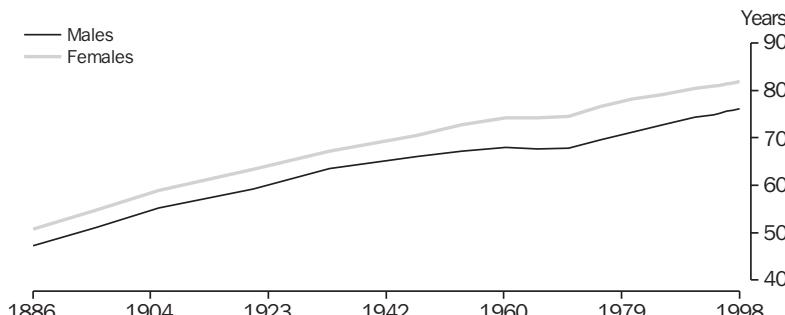
(a) Per 1,000 population. (b) The number of children a woman would bear during her lifetime if she experienced current age-specific fertility rates at each age of her reproductive life. (c) Proportion of total live births.

Source: Australian Demographic Trends (3102.0); Births, Australia (3301.0); 'A century of population change in Australia', Professor Graeme Hugo in Year Book Australia 2001 (1301.0).

**Deaths**

Over the past century, the average life expectancy of a new-born boy has increased from 55.2 years in 1901–10 to 76.2 years in 1997–99. Likewise, the average life expectancy of a new-born girl has increased from 58.8 to 81.8 years during the same period (graph 5.25). These represent an increase of 21 years for boys and 23 years for girls. The increase in life expectancy is due to lower death rates at all ages.

The reduction in mortality in the early part of this century has been attributed to improvements in living conditions, such as better water supply, sewage systems, food quality and health education. The continuing reduction in mortality in the latter half of the century has been attributed to improving social conditions, and to advances in medical technology such as mass immunisation and antibiotics.

**5.25 LIFE EXPECTANCY AT BIRTH**

Note: The years shown are the mid-points in ranges of years, e.g. 1886 is the mid-point of the range 1881–90 and 1998 is the mid-point of the range 1997–99.

Source: Deaths, Australia (3302.0).

The past two decades in particular have seen further increases in life expectancy. These increases are due in part to lower infant mortality, fewer deaths among young adults from motor vehicle accidents and fewer deaths among older men from heart disease. The reduction in the number of deaths from heart disease has been related to behavioural changes, such as dietary improvements and reduced smoking.

During the 20th century the life expectancy of new-born girls was consistently higher than that of new-born boys. Up until the early 1930s, a new-born girl had a life expectancy approximately four years greater than a new-born boy, with this difference peaking at about seven years in the 1970s and early 1980s, largely due to significant declines in heart disease, stroke and respiratory disease mortality among women, combined with a slight decline in male life expectancy from accidents among males aged 15–24 years and from heart disease among 45–84 year old males. In recent years, the gap in life expectancy between new-born males and females has narrowed to about six years (5.6 years in 1997–99). This can be attributed to the large reductions in death rates of males aged 45 years and over, and particularly to the reduction in heart disease deaths among males.

Australians have an average life expectancy which compares well with that experienced in other developed nations. Among the countries shown in table 5.26, the life expectancy at birth of Australian males and females (76 and 82 years respectively) was exceeded only by that in Japan (both males and females) and France (females),

and matched by Canada. The life expectancy of new-born babies in Australia was higher than in New Zealand, the United Kingdom and the United States of America.

The standardised death rate removes the effect of different age structures of the population, and allows a more meaningful comparison of the death rates of different sub-populations. Over the past 20 years, standardised death rates for Australia and all States and Territories have decreased by about one-third (table 5.27).

#### 5.26 LIFE EXPECTANCY AT BIRTH, Selected Countries — 1998

Country	Males	Females
	years	years
Australia(a)	76.2	81.8
Canada	76.2	81.9
China	68.1	72.3
France	74.4	82.1
Germany	74.1	80.3
Hong Kong (SAR of China)	76.0	81.5
India	62.5	63.3
Indonesia	63.7	67.5
Italy	75.2	81.3
Japan	76.9	83.0
Korea, Republic of	69.0	76.2
Netherlands	75.1	80.8
New Zealand	74.3	79.9
Papua New Guinea	57.6	59.1
Singapore	75.1	79.5
United Kingdom	74.7	80.0
United States of America	73.5	80.2

(a) Reference period for Australia is 1996–98.

Source: Deaths, Australia (3302.0); Human Development Report 2000 (United Nations Development Programme).

#### 5.27 STANDARDISED DEATH RATES(a)

State/Territory	1979			1989			1999		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
New South Wales	11.4	6.7	8.7	10.1	6.0	7.8	7.6	4.6	5.9
Victoria	11.4	6.6	8.7	9.6	5.9	7.5	7.1	4.5	5.7
Queensland	11.2	6.6	8.7	9.9	5.9	7.7	7.5	4.8	6.0
South Australia	10.9	6.3	8.3	9.7	5.7	7.4	7.2	4.4	5.7
Western Australia	11.0	6.5	8.5	8.9	5.4	6.9	7.3	4.4	5.7
Tasmania	11.8	6.8	9.0	9.8	6.6	8.1	8.2	5.2	6.5
Northern Territory	16.3	11.8	14.0	12.8	9.0	11.0	9.6	7.7	8.7
Australian Capital Territory	10.4	5.6	7.5	8.0	5.1	6.4	6.5	4.5	5.4
Australia	11.3	6.6	8.6	9.8	5.9	7.6	7.4	4.6	5.9

(a) Deaths per 1,000 standard population. The standard population used is the June 1991 population.

Source: Deaths, Australia (3302.0).

Of the States and Territories, the Northern Territory has had the highest standardised death rate in the country for the last two decades. This can largely be attributed to high death rates among the Indigenous population. The Northern Territory, however, experienced the greatest improvement in mortality during the 20-year period, with its standardised death rate decreasing by around five persons per thousand population, compared to around three persons for Australia overall.

Table 5.28 brings together summary measures of mortality for Census years between 1901 and 1986, and individual years between 1990 and 1999.

## International migration

Overseas migration has played an important role in changing Australia's population. Between 1995 and 2000, 1.4 million people arrived in Australia intending to stay for one year or more (table 5.29). This includes permanent (settler) arrivals, Australian residents returning from an overseas trip of 12 months or more, and overseas visitors

intending to stay 12 months or more in Australia. About 879,000 people left Australia for overseas on a permanent or long term basis in the five years to June 2000, including Australian residents emigrating or going overseas for 12 months or more, and overseas visitors leaving Australia after staying for 12 months or more. In 1999–2000, for the first time, net long-term movement made a greater contribution to net overseas migration than did net permanent movement (56,100 people compared with 51,200).

Because population estimates include permanent and long-term movers and exclude short-term movers, adjustments are required for the net effect of changes in travel intention from short-term to permanent/long-term and vice versa. For example, an Australian resident may state on departure an intention to stay abroad for less than 12 months (a short term movement). If this resident remains overseas for 12 months or more, he or she has changed travel category from short to long-term and is regarded as a category jumper. Estimates for category jumping ensure that the estimated population reflects the population who are usually resident in Australia.

**5.28 SELECTED SUMMARY MEASURES OF MORTALITY**

Year ended 31 December	Registered deaths	Crude death rate(a)	Infant mortality rate(b)	Life expectancy at birth	
				Males	Females
1901(c)	46 330	12.2	103.6	55.2	58.8
1921	54 076	9.9	65.7	59.2	63.3
1933	59 117	8.9	39.5	63.5	67.1
1947	73 468	9.7	28.5	66.1	70.6
1954	81 805	9.1	22.5	67.1	72.8
1961	88 961	8.5	19.5	67.9	74.2
1966	103 929	9.0	18.7	67.6	74.2
1971	110 650	8.5	17.3	68.3	74.8
1976	112 662	8.0	13.8	69.4	76.4
1981	109 003	7.3	10.0	71.4	78.4
1986	114 981	7.2	8.8	72.9	79.2
1990	120 062	7.0	8.2	73.9	80.1
1991	119 146	6.9	7.1	74.4	80.3
1992	123 660	7.1	7.0	74.5	80.4
1993	121 599	6.9	6.1	75.0	80.9
1994	126 692	7.1	5.9	75.0	80.9
1995	125 133	6.9	5.7	75.4	81.1
1996	128 719	7.0	5.8	75.5	81.3
1997	129 350	7.0	5.3	75.6	81.3
1998	127 202	6.8	5.0	75.9	81.5
1999	128 102	6.8	5.7	76.2	81.8

(a) Per 1,000 population. (b) Per 1,000 live births. (c) Based on deaths data for the period 1901 to 1910.

Source: *Australian Demographic Trends* (3102.0); *Deaths, Australia* (3302.0).

**5.29 NET OVERSEAS MIGRATION COMPONENTS — Five Years Ended 30 June**

	1985 no.	1990 no.	1995 no.	2000 no.
<b>Arrivals</b>				
Permanent (settlers)	468 052	616 139	462 605	438 633
Long-term				
Australian residents	269 673	272 723	346 239	391 295
Overseas visitors	158 983	226 047	311 384	536 297
<b>Permanent and long-term arrivals</b>	<b>896 707</b>	<b>1 114 875</b>	<b>1 120 228</b>	<b>1 366 225</b>
<b>Departures</b>				
Permanent departures	109 889	108 003	142 385	166 771
Long-term				
Australian residents	242 559	269 080	332 683	391 231
Overseas visitors	112 637	150 421	237 421	321 246
<b>Permanent and long-term departures</b>	<b>465 093</b>	<b>527 501</b>	<b>712 489</b>	<b>879 248</b>
Category jumping	11 779	70 139	-96 011	-25 231
Net overseas migration	443 393	657 513	311 728	461 746

Source: Australian Historical Population Statistics (3105.0.65.001).

There has been a significant change in the source countries of permanent arrivals, with settlers arriving from more diverse regions of the world in the late 1990s compared to the late 1960s. In the five years to June 1970 almost half (47%) of settler arrivals to Australia were born in the United Kingdom and Ireland, and the top six countries of birth represented 75% of all settler arrivals in Australia. In the five years to June 2000, the United Kingdom and Ireland contributed 12% of settlers and the top six countries of birth represented 54% of settler arrivals. New Zealand contributed the largest number of settlers in the five years to June 2000: 80,600 persons, or 18% of the total (table 5.30).

In 1999–2000, 92,300 people arrived in Australia intending to settle, the majority of these (57%) arriving as part of the Migration Program. Another 8% arrived as part of the Humanitarian Program, while 34% were eligible to settle in Australia because of their New Zealand citizenship. The remaining 1% were in other categories such as overseas-born children of Australian citizens.

The number of visas issued to prospective settlers varies significantly from year to year. So too does the balance between the types of visas issued. Skilled migration is a volatile component of the migration intake. Table 5.31 shows that in the six years to 1999–2000, the proportion of settlers arriving under the skilled migration category ranged from 23% in 1994–95 to 35% in 1999–2000. Of skilled migrants arriving in 1999–2000, 24% came from Europe (about three-quarters of whom were from the

**5.30 COUNTRY OF BIRTH OF SETTLER ARRIVALS — Five Years Ended 30 June**

Country	'000	%
1970		
United Kingdom and Ireland	369.1	47.3
Yugoslavia	63.5	8.1
Italy	62.7	8.0
Greece	56.0	7.2
Germany	18.7	2.4
United States of America	13.7	1.8
All birthplaces	781.0	100.0
1980		
United Kingdom(a)	86.2	25.0
New Zealand	39.8	11.6
Viet Nam	30.6	8.9
Lebanon	18.4	5.3
South Africa	10.2	3.0
Malaysia	8.4	2.4
All birthplaces	344.7	100.0
1990		
United Kingdom(a)	107.0	17.4
New Zealand	82.5	13.4
Viet Nam	38.9	6.3
Philippines	36.3	5.9
Hong Kong (SAR of China)	27.5	4.5
Malaysia	26.6	4.3
All birthplaces	616.1	100.0
2000		
New Zealand	80.6	18.4
United Kingdom(a)	48.1	11.0
China (excl. SARs and Taiwan)	36.3	8.3
Former Yugoslav Republics	28.3	6.5
South Africa	21.4	4.9
India	16.4	3.7
All birthplaces	438.6	100.0

(a) Excludes Ireland.

Source: Australian Immigration —Consolidated Statistics, No. 8, 1976; ABS data available on request, Overseas Arrivals and Departures.

United Kingdom and Ireland), while South-East Asia and Africa (excluding North Africa) contributed 18% each. North-East Asia (16%) and Southern Asia (15%) also contributed relatively high proportions of skilled immigrants to Australia during 1999–2000.

In 1999–2000, 22% of settlers came as part of the family component of Australia's immigration program. The birthplaces of these immigrants partly reflect past migration patterns. About 24% were born in Europe, 23% were born in South-East Asia, and a further 18% were born in North-East Asia.

Of the 7,300 settlers arriving as part of the Humanitarian Program, 3,300 (46%) came from Europe, almost all of whom were from Southern and Eastern Europe (in particular, Bosnia–Herzegovina and Croatia). A further 2,500 immigrants (35%) arriving on humanitarian visas were born in North Africa and the Middle East.

### Asia-born arrivals

Over the last two decades, the countries of Asia (South-East Asia, North-East Asia and Southern Asia regions) have become an increasingly important source of both settler and long-term visitor arrivals.

Before the 1970s the number of settlers from Asia was small, but following the final dismantling of the White Australia Policy in the early 1970s, and the acceptance of refugees from the Viet Nam war, the number of migrants from Asia began to increase.

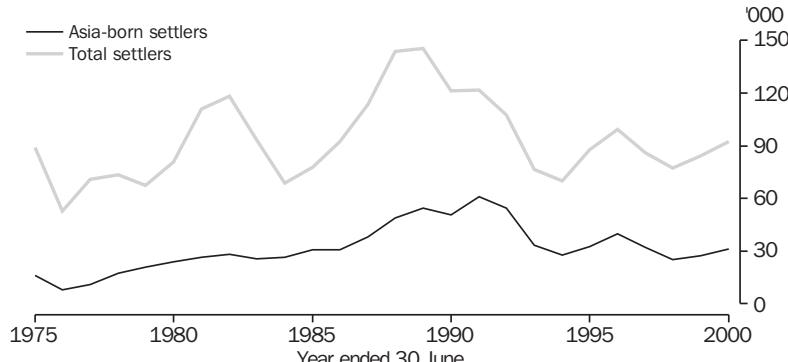
Generally, the level of permanent arrivals from Asia has followed the patterns of total permanent arrivals, reflecting the constraints of the Migration and Humanitarian Programs. The number of Asia-born arrivals has fluctuated markedly, peaking in 1990–91 (60,900 arrivals) (see graph 5.32). In 1999–2000 a total of 31,100 settlers born in Asia (34% of all settler arrivals) arrived in Australia.

**5.31 SETTLER ARRIVALS, By Eligibility Category**

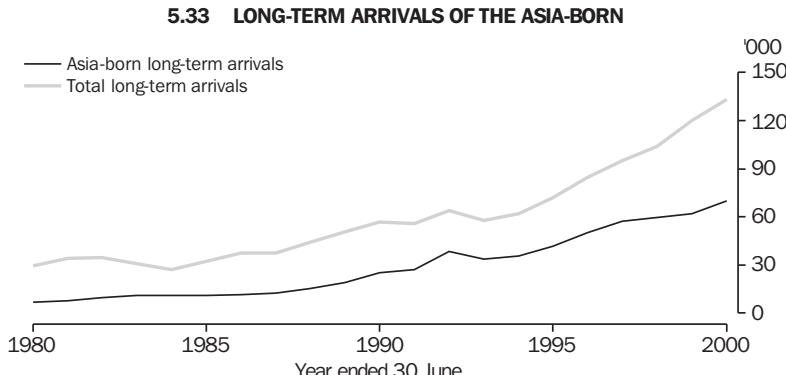
	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	no.	no.	no.	no.	no.	no.
Family	37 078	46 458	36 490	21 142	21 501	19 896
Skilled	20 210	20 008	19 697	25 985	27 931	32 350
Humanitarian	13 632	13 824	9 886	8 779	8 790	7 267
New Zealand	13 618	16 234	17 501	19 393	24 680	31 610
Other	2 890	2 615	2 178	2 028	1 241	1 149
<b>Total</b>	<b>87 428</b>	<b>99 139</b>	<b>85 752</b>	<b>77 327</b>	<b>84 143</b>	<b>92 272</b>

Source: Department of Immigration and Multicultural Affairs, *Immigration Update*.

**5.32 ASIA-BORN SETTLER ARRIVALS**



Source: *Migration, Australia* (3412.0); *Overseas Arrivals and Departures, Australia* (3401.0).



Source: *Migration, Australia* (3412.0); *Overseas Arrivals and Departures, Australia* (3401.0).

Graph 5.33 shows that levels of long-term visitor arrivals from Asia have increased greatly over the last ten years, after being very low during the 1970s and early 1980s. Arrivals in 1999–2000 (70,100 or 53% of all long-term visitor arrivals) were over ten times as high as in 1979–80 and almost three times as high as in 1989–90.

The main reason for this growth has been the increasing number of students travelling to Australia from Asia for educational purposes. In 1999–2000 three-quarters of all Asia-born long-term visitor arrivals were for education.

## Unauthorised arrivals and overstayers

### Introduction

Recent years have seen an increase in the number of unauthorised arrivals intercepted as they attempt to enter Australia without going through official immigration procedures. There are no statistics on the total number of people who attempt to enter Australia without authorisation, but those who are intercepted are counted. Unless they are granted visas to remain in Australia, unauthorised arrivals are removed as soon as is practicable.

In addition, Australia also has a number of overstayers: people who do not leave before their visa expires and who therefore remain in Australia illegally.

### Unauthorised arrivals

According to the Department of Immigration and Multicultural Affairs (DIMA), there were 5,870 unauthorised arrivals arrived in Australia in 1999–2000, 94% more than in the previous year (3,027). Of these arrivals, 71% (4,180) arrived by boat (see graph 5.34), over four and a half times more than in 1998–99. The remaining

1,700 (20% less than in 1998–99) arrived at Australian airports and were refused entry. The substantial increase in the arrival of boat people continued the trend that has occurred over the past few years. Since 1989–90 there have been 10,250 people who arrived without authorisation by boat, and 41% of these arrived in 1999–2000.

### Age of unauthorised arrivals

Of the unauthorised boat arrivals, 66% were aged 20–34 years and 24% were aged 35–49 years. The majority of unauthorised arrivals who arrived in Australia by air during 1998–99 were aged 20–34 years (59%); the second most common age group was 35–49 years (32%).

### Where do unauthorised arrivals enter Australia?

Many of the unauthorised boat arrivals (mostly from Indonesia) land on the Ashmore Islands, north of Western Australia in the Timor Sea. Other landing sites include Cape York Peninsula, Torres Strait Islands,

Darwin, Coburg Peninsula, Christmas Island, the north west Kimberley region, and the coasts of Western Australia, New South Wales and Queensland.

The majority of unauthorised arrivals flying to Australia arrive at Sydney airport (55% in 1998–99), followed by Brisbane (20%), Melbourne (10%) and Perth (9%).

### **Source countries of unauthorised arrivals**

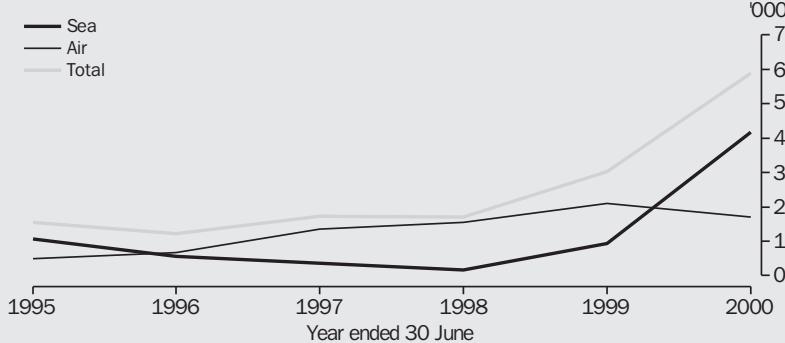
As many unauthorised arrivals have no travel documents on arrival in Australia, the citizenship of these entrants is sometimes difficult to determine. For arrivals by air, the country of origin is used when citizenship is not available, while ethnicity is used for those arriving by boat. Of the unauthorised arrivals by sea (see table 5.35), 21% were Chinese, 19%

were Iraqi, 13% were Afghani and 12% were Sino-Vietnamese. In 1999–2000, 9% of unauthorised arrivals in Australia by air originated in Iraq, a further 6% were South Korea citizens and 6% were New Zealand citizens who were refused clearance due to lack of proper documentation (see table 5.36).

### **Overstayers**

Initially overstayers arrive in Australia with valid temporary visas. When gaining a visa to enter Australia, people agree to comply with the conditions of that visa and to leave Australia before it expires. According to DIMA, the majority of people who overstay their visa are simply extending a short stay in Australia by a few days or weeks and leave of their own accord. Others overstay in the hope of living and working in Australia.

**5.34 UNAUTHORISED ARRIVALS BY AIR AND SEA**



Source: Department of Immigration and Multicultural Affairs, Protecting the Border: Immigration Compliance, December 1999 and Fact Sheet 81.

**5.35 ETHNICITY OF UNAUTHORISED ARRIVALS BY BOATS — 1989 to 1999–2000**

Top ten	Ethnicity	no.
1	Chinese	1 847
2	Iraqi	1 734
3	Afghani	1 141
4	Sino-Vietnamese	1 061
5	Cambodian	271
6	Vietnamese	171
7	Turkish	168
8	Iranian	92
9	Bangladeshi	87
10	Sri Lankan	60
<b>Total(a)</b>		<b>9 051</b>

(a) Includes births to unauthorised arrivals while in Australia and 'other countries'.

Source: Department of Immigration and Multicultural Affairs, Fact Sheet 81, *Unauthorised Arrivals by Air and Sea*.

**5.36 COUNTRY OF CLAIMED CITIZENSHIP OF UNAUTHORISED ARRIVALS BY AIR — 1999–2000**

Top ten	Country	no.
1	Iraq(a)	157
2	South Korea	108
3	New Zealand	107
4	Thailand	74
5	Peoples Republic of China	73
6	Indonesia	54
7	Sri Lanka	47
8	Somalia	11
9	Algeria	14
10	Kuwait(a)	4
<b>Total(b)</b>		<b>1 695</b>

(a) Country of origin used instead of country of citizenship.  
(b) Includes 'other countries'.

Source: Department of Immigration and Multicultural Affairs, Fact Sheet 81, *Unauthorised Arrivals by Air and Sea*.

Some 7,200 visitors were identified in 1999–2000 as overstayers (see graph 5.37), well down on the number in the previous year. Australia's accumulated stock of overstayers was estimated at 58,745 as at the end of June 2000. An estimated 29% of these had overstayed their visa by less than a year, a further 15% between one and two years and 28% were believed to have overstayed for 9 years or more.

**Age and sex of overstayers**

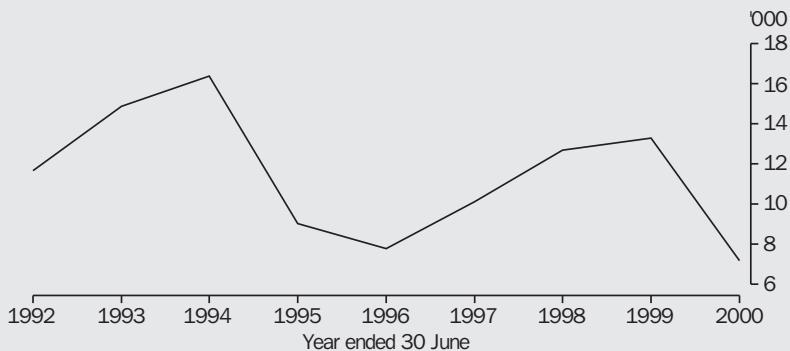
Of the 58,750 estimated overstayers in Australia as at 30 June 2000, 62% were males and 38% were females. One-third of all male overstayers were aged 35–49 years, and a further 32% were aged 20–34 years. Of females, 28% were aged 20–34 years and 28% were aged 35–49 years.

**Nationality of overstayers**

The number of overstayers tends to correspond to the number of short-term arrivals from specific countries. At June 2000, around one-tenth of overstayers were from the United Kingdom, Australia's third main source country for short-term visitor arrivals. These were followed by 8% from the United States of America, 7% from Indonesia, 7% from the Philippines and 6% from China (excl. SARs and Taiwan Province).

The countries with the highest visitor overstaying rate (overstayers from a particular country as a proportion of the total visitors from that country) differ substantially from the main source countries (see table 5.38). At June 2000, for visaed visitors from the two main source countries, Japan and the United Kingdom, the overstaying rates were close to zero. However, for citizens of Viet Nam the overstaying rate was 2.9% (of 5,020 visitors from that country), 2.1% for those from the Philippines (of 33,470 visitors), 2.1% for Samoa (of 2,590 visitors), 1.8% for Laos (of 530 visitors) and 1.7% for Peru (of 850 visitors).

The source countries with the highest proportion of overstayers still in the country include citizens of Ecuador (6.5% of 1,590 visitors) and Tonga (5.2% of 20,750 visitors). The proportions overstaying were also high for visitors from countries such as Peru and Bangladesh.

**5.37 OVERSTAYERS IN AUSTRALIA, By Year Identified**

Source: Department of Immigration and Multicultural Affairs,  
Fact Sheet 80, Locating Overstayers in Australia.

**5.38 COUNTRIES WITH HIGHEST RATIO OF OVERSTAYERS TO TEMPORARY ENTRANTS/VISITORS — At 30 June 2000**

Country of Citizenship	Estimate of overstayers(a)	Visitors and temporary entrants to Australia January 1995 to June 2000(b)	Ratio of overstayers to total temporary entrants and visitors
Ecuador	104	1 591	6.54
Tonga	1 084	20 750	5.22
Burma (Myanmar)	150	5 284	2.84
Pakistan	526	20 063	2.62
Samoa	417	15 940	2.62
Peru	113	4 344	2.60
Bangladesh	279	11 527	2.42
Lebanon	452	19 129	2.36
Iran	246	10 672	2.31
Nepal	169	7 334	2.30
<b>All other countries</b>	<b>55 205</b>	<b>23 579 534</b>	<b>0.23</b>
<b>Total(b)</b>	<b>58 745</b>	<b>23 696 168</b>	<b>0.25</b>

(a) Estimate based on the cumulative number of unlawful citizens since January 1996 who are still living in Australia. Unauthorised arrivals are excluded. (b) Number includes all unlawful non-citizens who arrived in the 12 months before January 1996. Also includes some entrants who have visited more than once in the period January 1995 to June 2000.

Source: DIMA, Population flows, Immigration Aspects, 2000 edition.

**Country of birth**

Since the end of World War II Australia has experienced large yearly increases in population due to a combination of high fertility and high levels of migration. In 1947 the proportion of the population born overseas was 10%, but by June 2000 this proportion had increased to 24% (table 5.39). As well as this increase, there has been a diversification of the population. In 1947, 81% of the overseas born population came from the main English speaking countries (the United Kingdom and Ireland, New Zealand, South Africa, Canada and the United States), mainly from the United Kingdom and Ireland. By June 2000, only 39% of the overseas born population had been born in the main English speaking countries.

For the last few decades, the Italian, Greek and Dutch born populations in Australia have been declining. The major migration flows from these countries occurred immediately after World War II, and there has been relatively little migration more recently. As these populations have moved into the older age groups, they have experienced high numbers of deaths. Furthermore, small numbers of people are returning to their countries of birth in their retirement.

Population estimates for 2000 identified 24% of the population as overseas-born. The 1996 Census showed that 27% of persons born in Australia had at least one overseas-born parent; that is, they were second generation Australians.

**5.39 MAIN COUNTRIES OF BIRTH OF THE POPULATION**

Country	1901(a) '000	1947(a) '000	1954(a) '000	1961(a) '000	1971(a) '000	1981(b) '000	1991(b) '000	2000(b) '000
United Kingdom and Ireland	679.2	541.3	664.2	755.4	1 081.3	1 175.7	1 244.3	(c)1 164.1
New Zealand	25.8	43.6	43.4	47.0	74.1	175.7	286.4	374.9
Italy	5.7	33.6	119.9	228.3	288.3	285.3	272.0	241.7
Former Yugoslav Republics	n.a.	5.9	22.9	49.8	128.2	156.1	168.0	210.0
Viet Nam(d)	n.a.	n.a.	n.a.	n.a.	0.7	43.4	124.8	174.4
China	29.9	6.4	10.3	14.5	17.1	26.8	84.6	168.1
Greece	0.9	12.3	25.9	77.3	159.0	153.2	147.4	141.2
Philippines	n.a.	0.1	0.2	0.4	2.3	15.8	79.1	123.0
Germany	38.4	14.6	65.4	109.3	110.0	115.2	120.4	120.2
India	7.6	n.a.	12.0	14.2	28.7	43.7	66.2	110.2
Malaysia	n.a.	1.0	2.3	5.8	14.4	32.5	79.9	97.6
Netherlands	0.6	2.2	52.0	102.1	98.6	100.5	100.9	90.6
South Africa	n.a.	5.9	6.0	7.9	12.2	28.0	55.8	80.1
Lebanon	n.a.	n.a.	3.9	7.3	23.9	52.7	78.5	79.9
Poland	n.a.	6.6	56.6	60.0	59.5	62.1	69.5	68.3
Indonesia	n.a.	n.a.	3.6	6.0	7.7	16.4	35.4	67.6
United States of America	7.4	6.2	8.3	10.8	26.8	30.6	49.5	65.0
Hong Kong (SAR of China)(e)	0.2	0.8	1.6	3.5	5.4	16.3	62.4	56.3
Total overseas-born	852.4	743.2	1 285.8	1 778.3	2 545.9	3 110.9	3 965.3	4 517.3
Australia	2 908.3	6 835.2	7 700.1	8 729.4	10 173.1	11 812.3	13 318.8	14 639.8
<b>Total population(f)</b>	<b>3 773.8</b>	<b>7 579.4</b>	<b>8 986.5</b>	<b>10 508.2</b>	<b>12 719.5</b>	<b>14 923.3</b>	<b>17 284.0</b>	<b>19 157.0</b>

(a) Census counts. (b) Estimated resident population at 30 June. (c) Excludes Ireland. (d) Includes Cambodia and Laos for 1971.  
(e) Includes Macao. (f) Includes country of birth 'Not stated' and 'At sea' for 1901 to 1971.

Source: Australian Historical Population Statistics (3105.0.65.001); Migration, Australia (3412.0).

The variety and size of second generation populations reflect past migration and intermarriage patterns. In long established overseas-born populations, such as those from the United Kingdom and Ireland, and from northern and southern Europe, second generation Australians account for more than half of the total population. In more recently arrived groups, such as persons born in Viet Nam and China, second generation Australians form a smaller part of the birthplace group. This is illustrated in table 5.40.

## Marriages and divorces

### Marriages

Marriage rates in Australia have fluctuated since 1901, broadly following the pattern of prevailing economic and social conditions. The crude marriage rate (the annual number of registered

marriages per 1,000 population) has fallen in times of depression or recession (e.g. in the 1930s), and increased in other times such as the immediate post-war years of the early 1920s and late 1940s. Marriage rates have also increased during times of war. The 2000 crude marriage rate of 5.9 marriages per 1,000 population has increased slightly from 1997, which at 5.8 per 1,000 population was the lowest rate on record. The highest crude marriage rate ever recorded was 12.0 per 1,000 in 1942.

The crude marriage rate has been declining since 1970. This decline in the marriage rate can be mainly attributed to changes in attitudes to marriage and living arrangements that have occurred since then.

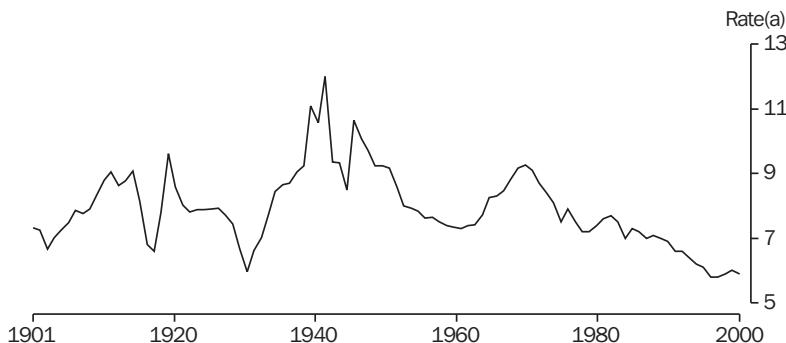
The fluctuations in the crude marriage rate between 1901 and 2000 are shown in graph 5.41.

**5.40 FIRST AND SECOND GENERATION AUSTRALIANS — 1996(a)**

Country	Overseas born(a) '000	Second generation Australians '000	Total '000
United Kingdom	1 072.6	1 444.5	2 517.0
Italy	238.2	333.9	572.1
New Zealand	291.4	200.0	491.4
Former Yugoslav Republics	175.4	131.3	306.7
Greece	126.5	153.9	280.5
Germany	110.3	139.3	249.6
Netherlands	87.9	142.5	230.4
Viet Nam	151.1	46.8	197.8
Lebanon	70.2	82.6	152.8
Ireland	51.5	95.1	146.6
China	111.0	40.2	151.2
Philippines	92.9	35.2	128.1
India	77.6	43.8	121.3
Malaysia	76.3	30.6	106.8
South Africa	55.8	28.1	83.9
<b>Total</b>	<b>3 901.9</b>	<b>3 365.5</b>	<b>7 267.4</b>

(a) 1996 Census counts, not estimated resident population.

Source: ABS data available on request, 1996 Census of Population and Housing.

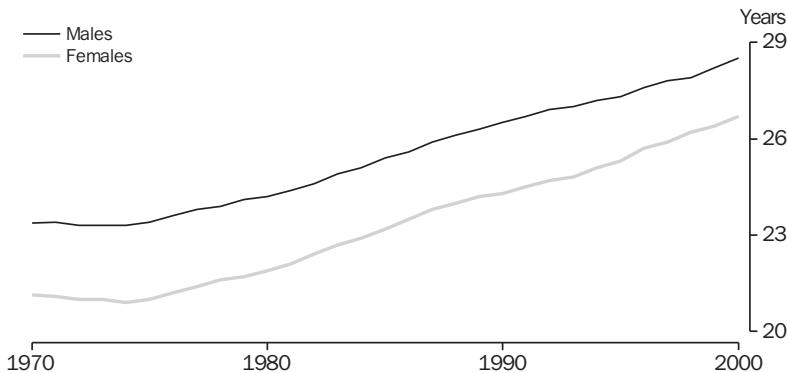
**5.41 CRUDE MARRIAGE RATE**

(a) Rate per 1,000 population.

Source: Australian Social Trends (4102.0); Marriages and Divorces, Australia (3310.0).

Marriage rates for the unmarried population (per 1,000 not currently married men or women aged 15 years and over) have also fallen over time. This long-term downward trend has been evident since these rates first became available in 1976. The marriage rate for men was 63 per 1,000 in 1976 while the rate for women was 61 per 1,000. In 2000 these rates fell to 34 and 32, respectively.

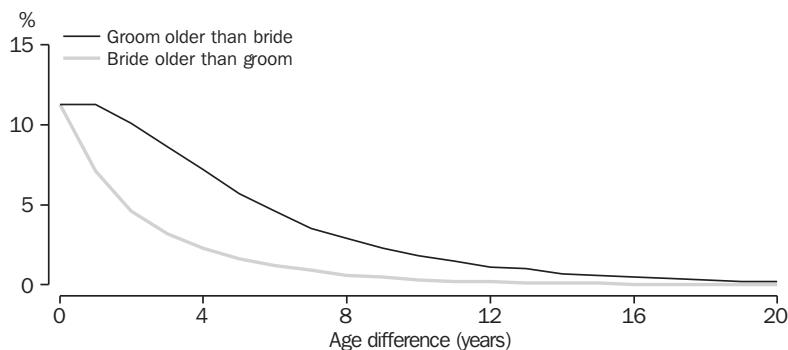
Recent trends show that Australians are marrying later. The median ages of brides and bridegrooms at first marriage have increased from 21.1 and 23.4 years respectively in 1971 to 26.7 and 28.5 years in 2000 (graph 5.42). Part of this increase can be attributed to the increasing incidence of de facto marriages. Another factor is that young people are staying in education longer.

**5.42 MEDIAN AGE AT FIRST MARRIAGE**

Source: *Marriages and Divorces, Australia (3310.0)*.

In 2000, 65% of marriages had a groom older than the bride, and 23% of brides were older than grooms. However, there was a strong tendency for couples to be about the same age, with 44% of couples being within two years of each other, and only 8% being more than 10 years apart in age (graph 5.43).

Table 5.44 brings together summary measures of marriages for Census years between 1901 and 1986, and individual years between 1990 and 2000.

**5.43 BRIDE AND GROOM AGE DIFFERENCE AT MARRIAGE,  
Percentage of all Marriages — 2000**

Source: *Marriages and Divorces, Australia (3310.0)*.

## 5.44 SELECTED SUMMARY MEASURES OF MARRIAGES

Year ended 31 December	Registered marriages no.	Crude marriage rate(a)	Median age at marriage	
			Bridegroom years	Bride years
1901	27 753	7.3	n.a.	n.a.
1921	46 869	8.6	27.7	24.5
1933	46 595	7.0	27.0	23.7
1947	76 457	10.1	26.0	23.0
1954	71 229	7.9	25.6	22.6
1961	76 686	7.3	24.9	21.8
1966	96 061	8.3	24.2	21.5
1971	117 637	9.2	23.8	21.4
1976	109 973	7.9	24.9	22.2
1981	113 905	7.6	25.9	23.3
1986	114 913	7.2	27.3	24.9
1990	116 959	6.9	28.2	25.9
1991	113 869	6.6	28.4	26.0
1992	114 752	6.6	28.7	26.3
1993	113 255	6.4	28.8	26.4
1994	111 174	6.2	29.0	26.6
1995	109 386	6.1	29.2	26.8
1996	106 103	5.8	29.6	27.2
1997	106 735	5.8	29.7	27.5
1998	110 598	5.9	29.8	27.7
1999	114 316	6.0	30.1	27.9
2000	113 429	5.9	30.3	28.3

(a) Per 1,000 population.

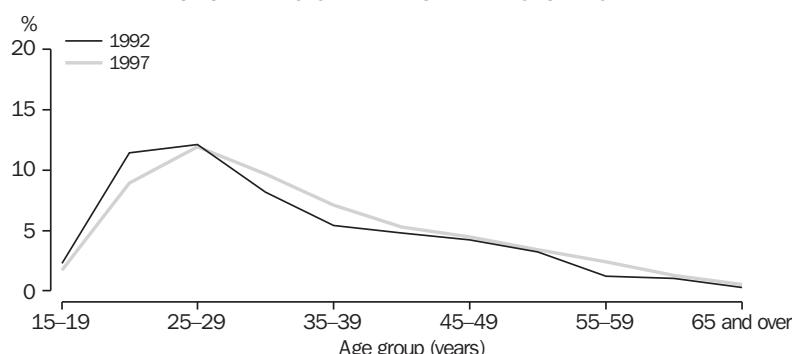
Source: Australian Demographic Statistics (3101.0); Marriages and Divorces, Australia (3310.0).

**De facto marriages**

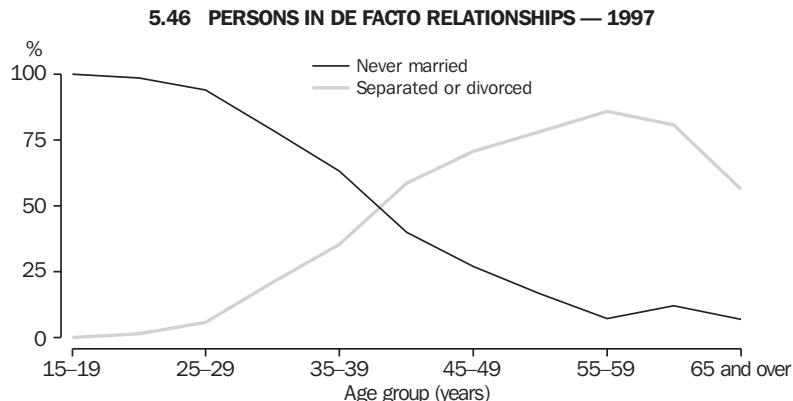
Between 1992 and 1997, the number of people in de facto marriages rose by 6.4% from 710,800 to 756,500 people. In 1997, de facto partners represented 9.1% of all persons living in couple relationships (up from 8.5% in 1992) and 5.3% of

persons aged 15 years and over (the same as in 1992). The proportion in de facto marriages peaked among people aged 25–29. It was also high in the adjacent age groups and then fell away to lower levels with increasing age (graph 5.45). Of all de facto partners in 1997, 56% were aged 20–34.

## 5.45 DE FACTO PARTNERS IN THE POPULATION



Source: ABS data available on request, 1992 Survey of Families in Australia; 1997 Family Characteristics Survey.



Source: *Family Characteristics, Australia* (4442.0).

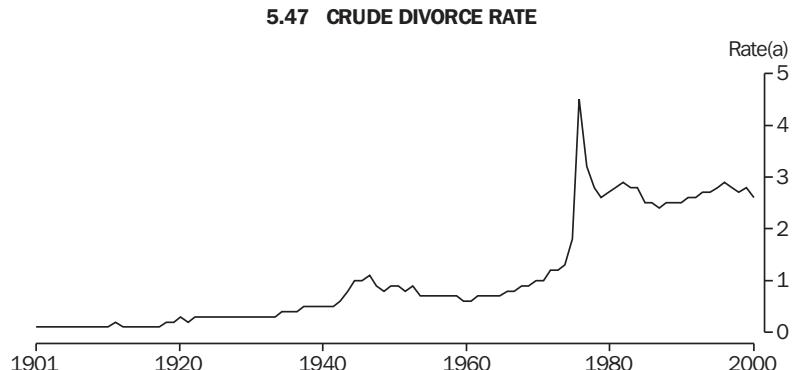
De facto partnering has arisen as an alternative living arrangement prior to, or instead of marriage, and following separation, divorce or widowhood. Some couple relationships, such as that between a boyfriend and girlfriend who live together but do not consider their relationship to be marriage-like, are classified as de facto.

Of all people in de facto relationships in 1997, 69% had never been in a registered marriage, and 29% were either separated or divorced. The likelihood of being never married was higher among those aged under 35, counterbalanced by higher proportions of separated and divorced de facto partners aged 35 and over (graph 5.46). In 1997, 46% of de facto couples had children, compared with 39% in 1992.

## Divorces

For most of the 20th century there was a slow but steady rise in the numbers of divorces granted each

year, increasing from annual averages of 0.1 divorces per 1,000 population between 1901 and 1910 to 0.8 per 1,000 between 1961 and 1970. However, the most important factor involved in the higher divorce rates in the latter quarter of the century was the introduction of the *Family Law Act 1975* which came into operation on 5 January 1976. This legislation allows only one ground for divorce: irretrievable breakdown of the marriage, measured as the separation of the spouses for at least one year. Following the implementation of this law, there was a large increase in the divorce rate in 1976. The rate then declined until 1979 as the backlog of applications was cleared. Since then the crude divorce rate has fluctuated between 2.4 and 2.9 divorces per 1,000 population (graph 5.47). The pattern of divorces per 1,000 married couples is very similar; in 2000 there were 12.0 divorces per 1,000 married men or women.



(a) Rate per 1,000 population.

Source: *Marriages and Divorces, Australia* (3310.0).

## 5.48 SELECTED SUMMARY MEASURES OF DIVORCES

Year ended 31 December	Divorces granted no.	Crude divorce rate(a)	Median age at date decree made absolute	
			Husband years	Wife years
1901	398	0.1	n.a.	n.a.
1921	1 490	0.3	n.a.	n.a.
1933	1 954	0.3	n.a.	n.a.
1947	8 705	1.1	n.a.	n.a.
1954	6 457	0.7	37.8	34.5
1961	6 712	0.6	38.7	35.9
1966	9 859	0.8	40.4	36.9
1971	12 947	1.0	37.9	34.4
1976	63 230	4.5	36.2	33.1
1981	41 412	2.8	35.5	32.8
1986	39 417	2.5	37.5	34.7
1990	42 635	2.5	38.2	35.3
1991	45 652	2.6	38.4	35.5
1992	45 729	2.6	38.7	35.9
1993	48 363	2.7	39.3	36.4
1994	48 312	2.7	39.7	36.8
1995	49 712	2.8	40.0	37.1
1996	52 466	2.9	40.2	37.4
1997	51 288	2.8	40.3	37.6
1998	51 370	2.7	40.5	37.8
1999	52 566	2.8	40.9	38.2
2000	49 906	2.6	41.4	38.6

(a) Per 1,000 population.

Source: Australian Demographic Statistics (3101.0); Marriages and Divorces, Australia (3310.0).

Table 5.48 brings together summary measures of divorces granted in Census years between 1901 and 1986, and individual years between 1990 and 2000.

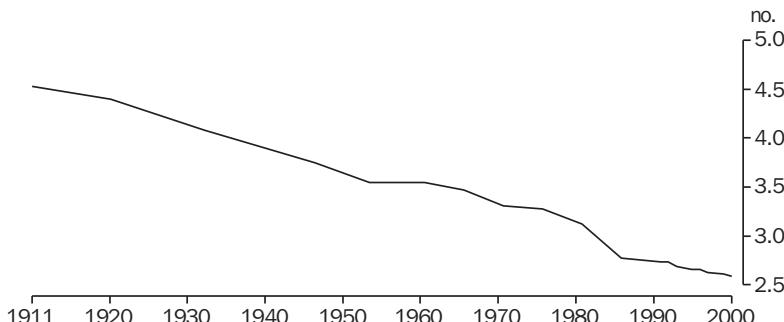
## Households and families

At June 2000 there were an estimated 7.2 million households in Australia, which were home to an estimated 18.8 million Australians, or 98% of the resident population. Over the past 90 years the number of households has increased by an average 2.4% per year, compared to an average 1.6% increase per year in the population over the same period. Reflecting the disproportionate growth in households is the fall in average size of households — from 4.5 in 1911 to 2.6 in 2000 (graph 5.49). Much of the decline in the number of persons per household this century can be attributed to reductions in completed family size, and the associated increase in one- and two-person households over the period. The number of one-person households has grown

largely from the ageing of the population, while a combination of ageing, increased childlessness among couples and an increase in the number of one-parent families has contributed to the increase in the number of two-person households.

In 1976, 60% of families were made up of couples with children. By 1996 this had fallen to 50% (table 5.50). Part of this change can be attributed to the increase in one parent families with dependent children, but most of the change is due to the increase in the proportion of couple-only families. People are having children later in life, and are living longer. They are spending more time living in couple-only families, both before they have children and after their children have left home.

Further characteristics of households and families are available from *Labour Force Status and Other Characteristics of Families, Australia* (6224.0).

**5.49 AVERAGE HOUSEHOLD SIZE, Persons Per Household**

Source: Year Book Australia 1988; Census of Population and Housing, 30 June 1981: Summary Characteristics of Persons and Dwellings (2443.0); Household Estimates, Australia (3229.0); Australian Demographic Statistics (3101.0).

**5.50 FAMILY TYPE — 1976–96**

Family type	1976(a)	1981(a)	1986(a)	1991(a)	1996
One parent family with dependent children	6.5	8.6	7.8	8.8	9.9
Couple only	28.0	28.7	30.3	31.4	34.1
Couple with dependent children	48.4	46.6	44.8	44.4	40.6
Couple with non-dependent children only	11.1	10.0	10.9	9.5	9.0
Other families	5.9	6.0	6.2	5.9	6.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Excludes caravan park dwellers.

Source: 1976–91: Australian Social Trends, 1994 (4102.0); ABS data available on request, 1996 Census of Population and Housing.

**Household and family projections**

Household and family projections are estimates of future numbers of households and families, based on assumptions about changing living arrangements of the population. The ABS has published three series of projections for the years 1996 to 2021. These series are based on varying assumptions about trends in living arrangements. In Series A the pattern of living arrangements of individuals is the same as in 1996. In Series B and C, recent trends in the patterns of living arrangements are incorporated into the projections. In Series B the average annual rate of change in living arrangements experienced between 1986 and 1996 is applied in reducing levels (in full between 1996 and 2001, in fractions to 2011, and then held constant to 2021). In Series C the rate of change experienced between 1986 and 1996 is applied in full throughout the projection period.

**Household types**

The projections show continuing growth in the number of households in Australia in the period 1996–2021. The number of households is projected to increase from 6.9 million in 1996 to

between 9.4 and 10.0 million in 2021 (graph 5.51). This represents a growth in the number of households of between 38% and 46% between 1996 and 2021, compared to a projected 24% increase in the population over the same period.

Average household size in Australia is projected to decline from 2.6 persons in 1996 to between 2.2 and 2.3 persons per household in 2021. The projected decrease in average household size reflects the projected rise in the proportion of lone person households and couples without children. Lone person households are projected to grow by between 1.7% and 3.1% per year between 1996 and 2021 to comprise between one-quarter and one-third of all household types by 2021. The ageing of the population, increases in divorce and separation, and delaying marriage, are all contributing factors to the growth in lone person households (Hugo 1999). While lone person households are projected to grow the fastest of all household types, family households are projected to remain the predominant household type. Family households are projected to grow by between 0.9% and 1.2% per year over the

1996–2021 period, to comprise between 62% and 71% of all household types in 2021, compared to 73% of all households in 1996 (graph 5.52).

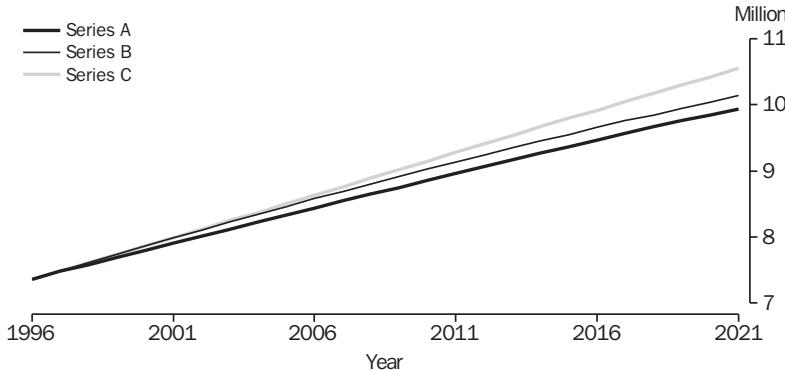
### Family types

The number of couple families with children is projected to either grow slowly or decline slowly, depending on the series employed. This trend is related both to the rapid increase in couple families without children, and the increase in one-parent families, and is driven by ageing, the decline in fertility and increased marital break-up. In Series A, couple families with children are projected to grow from 2.5 million in 1996 to around 3.1 million in 2021, while in Series C (full continuation of recent trends), couple families with children are projected to decline to 2.0 million in 2021 (table 5.53).

Of all family types, couple families without children are projected to increase most rapidly over the period 1996–2021. Couple families without children are projected to grow from 1.7 million in 1996 to between 2.7 and 2.9 million in 2021, with an average annual growth of between 1.7% and 2.1%. In Series B and C, couple families without children are projected to surpass couple families with children as the most common family type by the year 2016.

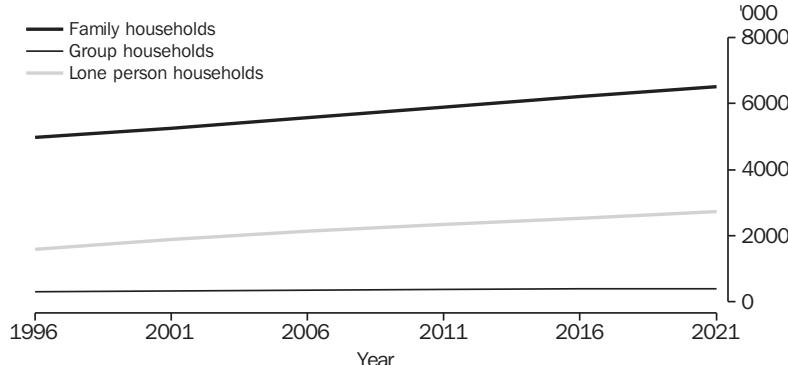
One-parent families are projected to increase from 742,000 families in 1996 to between 966,000 and 1.2 million in 2021, representing average annual growth of between 1.1% and 2.0% over the period. Female one-parent families, which made up 85% of all one-parent families in 1996, are projected to maintain or slightly increase this proportion in 2021.

**5.51 PROJECTED NUMBER OF HOUSEHOLDS, Australia**



Source: Household and Family Projections, Australia, 1996 to 2021 (3236.0).

**5.52 PROJECTED NUMBER OF HOUSEHOLDS, Household Types, Series B**



Source: Household and Family Projections, Australia, 1996 to 2021 (3236.0).

**5.53 PROJECTED NUMBER OF FAMILIES, By Family Type, Australia**

	1996 '000	2001 '000	2006 '000	2011 '000	2016 '000	2021 '000
<b>Series A</b>						
Couple families with children	2 483.8	2 660.7	2 798.2	2 902.1	2 985.7	3 054.7
Couple families without children	1 735.1	1 894.2	2 078.2	2 281.1	2 482.5	2 658.8
One-parent families	742.3	797.1	845.7	889.6	929.6	966.2
One-parent families, male parent	114.9	126.3	136.4	145.2	152.8	159.6
One-parent families, female parent	627.4	670.8	709.3	744.4	776.8	806.6
Other families	94.4	98.4	103.7	109.3	114.3	118.2
<b>Total</b>	<b>5 055.6</b>	<b>5 450.4</b>	<b>5 825.8</b>	<b>6 182.1</b>	<b>6 512.1</b>	<b>6 798.0</b>
<b>Series B</b>						
Couple families with children	2 483.8	2 448.1	2 471.4	2 513.5	2 589.8	2 654.0
Couple families without children	1 735.1	1 952.5	2 168.7	2 389.9	2 597.5	2 782.2
One-parent families	742.3	852.5	929.2	987.7	1 028.9	1 066.4
One-parent families, male parent	114.9	129.6	141.3	150.9	158.7	165.6
One-parent families, female parent	627.4	722.9	787.9	836.8	870.2	900.9
Other families	94.4	96.7	101.3	105.6	108.3	109.1
<b>Total</b>	<b>5 055.6</b>	<b>5 349.7</b>	<b>5 670.6</b>	<b>5 996.7</b>	<b>6 324.4</b>	<b>6 611.8</b>
<b>Series C</b>						
Couple families with children	2 483.8	2 448.1	2 366.3	2 252.1	2 122.6	1 988.1
Couple families without children	1 735.1	1 952.5	2 195.8	2 455.0	2 712.3	2 946.5
One-parent families	742.3	852.5	956.2	1 054.1	1 146.3	1 231.4
One-parent families, male parent	114.9	129.6	142.6	153.6	163.0	170.4
One-parent families, female parent	627.4	722.9	813.6	900.4	983.3	1 061.0
Other families	94.4	96.7	102.5	110.1	117.4	123.1
<b>Total</b>	<b>5 055.6</b>	<b>5 349.7</b>	<b>5 620.8</b>	<b>5 871.2</b>	<b>6 098.6</b>	<b>6 289.2</b>

Source: Household and Family Projections, Australia, 1996 to 2021 (3236.0).

## Citizenship

The concept of Australian citizenship was introduced when the *Nationality and Citizenship Act 1948* (since renamed the *Australian Citizenship Act 1948*) came into effect on Australia Day 1949. From 1949 until June 2000, over 3 million people born overseas have acquired Australian citizenship.

Australian citizenship law and policy have been amended many times since their inception to reflect progressively a more inclusive approach to acquisition of Australian citizenship. All migrants who meet set criteria are encouraged to become Australian citizens. Children acquire Australian citizenship at birth if at least one parent is an Australian citizen or permanent resident of Australia.

Some of the responsibilities and privileges of Australian citizenship include: the opportunity to vote and have a say in how the country is run; to stand for public office; more opportunity for employment in the public sector — including the armed forces; eligibility for an Australian passport; and the ability to seek assistance from

the Australian Government if required when travelling overseas. Adults acquiring Australian citizenship pledge their loyalty to Australia and its people, share in the beliefs of the democratic process, respect the liberties of other Australians, and uphold and obey Australia's laws.

Standardising gives the citizenship rates that would be expected if a given overseas-born population had the same profile of age and period of residence in Australia as the total overseas-born population (table 5.54). The standardised citizenship rate for the Greek-born population was 87%. Based on standardised rates, people born in Viet Nam had the highest rate of citizenship (90%) in 1996.

People born in the main English speaking countries, such as the United Kingdom and New Zealand, had low standardised citizenship rates. This may be because "...the shared language, and strongly similar legal, political, and industrial relations arrangements of Australia and the other Anglo-American countries lead these immigrants to feel less need to make a choice of national identity." (Evans M. 1988).

## 5.54 CITIZENSHIP RATES, By Country of Birth — 1996

Country	Persons '000	Citizenship rate %	Standardised citizenship rate(a) %
Viet Nam	151.1	88.5	89.6
Former Yugoslav Republics	175.4	87.5	87.3
Greece	126.5	96.1	87.3
China	111.0	48.6	76.3
Italy	238.2	78.8	65.6
Germany	110.3	75.8	63.1
Netherlands	87.9	77.7	60.4
United Kingdom	1 124.0	60.5	57.5
New Zealand	291.4	32.3	38.3
<b>Total overseas born</b>	<b>3 901.9</b>	<b>67.8</b>	<b>67.8</b>

(a) The rates of citizenship that would be expected if the population had the same age and period of residence profile as the total overseas born population.

Source: ABS data available on request, 1996 Census of Population and Housing.

Between 1949 and 1965, only 4% of citizenship grants were made to former citizens of the United Kingdom and Ireland. Former Italian citizens made up 21% of new citizens in that period, followed by former citizens of the Netherlands (13%), the then USSR and Poland (both 12%).

In the late 1960s, former citizens of the United Kingdom and Ireland increased their take-up of Australian citizenship and represented 10% of grants of citizenship between 1965 and 1970, third after former Italian citizens (21%) and former Greek citizens (13%). In the 1970s, legislative changes concerning applications for citizenship and visa requirements affected Commonwealth citizens in Australia. Since then, the United Kingdom and Ireland have consistently been the largest source of new Australian citizens: about 31% of all citizenship grants since 1970 have been to people from these countries. In 1999–2000, 22% of citizenship grants were to people from the United Kingdom and Ireland while 11% were to people from China (table 5.55).

## Religion

In 1983, the High Court of Australia defined religion as "a complex of beliefs and practices which point to a set of values and an understanding of the meaning of existence".

At the time of European settlement, the Aboriginal inhabitants followed their own religions which were animistic in nature, involving belief in spirits behind the forces of nature and the influence of ancestral spirit beings.

During the 1800s, European settlers brought their traditional churches to Australia. These included the Church of England (now the Anglican Church), and the Methodist, Catholic, Presbyterian, Congregationalist and Baptist churches. In 1838, German Lutherans arrived in South Australia. From the 1840s onwards, groups such as Mormons, Swedenborgians, Spiritualists, Christadelphians, Seventh-day Adventists, Christian Scientists and Jehovah's Witnesses arrived in Australia.

Separation of church and state, and the freedom to exercise any religion, were principles enshrined in Section 116 of the 1900 Act to constitute the Commonwealth of Australia (Australian Constitution). With the exception of a small but significant Lutheran population of Germanic descent, Australian society in 1901 was predominantly Anglo-Celtic, with 40% of the population being Church of England, 23% Catholic, 34% other Christian and about 1.4% professing non-Christian religions. While the population had more than doubled by 1954, the denominational mix had changed little, with 38% Church of England (Anglican), 23% Catholic, 28% other Christian denominations and 0.6% non-Christian religions.

Further waves of migration helped to reshape the profile of Australia's religious diversity over subsequent decades. The impact of migration from Europe in the aftermath of World War II led to increases in affiliates of the Orthodox Churches, the establishment of Reformed bodies, growth in the number of Catholics (largely from Italian migration), and the creation of ethnic parishes among many other denominations.

**5.55 FORMER NATIONALITY, People Granted Australian Citizenship — 1999–2000**

Citizenship	no.	%
British	14 592	20.6
Chinese(a)	7 664	10.8
New Zealander	6 676	9.4
Vietnamese	3 441	4.9
Indian	2 381	3.4
Filipino	2 349	3.3
South African	2 253	3.2
Iraqi	1 853	2.6
Sri Lankan	1 832	2.6
Bosnian-Herzegovinian	1 531	2.2
Fijian	1 379	1.9
Malaysian	1 154	1.6
Yugoslavia (Federal Republic of)	1 099	1.6
Taiwanese	1 084	1.5
American(b)	989	1.4
Lebanese	859	1.2
Indonesian	844	1.2
Korean	768	1.1
Turkish	766	1.1
Iranian	755	1.1
Irish	698	1.0
Canadian	654	0.9
Cambodian	647	0.9
Italian	633	0.9
Yugoslavia (former)	614	0.9
Pakistani	596	0.8
Thai	541	0.8
Croatian	535	0.8
Maltese	456	0.6
Somali	449	0.6
Afghan	444	0.6
Russian Federation	423	0.6
Bangladeshi	410	0.6
Singaporean	370	0.5
Ukrainian	367	0.5
Polish	363	0.5
Macedonian	352	0.5
German	331	0.5
Portuguese (incl. Macau)	316	0.4
Egyptian	311	0.4
Myanmar (citizens of Burma)	309	0.4
Sudanese	298	0.4
French	283	0.4
Greek	252	0.4
Other nationalities	4 903	6.9
Stateless	525	0.7
Not stated/other	487	0.7
<b>Total</b>	<b>70 836</b>	<b>100.0</b>

(a) People's Republic of China including Hong Kong Special Administrative Region. (b) Citizen of the United States of America including American Samoa.

Source: Department of Immigration and Multicultural Affairs, Annual report 1999–2000.

More recently, immigration from South East Asia and the Middle East has expanded Buddhist and Muslim numbers considerably, and increased the ethnic diversity of existing Christian denominations. In response to the 1996 Census question, Australians' stated religious affiliations

were: 27% Catholic, 22% Anglican, 22% other Christian denominations and 3% non-Christian religions. Approximately one-quarter of all Australians either stated that they had no religion or did not adequately respond to the question.

Growth in the proportion who either stated that they had no religion, or who did not state an affiliation with any religion, has been an area of substantial change. In every Census taken in Australia, a voluntary question on religious affiliation has been asked. Since 1933, the voluntary nature of the religion question has been specifically stated. In 1971, the instruction 'if no religion, write *none*' was introduced. The percentage who stated that they had no religion increased from 0.4% of the population in 1901 to almost 17% by 1996. At the same time there has been an even larger percentage point decrease in the proportion stating an affiliation with Christianity, from 96% in 1901 to 71% in 1996. Table 5.56 provides a summary of the major religious affiliations at each Census since 1901.

While Australia's population grew by 5.4% in the five years to 1996, stated affiliations to many religions grew at a far greater rate, and others declined. Between the 1991 and 1996 Censuses there was a 35% increase in the number of people with no religion. Anglican affiliates decreased by 115,455 (2.9%) while Catholic affiliates increased by 192,299 (4.2%). However both groups decreased their proportion of total religious affiliation. Other Christian denominations which showed a decrease in affiliates were Presbyterian and Reformed (7.7%), Churches of Christ (4.2%), the Uniting Church (3.8%) and the Lutheran Church (0.4%).

The Christian groups that showed the largest percentage increases in affiliates were Pentecostal (16.0%) and Jehovah's Witness (11.6%). Affiliates of other religions, while only 3.5% of the population in 1996, have shown the largest increases since the 1991 Census. Stated affiliation to Hinduism increased by 54.5%, to Buddhism by 42.9%, to Islam by 36.2% and to Judaism by 7.6%. These changes partly resulted from trends in immigration. In 1996, 48% of those who had arrived in Australia since 1991 were affiliated to Christianity, 23% had no religion, 8% were affiliated to Buddhism, 8% to Islam and 1% to Judaism.

Table 5.57 shows the breakdown of religious groupings by the number and percentage of affiliates at the 1991 and 1996 Censuses, and the growth which occurred during that five-year period.

## 5.56 MAJOR RELIGIOUS AFFILIATIONS

Census year	Religious affiliation							'000	
	Christianity				Other religions	No religion	Not stated/inadequately described		
	Anglican	Catholic	Other	Total					
1901	39.7	22.7	33.7	96.1	1.4	0.4	(a)2.0	3 773.8	
1911	38.4	22.4	35.1	95.9	0.8	0.4	(a)2.9	4 455.0	
1921	43.7	21.7	31.6	96.9	0.7	0.5	(a)1.9	5 435.7	
1933	38.7	19.6	28.1	86.4	0.4	0.2	12.9	6 629.8	
1947	39.0	20.9	28.1	88.0	0.5	0.3	11.1	7 579.4	
1954	37.9	22.9	28.5	89.4	0.6	0.3	9.7	8 986.5	
1961	34.9	24.9	28.4	88.3	0.7	0.4	10.7	10 508.2	
1966	33.5	26.2	28.5	88.2	0.7	0.8	10.3	11 599.5	
1971	31.0	27.0	28.2	86.2	0.8	6.7	6.2	12 755.6	
1976	27.7	25.7	25.2	78.6	1.0	8.3	11.4	13 548.4	
1981	26.1	26.0	24.3	76.4	1.4	10.8	11.4	14 576.3	
1986	23.9	26.0	23.0	73.0	2.0	12.7	12.4	15 602.2	
1991	23.8	27.3	22.9	74.0	2.6	12.9	10.5	16 850.3	
1996	22.0	27.0	21.9	70.9	3.5	16.6	9.0	17 752.8	

(a) Includes 'object to state'.

Source: ABS data available on request, Census of Population and Housing.

## 5.57 RELIGIOUS AFFILIATION

	1991		1996		Growth
	No.	Proportion	No.	Proportion	
	'000	%	'000	%	
Christianity					
Anglican	4 018.8	23.8	3 903.3	22.0	-2.9
Baptist	279.8	1.7	295.2	1.7	5.5
Catholic	4 606.7	27.3	4 799.0	27.0	4.2
Churches of Christ	78.3	0.5	75.0	0.4	-4.2
Jehovah's Witness	74.7	0.4	83.4	0.5	11.6
Lutheran	250.9	1.5	250.0	1.4	-0.4
Orthodox	474.9	2.8	497.0	2.8	4.7
Pentecostal	150.6	0.9	174.7	1.0	16.0
Presbyterian and Reformed	732.0	4.3	675.5	3.8	-7.7
Salvation Army	72.3	0.4	74.1	0.4	2.5
Uniting Church	1 387.7	8.2	1 334.9	7.5	-3.8
Other Christian	339.6	2.0	420.6	2.4	23.9
Buddhism	139.8	0.8	199.8	1.1	42.9
Hinduism	43.6	0.3	67.9	0.4	54.4
Islam	147.5	0.9	200.9	1.1	36.2
Judaism	74.3	0.4	79.8	0.4	7.6
Other religions	40.0	0.2	68.6	0.4	71.6
No religion	2 176.6	12.9	2 948.9	16.6	35.5
Not stated/inadequately described	1 762.1	10.5	1 604.7	9.0	-8.9
<b>Total</b>	<b>16 850.3</b>	<b>100.0</b>	<b>17 752.8</b>	<b>100.0</b>	<b>5.4</b>

Source: ABS data available on request, 1991 and 1996 Censuses of Population and Housing.

## Languages

English is Australia's national language. At the same time Australia's cultural vitality is also a product of other languages spoken in the community. Over 200 languages are spoken, including 48 Australian Indigenous languages. In 1996, 2.5 million people (16% of the population five years and over) spoke a language other than English at home.

About 44,000 people spoke an Australian Indigenous language or an Australian creole (a language developed from pidgin English) in the home (table 5.58). Speakers of these languages made up 14% of Indigenous people and 0.3% of the Australian population. Some 64% of Indigenous people in the Northern Territory spoke an Indigenous language or creole at home. The two Indigenous languages with the most speakers were Arrente, a central Australian language (3,468 speakers), and Dhuwal~Dhuwala, an Arnhem land language (3,219 speakers).

The leading five community languages, each with more than 100,000 speakers, were Italian, Greek, Cantonese, Arabic/Lebanese and Vietnamese.

A further ten languages were spoken by more than 40,000 people. These 15 languages, together with Indigenous languages and creoles, accounted for 73% of all people speaking a language other than English in the home.

Greek, Italian and Arabic had the largest proportions of Australian-born speakers, partly reflecting a greater rate of maintenance of these languages among the second generation of these language groups. Languages mostly brought to Australia more recently, such as Mandarin, have a smaller proportion of Australian-born speakers.

The proficiency of speaking English among people who spoke a language other than English at home varied with the age of the speaker and whether or not they were Australian-born. Over 92% of 5 to 24 year olds spoke English well or very well, compared with 59% of those aged 65 years and over (table 5.59). Those born in Australia had a consistently greater proficiency in English, with close to 96% speaking English well or very well, compared to 82% overall. However, proficiency in speaking English well had increased slightly in all age groups since the 1991 Census.

**5.58 PERSONS(a) WHO SPOKE A LANGUAGE OTHER THAN ENGLISH AT HOME — 1996**

Language spoken at home	Males '000	Females '000	Persons '000	Proportion Australian-born %	Persons as a proportion of population %
Italian	183.6	183.7	367.3	40.7	2.3
Greek	130.3	128.7	259.0	46.7	1.6
Cantonese	91.6	98.5	190.1	12.9	1.2
Arabic/Lebanese	83.7	78.3	162.0	37.8	1.0
Vietnamese	67.3	66.7	134.0	12.6	0.8
German	46.3	50.3	96.7	18.9	0.6
Mandarin	42.7	44.6	87.3	6.4	0.5
Spanish	42.2	44.6	86.9	17.6	0.5
Macedonian	34.8	33.3	68.1	34.9	0.4
Tagalog (Filipino)	26.0	41.3	67.3	5.0	0.4
Croatian	33.7	33.0	66.7	32.4	0.4
Polish	28.3	32.7	61.0	16.2	0.4
Maltese	22.4	22.3	44.7	27.9	0.3
Indigenous languages & creoles	21.8	22.4	44.2	98.9	0.3
Turkish	21.7	20.6	42.2	31.3	0.3
Netherlandic (Dutch/Flemish)	18.3	21.9	40.2	12.4	0.3
All other(b)	323.5	333.4	656.9	15.2	4.1
<b>Total</b>	<b>1 218.3</b>	<b>1 256.3</b>	<b>2 474.6</b>	<b>26.0</b>	<b>15.5</b>

(a) Excludes children aged under five years. (b) Excludes inadequately described languages.

Source: ABS data available on request, 1996 Census of Population and Housing.

**5.59 PROFICIENCY IN ENGLISH, Persons Who Spoke a Language Other than English at Home — 1996**

Proficiency in English	Unit	Age group (years)				<b>Total</b>
		5–24	25–44	45–64	65 & over	
Total population speaking other than English at home						
Speaks English well/very well	%	92.2	84.6	74.9	59.3	<b>81.5</b>
Does not speak English well	%	6.9	13.8	21.6	28.7	<b>15.4</b>
Does not speak English at all	%	0.9	1.6	3.5	11.9	<b>3.1</b>
Total	%	100.0	100.0	100.0	100.0	<b>100.0</b>
Total(a)	no.	720 744	865 365	600 818	287 662	<b>2 474 589</b>
Australian-born population speaking other than English at home						
Speaks English well/very well	%	95.5	97.2	90.1	79.3	<b>95.6</b>
Does not speak English well	%	4.0	2.4	8.1	15.2	<b>3.8</b>
Does not speak English at all	%	0.5	0.4	1.8	5.4	<b>0.6</b>
Total	%	100.0	100.0	100.0	100.0	<b>100.0</b>
Total(b)	no.	386 155	213 885	30 553	8 240	<b>638 833</b>

(a) Includes 37,000 people who did not state how well they spoke English. (b) Includes 14,000 people who did not state how well they spoke English.

Source: ABS data available on request, 1996 Census of Population and Housing.

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United Nations Development Programme, at <http://www.undp.org>

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## Introduction

The information about the labour market in Australia presented in this chapter covers a wide range of aspects of economic and community life. Labour statistics are important economic indicators; changes in measures of employment, unemployment, earnings, job vacancies and industrial disputes provide insights into the economy and the effects of labour market policy settings. Labour statistics are also very much about people — their participation in the labour force, their success in finding employment, their earnings and other benefits, their type of work and their working hours.

This chapter begins with an outline of the main sources of data on the labour market. This is followed by a profile of the labour force, which consists of people who are either employed or unemployed. More detailed data are then presented for the two groups of employed and unemployed persons. For employed persons, data are included on underemployment, where part-time workers would like to work more hours. In relation to unemployment, statistics are also presented on the number of vacant jobs available. Following these sections on people in the labour force is information about those people who are not in the labour force, including data on marginally attached workers, who would like employment but are either not looking or not available for work.

The latter part of this chapter examines characteristics and issues related to employment in more detail. This includes data on the occupation, industry and sector of employed persons, as well as their hours, earnings, benefits and methods of setting pay. Information is also presented about the industrial relations environment, relating to industrial disputes and the proportion of employees who are union members.

### Labour market statistics

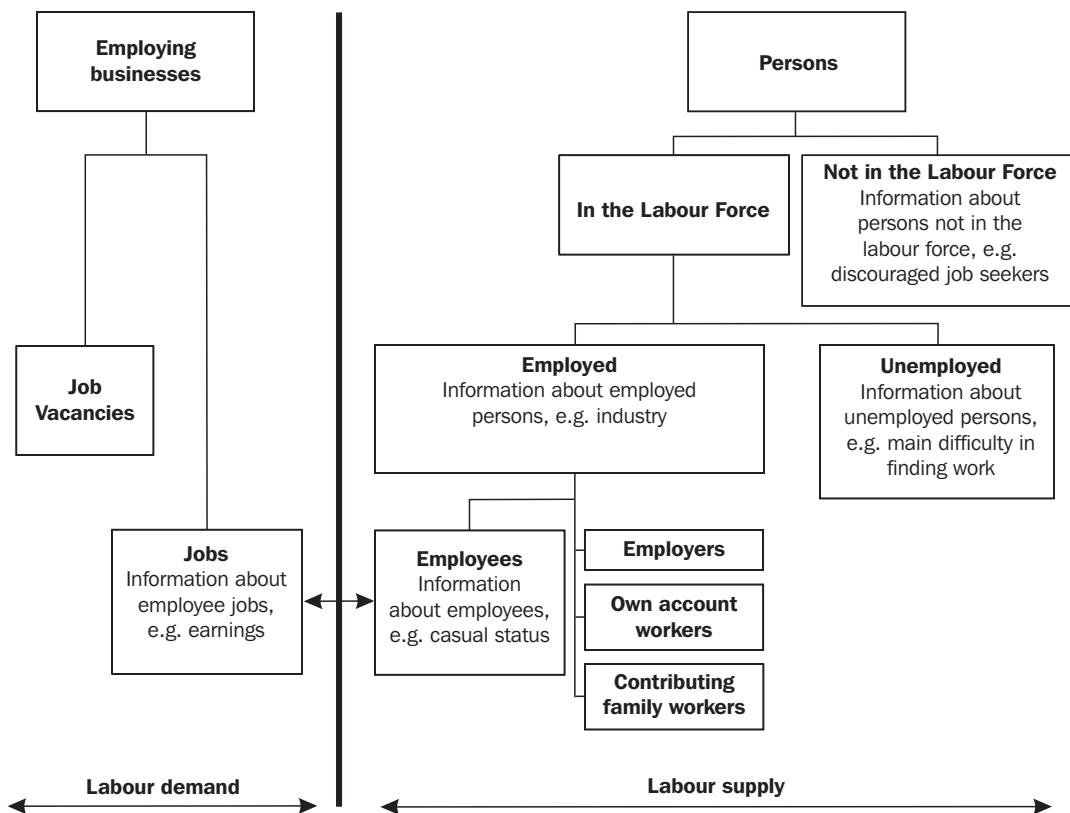
The data presented are taken from ABS surveys. A range of surveys is used to provide a picture of the Australian labour market, with some surveys collecting information from households while others collect information from businesses.

In household surveys, information is collected about persons from a sample of households. For surveys covering labour issues, this information includes demographic data, such as age and sex, as well as information about labour market experience — for example whether a person is working or looking for work. Household surveys provide insight into the supply of labour.

Surveys of employing businesses obtain information about jobs, for example the number of jobs in the business or the wages and salaries paid. Business surveys provide information on the demand for labour.

The overall framework for labour market statistics is outlined in diagram 6.1. It sets the context for the discussion of the Australian labour force in the next section, and for the framework relating to labour force statistics in diagram 6.2.

## 6.1 THE AUSTRALIAN LABOUR STATISTICS FRAMEWORK

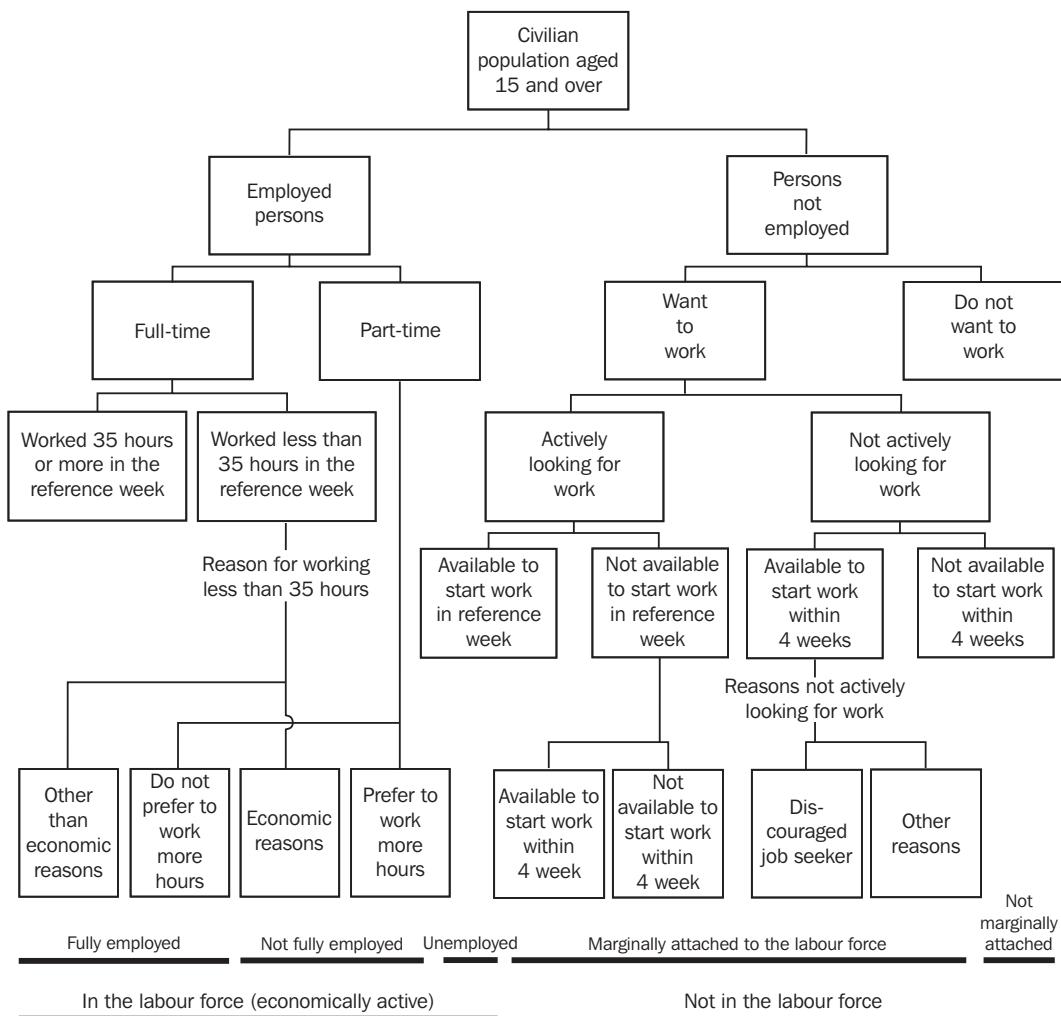


## The labour force

Fundamental to the measurement of employment and unemployment is the concept of the labour force, defined as those persons aged 15 and over who, during a particular week, are either employed or unemployed. The labour force represents the key official measure of the total supply of labour available to the labour market during a given week.

This section presents statistics on the civilian labour force drawn from the monthly Labour Force Survey and supplementary surveys. The household surveys contain a series of questions to classify the population according to the framework presented in diagram 6.2. This framework is the basis for determining whether persons are employed, unemployed or not in the labour force. Further details concerning the scope, coverage and survey methods of the labour force and supplementary surveys (as well as more detailed statistics) can be found in *Labour Statistics: Concepts, Sources and Methods, 2001* (6102.0), or the other publications listed in the Bibliography.

## 6.2 THE AUSTRALIAN LABOUR FORCE FRAMEWORK



## **Characteristics of the labour force**

The size and composition of the labour force are not static over time. Changes in the size of the labour force are caused by changes in the rate of labour force participation as well as changes in the population aged 15 and over.

Population increase has made a steady contribution to labour force growth as a result of net migration and natural increase (1.4% in 2000–01). However, from 1997–98 to 2000–01, the contribution due to labour force participation has risen from –0.5% to 0.5%.

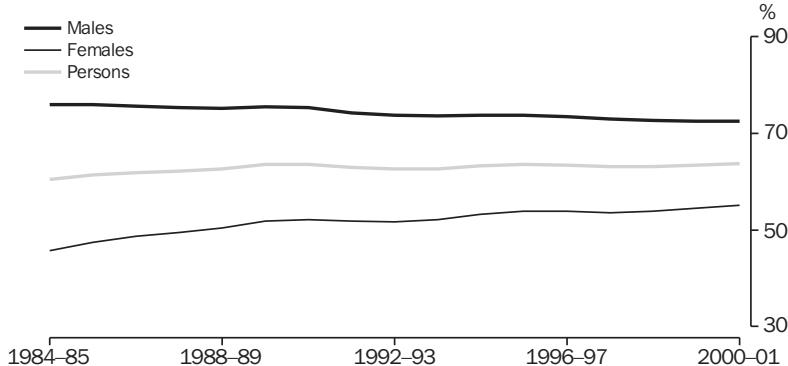
**6.3 LABOUR FORCE, Components of Change, Annual Average**

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	%	%	%	%	%	%
<b>MALES</b>						
Percentage change in labour force	1.5	0.9	0.9	1.3	1.3	1.4
Percentage points change due to						
Population growth	1.5	1.5	1.5	1.5	1.6	1.5
Labour force participation	0.1	-0.6	-0.6	-0.3	-0.3	-0.1
<b>FEMALES</b>						
Percentage change in labour force	2.7	1.6	1.0	1.8	2.7	2.5
Percentage points change due to						
Population growth	1.6	1.5	1.4	1.4	1.5	1.3
Labour force participation	1.1	0.1	-0.4	0.4	1.3	1.2
<b>PERSONS</b>						
Percentage change in labour force	2.0	1.2	1.0	1.5	1.9	1.9
Percentage points change due to						
Population growth	1.5	1.5	1.4	1.5	1.5	1.4
Labour force participation	0.5	-0.3	-0.5	0.0	0.4	0.5

Source: ABS data available on request, Labour Force Survey.

The participation rate is one of the most important indicators relating to the labour force. It represents the proportion of the population aged 15 and over who are in the labour force. Analysis of participation rates, particularly in terms of age, sex and marital status, provides the basis for monitoring changes in the size and composition of labour supply. The annual average participation rate for males has been declining for some time, and in 2000–01 it was 73%. In contrast, the female participation rate has increased to 55% in 2000–01 (graph 6.4).

Table 6.5 shows changes in labour force status between 1995–96 and 2000–01. Notable features include a steady increase in employment for both males and females. Over this period, the male unemployment rate decreased from 8.5% in 1995–96 to 6.7% in 2000–01. The female unemployment rate decreased from 7.6% in 1995–96 to 6.0% in 2000–01.

**6.4 PARTICIPATION RATES, Annual Average**

Source: Labour Force, Australia (6203.0).

**6.5 CIVILIAN POPULATION AGED 15 AND OVER, Labour Force Status, Annual Average**

	Units	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
MALES							
Employed	'000	4 278.8	4 766.3	4 828.3	4 923.7	5 033.2	5 106.0
Unemployed							
Looking for full-time work	'000	392.7	395.4	380.7	352.3	307.7	308.8
Looking for part-time work	'000	47.1	52.3	52.9	52.1	56.1	57.0
Total unemployed	'000	439.8	447.7	433.7	404.4	363.8	365.8
Labour force	'000	5 168.6	5 214.0	5 262.0	5 328.0	5 397.0	5 471.8
Not in the labour force	'000	1 836.4	1 894.4	1 952.3	1 995.7	2 044.2	2 078.4
Civilian population	'000	7 004.9	7 108.4	7 214.3	7 323.7	7 441.1	7 550.2
Unemployment rate	%	8.5	8.6	8.3	7.6	6.7	6.7
Participation rate	%	73.8	73.4	72.9	72.8	72.5	72.5
FEMALES							
Employed	'000	3 595.4	3 637.7	3 690.3	3 779.7	3 906.7	4 023.9
Unemployed							
Looking for full-time work	'000	208.4	221.2	212.8	192.5	177.0	163.7
Looking for part-time work	'000	88.4	96.1	91.4	94.8	93.7	95.9
Total unemployed	'000	296.7	317.2	304.2	287.3	270.7	259.7
Labour force	'000	3 892.1	3 954.9	3 994.4	4 067.0	4 177.4	4 283.6
Not in the labour force	'000	3 345.6	3 392.0	3 456.1	3 488.3	3 488.4	3 483.6
Civilian population	'000	7 237.7	7 347.0	7 450.5	7 555.3	7 665.8	7 767.2
Unemployment rate	%	7.6	8.0	7.6	7.1	6.5	6.0
Participation rate	%	53.8	53.8	53.6	53.8	54.5	55.2
PERSONS							
Employed	'000	8 324.2	8 404.0	8 518.6	8 703.4	8 939.9	9 129.9
Unemployed							
Looking for full-time work	'000	601.1	616.5	593.5	544.7	484.6	472.5
Looking for part-time work	'000	135.4	148.4	144.3	146.9	149.8	153.0
Total unemployed	'000	736.5	764.9	737.8	691.7	634.5	625.5
Labour force	'000	9 060.7	9 168.9	9 256.4	9 395.0	9 574.3	9 755.4
Not in the labour force	'000	5 181.9	5 286.4	5 408.4	5 484.0	5 532.6	5 562.0
Civilian population	'000	14 242.6	14 455.3	14 664.8	14 879.0	15 106.9	15 317.4
Unemployment rate	%	8.1	8.3	8.0	7.4	6.6	6.4
Participation rate	%	63.6	63.4	63.1	63.1	63.4	63.7

Source: Labour Force, Australia (6203.0).

In 2000–01 the labour force participation rate for persons born overseas was 58%, compared with a participation rate of 67% for persons born in Australia. For persons born in other than main English-speaking countries the participation rate was 54%, compared with 65% for persons born in main English-speaking countries (table 6.6).

Table 6.7 provides an overview of labour force status of persons at June 2001, according to the family relationship within households. Notable features include: for couple families with dependants present, 83% of husbands were employed full-time, compared with 27% of wives (with a further 36% of wives employed part-time). Some 61% of male lone parents were employed full-time compared with 21% of female lone parents. The unemployment rate for husbands or wives was lower than for all other groups.

**6.6 CIVILIAN LABOUR FORCE, By Birthplace, Annual Average(a) — 2000–01**

	Employed		Unemployed		Total labour force '000	Unemployment rate %	Participation rate(b) %			
	Full-time workers '000	Total '000	Looking for full-time work '000							
			Total '000	Unemployed '000						
Born in Australia	4 982.5	6 877.3	348.2	478.9	7 356.2	6.5	67.4			
Born outside Australia										
Main English-speaking countries	735.4	967.6	47.2	60.0	1 027.6	5.8	64.5			
Other than main English-speaking countries	969.5	1 265.6	82.9	108.8	1 374.4	7.9	54.0			
Oceania	239.1	307.5	20.6	25.7	333.2	7.7	75.9			
Europe and the former USSR	835.9	1 099.0	53.9	67.8	1 166.7	5.8	52.6			
The Middle East and North Africa	79.2	105.3	12.7	15.3	120.5	12.7	49.9			
South-East Asia	211.9	272.4	19.8	27.0	299.5	9.0	62.1			
North-East Asia	109.0	145.6	6.9	10.0	155.6	6.4	53.5			
Northern-America	37.9	49.3	1.8	2.6	51.8	4.9	70.3			
Other	191.9	253.8	14.3	20.5	274.3	7.5	69.8			
Total born outside Australia	1 704.9	2 233.2	130.0	168.8	2 402.0	7.0	58.0			
<b>Total</b>	<b>6 687.4</b>	<b>9 110.5</b>	<b>478.2</b>	<b>647.7</b>	<b>9 758.1</b>	<b>6.6</b>	<b>64.8</b>			

(a) Data have not been revised to reflect definitional changes in the Labour Force Survey questionnaire introduced in April 2001. Data collected from April 2001 onwards are not strictly comparable with data collected in earlier periods. For further information, see Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire (6295.0). (b) Participation rate calculated using population estimates which exclude those in institutions.

Source: Labour Force, Australia (6203.0).

## Persons employed

People are considered to be employed if they were in paid work for one hour or more in the reference week. Those people who have a job or a business, but were absent from work in the reference week, are also considered to be employed. This section contains information about people who are employed, including their status in employment and whether they worked full-time or part-time. The section also includes information about people who are underemployed, that is, people who work part-time but would like to work more hours.

Relating employment levels to population levels enables the evaluation of the strength of job growth as compared to population growth. The measure relating these two levels is the employment/population ratio. Its usefulness lies in the fact that, while movements in the employment level reflect net changes in the levels of persons holding jobs, movements in the ratio reflect net changes in the number of persons employed relative to changes in the size of the population. The overall employment/population ratio rose from 58% in 1995–96 to 60% in 2000–01 (table 6.8).

## 6.7 LABOUR FORCE STATUS, Relationship in Household(a)(b) — June 2001

	Employed		Unemployed			Labour force	Not in labour force	Civilian population aged 15 and over	Unemployment rate	Participation rate
	Full-time	Total	Looking for full-time work	Total						
	'000	'000	'000	'000						
MALES										
Family member	3 557.1	4 147.4	231.2	279.7	4 427.1	1 554.1	5 981.2	6.3	74.0	
Husband										
With dependants	1 727.6	1 847.8	74.5	80.1	1 927.9	159.2	2 087.2	4.2	92.4	
Without dependants	1 174.1	1 339.2	51.1	57.1	1 396.3	951.7	2 348.0	4.1	59.5	
Total	2 902.0	3 187.0	125.6	137.3	3 324.3	1 110.9	4 435.2	4.1	75.0	
Lone parent										
With dependants	43.5	50.0	*4.7	*5.4	55.4	16.0	71.2	9.7	77.8	
Without dependants	21.2	24.1	*2.8	*2.8	26.9	21.6	48.4	*10.4	55.5	
Total	64.7	74.1	7.5	8.2	82.3	37.5	119.8	10.0	68.7	
Dependent student(c)	4.9	188.0	*3.7	31.1	219.2	257.5	476.7	14.2	46.0	
Non-dependent child(d)	508.3	605.2	83.7	90.4	695.6	96.7	792.3	13.0	87.8	
Other family person	77.3	93.0	10.8	12.7	105.8	51.4	157.2	12.0	67.3	
Non-family member	669.9	787.1	68.9	77.1	864.2	375.3	1 239.6	8.9	69.7	
Lone person	393.3	452.7	38.4	41.8	494.6	284.0	778.5	8.5	63.5	
Not living alone	276.6	334.4	30.5	35.3	369.7	91.4	461.0	9.6	80.2	
<b>Total</b>	<b>4 227.1</b>	<b>4 934.5</b>	<b>300.1</b>	<b>356.9</b>	<b>5 291.4</b>	<b>1 929.4</b>	<b>7 220.8</b>	<b>6.7</b>	<b>73.3</b>	
FEMALES										
Family member	1 737.0	3 356.0	141.2	224.0	3 580.0	2 517.4	6 097.3	6.3	58.7	
Wife										
With dependants	529.7	1 240.9	34.1	58.1	1 299.0	684.7	1 983.7	4.5	65.5	
Without dependants	719.4	1 139.2	29.3	37.8	1 176.9	1 115.7	2 292.6	3.2	51.3	
Total	1 249.0	2 380.0	63.4	95.9	2 475.9	1 800.4	4 276.3	3.9	57.9	
Lone parent										
With dependants	106.7	237.3	27.7	44.6	281.9	215.4	497.4	15.8	56.7	
Without dependants	39.3	58.2	*4.0	5.1	63.3	112.1	175.4	8.0	36.1	
Total	146.0	295.5	31.7	49.7	345.2	327.6	672.8	14.4	51.3	
Dependent student(c)	5.0	229.0	5.4	32.3	261.3	22.1	483.4	12.4	54.0	
Non-dependent child(d)	281.7	369.3	34.4	38.2	407.5	57.3	464.8	9.4	87.7	
Other family person	55.2	82.2	6.3	8.0	90.1	109.9	200.0	8.8	45.1	
Non-family member	398.8	549.0	29.5	40.7	589.7	647.6	1 237.3	6.9	47.7	
Lone person	228.1	310.2	18.0	25.5	335.8	577.7	913.2	7.6	36.8	
Not living alone	170.7	238.8	11.5	15.1	253.9	70.1	324.1	6.0	78.4	
<b>Total</b>	<b>2 135.7</b>	<b>3 905.0</b>	<b>170.7</b>	<b>264.7</b>	<b>4 169.6</b>	<b>3 165.0</b>	<b>7 334.6</b>	<b>6.3</b>	<b>56.8</b>	
PERSONS										
Family member	5 294.1	7 503.4	372.4	503.7	8 007.1	4 071.4	12 078.5	6.3	66.3	
Husband or wife										
With dependants	2 257.3	3 088.7	108.6	138.2	3 226.9	844.0	4 070.9	4.3	79.3	
Without dependants	1 893.8	2 478.4	80.4	94.9	2 573.3	2 067.4	4 640.7	3.7	55.5	
Total	4 151.0	5 567.0	189.0	233.1	5 800.2	2 911.4	8 711.5	4.0	66.6	
Lone parent										
With dependants	150.1	287.3	32.3	50.0	337.4	231.4	568.7	9.6	59.3	
Without dependants	60.5	82.3	6.8	7.9	90.2	133.7	223.9	8.7	40.3	
Total	210.6	369.6	39.1	57.9	427.5	365.1	792.6	13.5	53.9	
Dependent student(c)	9.9	417.0	9.1	63.4	480.4	479.7	960.1	13.2	50.0	
Non-dependent child(d)	790.0	974.5	118.0	128.6	1 103.1	154.0	1 257.1	11.7	87.7	
Other family person	132.5	175.2	17.1	20.7	195.9	161.3	357.2	10.6	54.8	
Non-family member	1 068.7	1 336.1	98.4	117.8	1 453.9	1 022.9	2 476.9	8.1	58.7	
Lone person	621.4	763.0	56.4	67.4	830.3	861.4	1 691.8	8.1	49.1	
Not living alone	447.3	573.1	42.0	50.5	623.6	161.5	785.1	8.1	79.4	
<b>Total</b>	<b>6 362.8</b>	<b>8 839.5</b>	<b>470.9</b>	<b>621.5</b>	<b>9 461.0</b>	<b>5 094.4</b>	<b>14 555.4</b>	<b>6.6</b>	<b>65.0</b>	

(a) Data have not been revised to reflect definitional changes in the Labour Force Survey questionnaire introduced in April 2001. Data collected from April 2001 onwards are not strictly comparable with data collected in earlier periods. For further information, see Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire (6295.0). (b) Excludes 850,300 persons whose family status was not determined. (c) Excludes persons aged 20–24 attending school. Also excludes sons or daughters aged 15–24 who are classified as husbands, wives or lone parents. (d) Aged 15 and over.

Source: Labour Force, Australia (6203.0).

The 55–59 year age group has shown the most notable increase over recent years (to 58% in 2000–01). For females in this group the employment/population ratio rose from 39% in 1995–96 to 47% in 2000–01, while for males the ratio rose from 66% to 69% over the same period.

For males, the highest ratio in 2000–01 was for those aged 25–34 (89%), while for females, those aged 20–24 showed the highest proportion employed (72%).

#### 6.8 EMPLOYED PERSONS, Employment/Population Ratios(a)

Age group (years)	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
MALES						
15–19	46.6	46.8	45.7	46.5	48.3	49.0
20–24	76.4	75.5	75.1	76.7	77.9	76.7
25–34	86.1	85.7	85.7	85.7	86.1	89.3
35–44	87.1	86.4	86.9	87.0	86.9	87.0
45–54	83.7	82.9	82.1	82.9	83.3	83.4
55–59	66.1	66.6	66.6	67.7	68.2	68.6
60–64	42.8	42.3	42.9	43.2	44.0	44.5
Over 64	9.4	9.5	10.1	9.4	9.7	9.9
Total	67.5	67.1	66.9	67.2	67.6	67.6
FEMALES						
15–19	48.2	47.6	47.2	48.8	50.4	51.0
20–24	70.0	68.7	68.4	69.5	70.9	72.0
25–34	63.1	63.0	64.3	64.2	64.8	66.7
35–44	67.8	67.3	65.9	66.3	67.1	68.1
45–54	64.2	64.5	65.0	66.3	67.3	67.9
55–59	39.0	40.2	40.2	41.7	44.6	46.5
60–64	17.2	18.1	18.5	18.1	19.9	21.2
Over 64	2.7	2.8	2.9	3.0	3.2	3.0
Total	49.7	49.5	49.5	50.0	51.0	51.8
PERSONS						
15–19	47.4	47.2	46.4	47.6	49.3	50.0
20–24	73.2	72.1	71.8	73.1	74.4	74.4
25–34	74.5	74.2	75.0	74.9	75.4	76.5
35–44	77.4	76.8	76.3	76.6	77.0	77.5
45–54	74.0	73.8	73.6	74.7	75.3	75.7
55–59	52.8	53.6	53.6	54.9	56.6	57.7
60–64	30.0	30.1	30.7	30.6	32.0	32.9
Over 64	5.6	5.7	6.1	5.8	6.0	6.0
Total	58.4	58.1	58.1	58.5	59.2	59.6

(a) The employment/population ratio for any group is the number of employed persons expressed as a percentage of the civilian population aged 15 and over in the same group.

Source: Labour Force, Australia (6203.0).

Table 6.9 shows information for employed persons according to their status in employment (i.e. employers, own-account workers, employees and contributing family workers, as in diagram 6.1). The number of employees continues to rise, up 190,600 since 1999–2000. The number of employers has fallen from 363,900 in 1995–96 to 329,700 in 2000–01, while the number of own-account workers has increased for the second year in a row, up 10,500 on the number recorded in 1999–2000.

Full-time workers are those who worked 35 hours or more during the reference week of the Labour Force Survey, or who usually work 35 hours or

more each week. Part-time workers are those who usually work less than 35 hours a week and who did so during the reference week. In 2000–01 there were 4,421,700 males employed full-time (87% of male employment). The number of females employed full-time was 2,269,500 (56% of female employment). For males, part-time work is most prevalent among the younger (aged 15–19) and older (over 64) age groups (59% and 43% respectively). For females, at least a third of each age group work part-time, with the 15–19 (73%), over 64 (69%) and 60–64 (57%) age groups having the highest proportion of part-time workers (table 6.10).

#### 6.9 EMPLOYED PERSONS, Status in Employment, Annual Average(a)(b)

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	'000	'000	'000	'000	'000	'000
Employers	363.9	338.9	357.3	349.8	339.2	329.7
Own-account workers	849.1	819.5	855.7	822.5	856.4	866.9
Employees	7 001.1	7 121.1	7 183.1	7 399.7	7 620.3	7 810.9
Contributing family workers	75.0	75.2	65.4	66.3	70.6	66.8
<b>Total</b>	<b>8 289.2</b>	<b>8 354.7</b>	<b>8 461.4</b>	<b>8 638.4</b>	<b>8 886.5</b>	<b>9 074.3</b>

(a) Data have not been revised to reflect definitional changes in the Labour Force Survey questionnaire introduced in April 2001. Data collected from April 2001 onwards are not strictly comparable with data collected in earlier periods. For further information, see Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire (6295.0). (b) Annual averages based on quarterly data.

Source: Labour Force, Australia (6203.0).

#### 6.10 EMPLOYED PERSONS, Full-time and Part-time Workers by Age, Annual Average(a) — 2000–01

	Units	15–19	20–24	25–34	35–44	45–54	55–59	60–64	Over 64	Total
MALES										
Full-time workers	'000	144.7	424.6	1 145	1 195.7	1 015.5	297.6	139.9	58.7	4 421.7
Part-time workers	'000	198.8	107.1	99.2	73.6	80.9	44.3	37.7	44.6	684.3
Total	'000	339.5	531.7	1 244.3	1 271.3	1 096.4	341.9	177.6	103.4	5 106.0
Proportion of part-time workers	%	58.6	20.1	8.0	5.8	7.4	13.0	21.2	43.1	13.4
FEMALES										
Full-time workers	'000	90.5	315.4	644.4	532.7	524.3	114.1	35.8	12.3	2 269.5
Part-time workers	'000	247.0	167.4	322.3	471.9	359.9	110.2	47.9	27.8	1 745.4
Total	'000	337.5	482.8	966.7	1 004.6	884.3	224.3	83.7	40.2	4 023.9
Proportion of part-time workers	%	73.2	34.7	33.3	47.0	40.7	49.1	57.2	69.2	43.4
PERSONS										
Full-time workers	'000	235.2	740.0	1 789.4	1 728.3	1 539.8	411.7	175.7	71.0	6 691.2
Part-time workers	'000	441.8	274.5	421.5	547.5	440.8	154.6	85.6	72.5	2 438.8
Total	'000	677.0	1 014.5	2 210.9	2 275.8	1 980.7	566.2	261.3	143.5	9 129.9
Proportion of part-time workers	%	65.3	27.1	19.1	24.1	22.3	27.3	32.8	50.5	26.7

(a) Annual averages based on monthly data.

Source: ABS data available on request, Labour Force Survey.

## **Underemployed workers**

Underemployment exists when people who are working part-time have a preference to work more hours. The number of underemployed workers is an important indicator of labour market performance. It highlights the unsatisfied aspirations of many workers for adequate work and greater earnings.

In September 2000 there were 9,138,200 employed persons aged 15 and over. Of these, 437,400 (5%) usually worked part-time and wanted to work more hours, and less than 1% usually worked full-time but worked part-time in the survey reference week for economic reasons (table 6.11).

Of all part-time workers who wanted more hours, 62% were female. Some 62% of part-time workers who wanted more hours reported that they would like to work full-time hours.

Graph 6.12 shows the usual hours worked and preferred number of extra hours of part-time workers. Of the persons who usually work between one and ten hours per week, almost half would like to work an extra 20 hours or more per week. For those persons usually working between 21 and 34 hours, the vast majority would prefer to work an extra 10 to 19 hours per week.

## **Persons unemployed**

In the Labour Force Survey, people are considered to be unemployed if they satisfy three criteria: they are not employed, they are available for work, and they are taking active steps to find work.

Two important measures of unemployment are the number of persons unemployed and the unemployment rate. The unemployment rate is defined as the number of unemployed persons expressed as a percentage of the labour force.

The number of unemployed persons in annual average terms peaked at 914,100 in 1992–93, and has been declining since then, down to 625,500 in 2000–01 (table 6.13).

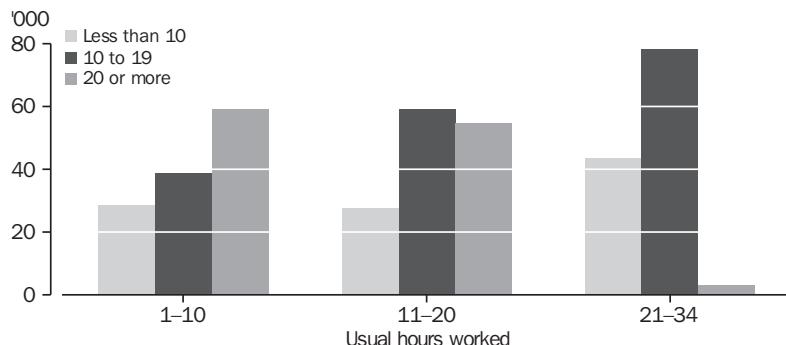
The number of persons unemployed for 52 weeks or more (the ‘long-term unemployed’) fell from 215,800 in 1997–98 to 146,200 in 2000–01. Of all unemployed persons in 2000–01, 23% had been unemployed for 52 weeks or more, compared with 28% in 1995–96.

**6.11 UNDEREMPLOYMENT STATUS OF EMPLOYED PERSONS — September 2000**

	Males '000	Females '000	Persons '000
Fully employed workers	4 893.6	3 759.3	8 653.0
Full-time workers	4 399.2	2 281.9	6 681.0
Part-time workers	494.5	1 477.5	1 972.0
Usually work full-time but worked part-time for economic reasons	39.6	8.2	47.8
Usually work part-time and want more hours	166.7	270.8	437.4
Usually work part-time and want more part-time hours	42.4	125.3	167.7
Usually work part-time and want full-time hours	124.3	145.4	269.7
<b>Employed persons</b>	<b>5 099.9</b>	<b>4 038.3</b>	<b>9 138.2</b>

Source: *Underemployed Workers, Australia* (6265.0).

**6.12 PART-TIME WORKERS: USUAL HOURS WORKED AND PREFERRED NUMBER OF EXTRA HOURS — September 2000**



Source: *Underemployed Workers, Australia* (6265.0).

**6.13 UNEMPLOYED PERSONS, Duration of Unemployment, Annual Average**

Weeks	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01
NUMBER UNEMPLOYED ('000)						
Under 52	534.0	558.0	522.0	486.0	464.6	479.3
52 and under 104	90.8	98.0	103.8	90.7	67.8	60.4
104 and over	111.8	108.9	112.0	114.9	102.1	85.8
Total	736.5	764.9	737.8	691.7	634.5	625.5
% OF TOTAL UNEMPLOYED						
Under 52	72.5	73.0	70.8	70.3	73.2	76.6
52 and under 104	12.3	12.8	14.1	13.1	10.7	9.7
104 and over	15.2	14.2	15.2	16.6	16.1	13.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) Estimates from January 1995 to January 1999 have been revised to reflect revisions in the civilian population arising from the 1996 Census.

Source: ABS data available on request, *Labour Force Survey*.

The annual average unemployment rate for all persons peaked at almost 10.7% in 1992-93. The rate has generally been falling since then, to 6.4% in 2000-01. For males the rate fell to 6.7% in 2000-01 from a peak of almost 11.5% in 1992-93. The female rate fell from almost 9.6% in 1993-94 to 6.1% in 2000-01 (graph 6.14).

In 2000-01 the unemployment rates for 15-19 year olds (22.5%) and 20-24 year olds (10.5%) looking for full-time work were higher

than the average for all age groups (6.6%). These rates were also higher than for those in the same age groups seeking part-time work (13.4% and 6.4% respectively) (table 6.15). In these age groups, many people are still completing their education. There are slightly more 15-19 year olds studying full-time and looking for part-time work (62,100) than not studying full-time and looking for full-time work (57,600).

## 6.14 UNEMPLOYMENT RATE, Annual Average



Source: ABS data available on request, Labour Force Survey.

## 6.15 UNEMPLOYED PERSONS, Age and Whether Looking for Full-time or Part-time Work, Annual Average — 2000-01

	No. unemployed			Unemployment rate		
	Males '000	Females '000	Persons '000	Males %	Females %	Persons %
	LOOKING FOR FULL-TIME WORK					
Aged 15-19	41.0	27.2	68.2	22.1	23.1	22.5
Attending school/tertiary educational institution full-time(a)	5.3	5.3	10.6	45.3	46.1	45.5
Not attending school/tertiary educational institution full-time(a)	35.8	21.9	57.6	20.6	20.6	20.6
Aged 20-24	55.3	31.7	87.0	11.5	9.1	10.5
Attending a tertiary educational institution full-time(a)	3.3	2.4	5.6	26.2	21.6	23.6
Not attending a tertiary educational institution full-time(a)	52.0	29.3	81.3	11.1	8.7	10.1
Aged 25-34	78.1	39.6	117.7	6.4	5.8	6.2
Aged 35-44	61.7	34.9	96.5	4.9	6.1	5.3
Aged 45-54	47.6	24.6	72.3	4.5	4.5	4.5
Aged 55 and over	25.0	5.9	30.8	4.8	3.5	4.5
<b>Total</b>	<b>308.8</b>	<b>163.7</b>	<b>472.5</b>	<b>6.5</b>	<b>6.7</b>	<b>6.6</b>
LOOKING FOR PART-TIME WORK						
Aged 15-19	32.7	35.8	68.5	14.4	12.7	13.4
Attending school/tertiary educational institution full-time(a)	29.6	32.6	62.1	16.2	14.2	15.1
Not attending school/tertiary educational institution full-time(a)	3.1	3.2	6.3	6.8	7.1	6.4
Aged 20-24	7.3	13.1	20.4	6.4	7.3	6.4
Attending a tertiary educational institution full-time(a)	5.2	6.4	11.7	8.8	8.1	8.5
Not attending a tertiary educational institution full-time(a)	2.0	6.7	8.7	3.6	6.6	5.6
Aged 25-34	5.1	15.6	20.7	4.9	4.6	4.7
Aged 35-44	3.8	17.4	21.3	4.8	3.6	3.7
Aged 45-54	3.6	10.5	14.1	4.3	2.8	3.1
Aged 55 and over	4.7	3.5	15.4	3.6	1.8	4.8
<b>Total</b>	<b>57.0</b>	<b>95.9</b>	<b>153.0</b>	<b>7.7</b>	<b>5.2</b>	<b>5.9</b>

(a) Data have not been revised to reflect definitional changes in the Labour Force Survey questionnaire introduced in April 2001. Data collected from April 2001 onwards are not strictly comparable with data collected in earlier periods. For further information, see Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire (6295.0).

Source: Labour Force, Australia (6203.0).

## Job search experience

Two key aspects of a person's search for work are the steps taken to find work, and barriers they encounter in obtaining work. Characteristics such as age, sex and education can often influence the person's job search experience and outcomes.

Table 6.16 shows the steps taken by unemployed persons to find a job. The most common step taken was registering with and/or using Centrelink services (545,500), followed by contacting prospective employers (509,700) and answering a newspaper advertisement for a job (200,900).

Difficulties encountered by unemployed persons in finding work are shown in table 6.17. The most commonly reported main difficulties were 'considered too young or too old by employers' and 'too many applicants for available jobs' (both 13%) and 'lacked necessary skills or education' (12%).

The main difficulties in finding work most commonly reported by the long-term unemployed (unemployed for at least one year) were 'considered too young or too old by employers' (23%), 'lacked necessary skills or education' (13%) and 'Own ill health or disability (12%).

Information about methods of job attainment for successful jobseekers is shown in table 6.18. Successful jobseekers are persons who obtained a job for wages or salary in the 12 months to July 2000. The majority (77%) of successful jobseekers approached their employer. Most of this group (60%) had prior knowledge that the job was available. The main sources of this knowledge were friends, relatives or company contacts (42% of those with prior knowledge) and newspaper advertisements (35%).

**6.16 JOB SEARCH EXPERIENCE OF UNEMPLOYED PERSONS(a), All Active Steps Taken — July 2000**

	Males '000	Females '000	Persons '000
Registered with and/or used Centrelink services	368.5	177.0	545.5
Contacted prospective employers	301.8	207.9	509.7
Answered a newspaper advertisement for a job	124.9	76.0	200.9
Checked factory noticeboards	38.1	13.9	52.1
Contacted an employment agency	118.5	67.9	186.4
Advertised or tendered for work	26.9	17.8	44.7
Contacted friends or relatives	118.5	69.4	188.0

(a) Excludes persons who have been stood down.

Source: *Job Search Experience of Unemployed Persons, Australia* (6222.0).

**6.17 UNEMPLOYED PERSONS(a), Main Difficulty in Finding Work — July 2000**

	Duration of current period of unemployment (weeks)						Average duration
	1 and under 8	8 and under 26	26 and under 52	1 and under 2 years	2 years and over	Total	
Main difficulty in finding work	'000	'000	'000	'000	'000	'000	weeks
Considered too young or too old by employers	12.6	11.1	13.8	8.8	26.7	73.0	91
No vacancies at all	10.7	10.5	10.9	5.4	7.8	45.3	55
No vacancies in line of work	15.9	10.6	*5.0	*3.3	*4.8	39.6	36
Insufficient work experience	17.0	10.3	12.3	5.2	9.8	54.6	44
Too many applicants for available jobs	18.7	23.0	15.7	*4.8	9.2	71.3	39
Lacked necessary skills or education	19.2	13.9	10.8	10.7	9.6	64.1	58
Too far to travel, transport problems	8.1	8.0	6.3	6.9	7.1	36.4	55
Own ill health or disability	6.2	5.7	*4.5	6.6	12	35.1	87
Language difficulties	*2.3	*2.2	*3.0	*1.9	*4.3	13.7	83
Unsuitable hours	9.6	7.0	*3.9	*1.0	**0.4	21.9	16
Difficulties with childcare, other family responsibilities	*4.9	*2.0	*1.2	*0.9	*2.9	11.8	69
Other difficulties(b)	9.1	*4.0	5.6	*2.3	*3.1	24.0	61
No difficulties reported	36.3	12.0	*3.0	*1.5	**0.7	53.5	11
<b>Total</b>	<b>170.5</b>	<b>120.3</b>	<b>96.0</b>	<b>59.1</b>	<b>98.3</b>	<b>544.3</b>	<b>53</b>

(a) Excludes persons who have been stood down. (b) Includes persons who reported difficulties because of ethnic background.

Source: Job Search Experience of Unemployed Persons, Australia (6222.0).

**6.18 SUCCESSFUL JOBSEEKERS, Method of Attainment — July 2000**

	First job ever held '000	Had worked before '000	Total '000	
			Jobseeker approached employer	Employer approached jobseeker
Jobseeker approached employer	187.1	1 313.0	1 500.1	
Had no prior knowledge that job was available	78.4	519.1	597.5	
First step taken				
Tendered or advertised for work	*3.0	28.6		31.7
Contacted likely employers	47.3	253.8		301.1
Contacted friends or relations	12.4	82.9		95.3
Registered with or used Centrelink services	*3.2	25.0		28.1
Other steps taken	12.5	128.8		141.3
Had prior knowledge that job or work was available	108.7	793.9		902.6
Knowledge was obtained through				
Centrelink	*4.7	21.0		25.7
Employment agency	*3.2	61.0		64.2
School programs	*3.1	5.2		8.2
Newspaper advertisements	25.6	292.6		318.2
Internet sites	*1.1	13.4		14.5
Friends, relatives, company contacts	53.9	323.5		377.4
Sign or notice on employer's premises	7.5	23.1		30.6
Other source	9.5	54.3		63.9
Employer approached jobseeker	45.4	393.7		439.1
<b>Total</b>	<b>232.5</b>	<b>1 706.7</b>		<b>1 939.2</b>

Source: Successful and Unsuccessful Job Search Experience, Australia (6245.0).

## Job vacancies

Job vacancies statistics, taken together with employment statistics, help in assessing the demand for labour. A job vacancy is a job available for immediate filling on the survey reference day and for which recruitment action has been taken by the employer.

The number of job vacancies decreased sharply from the high of 102,100 recorded in May 2000 to 83,400 in May 2001. This decrease was due mainly

to a large fall in New South Wales (down 13,400). Only South Australia (up 500), Northern Territory (up 300) and Tasmania (up 100) recorded increases (table 6.19).

Table 6.20 shows that, of the 18,700 decrease in job vacancies in Australia between May 2000 and May 2001, the largest decreases occurred in Property and business services (by 4,700), Personal and other services (by 3,900) and Manufacturing (by 3,800), with small movements in other industries.

**6.19 JOB VACANCIES, By State/Territory**

	May 1996 '000	May 1997 '000	May 1998 '000	May 1999 '000	May 2000 '000	May 2001 '000
<b>State/Territory</b>						
New South Wales	30.8	24.6	25.6	37.5	41.8	28.4
Victoria	14.3	14.3	25.9	22.1	26.2	23.8
Queensland	9.1	15.2	19.6	10.9	*15.7	13.9
South Australia	3.0	3.8	3.3	4.4	5.0	5.5
Western Australia	6.7	10.8	13.9	8.3	7.9	6.4
Tasmania	0.9	1.7	0.7	*2.0	1.3	1.4
Northern Territory	1.0	1.1	1.9	*1.3	1.2	1.5
Australian Capital Territory	0.9	1.2	1.5	2.4	3.0	2.5
<b>Australia</b>	<b>66.7</b>	<b>72.7</b>	<b>92.5</b>	<b>88.9</b>	<b>102.1</b>	<b>83.4</b>

Source: Job Vacancies, Australia (6354.0).

**6.20 JOB VACANCIES, By Industry(a)**

	May 1996 '000	May 1997 '000	May 1998 '000	May 1999 '000	May 2000 '000	May 2001 '000
<b>Industry</b>						
Mining	3.7	1.5	1.1	1.1	0.8	1.2
Manufacturing	10.7	7.5	8.3	12.2	*12.2	*8.4
Electricity, gas and water supply	0.2	0.3	0.2	0.3	0.4	0.3
Construction	1.5	5.9	7.8	*4.6	*4.4	*3.4
Wholesale trade	2.9	6.4	7.6	*6.6	5.2	*5.9
Retail trade	13.2	9.0	15.5	9.0	8.3	7.9
Accommodation, cafes and restaurants	3.7	6.0	4.5	8.9	*8.5	6.1
Transport and storage	2.4	0.7	1.7	*2.7	2.9	1.5
Communication services	0.3	0.3	0.3	1.2	1.5	0.6
Finance and insurance	3.6	5.0	3.1	3.1	5.2	4.9
Property and business services	9.4	13.1	22.5	*17.2	*20.0	15.3
Government administration and defence	2.5	3.3	3.8	4.7	4.9	5.9
Education	2.8	2.8	3.7	3.1	6.7	3.6
Health and community services	5.9	7.9	7.7	7.7	9.7	11.0
Cultural and recreational services	1.3	1.9	1.2	*3.1	2.9	2.9
Personal and other services	2.6	1.2	3.5	*3.4	*8.4	4.5
<b>All industries</b>	<b>66.7</b>	<b>72.7</b>	<b>92.5</b>	<b>88.9</b>	<b>102.1</b>	<b>83.4</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC).

Source: Job Vacancies, Australia (6354.0).

Graph 6.21 provides trend estimates of job vacancies for the private sector and public sector, for the period May 1981 to May 2001. It shows that, after declining to below 10,000 between 1991 and 1994, job vacancies in the public sector now stand at 15,200 in May 2001. In contrast, the number of job vacancies in the private sector has been far more volatile. After reaching a low of 19,100 in May 1991, private sector job vacancies climbed to 93,600 in August 2000, the highest level recorded to that point, before falling back to 75,300 in May 2001.

## Persons not in the labour force

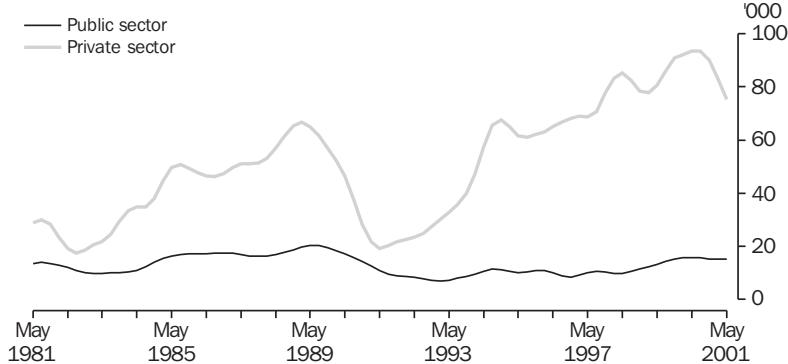
Persons not in the labour force represent that group of the population who, during the reference

week of a Labour Force Survey, are neither employed nor unemployed (see diagram 6.2). Interest in this group centres primarily on their potential to participate in the labour force.

There were 3,684,600 persons aged 15–69 years not in the labour force at September 2000 (table 6.22). Some 22% of these persons not in the labour force were marginally attached to the labour force. These people wanted to work and were either looking for work or available to start work, but did not satisfy all the criteria for being classified as unemployed.

In September 2000 there were 106,500 discouraged job seekers. Discouraged job seekers are a part of the marginally attached to the labour force. They are persons who want to work and are available to start work, but are not actively looking for work as they believe they will not find a job.

**6.21 JOB VACANCIES, By Sector, Trend Estimates**



Source: Job Vacancies, Australia (6354.0).

**6.22 CIVILIAN POPULATION AGED 15–69, Labour Force Status(a)**

	1995 '000	1996 '000	1997 '000	1998 '000	1999 '000	2000 '000
Civilian population aged 15–69	12 623.7	12 783.9	12 885.1	13 025.1	13 205.1	13 398.8
Persons in the labour force	9 057.4	9 168.5	9 190.9	9 386.3	9 492.7	9 714.2
Employed	8 296.2	8 372.2	8 405.0	8 626.2	8 782.0	9 082.8
Unemployed	761.2	796.3	785.9	760.1	710.7	631.4
Persons not in the labour force						
With marginal attachment to the labour force	862.8	879.6	890.5	922.6	883.2	823.9
Wanted to work and were actively looking for work	63.8	58.0	53.3	58.7	65.2	56.8
Were available to start work within four weeks	32.8	34.7	35.7	33.2	45.5	42.0
Were not available to start work within four weeks	31.0	23.3	17.6	25.5	19.7	14.8
Wanted to work but not actively looking for work and were available to start work within four weeks	799.0	821.5	837.2	863.9	818.0	767.1
Discouraged jobseekers	111.9	118.9	118.4	110.9	105.8	106.5
Other	687.1	702.6	718.7	753.0	712.2	660.6
Without marginal attachment to the labour force(b)	2 703.5	2 735.8	2 803.7	2 716.1	2 829.2	2 860.7
Wanted to work but were not actively looking for work and were not available to start work within four weeks	300.7	308.4	298.7	287.1	309.8	335.5
Did not want to work	2 342.1	2 328.7	2 415.4	2 337.6	2 433.7	2 408.5
<b>Total persons not in the labour force</b>	<b>3 566.3</b>	<b>3 615.4</b>	<b>3 694.2</b>	<b>3 638.8</b>	<b>3 712.4</b>	<b>3 684.6</b>

(a) At September. (b) Includes persons who were permanently unable to work.

Source: *Persons Not in the Labour Force, Australia* (6220.0).

## Characteristics of employment

Tables 6.23 and 6.24 provide information on the number of employed persons and the proportion employed, by occupation and by industry.

The occupation groups containing the largest number of employed persons were Professionals with 18% of persons, 17% of males and 21% of females; Intermediate clerical, sales and service workers with 17% of persons, 9% of males and 28% of females; and Tradespersons and related workers with 13% of persons, 21% of males and 3% of females (table 6.23).

Table 6.24 shows that in 2000–01, Retail trade (15%) and Manufacturing (13%) were the two largest employing industries, followed by Property and business services (12%).

Manufacturing was the largest employer of males (16%) while the next highest was Retail trade (13%). Retail trade and Health and community services were the largest employers of females (both 17%).

**6.23 EMPLOYED PERSONS BY OCCUPATION(a), Annual Average(b)(c) — 2000–01**

	Males		Females		Persons	
	No.	Proportion employed	No.	Proportion employed	No.	Proportion employed
Occupation	'000	%	'000	%	'000	%
Managers and administrators	490.9	9.7	162.3	4.1	653.2	7.2
Professionals	839.3	16.5	822.8	20.6	1 662.1	18.3
Associate professionals	644.5	12.7	398.0	10.0	1 042.5	11.5
Tradespersons and related workers	1 064.0	21.0	114.1	2.9	1 178.2	13.0
Advanced clerical and service workers	47.9	0.9	361.1	9.0	409.1	4.5
Intermediate clerical, sales and service workers	449.2	8.8	1 126.5	28.2	1 575.6	17.4
Intermediate production and transport workers	682.0	13.4	95.2	2.4	777.2	8.6
Elementary clerical, sales and service workers	309.7	6.1	596.7	14.9	906.5	10.0
Labourers and related workers	549.7	10.8	320.2	8.0	869.9	9.6
<b>All occupations</b>	<b>5 077.2</b>	<b>100.0</b>	<b>3 997.0</b>	<b>100.0</b>	<b>9 074.3</b>	<b>100.0</b>

(a) Classified according to the Australian Standard Classification of Occupations (ASCO), Second Edition. (b) Data have not been revised to reflect definitional changes in the Labour Force Survey questionnaire introduced in April 2001. Data collected from April 2001 onwards are not strictly comparable with data collected in earlier periods. For further information, see Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire (6295.0). (c) Annual average of quarterly data.

Source: *Labour Force, Australia* (6203.0).

**6.24 EMPLOYED PERSONS BY INDUSTRY(a), Annual Average(b) — 2000–01**

	Males		Females		Persons	
	No.	Proportion employed	No.	Proportion employed	No.	Proportion employed
Industry	'000	%	'000	%	'000	%
Agriculture, forestry and fishing	294.0	5.8	134.8	3.4	428.8	4.7
Mining	69.1	1.4	9.1	0.2	78.3	0.9
Manufacturing	827.8	16.3	302.0	7.6	1 129.8	12.5
Electricity, gas and water supply	54.7	1.1	11.0	0.3	65.7	0.7
Construction	595.8	11.7	85.5	2.1	681.3	7.5
Wholesale trade	305.9	6.0	132.8	3.3	438.7	4.8
Retail trade	637.0	12.5	694.2	17.4	1 331.2	14.7
Accommodation, cafes and restaurants	214.7	4.2	254.3	6.4	469.0	5.2
Transport and storage	317.8	6.3	103.4	2.6	421.2	4.6
Communication services	127.0	2.5	55.6	1.4	182.6	2.0
Finance and insurance	146.6	2.9	190.7	4.8	337.3	3.7
Property and business services	598.7	11.8	482.3	12.1	1 081.0	11.9
Government administration and defence	192.5	3.8	173.3	4.3	365.8	4.0
Education	203.6	4.0	417.5	10.4	621.1	6.8
Health and community services	197.2	3.9	677.6	17.0	874.8	9.6
Cultural and recreational services	120.0	2.4	105.2	2.6	225.2	2.5
Personal and other services	174.9	3.4	167.7	4.2	342.5	3.8
<b>All industries</b>	<b>5 077.2</b>	<b>100.0</b>	<b>3 997.0</b>	<b>100.0</b>	<b>9 074.3</b>	<b>100.0</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). (b) Annual average of quarterly data.

Source: *Labour Force Australia* (6203.0).

Table 6.25 and graph 6.26 provide a view of the distribution of wage and salary earners between the private and public sectors, and across the States and Territories. These statistics are obtained from the quarterly Survey of Employment and Earnings, a survey of employing businesses. They are complementary to, but not compatible with, estimates of employed persons from the household-based Labour Force Survey.

While the latter provides a better indicator of overall employment movements at the Australian and State/Territory levels, the former provides dissections by private/public sector.

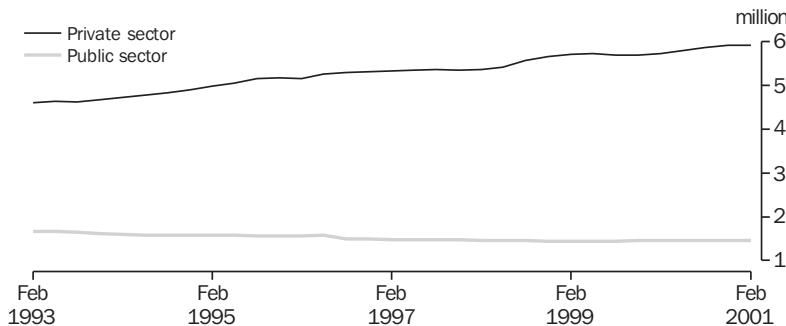
Table 6.25 shows that 20% of employees work in the public sector. The Australian Capital Territory has the highest proportion of public sector employees (44%), while Victoria has the lowest (16%).

**6.25 WAGE AND SALARY EARNERS, Private/Public Sector — February 2001**

Sector	Units	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Private	'000	1 909.2	1 634.2	1 051.3	421.8	621.5	118.2	55.3	87.4	5 898.9
Public										
Commonwealth	'000	64.9	53.4	32.0	15.7	17.0	5.5	3.6	51.7	243.8
State	'000	332.5	216.3	218.9	87.3	120.1	30.5	16.2	16.8	1 038.6
Local	'000	46.3	33.0	38.0	7.9	13.5	3.9	2.5	n.a.	145.2
Total	'000	443.7	302.7	288.9	111.0	150.6	39.9	22.3	68.5	1 427.5
<b>Total</b>	<b>'000</b>	<b>2 352.9</b>	<b>1 936.9</b>	<b>1 340.1</b>	<b>532.7</b>	<b>772.1</b>	<b>158.2</b>	<b>77.6</b>	<b>155.9</b>	<b>7 326.4</b>
Proportion in public sector	%	18.9	15.6	21.6	20.8	19.5	25.2	28.7	43.9	19.5

Source: *Wage and Salary Earners, Australia* (6248.0).

**6.26 WAGE AND SALARY EARNERS, By Sector, Trend Estimates**



Source: *Wage and Salary Earners, Australia* (6248.0).

## Employment arrangements

There is a diverse range of employment arrangements in the Australian labour market. The Survey of Employment Arrangements and Superannuation (SEAS), conducted between April and June 2000, examined the various types of employment arrangements in detail, expanding on the Status in Employment classification available from the Labour Force Survey (as shown in table 6.9).

Table 6.27 shows that between April and June 2000, over 58% of employed persons had leave entitlements, 18% identified themselves as being casually employed, and 22% worked in their own business (persons working in their own business includes owner managers of both incorporated or unincorporated enterprises).

The proportion of females who identified themselves as casual was considerably higher than for males, 25% to 13%; the reverse was true for those working in their own business, where the proportion of males identifying themselves as casual (27%) was considerably higher than for females (15%).

Table 6.28 shows the various working patterns of employees in their main job. It demonstrates that, apart from self-identified casuals, the most common working arrangement is a set number of days each week. For self-identified casuals, the proportion working casual or relief work (43%) was slightly higher than for those working a set number of days each week (42%).

**6.27 PERSONS WITH ONE OR MORE JOBS — April to June 2000**

Employment type	Units	Males	Females	Persons
Employees with leave entitlements				
Not working on a fixed-term contract	%	55.3	54.6	55.0
Working on a fixed-term contract	%	3.0	3.7	3.3
Self-identified casuals	%	13.1	25.0	18.3
Employees without leave entitlements, who do not identify as casuals	%	1.8	1.9	1.8
Owner managers of incorporated enterprises				
Not working on a contract basis	%	6.7	4.1	5.6
Working on a contract basis	%	3.0	0.7	2.0
Total employees	%	82.9	90.0	86.0
Owner managers of unincorporated enterprises				
Not working on a contract basis	%	11.2	7.5	9.6
Working on a contract basis	%	5.9	2.5	4.4
Total(a)	%	100.0	100.0	100.0
<b>Number(a)</b>	<b>'000</b>	<b>4 907.1</b>	<b>3 820.4</b>	<b>8 727.6</b>

(a) Excludes contributing family workers and employees who worked only for payment in kind only in their main job.

Source: *Employment Arrangements and Superannuation, Australia* (6361.0).

**6.28 WORKING PATTERNS IN MAIN JOB — April to June 2000**

	Employees with leave entitlements not working on a fixed-term contract	Employees with leave entitlements working on a fixed-term contract	Self-identified casuals	Employees without leave entitlements who did not identify as casual	Total employees
Units					
Set number of days each week	%	69.9	72.5	41.6	67.2
Set number of days each fortnight	%	10.8	9.7	4.6	*5.6
19 day month	%	3.7	*2.8	*0.2	**1.1
Casual or relief work	%	0.4	*0.9	43.4	*3.3
Roster or shift system	%	10.0	8.2	7.9	*6.1
Other working pattern	%	4.0	4.9	2.3	16.8
Total(a)	%	100.0	100.0	100.0	100.0
<b>Number(a)</b>	<b>'000</b>	<b>4 801.5</b>	<b>286.0</b>	<b>1 596.4</b>	<b>159.9</b>
					<b>6 843.7</b>

(a) Excluding owner managers of incorporated enterprises. (b) Persons who had not worked in the previous 4 weeks are included in the total, but some information was not collected for this group. As a result percentages may not add to 100%.

Source: *Employment Arrangements and Superannuation, Australia* (6361.0).

## Locations of work

Location of work refers to the different types of places where people work. These include traditional workplaces, such as offices and factories and other business premises; homes, including both own homes and other homes; non-fixed locations for persons who travel for work; and other locations including parks, beaches, streets and forests.

Table 6.29 shows that in June 2000, some 7,637,700 (89%) employed persons worked at business premises in their main job, while 1,680,500 (20%) worked at their own home. Some 20% of males and 19% of females worked at their own home.

Table 6.30 provides a breakdown of the main locations of work by status in employment. It shows that own account workers (43%) and

employees (41%) comprise most of the persons who work at home. The locations with the highest proportion of employees were business premises (93%), followed by travelling (79%).

Table 6.31 concerns the occupations of those persons employed at home (or another home), i.e. those who mainly work at home, or have an agreement with their employer to undertake some of their work at home (whereas in table 6.29 'home' also included people who only occasionally work at home). It shows that the occupations with the highest numbers of persons employed at home are Managers and administrators (249,700) and Professionals (249,400). These two occupations make up over half of all the persons employed at home.

**6.29 LOCATIONS OF WORK IN MAIN JOB — June 2000**

Locations of work	Males '000	Females '000	Persons '000
Own home	974.6	705.9	1 680.5
Another home(a)	51.5	24.1	75.5
Employer's or client's home	340.4	125.3	465.8
Business premises	4 259.5	3 378.2	7 637.7
Employer's or client's workplace	3 744.3	3 136.4	6 880.7
Own workplace	503.3	223.3	726.5
Other workplace	135.7	50.0	185.7
Travelling	1 919.4	701.2	2 620.5
Other	186.0	80.8	266.8
<b>Total(b)</b>	<b>4 830.8</b>	<b>3 758.6</b>	<b>8 589.4</b>

(a) Excludes employer's or client's home. (b) People can appear in more than one category, therefore categories do not add to totals.

Source: *Locations of Work, Australia* (6275.0).

**6.30 MAIN LOCATIONS OF WORK IN MAIN JOB, By Status in Employment — June 2000**

Status in employment	Own home(a) %	Employer's or client's home %	Business premises %	Travelling %	Other %	Total %	Total '000
Employee	41.4	57.8	92.9	79.3	75.6	87.3	7 496.0
Employer	10.4	9.2	2.6	3.1	5.5	3.4	292.7
Own account worker	42.6	32.3	4.1	17.3	16.3	8.5	732.8
Contributing family worker	5.6	*0.7	0.4	*0.3	*2.6	0.8	67.9
<b>Total(a)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>8 589.4</b>

(a) Includes another home.

Source: *Locations of Work, Australia* (6275.0).

**6.31 PERSONS EMPLOYED AT HOME, BY OCCUPATION(a) — June 2000**

Occupation	Males	Females	Persons	
	'000	'000	'000	%
Managers and administrators	175.2	74.4	249.7	25.5
Professionals	139.2	110.2	249.4	25.4
Associate professionals	66.8	43.7	110.6	11.3
Tradespersons and related workers	42.8	9.8	52.6	5.4
Advanced clerical and service workers	7.9	101.2	109.0	11.1
Intermediate clerical, sales and service workers	26.4	91.4	117.8	12.0
Intermediate production and transport workers	11.8	6.3	18.0	1.8
Elementary clerical, sales and service workers	8.0	14.2	22.2	2.3
Labourers and related workers	18.5	16.4	34.9	3.6
<b>Total(b)</b>	<b>503.3</b>	<b>476.9</b>	<b>980.3</b>	<b>100.0</b>

(a) Classified according to the Australian Standard Classification of Occupations (ASCO), Second Edition.

(b) Includes 16,200 persons for whom occupation was not determined.

Source: *Locations of Work, Australia* (6275.0).**Labour mobility**

Persons are regarded as job mobile if they either changed employer/business or changed locality during the previous 12 months. Of the persons who had worked at some time during the year ending February 2000, 16% changed their employer and/or their locality at least once within the previous year (table 6.32).

Table 6.33 concerns the duration of current job for employed persons. At February 2000, 24% of employed persons had worked in their current job for less than one year, 52% had worked in their current job for between one year and less than 10 years, with the remaining working for 10 or more years in their current job.

**6.32 JOB MOBILITY — February 2000**

	Males	Females	Persons
	%	%	%
Changed employer/business or locality	16.5	15.1	15.8
Changed employer/business(a)	13.3	12.2	12.8
Changed locality only	3.2	2.9	3.1
Did not change employer/business or locality	83.5	84.9	84.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Includes changed employer/business and locality.

Source: *Labour Mobility, Australia* (6209.0).**6.33 DURATION OF CURRENT JOB — February 2000**

	1990	1992	1994	1996	1998	2000
	%	%	%	%	%	%
Under 1 year	26.5	19.6	22.4	23.5	21.8	23.6
Under 3 months	10.4	7.7	8.9	8.9	8.4	9.4
3 and under 6 months	5.8	4.6	5.3	5.6	5.5	5.8
6 and under 12 months	10.2	7.3	8.2	8.9	7.9	8.5
1 and under 2 years	13.3	10.8	10.5	12.2	12.3	12.7
2 and under 3 years	9.8	11.7	8.4	9.3	10.5	9.7
3 and under 5 years	13.2	16.4	15.0	12.3	14.0	13.1
5 and under 10 years	15.5	17.8	20.2	19.5	17.0	16.4
10 and under 20 years	14.2	15.5	15.1	15.1	15.9	16.1
20 years and over	7.7	8.2	8.5	8.2	8.6	8.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: *Labour Mobility, Australia* (6209.0).

## Hours, earnings and benefits

### Hours and work patterns

Statistics on hours and patterns of work are essential for the study of economic activity, productivity, working conditions, living standards and the quality of life of working people. This section examines some aspects of work patterns and hours of work.

The average weekly hours worked in 2000–01 by various categories of employed persons, and in different industries, are shown in tables 6.34 and 6.35. In 2000–01 men worked an average of 38.6 hours per week, while women worked 28.3 hours per week. The difference between males and females is less marked when full-time and part-time work are looked at separately. Male full-time workers worked an average of 42.1 hours per week while women who were employed full-time averaged 37.9 hours per week. For part-time workers, the difference between men and women is minimal, with men working on average 15.6 hours and women working 15.8 hours. Although part-time work is increasing, the hours worked in part-time employment account for only 12% of all hours worked. For women, part-time work accounts for 24% of aggregate hours worked, but for men it accounts for just 5%.

In 2000–01 the highest average weekly hours worked were recorded in the Mining industry (45.8 hours). For females the average weekly hours

worked ranged from 22.8 in the Construction industry to 40.1 in Mining, while the average weekly hours worked for males ranged from 34.5 in the Cultural and recreational services industry to 47.5 in Agriculture, forestry and fishing (table 6.35).

### Level of earnings

Statistical measures of earnings relate to remuneration paid to employees. Earnings statistics provide information about the means of living, the adequacy of available employment, and labour costs incurred by employers.

Earnings levels are usually measured through estimates of average weekly earnings. These can be compared between various demographic groups, occupations or industries. The ABS has introduced the Wage Cost Index as a more accurate measure of movements in wage and salary costs. This is explained in more detail in the section *Changes in the price of labour*.

The quarterly Survey of Average Weekly Earnings measures earnings during a one week reference period in the middle month of a quarter. Irregular earnings not related to the reference period are excluded.

Weekly total earnings include ordinary time and overtime pay. Weekly ordinary time earnings relate only to that part of total earnings attributable to award, standard or agreed hours of work.

**6.34 EMPLOYED PERSONS, Aggregate and Average Weekly Hours Worked(a)(b), Annual Average(c) — 2000–01**

	Units	Males	Females	Persons
Aggregate weekly hours worked by				
All workers	mill. hours	196.6	113.5	<b>310.1</b>
Full-time workers	mill. hours	186.1	85.9	<b>271.9</b>
Part-time workers	mill. hours	10.5	27.6	<b>38.2</b>
Average weekly hours worked by				
All workers	hours	38.6	28.3	<b>34.0</b>
Full-time workers	hours	42.1	37.9	<b>40.7</b>
Part-time workers	hours	15.6	15.8	<b>15.7</b>
Employees	hours	37.8	28.4	<b>33.5</b>
Other than employees	hours	42.4	27.3	<b>37.4</b>
All workers who worked one hour or more in the reference week	hours	41.3	30.6	<b>36.6</b>
Full-time workers who worked one hour or more in the reference week	hours	45.0	40.7	<b>43.6</b>
Part-time workers who worked one hour or more in the reference week	hours	16.7	17.2	<b>17.1</b>

(a) Data have not been revised to reflect definitional changes in the Labour Force Survey questionnaire introduced in April 2001. Data collected from April 2001 onwards are not strictly comparable with data collected in earlier periods. For further information, see *Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire* (6295.0). (b) The estimates refer to actual hours worked, not hours paid for. (c) Averages calculated on monthly estimates.

Source: *Labour Force, Australia* (6203.0).

**6.35 EMPLOYED PERSONS, Average Weekly Hours Worked(a)(b) by Industry(c), Annual Average(d) — 2000–01**

Industry	Males	Females	Persons
	hours	hours	hours
Agriculture, forestry and fishing	47.5	30.5	42.2
Mining	46.5	40.1	45.8
Manufacturing	40.8	33.0	38.7
Electricity, gas and water supply	39.2	32.0	38.0
Construction	41.0	22.8	38.7
Wholesale trade	42.0	32.7	39.2
Retail trade	36.3	25.1	30.5
Accommodation, cafes and restaurants	38.2	28.4	32.9
Transport and storage	42.4	33.0	40.1
Communication services	40.0	32.7	37.8
Finance and insurance	41.3	32.8	36.5
Property and business services	41.6	31.1	36.9
Government administration and defence	37.0	31.7	34.5
Education	38.6	32.0	34.2
Health and community services	37.4	28.8	30.7
Cultural and recreational services	34.5	27.7	31.3
Personal and other services	38.4	28.7	33.6
<b>All industries</b>	<b>40.3</b>	<b>29.6</b>	<b>35.6</b>

(a) Data have not been revised to reflect definitional changes in the Labour Force Survey questionnaire introduced in April 2001. Data collected from April 2001 onwards are not strictly comparable with data collected in earlier periods. For further information, see Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire (6295.0). (b) The estimates refer to actual hours worked, not hours paid for. (c) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). (d) Averages calculated on quarterly estimates.

Source: *Labour Force, Australia* (6203.0).

Table 6.36 shows average weekly earnings for male and female employees from May 1996 to May 2001. Average weekly total earnings increased more in the latest year for male employees than for female employees

(4.2% compared to 3.9%). The level of earnings for females is also still much lower than for males, with average weekly total earnings at \$789.40 for males compared to \$524.70 for females.

**6.36 AVERAGE WEEKLY EARNINGS(a)**

	1996	1997	1998	1999	2000	2001
	\$	\$	\$	\$	\$	\$
MALES						
Full-time adult employees						
Average weekly ordinary time earnings	715.8	740.7	773.2	798.4	832.8	873.3
Average weekly total earnings	774.2	795.8	829.9	853.4	884.9	923.4
All male employees						
Average weekly total earnings	671.5	687.1	714.5	733.0	757.7	789.4
FEMALES						
Full-time adult employees						
Average weekly ordinary time earnings	594.1	620.3	646.9	669.6	697.9	737.1
Average weekly total earnings	607.9	634.8	660.6	683.5	714.5	750.6
All female employees						
Average weekly total earnings	441.1	457.4	468.3	483.0	504.8	524.7
PERSONS						
Full-time adult employees						
Average weekly ordinary time earnings	672.6	696.6	726.9	750.8	782.6	824.1
Average weekly total earnings	715.2	736.8	767.8	790.6	821.5	861.0
All employees						
Average weekly total earnings	564.4	577.8	596.2	611.1	634.7	662.6

(a) At May.

Source: *Average Weekly Earnings, Australia* (6302.0).

Average weekly earnings data are also available from the biennial Employee Earnings and Hours (EEH) survey. This survey produces complementary information, by providing statistics on the composition of average weekly earnings which enable comparison of earnings for various categories of employees, by occupation groups and industries.

Table 6.37 presents average weekly earnings in May 2001 by industry, with ordinary-time and overtime earnings separated. The largest amounts of overtime earnings were recorded for full-time adult employees in Mining (\$117.50), Construction (\$111.80) and Communication services (\$108.30), while Education had the lowest overtime earnings (\$2.40).

Table 6.38 shows average weekly total earnings for different occupation groups and categories of employees in May 2000. Average weekly total earnings vary considerably across occupations, with persons in lower skilled jobs tending to receive lower wages. In May 2000, full-time Managers and administrators received estimated average weekly total earnings of \$1,307.90. In contrast, full-time Elementary clerical, sales and service workers earned on average \$592.90 per week.

Men have higher average earnings than women within the same occupation group. Average weekly total earnings for full-time employees are closest for Managers and administrators (women's average earnings are 85% of men's) and furthest apart for Tradespersons and related workers (women's earnings 70% of men's).

**6.37 AVERAGE WEEKLY EARNINGS(a), Industry(b) by Composition of Earnings — May 2000**

Industry	Ordinary-time earnings	Overtime earnings	Total earnings
Mining	1 214.10	117.50	1 331.60
Manufacturing	668.70	93.50	762.20
Electricity, gas and water supply	920.30	69.50	989.80
Construction	738.00	111.80	849.80
Wholesale trade	672.70	38.40	711.00
Retail trade	586.40	25.70	612.10
Accommodation, cafes and restaurants	575.30	13.40	588.70
Transport and storage	746.40	81.30	827.70
Communication services	857.40	108.30	965.70
Finance and insurance	782.50	17.70	800.20
Property and business services	767.10	*25.10	792.10
Government administration and defence	761.90	28.70	790.50
Education	875.70	2.40	878.00
Health and community services	739.50	25.70	765.20
Cultural and recreational services	720.30	19.80	740.10
Personal and other services	791.50	35.30	826.90
<b>All industries</b>	<b>736.90</b>	<b>46.60</b>	<b>783.50</b>

(a) For full-time, non-managerial adult employees. (b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC).

Source: *Employee Earnings and Hours, Australia* (6306.0).

## How pay is set

The Survey of Employee Earnings and Hours conducted in May 2000 collected information on employees' pay setting arrangements, e.g. by award, collective or individual agreements. 'Awards only' refers to employees who had their pay set at exactly the applicable award rate of pay. Employees classified to the 'collective agreements' category were those whose pay was set by a registered or unregistered collective agreement. Those classified to the 'individual agreements' category either had their pay set by an individual common law contract, or received overaward payments specified in an individual agreement, or were working proprietors who set their own rate of pay, or were employees on registered individual agreements.

Table 6.39 shows that the most common method of setting pay was individual agreements (40%), followed by collective agreements (37%) and awards only (23%). Accommodation, cafes and restaurants was the industry with the highest proportion of employees on awards (65%), and the lowest proportion of employees on collective agreements, while Electricity, gas and water supply (1%) and Communication services (2%) had the lowest proportion of employees on awards. Government administration and defence (78%), Education (77%) and Electricity, gas and water supply (77%) had the highest proportion of employees under collective

agreements. Wholesale trade (77%), Property and business services (68%) and Construction (61%) had the highest proportion of employees on individual agreements, while Government administration and defence (7%) and Education (9%) had the lowest.

Table 6.40 shows that of all occupations, Managers and administrators are the least likely to be covered by awards only (3%), and the most likely to be covered by individual agreements (74%). Professionals had the highest proportion of employees under collective agreements (51%), while Elementary clerical, sales and service workers had the highest proportion of employees under awards (42%).

Table 6.41 shows the average weekly earnings of employees under the various types of pay setting arrangements. Persons working under individual agreements had the highest average weekly total earnings (\$787.70 and \$728.10 for registered and unregistered agreements respectively). However, for males registered collective agreements were higher than unregistered individual agreements (\$850.40 compared to \$834.40), while for females registered collective agreements were higher than both registered and unregistered individual agreements (\$591.80 compared to \$562.60 and \$575.80 respectively).

**6.38 AVERAGE WEEKLY TOTAL EARNINGS, Occupation(a) by Category of Employee — May 2000**

Occupation	Managerial		Non-managerial			Total		Part-time employees	All employees
	Adult	Adult	Junior	Total	Adult	Total			
	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>MALES</b>									
Managers and administrators	1 363.20	1 132.70	..	1 132.70	1 355.80	1 355.80	*338.00	1 315.30	
Professionals	1 286.30	1 039.60	457.00	1 038.80	1 086.00	1 085.30	439.90	1 000.30	
Associate professionals	859.40	944.60	368.50	939.00	909.80	906.70	350.00	869.00	
Tradespersons and related workers	679.40	810.00	378.80	759.90	798.20	753.40	321.90	723.90	
Advanced clerical and service workers	712.60	806.40	407.00	803.40	799.20	796.50	403.90	739.10	
Intermediate clerical, sales and service workers	849.60	751.30	311.50	734.20	754.20	737.40	282.60	623.40	
Intermediate production and transport workers	621.10	796.30	393.40	790.70	789.90	784.60	301.30	711.90	
Elementary clerical, sales and service workers	580.90	684.50	381.60	666.10	682.00	664.20	229.00	431.10	
Labourers and related workers	644.30	696.60	366.20	681.80	695.30	680.90	238.50	531.20	
<b>All occupations</b>	<b>1 132.90</b>	<b>835.90</b>	<b>370.70</b>	<b>814.80</b>	<b>902.70</b>	<b>883.80</b>	<b>289.00</b>	<b>780.20</b>	
<b>FEMALES</b>									
Managers and administrators	1 153.00	1 012.50	..	1 012.50	1 145.80	1 145.80	569.80	1 078.00	
Professionals	1 056.10	896.70	326.80	896.50	908.00	907.90	458.60	725.50	
Associate professionals	706.90	747.90	372.00	743.30	734.50	731.50	365.90	640.00	
Tradespersons and related workers	*592.8	584.50	276.70	523.10	584.80	525.00	283.90	431.50	
Advanced clerical and service workers	519.60	696.60	387.50	693.70	669.30	667.00	344.90	566.20	
Intermediate clerical, sales and service workers	699.00	624.40	330.20	610.30	626.00	612.20	298.30	458.70	
Intermediate production and transport workers	374.20	585.70	315.70	574.40	582.80	571.70	246.90	413.60	
Elementary clerical, sales and service workers	452.40	563.50	315.40	534.40	560.90	532.70	223.10	303.80	
Labourers and related workers	n.p.	566.20	361.70	561.00	564.40	559.30	224.90	329.80	
<b>All occupations</b>	<b>889.60</b>	<b>706.20</b>	<b>320.20</b>	<b>691.30</b>	<b>731.50</b>	<b>717.70</b>	<b>305.60</b>	<b>520.60</b>	
<b>PERSONS</b>									
Managers and administrators	1 315.90	1 094.30	..	1 094.30	1 307.90	1 307.90	451.10	1 257.50	
Professionals	1 227.90	967.30	435.90	966.90	1 002.00	1 001.60	454.80	844.60	
Associate professionals	809.30	863.90	370.20	858.60	843.30	840.10	361.80	770.00	
Tradespersons and related workers	676.90	792.70	364.90	740.00	782.70	735.20	305.60	689.80	
Advanced clerical and service workers	535.80	715.00	390.20	712.10	689.60	687.30	348.80	588.60	
Intermediate clerical, sales and service workers	764.10	671.10	324.20	655.60	673.40	658.20	295.60	505.40	
Intermediate production and transport workers	610.30	772.80	371.50	765.90	767.20	760.70	279.30	660.30	
Elementary clerical, sales and service workers	513.40	620.80	335.60	594.70	618.20	592.90	224.60	344.80	
Labourers and related workers	618.90	666.00	365.50	653.90	665.10	653.20	230.90	454.00	
<b>All occupations</b>	<b>1 066.60</b>	<b>783.50</b>	<b>352.30</b>	<b>765.10</b>	<b>837.80</b>	<b>821.00</b>	<b>301.00</b>	<b>652.80</b>	

(a) Classified according to the Australian Standard Classification of Occupations (ASCO), Second Edition.

Source: *Employee Earnings and Hours, Australia* (6306.0).

**6.39 METHODS OF SETTING PAY, By Industry(a) — May 2000**

Industry	%	Collective agreements(b)	Individual agreements(c)	Total
	Awards only			
Mining	*5.9	39.7	54.3	100.0
Manufacturing	11.4	37.0	51.6	100.0
Electricity, gas and water supply	*1.4	76.5	22.1	100.0
Construction	15.0	23.8	61.2	100.0
Wholesale trade	12.1	10.8	77.1	100.0
Retail trade	34.9	28.7	36.5	100.0
Accommodation, cafes and restaurants	64.7	6.7	28.6	100.0
Transport and storage	18.4	40.1	41.5	100.0
Communication services	*1.5	69.4	29.1	100.0
Finance and insurance	5.6	49.9	44.4	100.0
Property and business services	20.7	11.1	68.2	100.0
Government administration and defence	15.3	77.9	6.8	100.0
Education	13.6	77.1	9.3	100.0
Health and community services	37.4	43.5	19.1	100.0
Cultural and recreational services	18.9	33.3	47.8	100.0
Personal and other services	27.1	42.8	30.1	100.0
<b>All industries</b>	<b>23.2</b>	<b>36.8</b>	<b>40.0</b>	<b>100.0</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). (b) Includes registered and unregistered collective agreements. (c) Includes registered and unregistered individual agreements.

Source: *Employee Earnings and Hours, Australia* (6306.0).

**6.40 METHODS OF SETTING PAY, By Occupation(a) — May 2000**

Occupation	%	Collective agreements(b)	Individual agreements(c)	Total
	Awards only			
Managers and administrators	3.3	22.9	73.8	100.0
Professionals	13.2	51.4	35.4	100.0
Associate professionals	12.2	33.8	54.1	100.0
Tradespersons and related workers	23.1	32.0	44.9	100.0
Advanced clerical and service workers	14.2	20.9	64.9	100.0
Intermediate clerical, sales and service workers	29.9	31.4	38.7	100.0
Intermediate production and transport workers	19.1	48.7	32.2	100.0
Elementary clerical, sales and service workers	42.0	36.9	21.1	100.0
Labourers and related workers	36.9	34.6	28.5	100.0
<b>All occupations</b>	<b>23.2</b>	<b>36.8</b>	<b>40.0</b>	<b>100.0</b>

(a) Classified according to the Australian Standard Classification of Occupations (ASCO), Second Edition. (b) Includes registered and unregistered collective agreements. (c) Includes registered and unregistered individual agreements.

Source: *Employee Earnings and Hours, Australia* (6306.0).

**6.41 METHODS OF SETTING PAY, Average Weekly Total Earnings — May 2000**

	Ordinary time earnings				
	Base pay	Payment by measured result	Total	Overtime	Total
			\$	\$	\$
<b>MALES</b>					
Awards only	431.80	*8.00	439.80	41.10	480.90
Registered collective agreements	769.70	6.10	775.70	74.60	850.40
Unregistered collective agreements	656.80	*7.90	664.60	45.20	709.80
Registered individual agreements	878.80	*9.20	888.10	*26.40	914.40
Unregistered individual agreements	797.50	12.10	809.60	24.80	834.40
<b>Total</b>	<b>725.70</b>	<b>9.20</b>	<b>734.80</b>	<b>45.40</b>	<b>780.20</b>
<b>FEMALES</b>					
Awards only	369.70	*0.80	370.50	7.80	378.30
Registered collective agreements	576.70	1.00	577.70	14.00	591.80
Unregistered collective agreements	430.00	*1.40	431.50	*11.50	442.90
Registered individual agreements	557.10	*4.00	561.10	*1.60	562.60
Unregistered individual agreements	566.70	*3.20	569.90	6.00	575.80
<b>Total</b>	<b>509.60</b>	<b>1.70</b>	<b>511.30</b>	<b>9.40</b>	<b>520.60</b>
<b>PERSONS</b>					
Awards only	392.60	*3.40	396.00	20.10	416.10
Registered collective agreements	674.10	3.60	677.70	44.60	722.30
Unregistered collective agreements	568.10	*5.30	573.50	32.00	605.50
Registered individual agreements	762.90	*7.30	770.20	*17.40	787.70
Unregistered individual agreements	702.60	8.50	711.00	17.10	728.10
<b>Total</b>	<b>619.60</b>	<b>5.50</b>	<b>625.10</b>	<b>27.70</b>	<b>652.80</b>

Source: Employee Earnings and Hours, Australia (6306.0).

## Changes in the price of labour

Currently the ABS compiles and publishes a quarterly index, the Wage Cost Index (WCI), which measures changes in the price of the wage and salary component of labour services.

Development is continuing towards a Labour Price Index, which will include, in addition to wages and salaries, changes in the price of 'non-wage' components (e.g. superannuation and workers' compensation) which contribute to the cost to employers of employing labour. It is expected that the Labour Price Index will be published from 2004.

The WCI is a 'pure' price index which measures changes over time in wage and salary rates of pay for employee jobs, unaffected by changes in the quality and quantity of work performed. Index numbers in the WCI are compiled from hourly prices, i.e. quality adjusted hourly wage and salary rates of pay, for a representative sample of employee jobs within a sample of employing

organisations. To enable the WCI to measure changes in the price of labour over time, data are collected for a sample of individual jobs common between consecutive quarters. Only those jobs that have a price derived in both the current and previous quarters (i.e. matched jobs) contribute to index calculations. Thus, unlike other ABS earnings measures such as the quarterly Average Weekly Earnings series, the WCI does not measure changes in average (per employee) wage payments.

As shown in table 6.42, increases in the indexes for total hourly rates of pay excluding bonuses varied across sectors and across States and Territories. At the all sectors level, the annual percentage increase from the June quarter 2000 to the June quarter 2001 for Australia was 3.7%. The increase for the public sector at 3.8% was slightly higher than for the private sector at 3.7%.

**6.42 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, State by Sector**

State/Territory	Index numbers(a)					Percentage change from corresponding quarter of previous year
	June quarter 2000	September quarter 2000	December quarter 2000	March quarter 2001	June quarter 2001	
<b>PRIVATE</b>						
New South Wales	108.5	110.3	111.0	112.0	112.7	3.9
Victoria	108.3	109.5	110.5	111.1	112.1	3.5
Queensland	107.5	108.6	109.8	110.7	111.1	3.3
South Australia	107.8	108.9	109.8	110.5	111.0	3.0
Western Australia	108.0	109.5	110.2	111.9	112.8	4.4
Tasmania	106.8	107.8	108.7	109.3	109.8	2.8
Northern Territory	106.8	108.3	109.0	109.5	109.7	2.7
Australian Capital Territory	107.8	110.1	110.7	111.6	112.1	4.0
<b>Australia</b>	<b>108.1</b>	<b>109.5</b>	<b>110.4</b>	<b>111.4</b>	<b>112.1</b>	<b>3.7</b>
<b>PUBLIC</b>						
New South Wales	110.7	112.1	112.7	114.1	114.5	3.4
Victoria	108.0	109.2	110.0	111.7	112.7	4.4
Queensland	109.3	110.3	111.5	112.9	114.2	4.5
South Australia	109.0	109.8	110.9	112.7	113.0	3.7
Western Australia	107.8	108.5	109.4	111.2	111.5	3.4
Tasmania	107.0	108.7	109.3	109.8	111.2	3.9
Northern Territory	108.9	109.2	111.5	111.7	111.7	2.6
Australian Capital Territory	106.6	108.2	109.1	110.0	110.3	3.5
<b>Australia</b>	<b>109.1</b>	<b>110.3</b>	<b>111.2</b>	<b>112.6</b>	<b>113.3</b>	<b>3.8</b>
<b>ALL SECTORS</b>						
New South Wales	109.0	110.7	111.3	112.5	113.1	3.8
Victoria	108.3	109.4	110.4	111.2	112.2	3.6
Queensland	108.0	109.0	110.3	111.2	111.9	3.6
South Australia	108.1	109.1	110.1	111.1	111.6	3.2
Western Australia	108.0	109.3	110.0	111.8	112.5	4.2
Tasmania	106.9	108.1	108.9	109.5	110.3	3.2
Northern Territory	107.5	108.6	109.9	110.3	110.5	2.8
Australian Capital Territory	107.0	108.9	109.8	110.6	111.0	3.7
<b>Australia</b>	<b>108.4</b>	<b>109.7</b>	<b>110.6</b>	<b>111.7</b>	<b>112.4</b>	<b>3.7</b>

(a) Base of each index: September Quarter 1997 = 100.0.

Source: Wage Cost Index, Australia (6345.0).

The annual percentage increases from the June quarter 2000 to the June quarter 2001 ranged from 2.8% for the Northern Territory to 4.2% for Western Australia. The increases for the private sector ranged from 2.7% for the Northern Territory to 4.4% for Western Australia, and for the public sector ranged from 2.6% for the Northern Territory to 4.5% for Queensland.

As illustrated in table 6.43, the indexes also varied across industries. The annual percentage increases from the June quarter 2000 to the June quarter 2001 ranged from 2.4% for Retail trade to 4.8% for Property and business services.

Table 6.44 shows the indexes for occupations. The annual percentage increases from the June quarter 2000 to the June quarter 2001 ranged from 3.1% for Intermediate clerical, sales and service workers to 4.5% for Professionals.

**6.43 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By Industry(a)**

Industry	Index numbers(b)					Percentage change from corresponding quarter of previous year June quarter 2001
	June quarter 2000	September quarter 2000	December quarter 2000	March quarter 2001	June quarter 2001	
Mining	107.2	108.4	108.8	110.1	111.0	3.5
Manufacturing	108.9	110.0	111.1	112.3	113.0	3.8
Electricity, gas and water supply	109.9	111.3	112.3	113.5	114.5	4.2
Construction	109.8	111.5	112.2	113.3	114.4	4.2
Wholesale trade	106.8	108.8	109.7	110.3	111.1	4.0
Retail trade	106.6	107.6	108.4	108.9	109.2	2.4
Accommodation, cafes and restaurants	106.2	108.2	109.0	109.4	109.7	3.3
Transport and storage	107.1	108.5	109.3	110.3	110.7	3.4
Communication services	108.4	108.7	109.5	112.1	112.1	3.4
Finance and insurance	109.9	110.8	111.8	112.9	113.9	3.6
Property and business services	109.4	111.4	112.6	113.9	114.7	4.8
Government administration and defence	108.5	109.7	110.9	111.7	112.1	3.3
Education	108.8	110.3	110.7	112.4	113.6	4.4
Health and community services	108.6	109.7	110.6	111.4	112.4	3.5
Cultural and recreational services	106.7	108.1	108.7	109.9	110.3	3.4
Personal and other services	108.3	109.5	110.3	111.2	111.5	3.0
<b>All industries</b>	<b>108.4</b>	<b>109.7</b>	<b>110.6</b>	<b>111.7</b>	<b>112.4</b>	<b>3.7</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). (b) Base of each index: September Quarter 1997 = 100.0.

Source: *Wage Cost Index, Australia* (6345.0).

**6.44 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By Occupation(a)**

Occupation	Index numbers(b)					Percentage change from corresponding quarter of previous year June quarter 2001
	June quarter 2000	September quarter 2000	December quarter 2000	March quarter 2001	June quarter 2001	
Managers and administrators	109.4	110.6	111.4	112.8	113.6	3.8
Professionals	108.9	110.4	111.4	112.8	113.8	4.5
Associate professionals	108.5	109.9	111.0	111.8	112.5	3.7
Tradespersons and related workers	108.3	109.6	110.4	111.4	112.2	3.6
Advanced clerical and service workers	107.7	109.5	110.3	111.1	111.5	3.5
Intermediate clerical, sales and service workers	107.7	109.0	109.7	110.5	111.0	3.1
Intermediate production and transport workers	107.8	108.9	109.8	110.6	111.2	3.2
Elementary clerical, sales and service workers	107.1	108.6	109.2	110.2	110.6	3.3
Labourers and related workers	107.7	109.0	109.9	110.7	111.3	3.3
<b>All occupations</b>	<b>108.4</b>	<b>109.7</b>	<b>110.6</b>	<b>111.7</b>	<b>112.4</b>	<b>3.7</b>

(a) Classified according to the Australian Standard Classification of Occupations (ASCO), Second Edition. (b) Base of each index: September Quarter 1997 = 100.0.

Source: *Wage Cost Index, Australia* (6345.0).

## Standard non-wage benefits

In addition to wages and salaries, the majority of employees also receive paid leave (sick, holiday or long service) and superannuation benefits.

In August 2000, 97% of the 5,451,100 full-time employees received one or more of the standard employment benefits of superannuation, sick leave, holiday leave or long-service leave in their main job. In comparison, 76% of the 2,244,500 part-time employees received one or more standard employment benefits (table 6.45).

The table also shows the proportion of employees receiving each type of employment benefit. For full-time employees, the proportions receiving holiday, sick and long service leave fell between 1995 and 2000. For part-time employees, the proportion receiving all types of benefits rose over this period.

## Superannuation

In 2000, 88% of employed persons aged 15–54 were covered by superannuation (table 6.46). The proportion of employed males covered by superannuation was 89%, while that of employed females was 86%. Employees with paid leave entitlements had the highest rate of superannuation coverage, with 98% of those not working on a fixed-term contract and 96% of those working on a fixed term contract covered by superannuation. In contrast, owner-managers of unincorporated enterprises were the least likely to have superannuation coverage.

**6.45 EMPLOYEES IN MAIN JOB(a), By Type of Benefit Received**

Type of benefit	Units	Working full-time		Working part-time		Total employees	
		August 1995	August 2000	August 1995	August 2000	August 1995	August 2000
Superannuation	%	94.6	95.8	65.4	73.6	87.0	89.3
Paid holiday leave	%	89.3	86.8	32.0	33.6	74.5	71.3
Paid sick leave	%	89.1	86.9	32.6	34.0	74.5	71.4
Paid long service leave	%	76.9	75.4	27.4	28.5	64.1	61.7
No benefits	%	2.6	2.7	31.2	24.4	10.0	9.0
Total number of employees	'000	5 104.6	5 451.1	1 777.7	2 244.5	6 882.2	7 695.6

(a) Excludes persons attending school.

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia* (6310.0).

**6.46 SUPERANNUATION COVERAGE, By Employment Type in Main Job(a)(b) — April to June 2000**

Employment type	Units	Males	Females	Persons
Employees with leave entitlements				
Not working on a fixed-term contract	%	97.7	97.7	97.7
Working on a fixed-term contract	%	96.9	95.8	96.4
Self-identified casuals	%	72.8	71.6	72.1
Employees without leave entitlements, who do not identify as casuals	%	83.8	79.8	81.9
Owner-managers of incorporated enterprises				
Not working on a contract basis	%	89.5	84.5	87.8
Working on a contract basis	%	89.8	80.6	88.3
Owner-managers of unincorporated enterprises				
Not working on a contract basis	%	67.3	54.4	62.6
Working on a contract basis	%	74.0	60.0	70.4
Total(a)	%	89.0	86.1	87.7
Number(a)	'000	3 878.0	3 038.8	6 916.6

(a) Aged 15–54. (b) Excluding persons who were contributing family workers and employees who worked for payment in kind only in their main job.

Source: *Employment Arrangements and Superannuation, Australia* (6361.0).

Table 6.47 shows the types of contributions being made. A higher proportion of females than males had only employer/business contributions (58% compared to 49%), while a higher proportion of males than females had personal and employer/business contributions (25% compared to 19%).

## Industrial relations

### Industrial disputes

This section presents statistics on industrial disputes involving the loss of ten working days or more at the establishments where stoppages occurred. Working days lost refers to working days lost by workers directly or indirectly involved in disputes at those establishments.

The number of working days lost per year, and the number of employees involved, have fluctuated from year to year, but have demonstrated a significant downward trend over the last two decades (graph 6.48). The number of working days lost in 2000 was 469,100, a decrease of over 28% on the 1999 outcome. Over the same period the total number of employees involved in industrial disputes (either directly or indirectly) decreased by almost 30% (table 6.49).

Table 6.50 shows that the overall decrease of 181,400 in working days lost between 1999 and 2000 was primarily due to a fall in disputation in Education; Health and community services industries (down 114,000 working days lost), Construction (down 56,300), and Metal products; Machinery and equipment manufacturing (down 36,100).

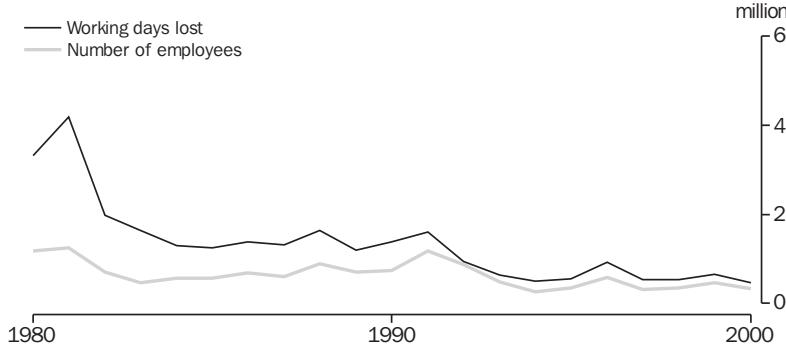
**6.47 SUPERANNUATION COVERAGE, By Type of Contribution(a)(b) — April to June 2000**

Employment type	Units	Males	Females	Persons
Employer or business contributions only	%	49.1	58.1	53.1
Personal/spouse and employer/business contributions	%	25.2	18.7	22.3
Personal/spouse contributions only	%	5.1	2.1	3.7
Has superannuation, but no contributions currently being made	%	9.7	7.1	8.5
No superannuation	%	11.0	13.9	12.3
Total(a)	%	100.0	100.0	100.0
Number(a)	'000	4 357.3	3 529.4	7 886.7

(a) Aged 15–54. (b) Excluding persons who were contributing family workers and employees who worked for payment in kind only in their main job.

Source: *Employment Arrangements and Superannuation, Australia* (6361.0).

**6.48 INDUSTRIAL DISPUTES**



Source: *Industrial Disputes, Australia* (6321.0).

**6.49 NUMBER OF DISPUTES AND EMPLOYEES INVOLVED**

Year	Disputes		Employees involved		
	Commenced in year	Total	Newly involved(a)	Total	Working days lost
	no.	no.	'000	'000	'000
1995	635	643	335.4	344.3	547.6
1996	539	543	575.9	577.7	928.5
1997	444	447	315.0	315.4	534.2
1998	516	519	347.8	348.4	526.3
1999	727	731	460.7	461.1	650.5
2000	686	698	324.4	325.4	469.1

(a) Comprises workers involved in disputes which commenced during the year and additional workers involved in disputes which continued from the previous year.

Source: *Industrial Disputes, Australia* (6321.0).

**6.50 WORKING DAYS LOST, By Industry(a)**

Industry	1995	1996	1997	1998	1999	2000
	'000	'000	'000	'000	'000	'000
Mining						
Coal	111.1	160.8	95.7	60.4	26.0	37.3
Other	78.0	4.4	1.1	1.4	2.0	3.8
Manufacturing						
Metal products; Machinery and equipment	54.8	58.6	76.9	27.5	104.3	68.2
Other	105.1	44.8	68.7	67.7	80.3	78.0
Construction	42.7	334.8	107.8	210.9	165.1	108.8
Transport and storage; Communication services	38.6	20.4	47.7	52.8	20.3	26.2
Education; Health and community services	70.9	239.8	94.0	75.8	224.1	110.1
Other industries(b)	46.3	64.9	42.1	29.8	28.4	36.6
<b>All industries</b>	<b>547.6</b>	<b>928.5</b>	<b>534.2</b>	<b>526.3</b>	<b>650.5</b>	<b>469.1</b>

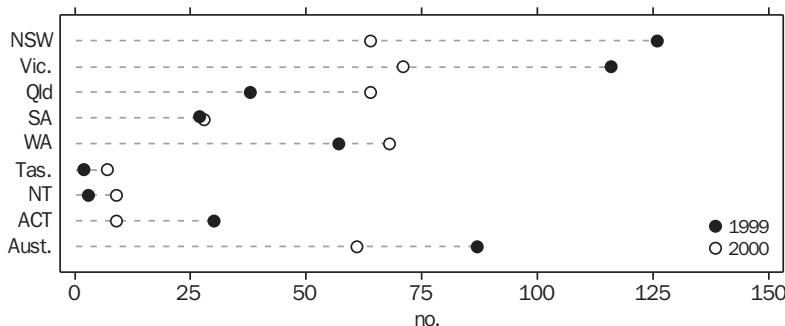
(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). (b) Includes: Agriculture, forestry and fishing; Electricity, gas and water supply; Wholesale trade; Retail trade; Accommodation, cafes and restaurants; Finance and insurance; Property and business services; Government administration and defence; Cultural and recreational services; and Personal and other services.

Source: *Industrial Disputes, Australia* (6321.0).

There were 61 working days lost per thousand employees in 2000, compared to 87 working days lost per thousand employees in 1999 (graph 6.51). This fall was due to large falls in NSW (down 62 working days lost per thousand employees) and Victoria (down 45). Victoria (71 working days lost per thousand employees),

Western Australia (68), NSW (64) and Queensland (64) recorded the highest number of working days lost per thousand employees in 2000, while Tasmania (7), the Northern Territory (9) and the ACT (9) recorded the lowest number of working days lost per thousand employees.

**6.51 WORKING DAYS LOST PER THOUSAND EMPLOYEES,  
By State/Territory**



Source: *Industrial Disputes, Australia* (6321.0).

### Trade union membership

In August 2000, 25% of employees aged 15 years and over were trade union members in connection with their main job (table 6.52).

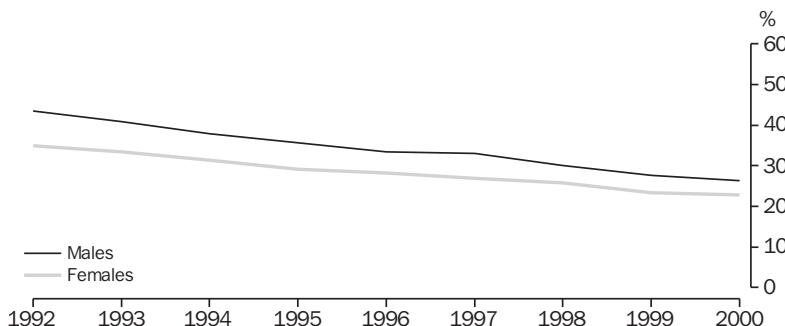
Electricity, gas and water supply and Education were the most unionised industries, with 53% and 44% of employees respectively who were trade union members. The Agriculture, forestry and fishing industry was the least unionised (5% of employees).

**6.52 PROPORTION OF EMPLOYEES WHO WERE TRADE UNION MEMBERS, By Industry(a) — August 2000**

Industry	Males %	Females %	Persons %
Agriculture, forestry and fishing	6.0	*3.7	5.4
Mining	35.0	**4.5	32.3
Manufacturing	34.1	22.8	31.1
Electricity, gas and water supply	56.6	*34.9	53.1
Construction	29.5	*3.7	26.4
Wholesale trade	12.3	5.8	10.4
Retail trade	15.4	19.7	17.7
Accommodation, cafes and restaurants	10.0	10.6	10.3
Transport and storage	42.1	20.9	36.4
Communication services	42.9	27.1	37.7
Finance and insurance	18.9	28.3	24.3
Property and business services	9.2	6.1	7.8
Government administration and defence	43.8	32.0	38.1
Education	45.2	43.5	44.0
Health and community services	30.4	32.8	32.3
Cultural and recreational services	19.8	14.1	17.1
Personal and other services	39.8	14.5	27.7
<b>All industries</b>	<b>26.3</b>	<b>22.8</b>	<b>24.7</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC).

Source: *Employee Earnings, Benefits and Trade Union Membership* (6310.0).

**6.53 PROPORTION OF EMPLOYEES WHO WERE TRADE UNION MEMBERS IN MAIN JOB**

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia* (6310.0).

As shown in graph 6.53, the proportion of employees who were trade union members in connection with their main job has been declining steadily.

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<http://www.dewrsb.gov.au>

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## Introduction

The economic wellbeing or standard of living of individuals and families is largely dependent on the economic and social resources available to provide for the consumption of goods and services and for participation in society. Such resources may be in the form of cash income received from wages and salaries or investments, or as income support from government. Other factors can also contribute to the level of consumption of goods and services, including using personal resources such as savings, services such as aged care, respite care and child care from government and welfare organisations, and assistance from family and friends.

Government programs aim to help the economically disadvantaged to achieve social and economic outcomes and to participate in society. Such programs include those of the Department of Family and Community Services (FaCS), which provides income security for the retired, people with disabilities, carers, unemployed people and families with children. Other departments provide income support for other special groups, such as war veterans, war widows and their

families, and students. In addition to cash income, government programs also help those with low incomes to meet payments for housing through rent assistance, and for a range of goods and services through pensioner concession and health cards, and other services aimed at helping people in personal and social hardship. Other types of programs aim to provide assistance with employment and advocacy to people with disabilities.

This chapter provides information on the levels and sources of income of Australia's population and on the levels and patterns of expenditure on consumer goods and services. Further information is provided on the main income support programs of the Commonwealth Government, describing the eligibility requirements, numbers of beneficiaries and government expenditure on these programs. It covers these in four sections: *Income support programs of the Department of Family and Community Services; Community support programs of the Department of Family and Community Services; Aged care programs of the Department of Health and Aged Care; and Services provided by the Department of Veterans' Affairs.*

## Voluntary work in 2000

### Introduction

Voluntary work is an important contribution to national life. It meets needs within the community and helps to develop and reinforce social networks and cohesion. The importance of voluntary work was recognised by the United Nations when it declared the year 2001 as the International Year of Volunteers (IYV). By participating in IYV, Australia aimed to achieve the following objectives:

- to recognise and celebrate the outstanding contribution volunteers make to a strong, cohesive Australian society;
- to have community, business, the media and government working together to build an Australian society that encourages and nurtures a culture of volunteering; and
- to support Australian communities in their engagement in valuable and productive voluntary activities.

In conjunction with the IYV, the ABS released the results of the Survey of Voluntary Work, conducted in 2000. In the survey, a volunteer was defined as someone who, in the last 12 months, willingly gave unpaid help in the form of time, service or skills, through an organisation or group. Estimates from the survey excluded people whose only voluntary work was performed overseas and those whose only voluntary work was for the Sydney Olympic and/or Paralympic Games.

### Change in volunteering over time

There were 4,395,600 adult volunteers (aged 18 years and over) in 2000, representing 32% of the civilian population of the same age. In 1995 the 3,189,400 volunteers represented 24% of the population. Growth in volunteer rates occurred for both sexes, and across all age groups, but particularly the groups 18–24 (from 17% to 27%) and 55–64 (from 24% to 33%) (table 7.1).

## 7.1 VOLUNTEER RATE — 1995 and 2000

	1995				2000			
	Males	Females	Persons	Persons	Males	Females	Persons	Persons
	%	%	%	'000	%	%	%	'000
<b>Relationship in household</b>								
Family member								
Husband, wife or partner								
With dependent children	32.2	30.8	31.4	1 316.8	37.6	45.4	41.6	1 726.4
Without dependent children	22.1	21.6	21.9	931.2	29.4	27.5	28.5	1 323.2
Total(a)	26.8	26.5	26.6	2 247.9	33.7	35.4	34.5	3 124.7
Lone parent	21.4	19.6	20.0	146.2	30.9	33.0	32.6	241.6
Other family member	16.3	19.7	17.7	249.9	22.8	29.0	25.5	415.1
Total family member	24.9	25.0	25.0	2 644.0	31.8	34.4	33.1	3 781.4
Total non-family member	15.2	21.1	17.8	430.7	24.2	26.4	25.3	614.2
Total(b)	22.9	24.4	23.6	3 189.4	30.5	33.0	31.8	4 395.6
<b>Labour force status</b>								
Employed full time	25.6	21.0	24.1	1 425.3	33.9	30.5	32.8	2 037.9
Employed part time	29.2	32.6	31.7	700.7	31.3	44.4	40.9	1 055.7
Unemployed	13.3	22.3	16.8	112.2	21.1	33.6	27.0	146.6
Not in the labour force	16.4	22.2	20.2	951.1	23.0	27.2	25.6	1 155.4
Total	22.9	24.4	23.6	3 189.4	30.5	33.0	31.8	4 395.6
<b>Birthplace</b>								
Born in Australia	25.9	26.5	26.2	2 589.0	33.2	35.4	34.3	3 390.9
Born outside Australia	15.4	18.0	16.6	600.4	24.3	26.6	25.4	1 004.7
Total	22.9	24.4	23.6	3 189.4	30.5	33.0	31.8	4 395.6

(a) 2000 data include couples in multifamily households. (b) 1995 data include 115,000 households where relationship could not be determined.

Source: Voluntary Work, Australia 2000 (4441.0).

In 2000, volunteers contributed 704 million hours of voluntary work, an increase on the 1995 total of 512 million hours. However, the median weekly hours of voluntary work remained stable at 1.4.

## Who volunteers?

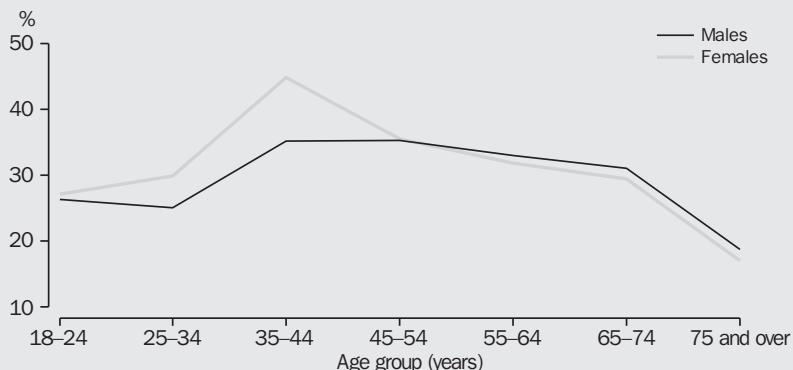
Volunteer rates varied across different groups in the population. They were slightly higher for women than for men (33% compared to 31%) and, with a few exceptions, this was the case regardless of family status, labour force status or birthplace. The volunteer rate for partnered people without dependent children was slightly higher for men than for women, as was the rate for people employed full-time.

People born in Australia were more likely to undertake voluntary work than those born outside Australia, 35% and 25% respectively.

The pattern of volunteering varied with age and life stage. Among the older age groups, volunteer rates were marginally higher for men than for women (graph 7.2). People aged 35–44 years reported the highest rate of volunteering (40%). At these ages people are more likely to be married with children, and their higher than average volunteer rate reflects their family commitments. This is most marked for women. Thus, partnered women with dependent children had a volunteer rate of 45% compared to 28% for partnered women without dependent children. Women employed part-time had a higher volunteer rate (44%) than those employed full-time (31%).

Because most volunteers contributed relatively few hours, while a minority worked for a large number of hours, the arithmetic mean is a misleading measure of hours worked by the average volunteer. The median is a more appropriate measure for purposes of comparison.

### 7.2 VOLUNTEER RATE, By Age — 2000



Source: Voluntary work 2000 (4441.0).

### 7.3 MEDIAN HOURS OF VOLUNTARY WORK, By Age and Labour force Status — 2000

	Males	Females	Persons
	no.	no.	no.
<b>Age group (years)</b>			
18-24	1.0	1.1	1.1
25-34	0.7	0.9	0.8
35-44	1.0	1.5	1.4
45-54	1.5	1.4	1.5
55-64	1.9	1.8	1.9
65-74	2.5	2.5	2.5
75 and over	*1.4	*2.9	2.3
<i>Total</i>	1.2	1.4	1.4
<b>Labour force status</b>			
Employed full-time	1.1	1.0	1.0
Employed part-time	1.2	1.4	1.4
Unemployed	*1.2	*1.5	1.4
Not in the labour force	2.4	2.0	2.1
<i>Total</i>	1.2	1.4	1.4

Source: Voluntary Work, Australia 2000 (4441.0).

The median hours of voluntary work per week was 1.4 or about 72 hours per year. This was greater for women than men (74 hours compared to 64 hours). Although the number of volunteers was highest in the age group 35–44 years, median hours of voluntary work tended to increase steadily with age, up to the 65–74 years age group where the median hours were 2.5 per week (table 7.3). This relates to the decrease in family and paid work commitments with advancing age.

People in paid employment, either full-time or part-time, were more likely to volunteer than those who were unemployed or not in the

labour force. However, in aggregate, people not in the labour force contributed slightly more hours of voluntary work per year (265 million hours) than people who were employed full-time (261 million) or part-time (154 million). This pattern differed for men and women. For men the largest contribution (58% of male hours) came from those employed full-time while for women the largest contribution (44% of female hours) was made by those not in the labour force. People not in the labour force also had the highest median weekly hours of voluntary work (2.1), while those employed full-time had the lowest (1.0).

## Volunteer involvements

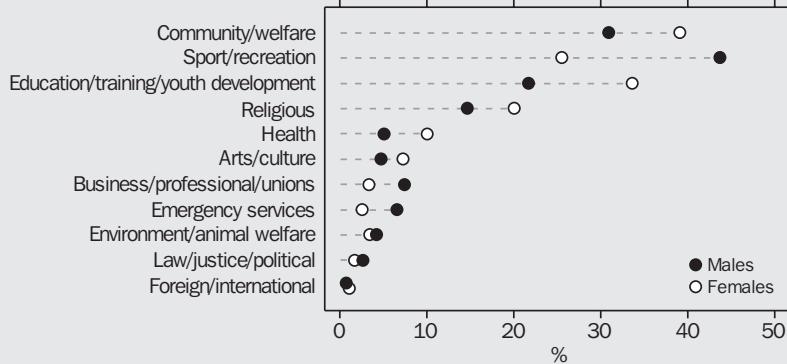
Almost two-thirds of volunteers (65%) worked for one organisation only and a further 31% worked for two or three. There was a slight variation by age, with younger people more likely than others to work for only one organisation and the middle age group (45–54 years) more likely to work for three or more organisations.

Two types of organisations together claimed almost half of all volunteer hours: community/welfare (26%) and sport/recreation (21%) (graph 7.4). Together with religious

(17%) and education/training/youth development (14%) organisations, they accounted for almost 80% of all volunteer hours. These four categories were also the largest in terms of the number of volunteers involved.

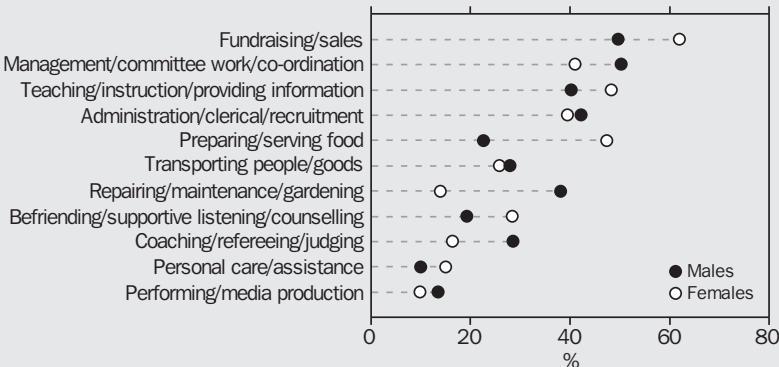
Men who volunteered were most likely to be involved in sporting or recreational organisations. For women, community/welfare organisations involved the largest number. Although there were slightly more female than male volunteers overall, there were many more male involvements than female in the fields of sport/recreation, business/professional/union, and emergency services.

**7.4 VOLUNTEER INVOLVEMENT RATE, By Type of Organisation — 2000**



Source: Voluntary Work 2000 (4441.0).

**7.5 VOLUNTEER ACTIVITY RATE, By Type of Activity — 2000**



Source: Voluntary Work 2000 (4441.0).

## Types of voluntary activities

As is the case for people in paid employment, volunteers perform a range of different tasks when undertaking voluntary work. The activities most frequently reported by volunteers were fundraising (56%), management (45%), teaching (44%) and administration (41%).

The sex segregation observed among some occupations for paid work is also evident in

voluntary work activities. For example, female volunteers were much more likely than male volunteers to be preparing and serving food (47% compared to 23%) whereas men were more likely than women to be involved in such activities as repairs, maintenance and gardening (38% compared to 14%), and coaching, refereeing and judging (29% compared to 16%) (graph 7.5).

## Household income and expenditure

### Household income

Regular income is the means by which most individuals and families finance current consumption and make provision for the future through saving and investment. The level of cash income can be used as an indicator of the standard of living for most of the population. From a social welfare perspective, analyses of cash income distribution indicate which groups in the population are most disadvantaged, and provide information on the number and characteristics of those needing access to government services.

While income is usually received by individuals, analyses of the distribution of income are traditionally based on incomes of families or groups of individuals, which reflects the sharing of income that takes place within families. The following analysis is based on the income of a restricted family grouping called an 'income unit', which assumes that income is shared between partners in couple families and between parents and dependent children. Other family members such as non-dependent children are treated as separate income units. Analyses of income distribution using different units, such as families and households, provide different results.

The ABS conducted six income distribution surveys between 1968 and 1990. In July 1994, the ABS started collecting income data on a continuous basis in the Survey of Income and Housing Costs. These surveys have provided information on the current and annual income of individuals and family units as well as on their characteristics such as age, education, labour force participation, source of income, and the size and composition of income units.

The most recent information on current income distribution on an income unit basis is available from the 1999–2000 Survey of Income and Housing Costs. Income refers to gross receipts of recurring and usually regular cash flows at the time of interview. It comprises cash receipts from wage or salary, profit or loss from own unincorporated business, property income in the form of interest, rent and dividends, private cash transfers such as superannuation pensions and child support, and cash transfers from government in the form of benefits and allowances.

### Income distribution

As table 7.6 shows, in 1999–2000 the average (mean) gross weekly income for all income units was \$726. The median gross weekly income (i.e. the midpoint when all units are ranked in order of income) was considerably lower at \$538. This difference reflects the typically asymmetric distribution of income where a large number of units have very low incomes and a smaller number have very high incomes.

Income units cover a wide variety of individuals and family types, and include varying numbers of people. These range from young single people just out of school, to couples with dependent children, through to elderly retired couples or single people, i.e. units at various stages of the life cycle and working career. It is therefore not surprising that income is distributed unevenly across all income units. In 1999–2000 the median gross weekly income for income units in the lowest quintile (i.e. the lowest 20% of units when ranked according to income) was \$177, compared to \$1,524 received by those in the highest quintile (i.e. the highest 20% of units when ranked according to income).

### 7.6 ALL INCOME UNITS, Selected Characteristics by Gross Weekly Income Quintile Groups — 1999–2000

	Unit	Lowest 20%	Second quintile	Third quintile	Fourth quintile	Highest 20%	All income units
Upper boundary of quintile group	\$	231	421	673	1 103	..	..
Mean income	\$	136	327	541	866	1 765	<b>726</b>
Median income	\$	177	322	536	856	1 524	<b>538</b>
Principal source of income (% of income units)							
Wage or salary	%	8.3	31.2	71.8	86.2	86.3	<b>56.7</b>
Own unincorporated business	%	2.1	3.3	7.6	7.9	9.1	<b>6.0</b>
Government pensions and allowances	%	68.5	57.5	12.3	1.2	**0.0	<b>28.0</b>
Other income	%	10.3	8.0	8.3	4.8	4.5	<b>7.2</b>
Total(a)	%	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
Income unit type (% of income units)							
Couple with dependent children	%	4.3	7.2	17.3	34.6	48.8	<b>22.4</b>
Couple without dependent children	%	5.4	35.0	19.7	24.0	38.4	<b>24.5</b>
One parent	%	1.9	12.1	7.8	4.8	1.4	<b>5.6</b>
Lone person	%	88.4	45.7	55.2	36.6	11.4	<b>47.5</b>
Total	%	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
Earners							
None	%	84.1	59.4	15.6	4.9	2.9	<b>33.4</b>
One	%	14.3	38.3	75.5	64.9	26.2	<b>43.8</b>
Two	%	1.7	2.4	8.9	30.3	70.9	<b>22.8</b>
Total	%	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
Dwelling tenure type (% of income units)							
Owners without a mortgage	%	32.4	41.3	23.5	23.8	28.0	<b>29.8</b>
Owners with a mortgage	%	6.4	9.8	19.2	36.8	53.0	<b>25.0</b>
Renters							
State housing authority	%	9.2	6.7	4.1	1.8	*0.3	<b>4.4</b>
Private landlord	%	16.6	18.8	25.3	23.2	13.5	<b>19.5</b>
Other	%	12.2	11.2	13.1	7.0	2.3	<b>9.1</b>
Total renters	%	38.0	36.7	42.5	31.9	16.2	<b>33.1</b>
Other tenure type	%	23.2	12.2	14.7	7.6	2.8	<b>12.1</b>
Total	%	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
Estimated number of income units							
Capital city	'000	1 137.8	1 119.6	1 263.8	1 264.0	1 373.4	<b>6 158.6</b>
Rest of State	'000	738.8	752.0	612.4	600.6	492.0	<b>3 195.7</b>
Total	'000	1 876.5	1 871.6	1 876.2	1 864.6	1 865.3	<b>9 354.3</b>

(a) Includes income units with nil or negative income.

Source: ABS data available on request, 1999–2000 Survey of Income and Housing Costs.

Income units in the lowest quintile were mainly single people. Few people were employed and most relied on government pensions and allowances as their principal source of income.

In comparison, income units in the highest quintile were usually couples, and most had two earners. Their principal source of income was mainly wage or salary.

#### Life-cycle stages of income units

Levels of income are related to life-cycle stages such as youth and the forming, maturing and dissolving of families (table 7.7). In 1999–2000,

young independent single persons aged under 35 had an average weekly income of \$473. However, this group had a wide range of incomes, resulting partly from the differing attachment to the labour force of young people making the transition from full-time education to full-time work.

As young people enter into relationships their income unit income rises, as they often have two income earners contributing to their income unit. Young couples under 35 with no dependent children received an average of \$1,327 per week. For most couples in this group (83%) both partners were in employment.

For couples, the birth of the first child and the early years of child rearing are associated with reduced labour force participation and are often accompanied by a fall in income of the unit. The average weekly income of couples with the eldest child under 5 years of age was \$1,030. Income rises again as the children and parents grow older. Couples whose eldest dependent child was aged 15 years and over had an average income of \$1,407 per week.

The need to provide for dependent children has ended by the time most people reach their mid fifties. These post child-rearing years are accompanied by a decline in income. Couples in the 55–64 age group had an average income of

\$840 per week. This group had a wide range of incomes resulting from the transition from full-time employment to retirement.

The considerably lower incomes that accompany retirement are evident in the average incomes of those aged 65 years or over. Couples of this age had an average income of \$526, while single persons over 65 had an average income of \$284. Government pensions formed the main source of income for 68% of the couples and 80% of single people in this age group. About 24% of couples and 16% of single people were living mainly on income from other sources such as superannuation and investments.

### 7.7 LIFE-CYCLE GROUPS, Selected Characteristics — 1999–2000

	Unit	Single person aged under 35	Couple without dependent children, reference person aged under 35	Couple with dependent children and age of eldest child (years)	Couple without dependent children, reference person aged 65 and over	Single person aged 65 and over
Mean income	\$	473	1 327	1 030	1 407	840
Median income	\$	450	1 207	917	1 238	630
Principal source of income (% of income units)						
Wage or salary	%	75.4	92.5	79.5	78.3	52.1
Own unincorporated business	%	2.0	*3.7	8.9	9.8	10.8
Government pensions and allowances	%	13.5	*1.8	7.4	9.6	24.2
Other income	%	4.4	*1.5	*2.8	*1.9	11.1
Total(a)	%	100.0	100.0	100.0	100.0	100.0
Earners						
None	%	20.0	*3.1	6.4	8.5	32.0
One	%	80.0	14.2	52.9	24.3	31.5
Two	%	..	82.7	40.7	67.2	36.4
Total	%	100.0	100.0	100.0	100.0	100.0
Tenure and landlord type (% of income units)						
Owners without a mortgage	%	1.4	7.3	11.5	38.6	68.0
Owners with a mortgage	%	6.0	40.9	58.0	50.3	22.2
Renters						
State/Territory housing authority	%	1.1	**0.4	*1.5	*2.3	*2.5
Private landlord	%	30.8	45.7	21.4	6.9	4.8
Other landlord type	%	26.8	*2.8	*2.8	*1.0	**0.7
Total renters	%	58.7	49.0	25.6	10.3	8.0
Other tenure type	%	34.0	*2.8	4.9	*0.8	*1.8
Total	%	100.0	100.0	100.0	100.0	100.0
Estimated number of income units	'000	2 257.3	350.7	476.7	644.3	589.2
						713.0
						878.4

(a) Includes income units with nil or negative total income.

Source: ABS data available on request, 1999–2000 Survey of Income and Housing Costs.

### Changes in income, 1994–95 to 1999–2000

From 1994–95 to 1999–2000, the mean (average) gross weekly income for all income units in private dwellings increased by 22% from \$596 to \$726 (table 7.8). The mean weekly income of those who were mainly dependent on wage or salary income increased by 20% from \$801 to \$961. The mean income of those relying on government pensions and allowances increased by 16% over this period. Mean incomes for units dependent on their own unincorporated businesses increased by 28%. Mean income of those dependent on other income sources increased by 48% between 1994–95 and 1999–2000.

The degree of inequality in the income distribution of all income units appears almost unchanged between 1994–95 and 1999–2000 (table 7.9). Income inequality can be measured by comparing the share of total income received by each quintile group. While the shares of total income received by the income quintile groups changed slightly over the five years, the changes are not statistically significant.

### Household expenditure

Peoples' income provides one indicator of their standard of living. However, it does not always accurately indicate command over goods and services, particularly when income is variable or expenditure can be financed through running down assets or acquiring debts. In these cases, the levels and patterns of household expenditure can provide an alternative indicator of living standards.

The latest household expenditure information available is from the 1998–99 Household Expenditure Survey. This was the sixth major survey of its kind undertaken by the ABS. It collected detailed information on the expenditure, income and characteristics of households in Australia.

The household is the usual unit of analysis for expenditure because it is assumed that sharing of the use of goods and services occurs at this level. If smaller units are adopted, for example person or income unit, then it is difficult to attribute the use of both shared items such as accommodation and household goods, and of expenditure on items consumed by others, such as food.

**7.8 ALL INCOME UNITS, Mean Gross Weekly Income by Principal Source of Income**

Principal source of income	Mean weekly income				
	1994–95	1995–96	1996–97	1997–98	1998–99
\$	\$	\$	\$	\$	\$
Wage or salary	801	816	844	888	961
Own unincorporated business	850	916	908	956	1 085
Government pensions and allowances	231	238	254	256	267
Other income	420	432	507	546	622
<b>All income units(a)</b>	<b>596</b>	<b>609</b>	<b>625</b>	<b>658</b>	<b>726</b>

(a) Includes income units with nil or negative total income.

Source: *Income Distribution, Australia* (6523.0).

**7.9 ALL INCOME UNITS, Percentage Share of Gross Weekly Income by Quintile**

Gross weekly income quintile	Percentage share				
	1994–95	1995–96	1996–97	1997–98	1998–99
%	%	%	%	%	%
Lowest	3.6	3.8	3.9	3.8	3.8
Second	9.3	9.1	9.4	9.0	9.0
Third	15.2	15.0	15.2	15.0	15.0
Fourth	24.0	23.7	24.0	23.9	23.8
Highest	47.9	48.3	47.5	48.3	48.5
<b>All income units</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: *Income Distribution, Australia* (6523.0).

**7.10 HOUSEHOLD EXPENDITURE AND CHARACTERISTICS, By Gross Weekly Income Quintile Groups — 1998–99**

	Units	Lowest 20%	Second quintile	Third quintile	Fourth quintile	Highest 20%	All households
Upper boundary of quintile group	\$	300	550	881	1 364	..	—
Mean gross weekly household income	\$	156	411	709	1 109	1 982	874
Mean age of reference person	years	59	53	43	42	43	48
Average number of persons in the household	no.	1.51	2.34	2.75	3.05	3.33	2.60
Household composition (% of households)							
Couple, one family							
Couple only	%	18.1	38.8	20.0	23.4	22.5	24.6
Couple with dependent children only	%	5.2	13.8	31.1	37.0	31.8	23.8
Other couple, one family households	%	1.6	6.1	9.6	14.8	26.8	11.8
One parent, one family with dependent children	%	7.3	14.0	7.0	2.6	1.1	6.4
Other family households	%	1.7	4.8	7.2	6.4	6.8	5.4
Lone person	%	64.9	19.0	21.6	11.3	4.8	24.2
Group households	%	1.3	3.5	3.4	4.6	6.2	3.8
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
Expenditure (as % of total expenditure)							
Current housing costs (selected dwelling)	%	16.2	15.0	15.6	13.8	12.0	13.9
Domestic fuel and power	%	3.7	3.3	2.7	2.3	2.0	2.6
Food and non-alcoholic beverages	%	19.4	20.3	18.9	18.0	16.6	18.2
Alcoholic beverages	%	2.1	2.5	2.7	2.9	3.4	2.9
Tobacco products	%	1.9	2.2	1.8	1.4	1.1	1.5
Clothing and footwear	%	3.7	3.8	3.8	4.6	5.5	4.6
Household furnishings and equipment	%	6.4	6.1	6.0	5.5	6.3	6.0
Household services and operation	%	7.9	6.7	5.9	5.7	5.2	5.9
Medical care and health expenses	%	5.0	5.0	4.4	4.7	4.5	4.6
Transport	%	14.0	15.1	16.0	18.3	17.8	16.9
Recreation	%	10.9	11.9	12.2	12.2	14.2	12.7
Personal care	%	2.0	1.9	1.8	2.0	2.1	2.0
Miscellaneous goods and services	%	6.9	6.2	8.2	8.4	9.3	8.2
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
Average weekly expenditure on all goods and services	\$	344	477	648	853	1 171	699
Estimated number of households	'000	1 404.3	1 441.9	1 425.3	1 425.9	1 425.5	7 122.8

Source: Household Expenditure Survey, Australia: Detailed Expenditure Items, 1998–99 (6535.0).

In 1998–99, Australian households spent an average of \$699 per week on goods and services (table 7.10). The level and pattern of expenditure differs between households, reflecting characteristics such as income, household composition, household size and location.

Predictably the level of household expenditure differs between households with differing income levels. In 1998–99, households in the lowest income quintile (i.e. the 20% of households with the lowest incomes) spent \$344 per week on goods and services, compared with \$1,171 spent by households in the highest income quintile. Households in these quintiles had average (mean) gross weekly incomes of \$156 and \$1,109 respectively. Since the Household Expenditure Survey does not collect information on all forms of income and expenditure, and since there are significant timing differences between the

different components of income and expenditure collected, caution should be exercised in comparing the income and expenditure data. Nevertheless, for both the lowest quintile and the second quintile, average weekly household income as measured in the survey is less than average weekly household expenditure. This does not necessarily mean that these households are spending beyond their means. Some of the households in these quintiles will have had higher income in the past and so can finance their expenditure by drawing on past savings. This is especially so for retired people. Other households may take out loans in the expectation of higher incomes at a later time. The lowest quintile also includes households who reported zero or negative income. These households' losses from their unincorporated businesses or investments equalled or were greater than their income from any other sources. In general this

group can draw on economic resources other than income to maintain their standard of living, at least in the short term.

The composition of a household's weekly expenditure is also affected by the level of household income. For example, food and non-alcoholic drinks accounted for 19.4% of the expenditure on goods and services of households

in the lowest income quintile, compared with 16.6% for households in the highest income quintile. In general, the proportion spent on housing, household services, domestic fuel and power and tobacco products also declined as household income rose, while the proportion spent on transport, recreation, clothing and footwear, and alcohol increased.

## Trends in child care

### Introduction

This article summarises the results of the ABS Child Care Survey, a household survey conducted most recently in 1999.

Child care refers to arrangements made for the care of children under 12 years of age. This does not include parental care or those occasions when the child is under someone else's care for other reasons, such as school or sporting activities. Formal care is regulated child care away from the child's home, including: preschool or kindergarten; long day care; family day care; before and after school care; and other arrangements such as creches in shopping centres. Informal care is non-regulated child care either in the child's home or elsewhere. It includes care given by family members (such as the child's brothers or sisters, grandparents or other relatives), friends or neighbours, and paid baby-sitters.

### Trends in child care

In 1999 just over half of all children aged under 12 years (1.6 million) received some form of formal and/or informal child care in the week

prior to interview. While the proportion of children using child care increased markedly from 38% in 1984 to 52% in 1990, it fluctuated around 50% in subsequent surveys (1993, 1996 and 1999).

Between 1984 and 1999 the proportion of children receiving formal care doubled (12% to 24%) (table 7.11). Although the increase was greatest among 0–2 year olds (8% to 22%), it occurred across all age groups. For children aged under 5 years, growth in the number of children attending long day care centres was the main contributor to this increase (from 99,400 in 1990 to 225,900 in 1999). For children aged 5–11 years, the number attending before and after school care trebled (from 44,000 in 1990 to 152,500 in 1999). This was the main contributor to the growth in formal care for this age group.

The proportion of children receiving informal care increased from 30% in 1984 to 37% in 1999, and this remains the most commonly used form of care. For over half of children in care in 1999, this was the only form of child care arrangement used.

**7.11 CHILD CARE ARRANGEMENTS — 1984 to 1999**

Type of care used	Units	1984	1987	1990	1993	1996	1999
Formal care only	%	8.7	9.1	9.3	11.0	12.0	14.0
Informal care only	%	26.1	31.7	33.9	29.4	28.3	27.7
Formal and informal care	%	3.7	6.6	8.4	8.3	8.1	9.5
Total formal and/or informal care	%	38.5	47.4	51.6	48.8	48.4	51.2
Total formal care	%	12.4	15.7	17.7	19.3	20.1	23.5
Total informal care	%	29.8	38.3	42.3	37.8	36.4	37.2
Neither formal nor informal care	%	61.5	52.5	48.4	51.2	51.6	48.8
Total(a)	%	100.0	100.0	100.0	100.0	100.0	100.0
Total children	'000	2 897.4	2 887.9	3 003.7	3 085.9	3 102.8	3 122.9

(a) Some children received more than one type of child care; therefore components do not add to totals.

Source: *Child Care, Australia* (4402.0).

### Type of care

The pattern of formal child care varies considerably with age. Among very young children aged under 1 year, 9% received some type of formal care in 1999 (table 7.12). This increased rapidly from age 1 (24%) to age 4 (73%). Long day care was the most common type of care for children under 4 years, attended by 5% of children under 1 and increasing to 26% of 3 year olds. Preschool was the major type of care received by 4 year olds, with 49% of children in this age group attending, followed by long day care (22%). Children aged 5–11 years were less likely to receive formal care (12%) than younger children. Those who did receive formal care were most commonly attending before and after school care programs (8% of this age group).

### Cost of child care to parents

The cost of child care varies considerably according to type of care and hours used. In 1999, the median weekly cost to families using formal child care was \$22 per child (graph 7.13). The majority of these families (79%) used fewer than 20 hours of care per week.

Children attending long day care centres incurred the highest median cost (\$41 per week) followed by family day care (\$26), reflecting the longer median hours of attendance at these types of care (16 hours and 14 hours respectively). Less money was spent on before- and after-school care, occasional care and preschool, the median cost being \$17, \$15 and \$12 per week respectively.

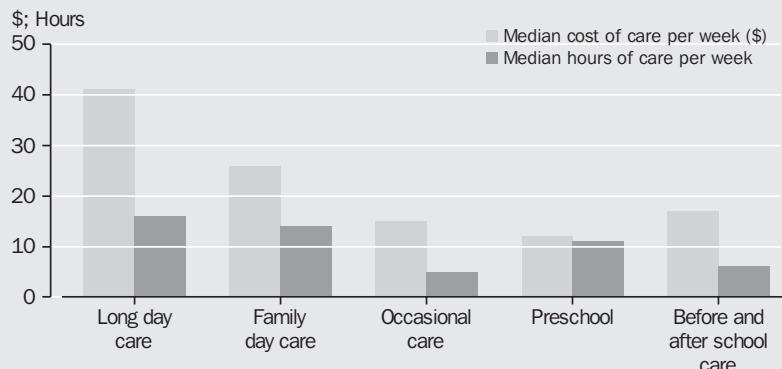
**7.12 TYPE OF CARE BY AGE OF CHILD — 1999**

Type of care	Units	Age of child						
		Under 1	1	2	3	4	5–11	Total
Formal care								
Long day care	%	4.5	14.9	21.3	25.9	21.7	0.7	7.7
Family day care	%	1.9	5.3	7.7	8.4	5.0	0.8	2.8
Occasional care	%	2.2	3.1	4.1	3.8	3.0	0.1	1.4
Preschool	%	—	..	..	22.1	49.2	2.5	7.4
Before and after school care	%	—	—	..	..	0.6	8.2	4.9
Other formal care	%	* 0.4	* 0.8	2.9	2.6	2.7	0.3	0.9
<i>Total formal care(a)</i>	%	8.5	23.5	34.8	58.0	73.2	12.1	23.5
Total informal care(a)	%	37.3	45.7	46.1	43.2	43.1	33.2	37.2
Total children receiving care(a)	%	42.4	59.9	66.3	76.0	83.0	41.2	51.2
Total children	'000	251.8	248.4	254.9	256.7	262.4	1 848.8	3 122.9

(a) Some children received more than one type of child care; therefore components do not add to totals.

Source: *Child Care, Australia, 1999* (4402.0).

**7.13 COST AND HOURS OF FORMAL CHILD CARE — 1999**



Source: *Child Care, Australia, 1999* (4402.0).

Far less was spent on informal care, with the vast majority of children (89%) incurring no cost. This reflects the fact that relatives are the main providers of informal care.

### Balancing work and family

Increasingly, employers acknowledge the need for workers to balance work and family responsibilities, and have introduced a range of provisions over the years to help families do this. These provisions include flexible working hours, permanent part-time work, home-based work and job sharing. In 1999, over half (53%) of families with children aged under 12 years, and with at least one parent employed, used one or more arrangements based on these provisions to help them care for children (table 7.14).

The most frequently used arrangements were flexible hours (33%) and permanent part-time work (23%), both of which have increased slightly since 1993.

Employed mothers were more likely to make use of family friendly work arrangements than employed fathers. In the 925,500 families with employed mothers in 1999, 68% of mothers made use of family friendly work arrangements. In the 1,286,700 families with employed fathers, 27% of fathers made use of such arrangements. The lower proportion of fathers using family

friendly work arrangements largely reflects the higher proportion of employed fathers than of employed mothers with children under 12 years whose partner stays home to care for the children.

**7.14 WORK ARRANGEMENTS USED BY EITHER PARENT TO CARE FOR CHILDREN**

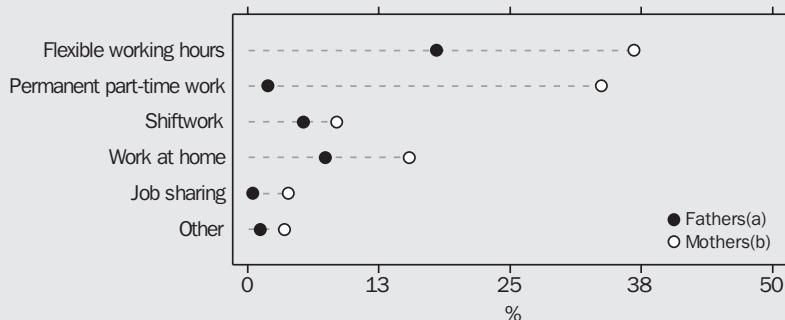
Work arrangements	Units	1993	1999
Flexible hours	%	27.4	32.5
Permanent part-time work	%	17.7	23.0
Shiftwork	%	7.4	9.3
Work at home	%	14.4	13.5
Job sharing	%	2.0	2.7
Other	%	1.5	3.1
Total families where either parent used work arrangements(a)	%	50.5	52.9
Total families with at least one parent employed	'000	1 407.6	1 462.6

(a) Components do not add to total as parents could use more than one type of work arrangement.

Source: *Child Care, Australia, 1999* (4402.0).

Flexible working hours (37%) were the most frequently used arrangement used by employed mothers, followed by permanent part-time work (34%) and working at home (15%). For fathers, the most frequently used arrangements were flexible working hours (18%), working at home (7%) and shiftwork (5%) (graph 7.15).

**7.15 WORK ARRANGEMENTS USED TO CARE FOR CHILDREN — 1999**



(a) Work arrangements used by fathers as a percentage of families with employed fathers.

(b) Work arrangements used by mothers as a percentage of families with employed mothers.

Source: *Child Care, Australia, 1999*.

## Income support programs of the Department of Family and Community Services (FaCS)

Australia has an income support system that is designed as a safety net for people unable to support themselves. Most income support payments are subject to income and assets tests to ensure that payments are targeted on those in most need and that the system remains sustainable and affordable for Australian taxpayers.

To ensure that the purchasing power of payments, and hence the living standards of those reliant on them, do not fall, income support payments other than pensions are adjusted either once or twice a year in line with movements in the Consumer Price Index (CPI). Pension payments are adjusted in line with Male Total Average Weekly Earnings (MTAWE), ensuring that the single pension rate does not fall below 25% of MTAWE.

With the passage of the *Social Services Consolidation Act 1947*, all Acts providing social service benefits were amalgamated into the *Social Security Act 1947*. This Act was repealed in July 1991 and replaced with the *Social Security Act 1991*. In March 1999, the legislative framework governing social service benefits was altered so that payments were made under the *Social Security (Administration) Act 1999*.

Further changes were made from 1 July 2000 as part of the package of measures coming within the 'New Tax System'. At the same time, family-related payments were consolidated and simplified. These payments (Family Tax Benefit, Child Care Benefit, Maternity Allowance and Maternity Immunisation Allowance) are now paid under the *A New Tax System (Family Assistance) (Administration) Act 1999*. In addition, the *A New Tax System (Bonuses for Older Australians) Act 1999* provided for the payment of a one-off, non-taxable, bonus payment of \$300 to any person who on 22 May 2001 was of Age Pension age and receiving a social security pension or benefit.

In the May 2001 budget, the Commonwealth Government announced the \$1.7b Australians Working Together (AWT) package, with measures to be phased in over four years from July 2001. The package is the first step in a planned longer term reform of the social support system, and provides assistance to people of workforce age including job seekers, parents, people with a disability, the unemployed, mature age people, and Indigenous Australians. Initiatives include a Working Credit to encourage people on income support to take up full-time, part-time or irregular casual work, Training Credits, a Literacy and Numeracy Training Supplement, more places in employment services, and initiatives to assist Indigenous Australians. The AWT package also introduced two new programmes: the Personal Support Programme will help those people on payments who face severe or multiple non-vocational obstacles to employment; and the Transition to Work Programme will provide assistance to people who have been away from the workplace for a long time.

The main income support payments provided by the Commonwealth for the financial years from 1997–98 to 2000–01 are listed in table 7.16. Details of the payments in effect in the 2000–01 financial year, together with associated statistics, are presented later in this section.

Most of the Commonwealth income support payments presented in this chapter are available through Centrelink, a statutory agency established to deliver a range of Commonwealth services to the Australian community. It operates under the *Commonwealth Services Delivery Agency Act 1997*. As well as delivering a wide range of government services, Centrelink provides advice about payment entitlements and referrals to Centrelink specialist staff for additional assistance, and may refer customers to other departments, agencies or community organisations, where appropriate. Centrelink has 310 Customer Service Centres and 27 Call Centres around Australia.

**7.16 INCOME SUPPORT PAYMENTS(a)**

	1997–98 \$'000	1998–99 \$'000	1999–2000 \$'000	2000–01 \$'000
<b>Payments for the retired</b>				
Age Pension	13 141 895	13 569 056	14 037 940	15 616 477
Aged Persons Savings Bonus	..	..	..	1 581 231
One-off Payment to Seniors	..	..	..	536 581
Self-Funded Retirees' Supplementary Bonus	..	..	..	582 828
Widow Class 'B' Pension	147 187	105 694	89 849	84 296
Wife Pension (Age)	254 752	243 433	240 751	233 080
Wife Pension (DSP)	599 136	534 069	479 205	446 564
<b>Payments for people with disability or who are sick</b>				
Carer Allowance(b)	..	..	412 334	533 247
Carer Payment	258 474	307 506	369 723	480 944
Child Disability Allowance(b)	248 429	244 896	..	..
Disability Support Pension	4 599 452	4 920 223	5 253 241	5 849 799
Disability Wage Supplement(c)	2 034	..	..	..
Mobility Allowance	41 863	46 137	52 096	59 367
Rehabilitation Allowance(d)	-219	..	..	..
Sickness Allowance	92 684	93 043	83 881	95 554
<b>Payments for the unemployed</b>				
Austudy Payment(e)	..	287 173	253 870	249 258
Fares Allowance(e)	..	675	569	644
Job Search Allowance(f)	-47 105	..	..	..
Mature Age Allowance	443 380	401 698	367 250	352 596
Newstart Allowance(f)(g)	5 804 836	5 370 669	4 954 450	4 885 409
Partner Allowance	532 278	590 185	646 460	728 679
Student Financial Supplement(h)	..	259 745	290 681	161 510
Widow Allowance	180 112	227 289	270 825	324 919
Youth Allowance(g)	..	1 843 498	2 002 830	2 101 915
Youth Training Allowance(g)(i)	158 177	3 699	..	..
<b>Payments for families with children</b>				
Child Care Benefit(j)	..	..	..	1 037 137
Child Support Trust Account(k)	31 638	34 778	4 158	66 265
Child Care Cash Rebate(j)(l)	123 050	117 000	164 447	-14 597
Double Orphan Pension	1 778	1 725	1 779	1 977
Family Allowance(m)	6 363 712	6 391 490	6 573 857	-39 532
Family Tax Benefit(m)	..	..	..	10 076 463
Family Tax Payment(m)	558 735	546 217	531 927	-2 286
Maternity Allowance(n)	183 607	167 085	195 809	217 899
Parenting Allowance(o)	1 570 502	-17 192	..	..
Parenting Payment(o)(p)	1 455 563	5 402 944	5 494 230	5 325 681
Pensioner Education Supplement(e)	..	44 601	49 571	58 248
Sole Parent Pension(o)	2 206 233	-18 274	..	..
<b>Other payments</b>				
Bereavement Allowance	997	734	782	719
Disaster Relief Payment(q)	28	165	..	..
Special Benefit	95 867	99 585	98 704	114 778
States Grants Housing Act 1971(r)	5 500	5 498	5 500	5 500
Unexplained remittances	266	330	42	283
<b>Total Special Appropriations</b>	<b>(s)39 054 839</b>	<b>(s)41 825 371</b>	<b>42 926 761</b>	<b>51 753 433</b>

NOTES: 1. Outlays on Pensions, Allowances and Family Tax Benefits include expenditure on Rent Assistance. Details of Rent Assistance are included in Chapter 8, Housing. 2. Negative values are recoveries from previous years.

(a) Expenditures prior to 1998–99 were recorded on a cash payments basis and are not directly comparable with expenditures recorded from 1998–99 onwards that are on an accrual basis. (b) Carer Allowance replaces Child Disability Allowance and Domiciliary Nursing Care Benefit (transferred from Department of Health and Aged Care on 1 July 1999). (c) Disability Wage Supplement was abolished on 1 January 1998. All recipients were transferred to Disability Support Pension. (d) There have been no new grants of Rehabilitation Allowance since 12 November 1991. (e) Replaces, in part, the former AUSTUDY (Department of Employment, Education, Training and Youth Affairs). (f) Job Search Allowance amalgamated with Newstart Allowance from September 1996. (g) From 1 July 1998, Youth Allowance replaced payments made to certain recipients of the following: Newstart Allowance; Youth Training Allowance; Sickness Allowance and AUSTUDY. (h) Previously administered by the (then) Department of Employment, Education, Training and Youth Affairs until 30 June 1998. (i) Payments made under the Student and Youth Assistance Act 1973. (j) Child Care Benefit replaces Child Care Cash Rebate. (k) Payments made under the Child Support (Registration and Collection) Act 1988 (transferred from the Department of the Treasury in October 1998). These payments are to cover shortfalls in the Child Support Trust Account. (l) Payments made under the Childcare Rebate Act 1993 (transferred from the Department of Health and Family Services in October 1998). (m) Family Tax Benefit replaced Family Allowance and Family Tax Payment on 1 July 2000. (n) Includes Maternity Allowance and Maternity Immunisation Allowance. (o) Parenting Allowance and Sole Parent Pension replaced by Parenting Payment on 20 March 1998. (p) Comprising Parenting Payment (Partnered) and Parenting Payment (Sole Parent). (q) No national disaster declarations were made during 1999–2000 or 2000–01.

(r) Payments made under the States Grants Housing Act 1971. (s) Components do not add to total, as Youth Training Allowance is also included under Newstart Allowance in this table.

Source: Department of Family and Community Services.

## Payments for the retired

### Age Pension

The Age Pension (AP) is a safety net for people who are not able to fully provide financially for themselves in retirement. It is payable to men who are aged 65 years or over, and women who are aged 62 years or over, and who meet Australian residency qualifications. The minimum Age Pension age for women was raised from 61 and 6 months to 62 years on 1 July 2001. The minimum age for women will continue to increase by six months at two year intervals until 1 July 2013, when it will be 65 years. The number of age pensioners at June for the years 1998 to 2001 is shown in table 7.17.

From 1 July 2001, the single basic rate of the Age Pension was \$402.00 per fortnight, and the basic partnered rate was \$335.50 per fortnight (each).

The Wife Pension (Age) provides an income for a woman below Age Pension age who is the partner of an age pensioner, and who is not receiving any other payment in her own right. This payment is gradually being phased out, with new grants of Wife Pension ceasing after 30 June 1995.

However, women already receiving Wife Pension (or who had lodged claims and were entitled to the pension) at that date will continue to receive this payment.

### Pension Bonus Scheme

The Pension Bonus Scheme, introduced on 1 July 1998, provides an incentive for older Australians to remain in the workforce and defer claiming the Age Pension. The scheme is

voluntary and provides a tax-free lump sum to people who have participated in the scheme, when they eventually claim the Age Pension. People must be gainfully employed for at least one year after registering in the scheme to be eligible for the bonus. The Department of Veterans' Affairs runs a similar scheme.

### Widow Class 'B' Pension

Widow B Pension is paid to women below Age Pension age who have lost the financial support of a male partner (through death, separation or divorce), and who do not qualify for Parenting Payment.

No new Widow B Pensions were granted after 20 March 1997. The payment will be gradually phased out by 2005 when women in the eligible age group for Widow B Pension will have reached Age Pension age and have been transferred to the Age Pension.

### Disability Support Pension

(DSP) is the main form of income support available to people with a disability. It is paid to people aged 16 years or over who are permanently blind or have another significant physical, intellectual or psychiatric impairment, and are assessed as being unable either to do any work for at least 30 hours a week at full award wages, or to be retrained for any work for at least two years. For the purposes of DSP, impairment is assessed on the severity of the condition and its impact on normal function in relation to work performance. Table 7.18 shows the number of recipients of DSP at June for the years 1998 to 2001.

**7.17 RECIPIENTS OF AGE PENSION**

	Units	June 1998	June 1999	June 2000	June 2001
Age group (years)					
60–64	no.	187 256	189 410	169 240	173 828
65–69	no.	479 884	478 856	477 118	482 298
70–74	no.	388 474	414 302	436 900	459 226
75 and over	no.	627 003	633 224	646 602	670 202
Males	no.	613 587	634 112	654 557	684 219
Females	no.	1 069 030	1 081 680	1 075 303	1 101 335
Persons	no.	1 682 617	1 715 792	1 729 860	1 785 554
Wife Pension (age)	no.	36 233	32 196	31 406	26 476
Total payments in financial year ending 30 June(a)(b)	\$'000	13 396 647	13 812 488	14 394 469	15 849 422

(a) Expenditures prior to 1998–99 were recorded on a cash payments basis and are not directly comparable with expenditures recorded from 1998–99 onwards that are on an accrual basis. (b) Includes allowances, Rent Assistance, and Wife Pension (Age), and Age Pension paid by the Department of Veterans' Affairs, where applicable.

Source: Department of Family and Community Services.

**7.18 RECIPIENTS OF DISABILITY SUPPORT PENSION**

	Units	June 1998	June 1999	June 2000	June 2001
Age group (years)					
16–19	no.	13 178	14 126	15 025	15 393
20–39	no.	124 712	129 600	133 509	137 769
40–59	no.	311 398	326 987	339 283	352 488
60 and over	no.	104 048	106 969	114 576	118 276
Males	no.	361 539	373 340	382 412	392 354
Females	no.	191 797	204 342	219 981	231 572
Persons	no.	553 336	577 682	602 393	623 926
Wife Pension (DSP)	no.	79 892	68 523	59 935	51 225
Total payments for financial year ending 30 June(a)	\$'000	5 198 588	5 454 292	5 732 446	6 303 773

(a) Expenditures prior to 1998–99 were recorded on a cash payments basis and are not directly comparable with expenditures recorded from 1998–99 onwards that are on an accrual basis.

Source: Department of Family and Community Services.

DSP for people aged 21 years and over is paid at the same rate as the Age Pension and is subject to the same income and assets tests, except for permanently blind recipients, who are not subject to either the income or assets test. Youth rates apply to those aged under 21 years. These are largely tied to Youth Allowance rates, but include a supplement of \$82.00 per fortnight. Youth rates are not subject to parental income or assets tests. A Pharmaceutical Allowance of \$5.80 per fortnight (single or couple combined) is also paid to people receiving DSP.

Disability Support pensioners and other people with disabilities can access rehabilitation, training, labour market programs or labour force re-entry assistance. Job seekers are assessed by Centrelink to determine if they are eligible for Commonwealth employment assistance from either a disability employment service, the Commonwealth Rehabilitation Service (CRS) Australia, or through the Job Network. A job seeker does not have to be receiving a Disability Support Pension to be eligible to receive assistance from a disability employment service or CRS Australia. Eligibility is not based on receipt of income support payments, but on a person's barriers to employment resulting from a disability.

The Wife Pension (DSP) provides an income for a woman who is a partner of a DSP recipient, is aged below Age Pension age and is not receiving any other payment in her own right. This payment is gradually being phased out, with new grants of Wife Pension ceasing after 30 June 1995.

However, women already receiving Wife Pension (or who had lodged claims and were entitled to the pension) at that date will continue to receive this payment.

### **Mobility Allowance**

Mobility Allowance may be paid to people with a disability aged 16 years or over who are permanently, or for an extended period, unable to use public transport without substantial assistance. The person must be:

- engaged in paid work, vocational training or a combination of both for at least 8 hours a week;
- undertaking voluntary work for a community, charitable or welfare organisation for at least 8 hours a week; or
- receiving Newstart Allowance, Youth Allowance or Austudy payment.

From 1 January 2001, the rate of Mobility Allowance was \$61.90 per fortnight. The payment is indexed annually in line with Consumer Price Index movements. A lump sum advance equivalent to six months allowance may be paid once a year.

Payment of Mobility Allowance is not subject to any income or assets test, but cannot be paid to a person who has received a sales tax exemption on a motor vehicle within the previous two years.

## Carer Payment

Carer Payment is an income support payment available to people who are providing constant care or supervision to a person with a disability, medical condition or who is frail aged. The carer must personally provide this level of care or supervision in the private home of the care recipient, but is not required to live with the care recipient. The rate of Carer Payment is the same as for Age Pension.

From 1 July 1998, eligibility for Carer Payment was extended to carers of children under 16 years of age with profound disabilities. The eligibility criteria for this payment focus on the high level of care provided by parents and other carers to maintain comfort, sustain life, or attend to a bodily function that the child with a profound disability cannot manage alone. Table 7.19 shows the number of Carer Payment recipients at June for the years 1998 to 2001.

## Sickness Allowance

Sickness Allowance is paid to people aged at least 21 years (students in receipt of Austudy must be aged at least 25 years to access Sickness Allowance), but below Age Pension age, who are temporarily unable to work or continue with their full-time studies due to illness or injury. To be eligible, the person must have a job or study to which they can return. People who become temporarily incapacitated without a job or study to return to may receive Newstart Allowance.

From 1 July 2001 the basic single rate of Sickness Allowance was \$357.80 per fortnight, and the basic partnered rate was \$322.80 per fortnight for each partner. A Pharmaceutical Allowance of \$5.80 per fortnight (single or couple combined) is payable to Sickness Allowance recipients.

## Carer Allowance

Carer Allowance (CA) is a supplementary payment made to a carer in recognition of the impact that a person's disability has on his or her family and/or carers. It was introduced on 1 July 1999, combining Child Disability Allowance (CDA) with Domiciliary Nursing Care Benefit, which was previously the responsibility of the Department of Health and Aged Care. The rate of CA at 1 July 2001 was \$82.00 per fortnight. CA is not subject to an income or assets test and is not taxable.

To qualify for CA a claimant must be providing daily care and attention to a person with a disability or medical condition, or who is frail aged. The disability or medical condition must be permanent or likely to continue for an extended period. The care must be provided in a private home that is the residence of both the claimant and the person(s) cared for. Qualification may be maintained during periods of hospitalisation, during respite or where the carer and the care recipient are travelling overseas together.

## Payments for the unemployed

### Newstart Allowance

Newstart Allowance (NSA) is paid to people aged 21 years or over, and under the Age Pension age, who are unemployed and actively searching for work.

To qualify for NSA a person is required to be actively seeking, and willing to undertake, suitable paid work, including casual and part-time work (exemptions apply in certain cases, such as when a person is temporarily incapacitated). A person may also qualify if they are undertaking a course of vocational training, participating in a labour market program, or undertaking other agreed activities.

**7.19 RECIPIENTS OF CARER PAYMENT**

Type	Units	June 1998	June 1999	June 2000	June 2001
Carer Payment (Age)	no.	11 740	13 407	15 346	18 097
Carer Payment (DSP)	no.	18 556	21 392	24 500	28 171
Carer Payment (Other)	no.	3 683	5 271	7 704	10 922
<b>Total</b>	<b>no.</b>	<b>33 979</b>	<b>40 070</b>	<b>47 550</b>	<b>57 190</b>
Total payments in financial year ending 30 June(a)	\$'000	258 474	313 883	368 046	478 267

(a) Expenditures prior to 1998–99 were recorded on a cash payments basis and are not directly comparable with expenditures recorded from 1998–99 onwards that are on an accrual basis.

Source: Department of Family and Community Services.

From 1 July 1998, people aged 18 to 24 years and unemployed for at least six months are required to undertake Mutual Obligation (MO) activities, in addition to their job search. MO requires people to look for work more actively and to take part in activities to improve their skills and work habits. It aims to: enhance unemployed people's job prospects and competitiveness in the labour market; promote their involvement with the community that supports them; and facilitate movement from welfare to work. From 1 July 1999, MO requirements were extended to 25 to 34 year olds who have been receiving unemployment benefits for 12 months or more.

From 1 July 2002, MO requirements will be extended to all job seekers aged up to 49 years. Participants are required to undertake Job Search Training after three months of unemployment, another activity after 6 months of unemployment, and annually thereafter.

The rate of payment for NSA depends on several factors, including marital status and income.

Table 7.20 shows the number of recipients of Newstart Allowance at June 2001 and at corresponding points in the preceding three years.

#### 7.20 RECIPIENTS OF NEWSTART ALLOWANCE

	Units	June 1998	June 1999	May 2000	June 2001
SHORT-TERM CUSTOMERS (LESS THAN 12 MONTHS)					
Age group (years)					
Less than 21(a)	no.	62 134	39	28	41
21–34	no.	166 023	136 232	106 866	123 923
35–54	no.	103 087	93 187	80 829	89 770
55–59	no.	13 743	12 834	12 118	12 421
60 and over	no.	6 790	6 941	6 713	6 756
Males	no.	234 551	171 764	143 659	165 451
Females	no.	117 226	77 469	62 895	67 460
Persons	no.	351 777	249 233	206 554	232 911
LONG-TERM CUSTOMERS (12 MONTHS OR LONGER)					
Age group (years)					
Less than 21(a)	no.	41 082	13 197	2 300	54
21–34	no.	172 208	171 196	155 126	132 545
35–54	no.	162 673	163 224	156 842	145 972
55–59	no.	29 880	28 986	28 205	26 430
60 and over	no.	2 192	3 053	3 852	3 092
Males	no.	289 458	273 366	247 366	222 548
Females	no.	118 577	106 290	98 959	85 545
Persons	no.	408 035	379 656	346 325	308 093
TOTAL CUSTOMERS					
Age group (years)					
Less than 21(a)	no.	103 216	13 236	2 328	95
21–34	no.	338 231	307 428	261 992	256 468
35–54	no.	265 760	256 411	237 671	235 742
55–59	no.	43 623	41 820	40 323	38 851
60 and over	no.	8 982	9 994	10 565	9 848
Males	no.	524 009	445 130	391 025	387 999
Females	no.	235 803	183 759	161 854	153 005
Persons	no.	759 812	628 889	552 879	541 004
Total payments in financial year ending 30 June(b)	\$'000	5 757 731	5 370 669	4 954 450	4 918 349

(a) From 1 July 1998, NSA for 16 to 20 year olds (and certain 15 year olds) was replaced by Youth Allowance (YA). Only those people on NSA or Sickness Allowance who were also aged 18 to 20 years at 17 June 1997 (the date of YA announcement), and remained on NSA at 1 July 1998, were able to continue on NSA. (b) Expenditures prior to 1998–99 were recorded on a cash payments basis and are not directly comparable with expenditures recorded from 1998–99 onwards that are on an accrual basis.

Source: Department of Family and Community Services.

### Youth Allowance

On 1 July 1998 the Government introduced Youth Allowance (YA) for young people who are studying, undertaking training, looking for work, or who are temporarily incapacitated. It replaced five payments for young people, namely: Youth Training Allowance, AUSTUDY for students aged 16 to 24 years, Newstart Allowance for the unemployed aged 16 to 20 years, Sickness Allowance for 16 to 20 year olds, and Family Allowance for those secondary students aged 16 and 17 years old who were receiving more than the minimum rate.

YA is now the main income support payment for young unemployed people aged 16 to 20 years, and for full-time students aged from 16 to 24 years. It may also be paid to persons under 16 years of age if exceptional circumstances apply. It can also be paid to young people over 25 where they are continuing a course and were receiving YA immediately prior to turning 25. Since 1 July 1998, YA recipients over 18 years of age who have been unemployed for at least six months, have been required to undertake Mutual Obligation (MO) activities.

In addition to being subject to a personal income and assets test, YA is usually also subject to a parental income and assets test, unless a young person meets the YA independence criteria. To qualify for YA, young people must undertake approved activities, which may include full-time study or a combination of activities such as job search, Work for the Dole, literacy and numeracy courses, part-time education, part-time work or voluntary work. The purpose of this requirement is to help improve a young person's prospects of obtaining employment.

People under 18, who have not completed Year 12 or equivalent, are expected to be in full-time education or training to remain eligible for payment. Exemptions are made for those who are unable to obtain an appropriate training place, have carer responsibilities or are sick, or if other exceptional circumstances apply.

The rate of YA is dependent on whether the person is single or partnered, whether they have children, and whether they live at home or need to live away from home.

Table 7.21 shows the number of recipients of Youth Allowance at June 2001 and at corresponding points in 1999 and 2000.

### Austudy

From 1 July 1998, Austudy payment replaced the AUSTUDY living allowance (formerly paid by the Department of Employment, Education, Training and Youth Affairs). Austudy payment is made to students over 25 years of age whose financial circumstances are such that without financial help, full-time study would not be possible. Austudy payment retains most of the features of the old AUSTUDY.

To be eligible for Austudy a person must be undertaking an approved full-time course at an approved institution. Austudy recipients are considered independent and are not subject to a parental income and assets test. However, they are subject to a personal and partner income test.

The rate of Austudy is dependent on whether the person is single or has a partner, whether they have children, and whether the person is a 'long term income support student'.

**7.21 RECIPIENTS OF YOUTH ALLOWANCE**

	Unit	May 1999	June 2000	June 2001
Youth Allowance (full-time students)	no.	303 747	308 883	308 549
Youth Allowance (other)	no.	84 156	83 071	86 404
<b>Total</b>	<b>no.</b>	<b>387 903</b>	<b>391 954</b>	<b>394 953</b>
Total payments for year ending 30 June(a)	\$'000	1 843 498	2 002 830	2 101 915

(a) Expenditures from 1998–99 onwards are on an accrual basis.

Source: Department of Family and Community Services.

### Mature Age Allowance

The Mature Age Allowance (MAA) is a non-activity tested income support payment which recognises the labour market difficulties faced by some unemployed people who are close to retirement age.

To qualify for MAA from 1 July 1996, a person must have turned 60 years of age and be less than Age Pension age; have no recent workforce experience (defined as at least 20 hours a week for a total of 13 weeks or more in the previous 12 months); and be an Australian resident and currently residing in Australia. A person must also satisfy one of the following eligibility criteria:

- be receiving Newstart Allowance and have been on an income support payment for a continuous period of at least nine months immediately before claiming MAA; or
- have received at least one payment of a Social Security pension, Widow Allowance, Partner Allowance, Sickness Allowance, Department of Veterans' Affairs (DVA) service pension, Austudy payment or Parenting Payment (other than non-benefit Parenting Payment (partnered)) at any time within the 13 weeks immediately before claiming; or
- have previously received MAA.

Until 1 July 1995, Mature Age Partner Allowance was paid to partners of MAA recipients. This payment is gradually being phased out, with no new grants since that date.

Table 7.22 shows the number of recipients of MAA at June 2001 and at corresponding points in the preceding three years.

### Partner Allowance

Since 1 July 1995, Partner Allowance has only been granted to persons born on or before 1 July 1955, who have no dependent children and no recent

workforce experience. It is payable to people with partners in receipt of Newstart Allowance, Sickness Allowance, Youth Allowance, Austudy, Special Benefit, Age Pension, Disability Support Pension, Disability Wage Supplement, Mature Age Allowance or a Department of Veterans' Affairs service pension.

Partner Allowance is a non-activity tested payment subject to the income and assets test that applies to other allowances such as NSA.

Table 7.22 shows the number of recipients of Partner Allowance at June 2001 and at corresponding points in the preceding three years.

### Widow Allowance

Widow Allowance (WA) is a non-activity tested income support payment. It recognises the labour market difficulties faced by some single older women who may have previously depended on the support of their partner.

WA is available to women over 50 years of age who were widowed, divorced or separated (including separated de facto) after the age of 40. To qualify for WA, a woman must have no recent workforce experience (defined as at least 20 hours a week for a total of 13 weeks or more in the previous 12 months).

WA is paid at the same rate as Newstart Allowance.

WA will be phased out from 1 July 2005, with new grants only to be made to women born on or before 1 July 1955.

Table 7.22 shows the number of recipients of Widow Allowance at June 2001 and at corresponding points in the preceding three years.

**7.22 RECIPIENTS OF OTHER LABOUR MARKET RELATED PAYMENTS**

	Units	June 1998	May 1999	June 2000	June 2001
Mature Age Allowance(a)	no.	55 132	47 360	42 106	39 296
Partner Allowance	no.	77 746	81 804	89 580	92 438
Widow Allowance	no.	24 656	27 822	32 982	36 908
Mature Age Allowance(a)(b)	\$'000	443 380	401 698	367 250	352 596
Partner Allowance(b)	\$'000	532 278	590 185	646 460	728 679
Widow Allowance(b)	\$'000	180 112	227 289	270 825	324 919

(a) Mature Age Allowance includes Mature Age Partner Allowance recipients. (b) Expenditures prior to 1998–99 were recorded on a cash payments basis and are not directly comparable with expenditures recorded from 1998–99 onwards that are on an accrual basis.

Source: Department of Family and Community Services.

## Payments for families with children

On 3 July 2000, the Commonwealth Government launched the Family Assistance Office (FAO) to provide integrated payments, services and assistance to Australian families. The FAO offers families more choice by enabling them to deal with a single agency and one set of rules in over 560 locations around Australia. A Family Assistance Office has been set up in all Centrelink Customer Service Centres, Medicare Offices and Australian Tax Office (ATO) access offices and enquiry sites to deliver the Government's payments for families.

The Department of Family and Community Services (FaCS) has overall responsibility for the FAO.

### Family Tax Benefit

The reforms to family assistance from 1 July 2000 reduced ten different family payments and tax rebates to just two (Family Tax Benefit, Parts A and B) and introduced a consistent way of determining customers' entitlements. In addition, rates were increased and the income test was made more generous.

Family Tax Benefit Part A provides assistance to help families with the cost of raising children. It is paid to families with dependent children up to the age of 21, and/or older children between the ages of 21 to 24 years who are studying full-time (and not receiving Youth Allowance or a similar payment).

Family Tax Benefit Part B provides extra assistance for families with only one main income earner, particularly those with children aged under five years. It is paid to families for children up to the age of 16, and for children aged between 16 and 18 years who are studying full-time.

Both payments are administered by the FAO and are available either as fortnightly payments through Centrelink, or as a lump sum or reduced tax instalment deductions through the tax system.

Table 7.23 shows the number of family recipients of Family Tax Benefit at 30 June 2001 and the number of children involved.

### 7.23 RECIPIENTS OF FAMILY TAX BENEFIT AND RELATED PAYMENTS(a)

	Families	Children
	no.	no.
<b>Family Tax Benefit Part A</b>		
Maximum rate (with income support payment)	509 785	962 202
Maximum rate (without income support payment)	127 231	243 831
Broken rate	406 105	874 747
Base rate	725 392	1 333 047
Below base rate	31 193	68 463
Total	1 799 706	3 482 290
<b>Family Tax Benefit Part B</b>		
Maximum rate (for sole parents)	559 359	951 225
Maximum rate (for couples)	289 965	622 654
Broken rate (for couples)	331 716	702 254
Total	1 181 040	2 276 133
Maternity Allowance(b)	210 120	214 355
Maternity Immunisation Allowance(b)	203 939	207 547
Double Orphan Pension	1 242	1 630

(a) Number of recipients at 30 June 2001 unless subject to footnote (b). (b) The number of customers who received a payment at any time during the financial year 2000–01.

Source: Department of Family and Community Services.

### Child Support Scheme

The Child Support Scheme is a joint FaCS and Attorney-General's Department scheme, administered by the Child Support Agency (CSA).

The Child Support Scheme aims to improve financial support for children of separated parents by obtaining contributions from paying parents for the support of their children, in accordance with their capacity to pay. People may choose to collect child support privately, or have it collected by the CSA. Parents are required to take reasonable steps to obtain child support if they wish to receive Family Tax Benefit Part A at more than the basic rate.

In 2000–01, the total amount of child support transferred between parents was \$1,400m, which benefited over one million children.

### Maternity Allowance

Maternity Allowance is a one-off lump sum amount paid at around the time of the birth of a child to help meet the costs associated with the birth. To qualify for Maternity Allowance, a woman must be eligible for Family Tax Benefit Part A within thirteen weeks of the child being born. In the case of adopted children, claimants must be eligible for Family Tax Benefit Part A within thirteen weeks of the child being entrusted into their care, and the child must be under 26 weeks old at the date of the placement.

From 1 July 2001, the rate of Maternity Allowance was \$780.00. In the case of multiple births, Maternity Allowance is paid for each child.

Table 7.23 shows the number of recipients of Maternity Allowance at any time in 2000–01 and the number of children involved.

### **Maternity Immunisation Allowance**

Maternity Immunisation Allowance is a one-off lump sum paid for children who have been fully immunised before their second birthday. A child can be exempt from the immunisation requirements for medical reasons, or if a parent or guardian conscientiously objects. Claimants must have been paid Maternity Allowance for the child or be eligible for Family Tax Benefit Part A when the child meets the immunisation or exemption requirements. From 1 July 2001, the rate of Maternity Immunisation Allowance was \$208.00.

Table 7.23 shows the number of recipients of Maternity Immunisation Allowance at any time in 2000–01 and the number of children involved.

### **Child Care Benefit**

Child Care Benefit (CCB) helps families with the cost of child care by subsidising the cost of child care across a range of income levels, with financial assistance proportionately higher for lower income families.

Eligible families using approved child care services can choose how to receive their CCB. Families can have the benefit paid directly to the child care service to reduce their ongoing fees. Alternatively, they can receive the benefit as a lump sum refund at the end of the financial year. Families using registered carers (i.e informal care provided by a friend or neighbour), rather than formal care in an approved service, are eligible for the minimum rate of CCB. This is paid for up to 50 hours per week of work-related child care.

### **Double Orphan Pension**

The Double Orphan Pension (DOP) is a non-means-tested payment for children whose parents or adoptive parents are both deceased. It is also payable where at least one parent is

deceased and the child cannot have contact with the other parent (e.g. because that parent is a long term prisoner or their whereabouts are unknown). The payment can also be made to refugee children under certain circumstances.

From 1 July 2001, the rate of Double Orphan Pension was \$41.10 per fortnight.

Table 7.23 shows the number of recipients of Double Orphan Pension at 30 June 2001 and the number of children involved.

### **Parenting Payment**

The Parenting Payment was introduced in March 1998, incorporating the previous Sole Parent Pension and Parenting Allowance. It provides income support to people who are the primary carer of a dependent child. The payment has two streams:

- Parenting Payment (single) which is payable to lone parents; and
- Parenting Payment (partnered) which is payable to one of the parents in a couple.

Prior to 1 July 2000, Parenting Payment (partnered) included a component known as Basic Parenting Payment. This was income tested only on the income of the recipient, and was not assets tested. From 1 July 2000, this component of the payment was subsumed by Family Tax Benefit Part B.

To qualify for the Parenting Payment, a person must:

- care for a dependent child or children aged under 16 years; and
- have income and assets under certain amounts.

Table 7.24 shows the number of recipients of Parenting Payment (Single) at June 2001 and at corresponding points in the preceding three years. Table 7.25 provides corresponding information for the recipients of Parenting Payment (Partnered).

**7.24 RECIPIENTS OF PARENTING PAYMENT (SINGLE)(a)**

	Units	June 1998	June 1999	June 2000	June 2001
Age group (years)					
Under 20	no.	10 478	10 676	10 943	10 580
20–29	no.	114 570	116 760	118 655	121 752
30–39	no.	155 740	159 497	163 634	175 359
40–49	no.	80 626	86 298	91 142	102 277
50–59	no.	10 435	11 258	12 383	14 005
60 and over	no.	437	453	557	643
Males	no.	25 546	27 128	28 463	32 429
Females	no.	346 740	357 814	368 851	392 187
Persons	no.	372 286	384 942	397 314	424 616
Total payments in financial year ending 30 June	\$'000	3 079 547	3 266 957	3 407 804	3 855 241

(a) Expenditure from 1998–99 onwards is reported on an accrual basis.

Source: Department of Family and Community Services.

**7.25 RECIPIENTS OF PARENTING PAYMENT (PARTNERED)(a)**

	Units	June 1998	June 1999	June 2000	June 2001(b)
Non-benefit Parenting Allowance	no.	407 345	394 966	377 648	..
Benefit Parenting Allowance	no.	238 386	227 988	218 189	214 721
<i>Total</i>	no.	645 731	622 321	595 837	214 721
Total payments in financial year ending 30 June	\$'000	2 152 752	2 135 987	2 086 426	1 465 095

(a) Expenditure from 1998–99 onwards is reported on an accrual basis. (b) From 1 July 2000, the basic component of Parenting Payment (partnered) was incorporated into Family Tax Benefit. As a result, 375,233 customers were transferred from Parenting Payment (partnered) to Family Tax Benefit Part B.

Source: Department of Family and Community Services.

**Pensioner Education Supplement**

The Pensioner Education Supplement (PES) aims to assist pensioners with the costs associated with study. It is available to both full-time students and those approved to undertake at least 25% of a full-time study load. PES is a non-taxable, non-income and assets-tested payment of \$62.40 or \$31.20 per fortnight (depending on study load or payment type), available to certain FaCS and Department of Veterans' Affairs (DVA) pensioners who undertake study. At 30 June 2001, there were 45,478 pensioners receiving PES.

**Education Entry Payment**

Customers who receive PES are eligible for a once a year Education Entry Payment (EdEP) of \$208.00. This is an additional amount to help with the cost of study. Certain other income support recipients undertaking approved study, who are not eligible for PES, may be eligible for an EdEP. A total of 78,226 customers received an EdEP during 2000–01.

**Other payments****Special Benefit**

Special Benefit (SpB) may be granted to people who do not qualify for any other income support payment, are unable to earn a sufficient livelihood for themselves and their dependants and are in financial hardship. To qualify, a person must be in Australia and an Australian resident, or hold an approved visa. The rate at which Special Benefit is payable is discretionary, but cannot exceed the Newstart, Youth Allowance or Austudy rate that would be paid to the person.

Payment of Special Benefit is subject to an income test, an assets test and an available funds test. The assets test is the same as that applying to Newstart Allowance customers, but both the income test and the available funds test are specific to Special Benefit.

### Ancillary payments

Ancillary payments provide targeted financial assistance to income support recipients to help them meet expenses associated with a range of specific circumstances. These circumstances include residing in remote areas, having a telephone connected, the purchase of prescription pharmaceuticals, and financial adjustment following the death of a partner, child or care recipient.

Each of the ancillary payments has a different set of qualifications attached and a person's eligibility for payment depends upon their prior eligibility for income support. The amount of expenditure on each income support payment reported in this chapter also includes any ancillary payments made as part of that payment.

### Bereavement Allowance

Bereavement Allowance is a short-term payment for recently widowed persons, both male and female, without dependent children, who were not previously recipients of social security pensions or benefits. The availability of Bereavement Allowance allows the claimant a period of adjustment to make funeral arrangements, settle financial affairs, seek employment and determine an appropriate longer term social security payment.

Bereavement Allowance is paid at the Age Pension rate and is generally payable for up to 14 weeks from the date of the partner's death.

### Concessions

Centrelink issues concession cards on behalf of FaCS to people who receive an income support payment. Concession cards may also be claimed by low income earners. The available cards are the Pensioner Concession Card, the Health Care Card and the Commonwealth Seniors Health Card.

The Commonwealth's primary purpose in issuing a concession card is to assist the cardholder and the cardholder's family with the cost of prescription medicines. State and local governments may provide cardholders with a reduction in household rates, energy bills, public transport fares, motor vehicle registration and a range of other health, educational and recreational concessions. Some private organisations also provide concessions on various goods and services to holders of Commonwealth concession cards.

### International agreements and payment of pensions abroad

Pensions for old age, severe disability and widowhood can usually be paid abroad indefinitely. Pensions for some other contingencies can be paid outside Australia for periods of up to 26 weeks (the period was changed from 12 months to 26 weeks on 20 September 2000), except in New Zealand where the recipient will normally have to apply to the New Zealand Government for payment. At June 2001, Australia was paying 55,856 pensions to residents and former residents who were absent from Australia for more than 12 months. At December 2000, other countries' social security systems were making over 273,000 similar payments to Australian pensioners.

Australia has social security agreements with Austria, Canada, Cyprus, Denmark, Ireland, Italy, Malta, New Zealand, Portugal, Spain, and the Netherlands. The agreement with the United Kingdom terminated on 1 March 2001 and no new agreement has been signed. It is expected that a new agreement with New Zealand and agreements with Germany and the United States will be implemented in July 2002.

## Community support programs of the Department of Family and Community Services

### Family and children's services

#### Family Relationships Services Program

Under the Family Relationships Services Program (FRSP), community organisations provide family relationships services to men, women and children across Australia, using education, mediation, therapy, skills training and counselling.

The main types of services funded under the FRSP are: Family Relationships Counselling; Family Relationships Mediation; Children's Contact Services; Family Relationships Education; Family Relationships Skills Training; and Adolescent Mediation and Family Therapy.

#### Child Care Support

Child Care Support helps families to balance their work and parenting roles and to participate in the economic and social life of the community, through ensuring the availability of high quality, flexible child care services. Child Care Support also promotes early intervention and prevention initiatives to assist vulnerable families and children.

Child care services include centre-based long day care, family day care, in-home care, before and after school hours care, vacation care, occasional care, multi-functional services and Multi-functional Aboriginal Children's Services. Flexible and innovative services that can combine various models of care are also available to meet the needs of families living in rural and regional areas.

There were 457,800 Commonwealth funded places at December 2000.

### **Quality assurance for child care services**

Quality Assurance systems have been established to ensure good quality care for all children in long day care centres and family day care schemes. The systems focus on outcomes for children and build on child care centre licensing requirements of the States and Territories. Key quality areas include the development and learning opportunities for children and the relationships between care providers, children, families and child care centre management.

The National Childcare Accreditation Council is funded by the Commonwealth under this program to administer these systems. Participation is a requirement for ongoing Commonwealth funding approval. A quality assurance system for care outside school hours is currently being developed with expected implementation from July 2002.

### **Parenting and Early Childhood Intervention initiatives**

Under the parenting and early childhood initiatives, funding is provided for Playgroup Associations, Indigenous child care services and Indigenous parenting and family wellbeing projects. The initiatives support the provision of practical assistance to families with babies and young children; recognise and support the needs of carers at home with children; and provide a wide range of activities in the areas of health, welfare, education and child care.

### **Child abuse prevention**

Child abuse prevention initiatives involve research, community education and national data collection activities. These include:

- establishment of the Australian Council for Children and Parenting (replacing the National Council for Prevention of Child Abuse). A key initiative is a national communications campaign on parenting children aged between 0 and 5 years;

- support for the National Abuse Prevention Awards;
- the National Child Protection Clearinghouse which disseminates information on child protection activities, and research to professionals and organisations working in this field;
- early intervention parenting projects which provide grants for activities to support parents and prevent child abuse; and
- development of the National Plan of Action Against Commercial Sexual Exploitation of Children.

### **Jobs, Education and Training Program**

The Jobs, Education and Training (JET) program is a joint program of the Department of Family and Community Services (FaCS); the Department of Employment, Workplace Relations and Small Business (DEWRSB) and the Department of Education, Training and Youth Affairs (DETYA). FaCS has primary responsibility for overall program management and Centrelink has responsibility for delivery of the program.

JET is a voluntary program that assists with skill development and aiding entry or re-entry into the paid workforce. The types of assistance provided include: development of a plan to achieve labour market readiness; access to education, training and employment assistance; referrals to government and community services; and child care assistance.

People receiving Parenting Payment, Widow Allowance, Partner Allowance, Widow Class B Pension and Carer Payment, and some Special Benefit recipients, are eligible to participate in the JET program.

### **Youth Activity Services**

The Youth Activity Services (YAS) program aims to keep young people engaged with their community. Under the program, in 2000–01 some \$4m was distributed to about 93 sponsors throughout Australia to provide a range of innovative activities, generally after school hours, for young people aged 11 to 16 in disadvantaged areas. An additional \$1.8m a year is distributed to 83 sponsors for the employment of part-time family support workers (Family Liaison Workers), to provide practical support and guidance to young people aged 11 to 16 and their families, in dealing with difficulties such as family conflict and other issues affecting their wellbeing as a family.

### **Reconnect Program**

The Reconnect Program is a youth homelessness early intervention program based on the recommendations of the Youth Homelessness Taskforce. Reconnect aims to improve the level of engagement of homeless young people, or those at risk of homelessness, with their families, work, education, training and the community. In July 2001, 89 services were operating and a further 11 were being established through community development processes. The Reconnect Program receives \$20m funding annually.

### **Supported Accommodation Assistance Program**

The Supported Accommodation Assistance Program (SAAP) is a joint Commonwealth and State/Territory program providing services to people who are homeless or at risk of being homeless.

SAAP is administered on a day to day basis by State and Territory Governments which have service agreements with community organisations and local governments for services such as refuges, shelters and halfway houses, and also for referral, counselling and advocacy services. About 1,200 service outlets are funded under SAAP.

The Commonwealth has allocated over \$800m until 2004–05 for the continuation of SAAP. The Commonwealth's contribution to SAAP over the next five years includes over \$115m for new or expanded services and program improvements.

For further information on crisis accommodation see the section *Crisis accommodation* in *Chapter 8, Housing*.

### **Emergency Relief Program**

The Emergency Relief Program provides grants to a range of religious, community and charitable organisations to help them provide emergency financial assistance to individuals and families in financial crisis. About 900 organisations, operating almost 1,200 outlets, are currently funded through the program. Funding for 2000–01 is over \$26m.

### **Strengthening and supporting families coping with illicit drugs**

In the 1999–2000 Budget, the Commonwealth Government announced a measure to assist communities and community groups to provide support to families affected by illicit drug use. This is part of the National Illicit Drug Strategy.

Funding of \$11m over four years has been provided to FaCS to administer a range of early intervention and outreach strategies for families dealing with drug problems. The funds are provided to State and Territory Governments to purchase services from community based organisations.

### **Stronger Families and Communities Strategy**

The Stronger Families and Communities Strategy aims to strengthen communities through investing in prevention, early intervention and capacity building.

Commencing in 2000–01 the strategy provides \$240m over four years, for nine specific initiatives which are designed and driven by communities themselves in partnership with government:

- Stronger Families Fund (\$40m);
- early intervention, parenting and family relationship support (\$47.3m);
- greater flexibility and choice in child care (\$65.4m);
- longitudinal study of Australian children (\$6.1m);
- potential leaders in local communities (\$37.1m);
- skills development program for volunteers and International Year of the Volunteer (\$15.8m);
- local solutions to local problems (\$15.4m);
- Can-Do communities (\$5.2m); and
- communication strategy (\$8m).

### **Family and Community Networks Initiative**

The Family and Community Networks Initiative (FCNI) is a four year pilot program running to June 2002. The principal aims of the initiative are: to improve access to information and services relevant to families and community organisations; and to enhance the capacity of communities, government agencies and businesses to work together more effectively to address the needs of families and communities.

The budget for the FCNI is \$8.6m over four years.

### **Community Business Partnership**

The Community Business Partnership has been established to develop and promote a culture of corporate social responsibility in Australia, through advocacy, facilitation and recognition. The initiative aims to encourage business and communities to develop strategic partnerships to create stronger and more self-reliant communities. The Commonwealth has allocated \$13.4m over the four years from 1999 to 2002 to this initiative.

### **Volunteer Management Program**

The purpose of the Volunteer Management Program is to enhance the operation of family and community services that involve volunteers by increasing the number of effectively trained and placed volunteers. The program funds 25 Volunteer Resource Centres, including 17 regional agencies, to 30 June 2002, providing volunteer matching and referral services throughout Australia. The 2001–02 budget for the Volunteer Management Program is \$1.5m.

### **Voluntary Work Initiative**

The purpose of the Voluntary Work Initiative is to improve the takeup and effectiveness of voluntary work among unemployed customers in receipt of Newstart or Youth Allowance. It is also a means of assisting Newstart and Youth Allowance recipients to meet their activity test requirements. Initiatives are also being developed that aim to increase takeup by Indigenous customers and those with a multicultural background. Volunteering Australia manages the scheme on behalf of the Department of Family and Community Services. Funding for 2001–02 is \$1.6m.

### **National Skills Development for Volunteers Program**

This program aims to strengthen the volunteer capacity in the community by providing training to volunteers in human services which focus on improving skills in the areas of counselling, working with people who have a disability, interviewing techniques, and the financial management of voluntary organisations. Funding for 2001–02 is \$2m.

### **Carers with a disability**

Caring is a culturally defined response to a need arising in the family or community for assistance and support to its members. In its broadest sense, caring encompasses many of the daily interactions that maintain and enhance human relationships. People can provide care to others in any role they play, whether it be as parent, child, neighbour or care professional. The 1998 Survey of Disability, Ageing and Carers identified over 2.2 million carers aged 15 years and over, comprising approximately 15% of all people (aged 15 and over) living in households. Of the carers identified, one in five (447,900) were primary carers — people who provide the most assistance with one or more of the core activities of communication, mobility or self care (table 7.26).

The likelihood of having a disability increases with age, as does the chance of becoming a carer. Therefore it is not surprising that carers are nearly twice as likely to have a disability as those who are not carers. Some 39% (176,900) of primary carers aged 15 and over had a disability (table 7.27), compared with only 19% of non-carers. The proportion of primary carers with a disability increased with age, from 29% for those aged 15 to 44, to 56% for primary carers aged 65 and over.

Many carers are older people, who may provide care as part of a reciprocal arrangement. Of the primary carers who had a disability, some 41,500 (23%) had a profound or severe core activity restriction. This means that they sometimes or always needed assistance with at least one core activity task.

**7.26 ALL PERSONS(a), Carer Status by Age Group and Whether Has a Disability — 1998**

Age group	Primary carer '000	Other carer '000	All carers '000	Not a carer '000	Total '000
WITH A DISABILITY					
15 to 44	45.6	157.5	203.1	761.8	964.9
45 to 64	77.6	224.9	302.5	799.3	1 101.8
65 and over	53.7	176.0	229.7	833.6	1 063.3
<b>Total 15 and over</b>	<b>176.9</b>	<b>558.4</b>	<b>735.3</b>	<b>2 394.6</b>	<b>3 130.0</b>
ALL PERSONS					
15 to 44	157.7	835.4	993.1	7 427.4	8 420.6
45 to 64	193.5	634.8	828.3	3 206.2	4 034.4
65 and over	96.7	304.3	401.0	1 703.4	2 104.4
<b>Total 15 and over</b>	<b>447.9</b>	<b>1 774.5</b>	<b>2 222.4</b>	<b>12 337.0</b>	<b>14 559.4</b>

(a) Aged 15 and over, living in households.

Source: ABS data available on request, Survey of Disability, Ageing and Carers 1998.

**7.27 ALL PRIMARY CARERS(a), Disability Status by Age Group — 1998**

Age of primary carer	Core activity restriction(b)		All with disability(c) '000	No disability '000	Total '000
	Profound/severe '000	Moderate/mild '000			
15 to 44	9.3	26.5	45.6	112.1	157.7
45 to 64	18.5	44.3	77.6	115.9	193.5
65 and over	13.7	34.8	53.7	43.0	96.7
<b>All primary carers(a)</b>	<b>41.5</b>	<b>105.6</b>	<b>176.9</b>	<b>271.0</b>	<b>447.9</b>

(a) Aged 15 and over, living in households. (b) Core activities comprise communication, mobility and self care. (c) Includes those with only a schooling or employment restriction, and those who do not have a specific restriction.

Source: ABS data available on request, Survey of Disability, Ageing and Carers 1998.

In 1998, 43% (193,500) of primary carers were aged between 45 and 64 years. Carers in this age group are potentially providing care for family member/s across a span of three generations, covering their partner, children and/or aged parents. A person in this age group is most likely to be caring for a parent, whereas older carers (aged 65 years or over) were normally caring for a spouse or partner (*Caring in the Community, 1998* (4436.0), p.9).

Primary carers with a disability were more likely to live with the main recipient of their care (83%) than primary carers without a disability (76%). Of the 352,200 primary carers living with their main recipient of care, 58% (204,700) were caring for someone with a profound restriction (table 7.28). Some 43% (88,000) of these primary carers themselves had a disability, including 15,800 primary carers whose own level of disability was profound or severe.

A person's own level of disability may impact on their capacity to cope with caring commitments. While 32% of primary carers with a moderate or mild disability said they derived satisfaction from their caring role, only 22% of primary carers with a profound or severe restriction reported a sense of satisfaction (table 7.29).

The most commonly reported negative effects of caring were weariness or lack of energy (31%) and worry or depression (29%). Primary carers with a profound or severe restriction were most likely to report negative effects (71%), compared with primary carers whose own restriction was moderate or mild (50%), or primary carers without a disability (50%).

**7.28 ALL PRIMARY CARERS(a), Disability Status by Living Arrangement and Main Recipient's Disability Status — 1998**

Living arrangement	Core activity restriction(b)				
	Profound/severe	Moderate/mild	All with disability(c)	No disability	Total
	'000	'000	'000	'000	'000
Primary carers whose main recipient of care lives with them					
Disability status of main recipient					
Profound	15.8	57.1	88.0	116.7	204.7
Severe	12.9	27.9	51.0	73.8	124.8
Moderate/mild	**2.3	*4.5	*7.0	12.4	19.4
Total whose main recipient lives with them(d)	31.6	90.1	147.3	204.9	352.2
Primary carers whose main recipient of care lives elsewhere					
All primary carers(a)	9.9	15.6	29.6	66.1	95.8
All primary carers(a)	41.5	105.6	176.9	271.0	447.9

(a) Aged 15 and over, living in households. (b) Core activities comprise communication, mobility and self care. (c) Includes carers with only a schooling or employment restriction, and those who do not have a specific restriction. (d) Includes recipients with only a schooling or employment restriction, and those who do not have a specific restriction.

Source: ABS data available on request, Survey of Disability, Ageing and Carers 1998.

**7.29 ALL PRIMARY CARERS(a), Disability Status by Effects of Caring — 1998**

Effects of caring	Core activity restriction(b)				
	Profound/severe '000	Moderate/mild %	All with disability(c) '000	No disability %	
Feels satisfied	9.3	22.5	33.7	31.9	52.7
Experiencing negative effects					
Feels weary/lacks energy	21.4	51.5	37.8	35.8	70.2
Often worried or depressed	19.2	46.3	30.6	29.0	60.8
Often feels angry or resentful	*8.6	*20.7	19.3	18.2	34.6
Has a stress-related illness	*7.0	*16.8	15.4	14.6	29.0
All experiencing negative effects(d)	29.7	71.4	52.6	49.8	98.9
All affected(d)	37.8	91.0	80.0	75.7	141.7
None of these effects	**2.2	**5.2	20.3	19.2	26.3
Total(e)	41.5	100.0	105.6	100.0	176.9
					100.0
					271.0
					100.0

(a) Aged 15 and over, living in households. (b) Core activities comprise communication, mobility and self care. (c) Includes those with only a schooling or employment restriction, and those who do not have a specific restriction. (d) Total is less than the sum of the components as a person may report more than one effect. (e) Includes not stated.

Source: ABS data available on request, Survey of Disability, Ageing and Carers 1998.

## Disability programs

### People with disabilities

The *Disability Services Act 1986* was introduced to expand opportunities for the participation of people with disabilities. Under the Act, the Commonwealth Government provides grants for the provision of services to support people with disabilities, particularly in the labour market.

Under the Commonwealth/State Disability Agreement, the Commonwealth has responsibility for the provision of employment

services for people with disabilities. Disability employment services assist people with disabilities in job search and job placement, and provide individualised on-the-job training and support. The Commonwealth also provides funds to assist the States and Territories in the planning, policy setting and management of accommodation and other related services for people with disabilities. Areas such as advocacy and research and development continue to be a responsibility of both levels of government.

In 1994 the Commonwealth Disability Strategy was adopted as a ten-year policy and planning framework for Commonwealth government departments and authorities, to improve access to their programs, services and facilities for people with disabilities. The Strategy was adopted in response to the *Commonwealth Disability Discrimination Act 1992*, which makes discrimination on the grounds of disability unlawful.

## Aged care programs of the Department of Health and Aged Care

### National Strategy for an Ageing Australia

The Commonwealth Government, in conjunction with State Governments and community organisations, has developed a National Strategy for an Ageing Australia. The strategy provides a framework for meeting the needs of Australians as they age. It focuses on:

- health;
- independence and self provision;
- employment;
- care; and
- lifestyle and community support.

### Residential Aged Care Program

The aim of the Residential Aged Care Program is to enhance the quality of life of older Australians through support for the provision of a cohesive framework of high quality and cost effective residential care services for frail older people.

Aged care places are allocated to people aged 70 years and older.

Recurrent funding is available for each person in a residential care setting. The funding depends on the care needs of the resident. Each aged care home that provides care is required to meet specific care standards and to be accredited by the Aged Care Standards and Accreditation Agency (ACSA) in order to receive Commonwealth government funding. Commonwealth government expenditure on residential aged care in 2000–01 is shown in table 7.30.

## Community Care Programs

### Home and Community Care (HACC) Program

The HACC Program is a joint Commonwealth/State cost-shared program which provided \$931m nationally in 2000–01 to service provider organisations. Of the total, the Commonwealth made available \$567m or 60%, the States and Territories providing the remainder.

The Commonwealth provides funding for HACC, but the day-to-day administration, priority setting and approval of project allocations is the responsibility of the State/Territory Governments.

The aim of the HACC Program is to provide basic maintenance and support services to enable frail older people, and younger people with disabilities, to remain living in the community and to prevent premature admission to residential care. HACC funded services also assist the carers of these groups. The types of HACC funded services available include home maintenance and modification, as well as home help, food services, personal care, community nursing, transport and respite care.

### Commonwealth Carelink Program

The Commonwealth Carelink Program was launched in April 2001 to assist in improving the coordination of information for people requiring community care. Commonwealth Carelink Centres will enable care professionals, including general practitioners, other service providers, individuals and their carers to gain easy access to information about the range of agencies in their local region which provide community and aged care services (via a single contact point).

### Community Aged Care Packages Program

Community Aged Care Packages are funded by the Commonwealth to provide personal care services for people in the community with complex needs who may otherwise require entry to long-term residential care.

Service providers use a case management approach to develop and monitor care delivery to older people. One of the great benefits of the Community Aged Care Packages Program is its flexibility in service delivery to meet individual needs. This flexibility enables people to receive assistance with eating meals, using the telephone, personal and domestic care, and transport.

**7.30 COMMONWEALTH EXPENDITURE ON RESIDENTIAL AGED CARE — 2000–01(a)**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Residential care (recurrent expenditure)	1 360.0	903.4	638.0	357.5	301.4	109.5	11.4	36.5	3 717.8
Residential care (capital expenditure)	8.4	8.3	3.4	2.0	1.2	1.4	2.7	0.6	28.3

(a) Includes expenditure by the Department of Health and Aged Care and the Department of Veterans' Affairs, in accrual terms.

(b) Totals for Australia include national expenditure not included under individual States and Territories, namely \$0.082m for recurrent expenditure and \$0.35m for capital expenditure.

Source: Department of Health and Aged Care.

At June 2001 there were some 24,400 packages approved under the program. Total cash expenditure for 2000–01 was approximately \$192m.

### **Aged Care Assessment Program (ACAP)**

The Commonwealth provides grants to State and Territory Governments specifically to operate Aged Care Assessment Teams (ACATs).

In 2000–01, the Commonwealth Government contributed \$37.8m for the operation of 124 ACATs throughout Australia, as well as an evaluation unit in each State.

ACATs are teams of health professionals who provide expert assessment and advice. The main professional groups represented on ACATs are geriatricians, social workers, nurses, physiotherapists, occupational therapists, psychologists and psychogeriatricians.

ACATs assess the whole care needs of an individual, using a multi-disciplinary and multi-dimensional approach. As part of the holistic assessment process, a person's medical, physical, social, psychological and restorative care needs are assessed before a care approval is made. ACATs are also well positioned to provide advice on aged care services and to act as an interface between aged care services and the health care system.

Clients need to be assessed as eligible by an ACAT before they can receive a Commonwealth subsidy for residential care, a Community Aged Care Package, or flexible care.

### **Assistance with Care and Housing for the Aged (ACHA) Program**

The ACHA Program assists frail, low-income older people who are renting, are in insecure or inappropriate housing, or are homeless, to remain in the community by accessing suitable housing linked to community care.

The Commonwealth contributes recurrent funds to organisations that provide support through paid workers and/or volunteers, assisting clients to access and be maintained in secure and affordable housing. The primary role of program workers is to link clients to appropriate mainstream housing and/or care services.

In 2000–01 the program funded 46 projects nationally from an allocation of \$2.6m. The funding for each project varies according to identified community need, the number of staff employed by individual services and the tenure of employment (i.e. full-time or part-time). Most projects are located in inner city areas where there is a concentration of frail elderly people living in insecure accommodation.

### **National Respite for Carers Program (NRCP)**

The aim of the NRCP is to contribute to the support and maintenance of caring relationships between carers and their dependent family and friends. It facilitates access by carers to information, respite care and other support or assistance appropriate to their individual needs and circumstances, and those of the people for whom they care.

Funding for the NRCP increased from \$19m in its inception year, 1996–1997, to \$72m in 2000–01. The NRCP funds Carer Resource Centres, Carer Respite Centres and respite services.

Carer Resource Centres, located in each State and Territory, were established to act as a point of contact for carers seeking information and advice about the full range of services, support and assistance that is available to carers.

A national network of 82 NRCP Carer Respite Centres and regional office outlets was established to improve coordination of respite service provision and help meet emergency and unplanned respite needs. The Carer Respite Centres provide carers with a single contact point for respite care assistance, whether the respite service required is in an aged care facility, in the community or in the carer's home. The NRCP also provides funding for over 400 respite services, which include in-home, family-based, centre-based and peer support, to supplement mainstream respite services offered through the Home and Community Care Program (HACC) and other State-based programs as well as local government and community initiatives.

### **Extended Aged Care at Home (EACH) Program**

The Extended Aged Care at Home (EACH) pilot program commenced on 1 July 1998, building on initial projects in South Australia (1993) and Western Australia (1997). This program is supported under the flexible care arrangements of the *Aged Care Act 1997*. The program provides high level care at home as an alternative to high level care in an aged care home. The EACH pilot program is currently limited to 10 services providing care to around 290 people. Pilot projects operate in South Australia, Western Australia, New South Wales, Victoria and the Australian Capital Territory. In 2000–01, funding of \$9.8m was provided to the program.

An evaluation of the pilot was conducted in 2000–01. The aim of the evaluation was to consider the future of this service delivery model and to test the extent to which the EACH packages are economically viable, target recipients' needs effectively, and are able to deliver a high level of care to people in their own homes. It found that the key objectives are being met and made a number of recommendations to support consolidation of the program, including the establishment of quality standards and development of data systems to enable better management and reporting. The May 2001 Budget provided an additional \$1.9m for developmental work.

### **Day Therapy Centres (DTCs) Program**

The DTC program has been in operation since 1988, when rationalisation of nursing home funding led to the separate funding of the therapy function. There are 152 service providers across Australia, providing a wide range of therapy services to frail older people living in the

community and to residents of Commonwealth funded aged care homes. Funding provided by the Government in 2000–01 was \$28.5m.

During 2000–01 the Department identified that a small number of providers have introduced new approaches to the type of services they provide within the DTC model and in the way they deliver these to meet the changing needs of the client target group.

The 2001 Federal Budget provided \$4.3m over four years to review current DTC service models to identify innovative therapy approaches. In addition, demonstration projects will be established, with a particular focus on people with dementia. Data options will also be explored to provide more information about service delivery levels.

This initiative will turn Day Therapy Centres much more towards outreach into the community and prevent premature entry into high level care, particularly for those older people with dementia.

### **National Continence Management Strategy**

The package 'Staying at Home — Care and Support for Older Australians 1998' included \$15m over four years to address the needs for improved continence management for older Australians through the National Continence Management Strategy. Under this Strategy, a number of national research and service development initiatives are being trialed to complement existing continence care.

The Commonwealth Government also funds the Continence Aids Assistance Scheme (CAAS) which was established to assist people of working age who have a permanent disability-related incontinence condition. CAAS currently provides a \$450 subsidy per year to assist eligible individuals. CAAS funding for 2000–01 was \$8.43m.

### **Commonwealth Hearing Services Program**

The role of the Commonwealth Hearing Services Program is to purchase services for eligible people with a hearing impairment. The administration of the Commonwealth Hearing Services Program is the responsibility of the Office of Hearing Services (OHS), a branch within the Aged and Community Care Division in the Department of Health and Aged Care.

Access to hearing services for eligible adults is provided through the Hearing Services Voucher System. Eligible adults include: holders of Pensioner Concession Cards; holders of Repatriation Health Cards issued to veterans for conditions that include hearing loss; Sickness Allowees; dependants of the above categories; clients of CRS Australia (the Commonwealth Rehabilitation Service) undergoing a vocational rehabilitation program and referred by their case manager; and serving Defence personnel. OHS purchases hearing services from accredited public and private sector providers. Voucher System expenditure in 2000–01 was \$121.6m.

More than 135 accredited hearing services providers are contracted by the OHS to provide services under the Hearing Services Voucher System. Services are provided at more than 300 permanent and around 900 visiting sites throughout Australia by qualified hearing services practitioners (audiologists and audiometrists). OHS also has supply contracts with 16 hearing device suppliers for the supply of quality hearing devices into the Program.

In addition, the Government funds Australian Hearing Services to provide specialised hearing services for children and young adults under the age of 21 years, and to ensure access to appropriate hearing services for eligible adults with special needs. These clients include those who live in remote locations, who are Aboriginal or Torres Strait Islander people, or who have complex hearing needs. Funding is also provided to Australian Hearing Services to undertake research to increase understanding of issues related to hearing loss, hearing rehabilitation and the harmful effects of noise, through its research arm, the National Acoustic Laboratories.

## **Services provided by the Department of Veterans' Affairs**

The Repatriation Commission determines services provided to veterans. The Department of Veterans' Affairs (DVA) provides the administrative machinery through which the

Commission operates. The Commission, comprising three full-time members, has the following functions:

- granting pensions, allowances and other benefits in accordance with the provisions of Repatriation legislation;
- arranging the provision of treatment and other services for eligible persons;
- advising the Minister, and providing the Minister with information on matters relating to Repatriation legislation;
- performing other functions conferred on the Commission by the Act or other Acts; and
- administering the Acts subject to the control of the Minister.

Repatriation benefits are provided under the *Veterans' Entitlements Act 1986* for service with the Australian Defence Forces in designated conflicts including: World War I, World War II, the Korean War, operations in Malaya/Malaysia as members of the Far East Strategic Reserve, Vietnam, the Gulf War, and for service in various peacekeeping operations including Cyprus, Lebanon, Somalia, Rwanda and Cambodia among many others. Service in the Defence Forces during peacetime from 7 December 1972 to 6 April 1994 (subject to the qualifying period) also attracts some repatriation benefits. Since 6 April 1994 peacetime service is covered through the Military Compensation Scheme under the *Safety Rehabilitation and Compensation Act 1988*.

Certain civilians, Australian mariners of World War II (since July 1994) and Australian members of certain designated peacekeeping, observing and monitoring forces who had peacekeeping service overseas may also be eligible for benefits. Under the *Papua New Guinea (Members of the Forces Benefits) Act 1957*, indigenous inhabitants of Papua New Guinea who served in the Australian forces in World War II, and members of the Royal Papuan Constabulary and New Guinea Police Force who served in that conflict, are eligible for compensation-type benefits.

Members of other Commonwealth countries' forces and other allied veterans are not eligible for compensation-type benefits in respect of their service, unless they were domiciled in Australia immediately before their enlistment. However, they may qualify for an income support payment, the 'service pension', only if they served in a conflict in which Australia was involved prior to 1972.

Qualification for receiving subsidised housing loans, granted under the Defence Service Homes Act, generally depends on service with the Australian Defence Forces in World War I or World War II, or specified service in Korea, Malaya, South East Asia, Namibia, the Middle East for the Kuwaiti crisis, Cambodia, the former Yugoslavia, or East Timor, and for service in the Regular Defence forces on or after 7 December 1972, provided the person's first service in the forces was before 15 May 1985. Certain civilians may also be eligible.

More detailed information on repatriation allowances, benefits and services is available from DVA .

### **Compensation Program**

The principal objective of the Compensation Program is to ensure that eligible veterans, their war widows and widowers, and their dependants, have access to appropriate compensation and income support in recognition of the effects of war or defence service. Compensation is administered under four sub-programs — the Compensation Sub-Program, the Income Support Sub-Program, the Housing Sub-Program and the Veterans' Review Board.

### **Compensation Sub-Program**

The main benefits provided under this sub-program are the Disability Pension and the War/Defence Widows'/Widowers' Pension and ancillary benefits. Table 7.31 shows the number of pensions at 30 June 2001 and the four preceding years.

The Disability Pension is to compensate persons for incapacity resulting from eligible war, defence or peacekeeping service. General rate disability pensions range from 10% up to and including 100%, depending on the degree of war-caused or defence-caused incapacity. Higher rates of pension (Intermediate Rate and Special Rate) are payable if:

- there is at least 70% incapacity due to war, defence-caused injury or disease;
- the veteran is totally and permanently incapacitated from accepted disabilities alone; and
- the disabilities render him/her incapable of undertaking remunerative work for periods aggregating to more than 20 hours per week for the intermediate rate, or eight hours for the special rate.

An Extreme Disablement Adjustment, equal to 150% of the general rate, is payable to severely disabled veterans who are 65 years of age or over.

The War/Defence Widows'/Widowers' Pension is payable to the widow or widower of a veteran:

- whose death has been accepted as war-caused or defence-caused;
- who at the time of his or her death was receiving or entitled to receive a Special Rate of Disability Pension or the Extreme Disablement Adjustment;
- who had been a prisoner of war; or
- who at the time of his/her death was receiving a pension which had been increased due to certain amputations and blindness.

The Orphan's Pension is payable to the children of these veterans.

From 1 January 1993, the War Widows'/Widowers' Pension also became available to the widows/widowers of former prisoners of war and the Orphans' Pension to the children of former prisoners of war.

**7.31 DISABILITY AND WAR WIDOWS' PENSIONERS — 30 June**

	1997	1998	1999	2000	2001
Recipient	no.	no.	no.	no.	no.
Incapacitated veterans	160 145	161 829	162 810	162 730	162 505
Wives and widows(a)	69 858	65 442	60 864	56 596	51 148
Children	4 247	3 752	3 337	3 165	1 690
War widows and widowers(b)	97 522	100 746	104 553	107 953	110 656
Orphans	459	420	414	410	382
Other dependants	812	771	735	683	657
<b>Total</b>	<b>333 043</b>	<b>332 960</b>	<b>332 713</b>	<b>331 537</b>	<b>327 038</b>

(a) Wives of still living veterans and widows of deceased veterans who have not died from an accepted war caused condition.

(b) Widows and widowers of deceased veterans who have died from an accepted war caused condition.

Source: Department of Veterans' Affairs.

Table 7.32 shows the number of disability pensioners at 30 June 2001 by conflict type. It should be noted that these data are based on the DVA file number prefix. This is generated by the first period of service which gave rise to the veteran's initial claim. However, a disability pensioner may also lodge further claims for disabilities based on other areas of service. The later claims may be based on service earlier or later than the service of the initial claim which generated the file prefix. For example, a Korean War Veteran, with a pension payable in respect of that service, may have subsequently served in Vietnam. However, his file prefix would remain that of a Korean Veteran and he would be included as such in the DVA Pensioner Summary. Likewise a Gulf War veteran may have lodged an initial claim due to other service as a Peacekeeper. He would be recorded only under peacekeeping service in table 7.32.

Table 7.33 shows the number of disability pensions at 30 June 2001 and for the nine preceding years.

The Veterans' Children Education scheme (see tables 7.34 and 7.35) provides financial help, guidance and counselling to certain students up to 25 years of age. To be eligible a student must be the child of a veteran, an Australian mariner, or a member of the Forces, who is (or has been) in receipt of a Special Rate or Extreme Disablement Adjustment Disability Pension. Children of former prisoners of war, of veterans, or of Australian mariners whose death has been accepted as war-caused, are also eligible.

**7.32 DISABILITY PENSIONERS — 30 June 2001**

	World War I	World War II(a)	Seaman's War Pension	Korea/Malaya	FESR(b)	Vietnam	Peacetime forces	Gulf War(c)	Total
	no.	no.	no.	no.	no.	no.	no.	no.	no.
General rate — from 10% to 100%	8	80 825	540	3 880	1 037	10 967	27 857	11	<b>125 125</b>
Intermediate rate	—	451	1	29	3	253	266	—	<b>1 003</b>
Special rate (TPI or equivalent)	—	8 576	17	851	254	10 283	5 063	2	<b>25 046</b>
Extreme Disablement Adjustment	1	10 437	100	489	45	100	159	—	<b>11 331</b>
<b>Total</b>	<b>9</b>	<b>100 289</b>	<b>658</b>	<b>5 249</b>	<b>1 339</b>	<b>21 603</b>	<b>33 345</b>	<b>13</b>	<b>162 505</b>

(a) Includes interim forces. (b) Far East Strategic Reserve. (c) A number of veterans of the Gulf War are officially recorded as members of the Defence/Peacekeeping forces.

Source: Department of Veterans' Affairs.

**7.33 DISABILITY AND WAR WIDOWS' PENSIONS**

Year	Number of disability pensions in force, 30 June				
	Incapacitated veterans(a)	Dependants of incapacitated veterans(b)	Dependants of deceased veterans(c)	Total	Annual expenditure(d) to 30 June \$'000
1992	157 790	102 953	81 125	341 868	1 396 192
1993	156 923	96 948	83 642	337 513	1 445 308
1994	156 565	91 722	86 224	334 511	1 508 446
1995	157 298	85 837	90 039	333 174	1 570 136
1996	159 178	80 204	94 473	333 855	1 720 239
1997	160 145	74 405	98 493	333 043	1 819 338
1998	161 829	69 484	101 647	332 960	1 888 416
1999	162 810	64 486	105 417	332 713	2 067 783
2000	162 730	60 011	108 796	331 537	2 099 205
2001	162 505	53 080	111 453	327 038	2 314 052

(a) All Disability Pensioners in payment. (b) Includes Disability Pensioners' spouse/widow(er)s, Disability Pensioners' children and Adequate Means of Support (AMS) incapacitated cases. (c) Includes war widow(er)s, orphans and AMS deceased cases.  
(d) Includes associated allowances.

Source: Department of Veterans' Affairs.

**7.34 VETERANS' CHILDREN EDUCATION SCHEME, Cost of Education Beneficiaries**

	NSW(a)	Vic.	Qld	SA(b)	WA	Tas.	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1991–92	1 475.8	1 068.2	1 201.6	542.5	289.6	358.8	4 936.5
1992–93	1 612.4	1 092.7	1 198.1	310.1	644.8	413.6	5 271.7
1993–94	1 749.3	1 170.2	1 303.8	348.5	771.6	463.5	5 806.9
1994–95	1 905.7	1 163.9	1 601.4	371.7	791.8	491.8	6 326.3
1995–96	2 401.2	1 399.4	1 877.8	432.8	925.4	553.1	7 589.7
1996–97	2 913.7	1 694.8	2 430.4	522.3	1 135.8	620.7	9 317.7
1997–98	3 535.7	2 071.9	3 024.4	685.2	1 442.3	718.8	11 478.3
1998–99	3 969.5	2 420.7	3 609.0	812.4	1 713.6	789.3	13 314.5
1999–00	3 858.3	2 584.8	3 904.2	975.6	1 919.0	788.9	14 030.8
2000–01	4 188.6	3 038.7	4 632.2	1 320.1	2 293.9	883.8	16 357.3

(a) Includes the Australian Capital Territory. (b) Includes the Northern Territory.

Source: Department of Veterans' Affairs.

**7.35 VETERANS' CHILDREN EDUCATION SCHEME, Number Receiving Benefits — At 30 June 2001**

Type of training	NSW(a)	Vic.	Qld	SA(b)	WA	Tas.	Aust. no.
At school	no.	no.	no.	no.	no.	no.	no.
Primary(c)	297	167	459	121	191	75	<b>1 310</b>
Secondary	653	426	649	199	311	131	<b>2 369</b>
<i>Total</i>	<i>950</i>	<i>593</i>	<i>1 108</i>	<i>320</i>	<i>502</i>	<i>206</i>	<b>3 679</b>
Tertiary professional	266	181	318	71	136	51	<b>1 023</b>
Technical	88	83	120	49	83	23	<b>446</b>
<b>Total</b>	<b>1 304</b>	<b>857</b>	<b>1 546</b>	<b>440</b>	<b>721</b>	<b>280</b>	<b>5 148</b>

(a) Includes the Australian Capital Territory. (b) Includes the Northern Territory. (c) Receive an annual payment rather than fortnightly payment like others.

Source: Department of Veterans' Affairs.

### Income Support Sub-Program

The main form of income support paid is the Service Pension. This is an income and assets tested pension similar to the Age Pension paid by Centrelink. The pension is payable to veterans with qualifying service at age 60. Prior to 1 July 1995, the pension was payable to female veterans with qualifying service at age 55.

Qualifying service generally means service in an area and at a time when danger from hostile enemy forces was incurred by the veteran. The Government introduced changes to the minimum age at which a female veteran can be granted Service Pension (Age). The minimum age will be lifted from 55 to 60 years in six-monthly increments every two years over the period 1995 to 2013. This means that the qualifying age for Service Pension (Age) at 1 July 2001 is 57 years. Veterans with qualifying service may be paid the pension at any age if they are permanently incapacitated for work.

Veterans of other Commonwealth and allied countries may also qualify for the Service Pension for service during a period of hostilities in wars or war-like conflicts in which Australia has been engaged. Veterans of Commonwealth forces must have served outside the country of enlistment or be entitled to the award of a campaign medal for service within that country. Allied veterans must have service in formally raised forces. The veteran must be an Australian resident with at least ten years residency.

From 1 April 1993, all service pensioners became eligible for 'fringe benefits', provided by the Commonwealth Government, which include some medical and hospital treatment, pharmaceutical benefits and the payment of a telephone allowance.

Income Support Supplement is payable to war widows and war widowers at Service Pension age of 60 for men and currently 57 for women (see *Service Pension* above). Income Support Supplement is also payable to a war widow or widower under Service Pension age who has a dependent child, or is caring for a severely handicapped person, or is permanently incapacitated for work. Income Support Supplement is subject to income and asset testing and the war widow/ers pension is assessed as income. Its maximum rate is fixed at \$124.90 per fortnight.

A number of supplementary benefits are also available. These include:

- Rent Assistance;
- Remote Area Allowance;
- Bereavement Payment; and
- Pharmaceutical Allowance.

Table 7.36 shows the total number of service pensions as at 30 June 2001, and table 7.37 shows the number of pensions and annual expenditure for the years 1992 to 2001.

**7.36 SERVICE PENSIONS, Number by Category — At 30 June 2001**

	World War I no.	World War II(a) no.	Korea/ Malaya & FESR(b) no.	Vietnam no.	Commonwealth and Allied no.	Other no.	Total no.
<b>Veterans</b>							
Old age/permanently incapacitated	9	108 211	9 400	17,979	25 919	0	<b>161 518</b>
Tuberculosis(c)	0	121	3	0	2	11	<b>137</b>
<i>Total</i>	<i>9</i>	<i>108 332</i>	<i>9 403</i>	<i>17,979</i>	<i>25 921</i>	<i>11</i>	<b>161 655</b>
Wives and widows	124	84 456	6 877	13 288	24 288	7	<b>129 040</b>
<b>Total</b>	<b>133</b>	<b>192 788</b>	<b>16 280</b>	<b>31 267</b>	<b>50 209</b>	<b>18</b>	<b>290 695</b>

(a) Includes Merchant Mariners. (b) Far East Strategic Reserve. (c) Eligibility on these grounds ceased on 2 November 1978.

Source: Department of Veterans' Affairs.

**7.37 SERVICE PENSIONERS, Number and Expenditure**

Year	Pensions in force, 30 June			Annual expenditure(a)
	Veterans no.	Wives and widows no.	Total no.	
1992	215 010	156 603	371 613	2 377 619
1993	210 406	152 742	363 148	2 389 886
1994	204 793	148 184	352 977	2 382 307
1995	198 739	148 974	347 713	2 426 579
1996	192 342	145 481	337 823	2 609 460
1997	186 228	142 520	328 748	2 644 118
1998	179 673	138 906	318 579	2 602 122
1999	172 654	135 904	308 558	2 680 409
2000	165 940	131 136	297 076	2 587 972
2001	161 655	129 040	290 695	2 832 326

(a) Includes associated allowances.

Source: Department of Veterans' Affairs.

### Housing Sub-Program (Defence Service Homes Scheme)

The Defence Service Homes (DSH) Scheme provides financial benefits to recognise the contribution of certain men and women who have served Australia in either peacetime or wartime. The benefits include housing loan interest subsidies, comprehensive homeowners' insurance cover at competitive rates, and home contents insurance (see table 7.38).

The Scheme was established in 1918 as the War Service Homes Scheme. In 1972 its name was changed to the Defence Service Homes Scheme to recognise the extension of eligibility to those with qualifying peacetime service.

The Commonwealth Government sold the DSH mortgage portfolio to Westpac Banking Corporation, which became the Scheme's lender on 19 December 1988. Under the Agreement between the Commonwealth and Westpac, the Commonwealth subsidises Westpac for the low-interest loans provided. The subsidy is paid

directly to Westpac and represents the difference between the concessional interest rate paid by the borrower and the agreed benchmark interest rate.

Since 1918, the Defence Service Homes Act has made provision for DSH insurance. Building insurance is available to all persons eligible under the Defence Service Homes Act or the Veterans' Entitlements Act. This benefit is also available to those who obtain assistance under the Defence Home Owner Scheme. DSH contents insurance, a comprehensive insurance package underwritten by QBE Mercantile Mutual Ltd, is available to veterans and the service community.

The maximum loan available under the DSH Scheme is \$25,000 repayable over 25 years. The interest rate on new loans is capped at 6.85% for the term of the loan. Loans can be used to buy a home or strata unit, build or extend a home, buy a right of residence in a retirement village, refinance an existing mortgage, repair or modify an existing home, or obtain granny flat accommodation on another person's property.

### 7.38 DEFENCE SERVICE HOMES SCHEME

	Unit	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01
Subsidised loans									
Loans granted	no.	7 639	7 171	6 861	6 518	6 380	5 477	4 850	2 182
Interest subsidy	\$m	37.5	45.1	53.0	29.2	12.2	17.2	15.4	14.7
Loan accounts at 30 June	no.	107 124	101 887	96 518	91 029	80 802	73 530	69 677	63 468
Building insurance									
Homes insured at 30 June	no.	147 853	140 508	137 012	133 711	126 799	123 068	118 430	114 369

Source: Department of Veterans' Affairs.

### 7.39 MILITARY COMPENSATION AND REHABILITATION SERVICE, Activities — 2000–01

Activity	no.
No. of incapacity payees at 30 June 2001 (incl. dependent children)	2 230
New primary injury claims received	6 531
New permanent impairment claims received	4 457
New rehabilitation referrals received	1 025
New reconsideration requests received	1 450
New applications made to the AAT	340
Total accounts paid (incl. medical, household services and attendant care)	75 676

Source: Department of Veterans' Affairs.

## Military Compensation and Rehabilitation Service

The objective of the Military Compensation and Rehabilitation Service (MCRS) is to ensure that current and former members of the Australian Defence Force, who suffer an injury or disease which is causally related to employment in the Australian Defence Force, are provided with compensation and rehabilitation benefits and services. The MCRS is responsible for providing benefits through the *Safety, Rehabilitation & Compensation Act 1988*. Table 7.39 summarises activities under the MCRS for 2000–01.

The Safety, Rehabilitation & Compensation Act provides compensation cover for injury or disease sustained during peacetime service since 4 January 1949 and operational service since 7 April 1994. Once liability has been accepted for an injury, a range of benefits may or may not apply in an individual case. In broad terms:

- weekly incapacity payments are made on the basis of ongoing evidence of loss of ability to earn at a rate of 100% of pre-injury earning capacity for 45 aggregated weeks less the current ability to earn. After 45 weeks the rate falls to 75% of pre-injury earning capacity if the client cannot work at all, gradually rising back up to 100% if some work is possible.

Government funded superannuation

entitlements are deducted from the weekly compensation benefits which would otherwise be payable. Different entitlement regimes apply under transitional provisions for certain employees and periods prior to 1 December 1988;

- permanent impairment payments are assessed in accordance with the approved guide. The minimum threshold is 10% whole of person impairment in most cases, with 100% attracting a maximum current entitlement of \$169,459. Other rates and criteria apply for impairments arising under the currency of predecessor legislation prior to 1 December 1988;
- death benefits are payable to defined dependants of former and current members who die because of injuries arising from Australian Defence Force employment. One payment up to a maximum current lump sum of \$184,865 is payable in respect of all eligible dependants. A funeral benefit of \$4,267 is also payable. A weekly amount of \$61.61 is payable to dependent children of the deceased;
- additional Defence Act payments are available (with effect from 7 April 1994) to 'top up' payments for death of the deceased as well as permanent impairment payments to those with 'severe injuries'. The severe injury adjustment and additional death benefit increases the lump sum amount payable to \$222,138, with an additional \$55,535 for each dependent child;
- medical benefits are payable in respect of the cost of medical treatment which is 'reasonably obtained' in relation to the accepted injury. There is broad definition of medical treatment;
- rehabilitation services are provided where applicable in the form of programs designed to return injured employees as close by as possible to pre-injury employment, mobility and lifestyle capacity. Programs include return to work retraining, and provision of medical and other aids and appliances as well as alterations to homes and motor vehicles;

- Household Service and Attendant Care benefits are available at a statutory rate payable to ensure that eligible injured members are able to maintain their household and/or remain in their home; and
- Appeal and Review mechanisms are available for clients who do not agree with a decision made by MCRS. Rights include access to an internal review followed by application to the Administrative Appeals Tribunal (AAT), with a mandatory conciliation step.

## Health Program

Health care treatment is provided to people whose disabilities have been accepted by DVA as service-related, and for pulmonary tuberculosis, post traumatic stress disorder and malignant neoplasia whether they are service-related or not. In addition, and subject to certain conditions, health care treatment in Australia is provided to certain veterans of Australia's defence forces for all health conditions. Eligible veterans include ex-prisoners of war; veterans and mariners of World War II aged 70 years or over who have qualifying service from that conflict; those receiving a disability pension at or above the maximum (100%) general rate; World War II veterans and mariners receiving both Service Pension at any rate and Disability Pension at 50% rate or higher; veterans, mariners or nurses who served in World War I; certain service pensioners; and returned ex-service women of World War II. War widow(er)s and certain other dependants of deceased veterans are also entitled to treatment for all conditions.

Younger veterans from post-World War II conflicts have needs additional to those of their older counterparts. These needs are addressed by a range of services which include integrated out-patient, in-patient and support services for the treatment and rehabilitation of veterans with war-related mental health conditions. Intensive in-patient treatment programs are available in each State. Community-based psychological services are provided by the Vietnam Veterans' Counselling Service and individual providers.

Assistance is available for the Vietnam veteran community through a series of recent initiatives to support veterans and their families in response to the validated findings of the Vietnam Veterans' Health Study. These include mental health support for veterans, their partners and children, assistance with treatment costs for Vietnam veterans' children with spina bifida, cleft lip/palate, adrenal gland cancer and acute myeloid leukaemia, and preventive health

programs for veterans. The role of the Australian Centre for Post-traumatic Mental Health has been expanded to address mental health problems affecting the wider veteran community, and funding is being increased for research into veterans' health issues that may be the result of operational service.

Vocational rehabilitation services are available to support those who are leaving the Australian Defence Force, those at risk of losing employment, and those who wish to return to the workplace. Rehabilitation Allowance may be available to people whose pension entitlement is affected — the intention is that no financial loss should be incurred by individuals taking up paid employment. Safety net arrangements enable a return to former pension status in the event that employment cannot be sustained (this applies to pensioners receiving above general rate levels of Disability Pension or Service Pension through invalidity).

With the transfer of the Repatriation General Hospitals to the States, or their sale to the private sector, hospital care is now provided through the Repatriation Private Patient Scheme. The Scheme provides acute hospital care for veterans or war widow(er)s in local facilities. Under the Scheme, a veteran or war widow(er) may be admitted directly to a local public hospital, former repatriation hospital or a contracted private Tier 1 veteran partnering hospital, as a private patient, in a shared ward, with the doctor of his or her choice.

In short, the Repatriation Private Patient Scheme has an order of preference for hospital admissions according to three tiers:

- Tier 1 — all public hospitals, all former repatriation hospitals and selected veteran partnering private hospitals in some States;
- Tier 2 — contracted private hospitals; and
- Tier 3 — non-contracted private hospitals.

Financial responsibility for hospital and medical treatment in a public hospital, a former repatriation hospital or a veteran partnering private hospital is accepted by the department with no cost to the patient. Should a veteran require hospital care, the treating doctor would be able to arrange treatment at an appropriate local facility.

On a State by State basis the Repatriation Commission sought tenders from private hospitals to be selected as veteran partnering hospitals, which allows the same access as public

hospitals and former repatriation hospitals (i.e. where no prior financial authorisation is required for admission, once eligibility is established). These hospitals have been selected by the Department because they are conveniently located for most veterans, offer a full range of services at competitive rates, and perform consistently to industry-approved standards.

Under arrangements with State Governments, entitled persons requiring custodial psychiatric care for a service-related disability are treated at departmental expense in State psychiatric hospitals.

Entitled persons may also be provided with dental treatment through the Local Dental Officer Scheme, which comprised 6,900 local dental officers at 1 June 2000.

Optometrical services, including the provision of spectacles, the services of allied health professionals, a comprehensive range of aids, appliances and dressings, may be provided to entitled persons.

In addition, entitled persons may be provided with pharmaceuticals through the Repatriation Pharmaceutical Benefits Scheme.

Through the Repatriation Transport Scheme entitled persons are eligible to receive transport assistance when travelling to receive approved medical treatment.

DVA also assists the veteran community through the Veteran and Community Grants Scheme, which aims to maintain and improve the independence and quality of life of members of the veteran and ex-service community through activities and/or services that sustain and/or enhance wellbeing. The grants focus on the delivery of funding through in-home, community and residential support streams. Veteran and Community Grants provide funding for projects that address the needs of members of the veteran and ex-service communities through a range of support initiatives. These may be through:

- promotion of health issues and healthy lifestyles;
- supporting quality independent living at home;
- support for carers;
- reducing social isolation; and
- provision of financial support for high quality residential care for members of the veteran community, including support for community aged care packages.

Veteran and Community Grants are intended to provide assistance to encourage the development of projects that will become financially viable and self-sufficient. Grant funds are not provided for recurrent or ongoing financial assistance. There are three funding rounds each financial year: in July, October and March.

Following a major review of the delivery of its health services in 1999, the Department has placed considerable emphasis on health promotion activities. Its five-year strategic plan targets seven key health priorities. As part of its health promotion activities, the Department also produces a range of health promotion resource materials for the veteran community.

In January 2001, DVA introduced the Veterans' Home Care program. This program extends the range of services provided to the veteran community to include personal care, domestic assistance, home and garden maintenance and respite care. Other services, such as delivered meals, are provided under arrangements with State and Territory Governments. Veterans' Home Care services are available to eligible veterans and war widow(er)s who are assessed as needing care to remain in their homes.

Between January and 30 June 2001, a total of 19,912 veterans and war widow(er)s were assessed for Veterans' Home Care services. Some 80% of assessments resulted in an approval for one service, 16% for two services and 1% for three services. Some 3% of assessments did not result in an approval for services as veterans may have been referred to other services, such as community nursing or the DVA program, HomeFront. The service most frequently approved was domestic assistance (53%), followed by home and garden maintenance (28%), respite care (16%) and personal care (3%).

Veterans' Home Care has a strong preventive focus, and particularly targets veterans and war widow(er)s with low-level care needs. It is anticipated that net savings will be made from the initiative due to better health outcomes for veterans, reducing avoidable illness, injury and associated health costs. Better health will mean that veterans spend less time in hospital and need fewer medications and other high cost services. More importantly, they will be able to lead fuller, more active lives.

## Vietnam Veterans' Counselling Service (VVCS)

The VVCS provides counselling to veterans of all conflicts and their families, as well as working with the ex-service community to promote understanding and acceptance of veterans' problems.

The VVCS is staffed by psychologists and social workers who have specialised knowledge about military service, particularly in Vietnam, and its impact on veterans and their families, especially the impact of post-traumatic stress.

Access to counselling services for rural veterans and their families was greatly improved with the establishment of the Country Outreach Program in 1988, followed soon after by a toll-free 1800 telephone link to all VVCS centres. Recent service enhancement initiatives include the creation of group programs aimed at promoting better health for veterans. Table 7.40 shows use of the VVCS.

## The Office of Australian War Graves (OAWG)

OAWG manages the War Graves Program and maintains some 24,000 graves and memorials of Commonwealth war dead in 75 war cemeteries, plots and civil cemeteries in Australia, Papua New Guinea, Guadalcanal (Solomon Islands) and Norfolk Island. OAWG also makes an annual contribution to the Commonwealth War Graves Commission to assist with the maintenance of war cemeteries elsewhere in the world.

OAWG represents the Australian Government's interest in the maintenance of graves of Australian service personnel and war memorials that commemorate those Australians who died in other conflicts, in overseas countries. These include the United Nations Memorial Cemetery in Pusan, Korea, and the British Commonwealth Forces Cemetery in Yokohama, Japan, and in Malaysia.

Another of OAWG's major tasks is the official commemoration within Australia of those Australian men and women whose deaths in post-war years is accepted as due to their war service. In recent years OAWG has processed some 7,000 commemorations annually and this trend continued during 2000–01. The Office has some 250,000 memorials under perpetual maintenance.

OAWG constructs major memorials at significant locations where Australians have suffered and died. In recent years, memorials have been dedicated at Hellfire Pass in Thailand; Le Hamel and Fromelles in France; Sandakan in North Borneo, Malaysia; and the Anzac Commemorative Site at North Beach, Gallipoli. In May 2001 the Hellenic-Australian Memorial Park was dedicated in Rethymno, Crete.

The Office also cares for war graves and cemeteries in Australia which contain the graves of foreign service personnel and civilian internees who died during the two World Wars. It also maintains the graves of, and memorials to, former Prime Ministers of Australia and Governors-General, on behalf of the Department of the Environment and Heritage.

**7.40 VIETNAM VETERANS' COUNSELLING SERVICE**

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
Type of counselling	no.	no.	no.	no.	no.	no.
Centre-based consultation	33 411	(a)30,000	(a)30,000	27 368	27 421	29 991
Group session consultation	724	784	(a)500	485	891	678
Country outreach consultation	20 723	21 523	23 061	26 702	26 885	28 063

(a) Estimates.

Source: Department of Veterans' Affairs.

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Commonwealth Department of Veterans' Affairs, <http://www.dva.gov.au>

# Household income, living standards and financial stress

## Introduction

An important focus of public policy is to ensure acceptable living standards for all Australians. A key element in assessing people's living standards is their command over goods and services which they consume to support their standard of living. In Australia's context such an assessment usually rests not on absolute measures of minimum standards, such as might exist in an economy where getting enough food to survive was a critical challenge, but on a relative measure such as societal expectations of a reasonable Australian standard of living.

In the 1998–99 Household Expenditure Survey (HES), the ABS included, for the first time, some questions which might indicate that households were experiencing some degree of deprivation or financial stress. However, interpreting responses to individual questions in isolation can potentially be misleading. This article explores some of the issues in measuring relative living standards using these data and presents some preliminary analysis of the characteristics of households which indicated varying levels of deprivation and financial stress.

## Income and standards of living

While a household's command over goods and services may in part be affected by issues of access, such as for remote communities, it is most often a question of families having the financial resources to acquire goods and services in the market. Also, for most people the most important economic resource available to support their standard of living is regular income received, whether it be income earned from a job, income provided by government as benefits and allowances, or income such as interest, rent or dividends flowing from the ownership of assets. It is because income is so important that income distribution and measures of income inequality are analysed to assess relative advantage and disadvantage in the community.

For example, while average incomes may be rising, and the average standard of living rising with them, significant proportions of the population may have steady or falling incomes, resulting in their absolute and/or relative standard of living declining over time.

The ABS has been producing household income statistics for many years to support the analysis of income distribution. Summary measures are published in *Income Distribution, Australia* (6523.0). However, income is not a perfect predictor of the standard of living of households if it is measured by what people consume. People can save some of their income instead of spending it all on goods and services now, so that they shift their consumption to future periods when they will draw down their savings, or spend the income received as returns from their invested savings. At times the saving may not be discretionary, for example, when it is used to repay loans taken out at an earlier time to support earlier consumption. On the other hand, expenditure can be greater than income. Additional expenditure can be financed by running down savings made in earlier times, by selling an asset, by borrowing, or by using money received from a non-income source such as an inheritance.

While measuring income is a very good starting point in the analysis of the standard of living of the Australian community, additional measures are needed to determine how changing income levels affect the pattern of consumption of the basics of everyday Australian life, and whether other influences restrict access to these basics. This article explores aspects of deprivation and financial stress in relation to income, expenditure and various characteristics of the population, by drawing on information collected in the 1998–99 HES.

## Development of deprivation and financial stress indicators

While income and wealth statistics can describe the economic resources available to people to provide command over goods and services in aggregate, and expenditure statistics can describe people's associated consumption patterns, there are other issues relevant to understanding living standards. For example, a person's poor state of health or limited access to education facilities may lead to greater expenditure addressing their particular situation, and relatively less expenditure on other basic necessities of life than is achieved by other people who earn similar incomes or who are spending, in aggregate, about the same amount. The 1998–99 HES therefore collected data designed to give a more direct indication of financial stress and deprivation in low income households.

There are no precise definitions or an internationally agreed set of questions that can be drawn on to measure deprivation or financial stress. The ABS has drawn heavily on previous Australian work that has been done on living standards. This work includes a survey by Travers and Richardson in 1987, followed by a study by the Australian Institute of Family Studies in 1991, and a 1995 report by Travers and Robertson as part of a *Deprivation Standards Project* looking at social security recipients. The ABS also carried out a pilot study prior to the 1998–99 HES to ensure that the questions to be asked worked in the field, i.e. that respondents could both understand the questions and give meaningful replies.

Because there are no objective measures of deprivation or financial stress, the topic has been explored by the ABS in a number of ways. Some of the 1998–99 HES questions required objective responses, but the interpretation of the responses as indicators of deprivation or financial stress is still subjective. Other questions were inherently subjective in nature.

## Deprivation indicators

The specific indicators of deprivation — i.e. the items of expenditure considered to be some of the 'basics of life' that deprived households may not be able to afford — that were used in the 1998–99 HES are:

- Could not afford a holiday for at least one week a year
- Could not afford a night out once a fortnight
- Could not afford friends or family over for a meal once a month
- Could not afford a special meal once a week
- Could only afford second hand clothes most of the time
- Could not afford leisure or hobby activities

It is important to note that the indicators included in the 1998–99 HES are not the most fundamental 'basics of life', since they do not include indicators relating to, for example, medical treatment or access to facilities such as baths or showers. However, earlier work by researchers (see, for example, Travers and Robertson 1995) has shown that relatively few people do not have access to those most basic facilities or services and, most importantly, that such people are highly likely to also show deprivation against some of the indicators listed above. Therefore the indicators included in the 1998–99 HES act collectively as a point of differentiation between the deprived and the more fortunate in society.

Given the nature of the indicators chosen, care needs to be exercised in interpreting individual responses in isolation from other responses provided. All individuals have their own priorities and consumption preferences and may choose quite different patterns of expenditure from a socially accepted norm of the basics of life. For example, a household may observe that it 'cannot afford' items specified in one or more of the chosen indicators (e.g. meals out or hobbies) because it devotes a considerable proportion of its budget to saving for an overseas holiday. If the household can afford an overseas holiday, however, it is difficult to envisage the household as deprived, even if it chooses to forego expenditure that other households might consider basic.

The relevance of the selected indicators as a measure of deprivation to selected population groups can also be tested by observing the take up rate of the indicators by households with higher incomes. In establishing whether households could

afford each of the selected 'basics of life' activities, the survey first asked whether or not households usually had the basic item and, if not, whether it was because they could not afford it or because they did not want it. However, significant changes in income levels did not always significantly increase the take up of some of these 'basics of life'. For example, for households where age and disability support pensions were the principal source of income, the proportion who stated that they could not afford a night out once a fortnight drops from 33% in the lowest income quintile (i.e. the bottom 20% of households in terms of income) to 15% in the third quintile (i.e. the middle 20% of households in terms of income). At the same time, the proportion of these welfare recipient households engaging in this activity only rose from 29% in the lowest quintile to 36% in the third quintile, with a larger increase in those not wanting it (up from 19% to 28%). If only 36% of these income recipients in the third quintile engage in the activity, nearly as many do not want it and only 15% say they cannot afford it, how 'basic' is it? It is possible that the answer of 'can't afford it' may be a default answer for lower income groups which do not need to consider preferences across a wide range of activities that cannot be afforded, but such a default response becomes less relevant as incomes rise. Therefore the deprivation indicators chosen may not be an independent test in themselves to benchmark against income, and the nature of the answers given may be very highly correlated to income levels.

In light of the potential ambiguities in the results for individual deprivation indicators, the analysis in this article is focused more broadly at the patterns of responses to the deprivation indicators combined with financial stress indicators discussed below.

## Financial stress indicators

The financial stress questions asked in the 1998–99 HES related to cash flow problems and financial resources. The specific indicators are:

- Household spends more money than it gets (over the past 12 months)
- Unable to raise \$2,000 in a week for something important

- Could not pay electricity, gas or telephone bills on time
- Could not pay car registration or insurance on time
- Pawned or sold something
- Went without meals
- Could not afford to heat home
- Sought assistance from welfare/community organisations
- Sought financial help from friends or family

However, just as some of the six 'deprivation' indicators on their own may not be a good indicator of deprivation, some of the nine financial stress indicators on their own are equally problematic. For example, for the indicator 'could not pay electricity, gas or telephone bills on time', table S2.1 shows that this indicator was reported by a relatively large proportion of households in the higher income quintiles, which suggests that the item does not necessarily reflect absolute incapacity to pay so much as a short deferral of payment. For many people it might be chosen as a short term cash flow management technique if there is no immediate penalty when payment is made a little late. Similarly, the indicator that households have spent more than they received over the past 12 months is clouded by prospects for adjusting expenditure over time by saving/borrowing and on its own is not a good indicator.

On balance, while some of the indicators (such as seeking assistance from welfare/community organisations) are more severe than others, it is difficult to rank or weight them in order to derive a single measure of intensity of reported financial stress. For this analysis, therefore, all financial stress indicators are given equal weight together with the deprivation indicators, with the results presented according to the total number of indicators reported.

## Findings from the 1998–99 HES

In the results that follow, the household is the unit of analysis, chosen because where all members of the household are members of the same family there is likely to be a very high degree of sharing of income and other economic resources. Where the household comprises people who are not all in the same family, there is likely to at least be significant joint expenditure on basics such as food and housing.

The income measure used in this analysis is equivalent disposable income. Disposable income is derived for each household by adding income from employment, own business, investment, property, government benefits and allowances, and any other regular income source, and then deducting estimates of income tax paid.

Disposable income is adjusted to an ‘equivalent’ basis in recognition that people in a larger household will generally need less income per person to achieve the same standard of living as people in a smaller household. This is because some costs such as housing costs tend not to increase proportionately in larger households and because children’s needs tend to be lower than adults’ needs.

The 1982 OECD equivalence scale is used to make the adjustment (the more recent OECD scale would make little difference to the results). It assigns a weight of 1 to the first adult in the household, 0.7 to each subsequent adult or non-dependent child, and 0.5 to each dependent child. For more information see Appendix 2 of *Income Distribution, Australia, 1999–2000* (6523.0). Households are assigned to income quintiles by ranking them from lowest to highest equivalent disposable income and then designating the lowest 20% as quintile 1, the next 20% as quintile 2, and so on.

In these findings no distinction is drawn between deprivation and financial stress, with equal weight given to all 15 indicators. Therefore, for simplicity of presentation in the rest of this article, the term

‘financial stress’ is used to reflect a measure of observed incidence of any of these indicators.

Table S2.1 shows these 15 indicators of financial stress and their incidence in relation to income levels. In all cases the incidence of the indicators is significantly greater in the lower income quintiles than in the higher quintiles, although for four of the 15 indicators there is an incidence of 5% or more households in the highest quintile. As would also be expected, the more severe indicators such as ‘went without meals’ have a lower incidence in all quintiles than do the less severe indicators such as ‘could not afford holiday for at least one week a year’.

While the patterns of incidence are along the lines that might be expected, they do raise the issue of whether it is useful to label any groups falling into the higher income quintiles as ‘financially stressed’. Without doubt high income households may be in a situation where they have trouble meeting financial obligations, but that will normally result from obligations which they made a discretionary choice to enter. They will also usually have a way of leaving the obligation; for example, if they are committed to an expensive mortgage they could sell the property and buy something cheaper.

The reporting of financial stress indicators does not, therefore, necessarily imply that the household is in a situation of unacceptably low living standards which might warrant government or other intervention. Nevertheless, it is of interest to compare the characteristics of higher income and lower income households which reported experiencing one or more of the financial stress indicators, and within higher and lower income groups to compare the characteristics of those who reported financial stress indicators with those who did not.

**S2.1 INCIDENCE OF FINANCIAL STRESS INDICATORS, By Income Quintile — 1998–99**

Indicator of financial stress	Income quintile					All households	
	Lowest	Second	Third	Fourth	Highest	%	'000
% of households reporting indicator							
In the last 12 months spent more money than received	22	20	16	9	6	15	1 050
Unable to raise \$2,000 in a week for something important	36	28	15	12	5	19	1 357
Could not pay electricity, gas or telephone bills on time	26	22	15	11	6	16	1 144
Could not pay car registration or insurance on time	10	8	7	5	2	7	465
Pawned or sold something	9	6	3	2	*1	4	300
Went without meals	5	5	*2	1	*1	3	195
Could not afford to heat home	5	4	1	*1	—	2	158
Sought assistance from welfare/community organisations	8	6	*2	*1	—	3	247
Sought financial help from friends or family	16	12	9	8	4	10	704
Could not afford holiday for at least one week a year	45	38	28	17	8	27	1 949
Could not afford a night out once a fortnight	32	30	20	11	3	19	1 386
Could not afford friends or family over for a meal once a month	11	9	4	2	—	5	374
Could not afford a special meal once a week	22	18	11	5	2	12	830
Could only afford second hand clothes most of the time	24	20	9	4	2	12	838
Could not afford leisure or hobby activities	18	14	7	4	1	9	647
Estimated number of households	'000 1 425	'000 1 424	'000 1 424	'000 1 424	'000 1 425	% 100	'000 7 123

\* estimate has a relative standard error of 25% to 50%.

Source: Australian Economic Indicators, June 2001 (1350.0).

In defining any level of financial stress it is obvious that incidences of just one indicator are not likely to be significant. Analysis reveals that those indicators which might be regarded as usually pointing to more serious issues of deprivation both had relatively few people reporting them, and also were those most likely to be reported in conjunction with other indicators, as is shown in table S2.2.

A scale of financial stress is therefore established where the incidence of just one indicator being reported is disregarded. This scaling reflects a natural break in the incidence of indicator reporting, with 17% of households reporting just one indicator, dropping steeply to only 9% for two indicators and then falling more slowly to three (7%) and four (5%) indicators being reported (see graph S2.3). Therefore, for the purposes of this article, 66% of Australian households are not considered to be in financial stress.

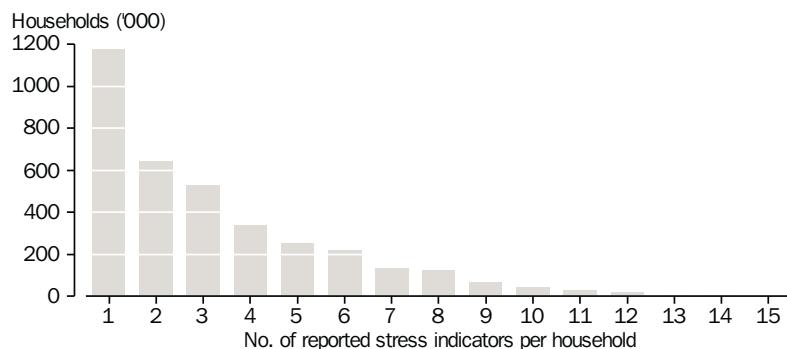
**S2.2 MULTIPLE REPORTING OF INDICATORS OF FINANCIAL STRESS — 1998–99**

Indicator of financial stress	Number of indicators reported by households reporting this indicator			'000
	1	2 to 4	5 or more	
	% of all households(a)			
In the last 12 months spent more money than received	4.2	4.9	5.6	14.7
Unable to raise \$2,000 in a week for something important	2.0	8.0	9.0	19.0
Could not pay electricity, gas or telephone bills on time	0.9	6.4	8.7	16.1
Could not pay car registration or insurance on time	*0.2	2.3	4.0	6.5
Pawned or sold something	*0.1	0.9	3.2	4.2
Went without meals	—	0.3	2.3	2.7
Could not afford to heat home	—	0.3	1.9	2.2
Sought assistance from welfare/community organisations	—	0.4	3.0	3.5
Sought financial help from friends or family	0.7	3.4	5.7	9.9
Could not afford holiday for at least one week a year	4.8	12.2	10.4	27.4
Could not afford a night out once a fortnight	2.0	8.4	9.0	19.5
Could not afford friends or family over for a meal once a month	*0.1	1.2	4.0	5.3
Could not afford a special meal once a week	0.7	4.0	7.0	11.7
Could only afford second hand clothes most of the time	0.5	3.8	7.4	11.8
Could not afford leisure or hobby activities	0.2	2.7	6.2	9.1
Total households reporting at least one indicator	16.5	21.2	12.6	50.3
Estimated number of households	'000	'000	'000	%
	1 176	1 509	897	50.3
				'000

\* estimate has a relative standard error of 25% to 50%

(a) Per cent of estimated total number of households in Australia, i.e. 7,123,000 households.

Source: *Australian Economic Indicators*, June 2001 (1350.0).

**S2.3 INCIDENCE OF REPORTED FINANCIAL STRESS INDICATORS, All Households — 1998–99**

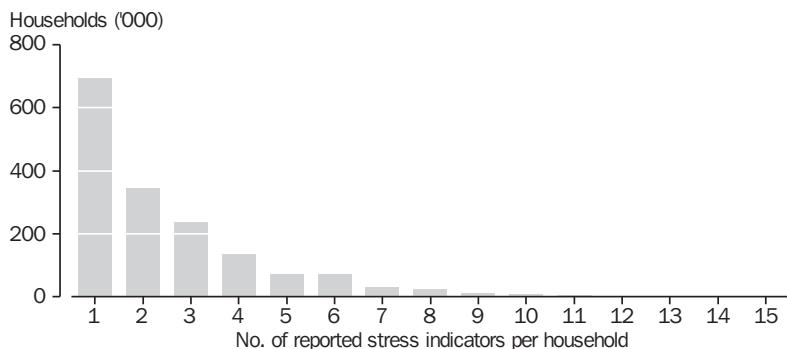
Source: *Australian Economic Indicators*, June 2001 (1350.0).

For the remaining 34% of Australian households reporting multiple incidences of the stress indicators, and therefore classified in this article as financially stressed, a simple two way split of moderate and higher stress was used.

The boundary between the two levels of stress was chosen to reflect a natural break in the incidence of multiple reporting of indicators,

particularly for average to high income households (those in the third, fourth and highest income quintiles) (see graph S2.4). A household was labelled as being in 'moderate financial stress' if it reported two to four indicators, while the incidence of five or more indicators was labelled as 'higher financial stress'.

**S2.4 INCIDENCE OF REPORTED FINANCIAL STRESS INDICATORS,  
Average to High Income Households — 1998–99**



Source: Australian Economic Indicators, June 2001 (1350.0).

On the basis of this grouping of 2 to 4 indicators (moderate stress), and 5 or more indicators (higher stress), nearly 900,000 (13%) Australian households indicated higher financial stress, and about 1.5 million (21%) indicated moderate stress. These overall stress levels, based on multiple reporting of indicators, differ substantially from the single indicator measures (e.g. they are much higher than the severe indicator of seeking help from welfare or community organisations (3%), and higher than the less severe indicator of seeking financial help from family or friends (10%)).

One way of testing the validity of these measures of moderate and higher stress is to look a little more closely at the reporting of grouped indicators. For example, suppose that all of the less severe indicators (say, all deprivation indicators except the ability to buy new clothes and the two financial stress indicators of 'spend more than receive' and 'don't pay bills on time') were accorded much lower weight than the remaining indicators, would this change the

incidence of measured financial stress? By excluding those households that only reported the less severe categories, the proportion of households in moderate stress would fall from 21% to 14%, but the proportion in higher stress would remain relatively unchanged at 12%.

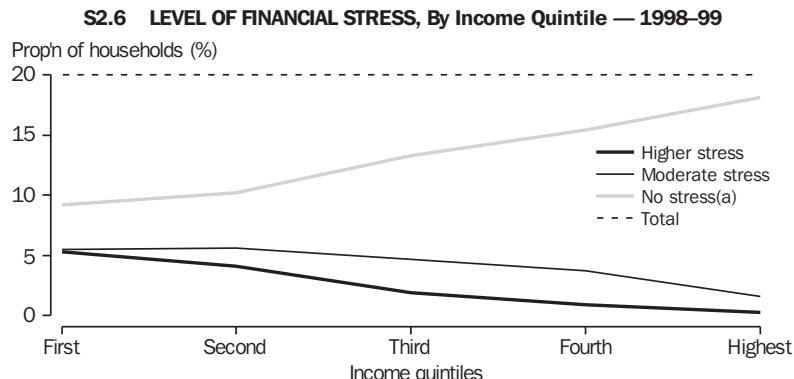
As can be seen in table S2.5 and graph S2.6, there is a distinct correlation between level of income and the level of financial stress indicated. Those households indicating higher stress are heavily clustered in the lowest two quintiles. The moderately stressed are also more likely to be in these two quintiles, with their proportion falling away between the second and third quintiles, but less precipitously than for the higher stressed group. Nevertheless, nearly half of the lowest income quintile did not indicate any stress, while there were substantial levels of stress indicated in the higher income quintiles.

**S2.5 LEVEL OF FINANCIAL STRESS, By Income Quintile — 1998–99**

Level of stress indicated	Income quintile					All households	
	Lowest	Second	Third	Fourth	Highest	%	'000
Higher stress	5.3	4.1	1.9	0.9	0.3	12.6	897
Moderate stress	5.5	5.6	4.7	3.7	1.6	21.2	1 509
No stress(a)	9.2	10.2	13.3	15.4	18.1	66.2	4 717
Total	20.0	20.0	20.0	20.0	20.0	100.0	7 123

(a) Only one or no stress indicators reported.

Source: Australian Economic Indicators, June 2001 (1350.0).



Source: Australian Economic Indicators, June 2001 (1350.0).

## Characteristics of the financially stressed

Tables S2.7 to S2.10 provide some insights into the incidence of financial stress reported by various groups in the population, and comparisons between households that indicated financial stress and those that did not.

In terms of the life cycle groups of special interest shown in table S2.7, the group indicating the greatest level of financial stress was lone parents with dependent children only, with 41% showing higher stress and a further 32% showing moderate stress. In contrast, single people and couples over 65 years of age showed the lowest levels of stress.

The pattern of financial stress for households by principal source of income is shown in table S2.8. Just over 40% of households principally dependent on 'other' government pensions and allowances, which includes many lone parents, showed higher stress. The only group with a greater proportion of households in this higher stress category comprised households principally dependent on unemployment, education and sickness allowances, with 45% indicating higher stress. In contrast, for households largely dependent on age and disability support pensions, the proportions were lower in both stress categories, with 16% indicating higher

stress and 25% moderate stress. Households with other principal sources of income (except for the relatively small population group with 'other private income') had lower incidences of moderate or higher stress.

A relatively small group of approximately 100,000 households reported zero or negative income. Contrary to what might be expected, they indicated a well below average proportion of households with higher stress and about average proportion with moderate stress, providing an extreme example of where income is not a good indicator of standards of living. This group comprises households in which losses from their unincorporated businesses or investments equalled or were greater than their income from any other sources. In general this population can draw on economic resources other than income to maintain their standard of living, at least in the short term.

Tables S2.9 and S2.10 compare some characteristics of the households indicating different levels of financial stress, and also contrast the two lower income quintile households with the higher income quintile households.

**S2.7 SELECTED LIFE CYCLE GROUPS, By Level of Financial Stress — 1998–99**

Selected life cycle group	%	%	%	%	All households
					'000
Lone person, under 35 years	21.0	21.8	57.2	100.0	327
Couple with dependent children only	13.7	24.5	61.9	100.0	1 697
One parent with dependent children only	40.8	31.5	27.6	100.0	382
Couple, reference person 65 years or over(b)	4.2	15.3	80.6	100.0	594
Lone person, 65 years or over	7.3	17.4	75.3	100.0	622
<b>All households</b>	<b>12.6</b>	<b>21.2</b>	<b>66.2</b>	<b>100.0</b>	<b>7 123</b>

(a) Only one or no stress indicators reported. (b) Reference person is normally the higher income recipient of the couple. Where incomes are the same, it is the older person.

Source: Australian Economic Indicators, June 2001 (1350.0).

**S2.8 PRINCIPAL SOURCE OF INCOME, By Level of Financial Stress — 1998–99**

Principal source of income	%	%	%	%	All households
					'000
Wages and salaries	7.9	20.7	71.5	100.0	4 083
Self employed	5.6	16.1	78.3	100.0	422
Superannuation	—	*10.2	89.8	100.0	232
Investment (including account interest and rental income)	*1.6	8.5	89.9	100.0	267
Other private income	*19.7	28.4	51.9	100.0	83
Age and disability support pensions	16.1	24.8	59.2	100.0	1 093
Unemployment, education and sickness allowances	44.6	31.2	24.1	100.0	260
Other government pensions and allowances	40.1	26.1	33.8	100.0	585
Household has zero or negative income	*5.6	23.4	71.1	100.0	99
<b>Total</b>	<b>12.6</b>	<b>21.2</b>	<b>66.2</b>	<b>100.0</b>	<b>7 123</b>

\* estimate has a relative standard error of 25% to 50%.

(a) Only one or no stress indicators reported.

Source: Australian Economic Indicators, June 2001 (1350.0).

Within the lower income quintiles, the households indicating financial stress were much more likely on average to contain dependent children, while the households not indicating stress were much more likely to comprise people over 65 years of age. Consistent with their different demographic composition, 66% of the lower income households not indicating stress own their own home without a mortgage, compared to only 19% of the higher stressed. The higher stressed

households within the two lower income quintiles, on average, spent \$90 per week (20% of their total expenditure on goods and services) on current housing costs, whereas the corresponding expenditure for those not indicating stress was only an average of \$59 per week. The latter group spent significantly more on alcoholic beverages, medical care and health expenses, and recreation, but significantly less on tobacco products.

**S2.9 AVERAGE WEEKLY HOUSEHOLD EXPENDITURE, By Income and Level of Financial Stress — 1998–99**

Expenditure category	Two lower income quintiles			Three higher income quintiles			Total
	Higher stress	Moderate stress	No stress(a)	Higher stress	Moderate stress	No stress(a)	
Goods and services							
Current housing costs	89.57	79.75	59.06	121.68	127.47	111.06	97.43
Domestic fuel and power	17.05	15.91	15.53	19.40	18.46	19.24	17.87
Food and non-alcoholic beverages	91.10	100.61	101.52	121.72	137.96	149.08	126.99
Alcoholic beverages	7.07	8.95	12.43	19.00	24.47	28.40	20.43
Tobacco products	15.52	10.49	5.91	19.08	16.29	10.08	10.74
Clothing and footwear	15.31	17.80	20.75	28.87	32.39	43.34	31.90
Household furnishings and equipment	21.10	28.92	34.21	39.33	41.38	53.35	42.22
Household services and operation	34.69	30.91	34.04	46.31	45.62	46.77	41.26
Medical care and health expenses	11.88	17.48	28.47	25.32	32.31	42.36	32.47
Transport	57.41	71.42	79.97	130.92	147.87	149.42	117.82
Recreation	34.73	48.61	64.10	73.34	86.76	121.04	88.81
Personal care	6.72	8.67	10.23	11.25	13.13	18.10	13.73
Miscellaneous goods and services	29.79	30.38	34.60	62.49	72.29	75.13	57.31
<b>Total goods and services expenditure</b>	<b>431.94</b>	<b>469.90</b>	<b>500.82</b>	<b>718.72</b>	<b>796.40</b>	<b>867.37</b>	<b>698.97</b>
Selected other payments							
Income tax	16.47	26.63	19.37	149.40	198.60	303.75	175.09
Mortgage repayments — principal	7.89	12.26	13.74	*21.25	35.09	39.75	27.58
Superannuation and life insurance	2.64	5.04	6.63	17.62	21.12	38.89	22.98

\* estimate has a relative standard error of 25% to 50%.

(a) Only one or no stress indicators reported.

Source: Australian Economic Indicators, June 2001 (1350.0).

**S2.10 CHARACTERISTICS OF HOUSEHOLDS, By Income and Level of Financial Stress — 1998–99**

Selected characteristics	Two lower income quintiles			Three higher income quintiles			Total
	Higher stress	Moderate stress	No stress(a)	Higher stress	Moderate stress	No stress(a)	
Household financial characteristics	\$	\$	\$	\$	\$	\$	\$
Average weekly income	373	392	307	881	1 026	1 293	874
Weekly average of irregular receipts(b)	26	40	73	**55	50	97	73
Average value of loans outstanding	12 531	15 538	11 474	29 709	41 706	34 589	26 455
Household member characteristics	no.	no.	no.	no.	no.	no.	no.
Average number of employed persons in household	0.5	0.6	0.6	1.4	1.7	1.7	1.2
Average number of persons in the household							
Under 18 years	1.27	0.93	0.52	0.78	0.79	0.50	0.66
18 to 64 years	1.50	1.43	1.06	1.91	1.96	1.86	1.63
65 years and over	0.15	0.36	0.72	**0.05	0.07	0.21	0.30
Total	2.92	2.72	2.30	2.74	2.83	2.57	2.60
Household composition (% of households)	%	%	%	%	%	%	%
Couple, one family							
Couple only	10.6	19.5	33.9	10.8	18.8	27.0	24.6
Couple with dependent children only	27.3	26.6	18.4	21.6	28.5	23.9	23.8
Other couple, one family households	7.7	6.7	7.5	13.7	13.2	15.2	11.8
One parent, one family with dependent children	23.9	11.9	3.5	13.7	6.5	2.3	6.4
Other family households	3.7	5.2	3.3	*8.3	8.9	5.6	5.4
Lone person	26.1	27.7	31.3	26.8	17.2	21.3	24.2
Group	**0.6	*2.3	2.2	*5.2	6.9	4.7	3.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Household tenure type (% of households)							
Owners without a mortgage	19.0	36.6	65.6	14.2	18.4	40.1	39.7
Owners with a mortgage	18.0	22.3	16.3	30.9	43.4	36.4	29.7
Renters from State or Territory housing authority	19.6	13.5	4.8	*10.1	3.5	1.0	5.4
Renters — other	40.5	24.7	9.6	41.2	32.6	20.8	22.7
Other	*2.8	3.0	3.8	*3.7	*2.2	1.7	2.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Broad geographic area (% of households)							
Capital city	59.0	59.2	54.1	70.5	65.3	68.8	63.6
Other urban	29.1	29.7	29.4	22.0	27.5	23.8	26.4
Rural	11.9	11.1	16.5	*7.5	7.3	7.4	10.0
Total households	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Estimated number of households in population	'000	'000	'000	'000	'000	'000	'000
Capital city	396.5	470.0	748.1	158.4	466.9	2 293.1	4 533.0
Other urban	195.5	235.7	407.4	49.5	196.4	792.8	1 877.2
Rural	79.9	88.4	228.1	*17.0	52.0	247.4	712.6
Total households	672.0	794.0	1 383.5	224.8	715.3	3 333.2	7 122.8

\* estimate has a relative standard error of 25% to 50%. \*\* estimate has a relative standard error greater than 50%.

(a) Only one or no stress indicators reported. (b) Includes receipts such as inheritances and gifts.

Source: Australian Economic Indicators, June 2001 (1350.0).

In total, within the two lower income quintiles, the households indicating higher stress spent less on goods and services per week (\$432) than those not indicating stress (which spent \$501), even though they had higher incomes (\$373 per week compared to \$307). The discrepancies can be explained, at least in part, by the lower level of irregular receipts such as inheritances and gifts received by the households indicating higher stress (an average of \$26 per week compared to \$73 received by those not stressed) and because the households comprising older people can be expected, on average, to have more savings that can be drawn upon to maintain higher standards of living.

Little difference is observed in the incidence of all levels of financial stress between households in capital cities, other urban and rural areas within each income grouping. However, 56% of rural households fall into the two lower income quintiles, compared to 36% of capital city households and 45% of other urban households.

Within the three higher income quintiles, the households indicating financial stress are not so clearly differentiated from the households not indicating stress, although some of the differences are similar to those for the lower income quintiles.

For all levels of stress, households in the higher income quintiles are more likely to be owners with a mortgage, that is, they are buying their own home. Households indicating moderate stress levels have the greatest proportion buying their own home (43% compared to 31% for those indicating higher stress and 36% for those not indicating stress) and they have a correspondingly higher average value of loans outstanding. Interestingly, in both lower and higher income groupings, households indicating higher stress have a lower average value of loans outstanding than do those indicating moderate levels of stress.

## Conclusion

The deprivation and financial stress indicators collected in the 1998–99 HES can be used to provide an insight into the standard of living of various groups in the Australian community that goes beyond simple comparisons of relative income. This article has tabulated some results using these indicators in combination with income levels.

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## Introduction

Housing satisfies the essential needs of people for shelter, security and privacy. Shelter is recognised throughout the world as a basic human right. The adequacy or otherwise of housing is an important component of individual wellbeing. Housing also has great significance in the national economy, with its influence on investment levels, interest rates, building activity and employment.

The ways in which Australian families and individuals are housed reflect social, political and economic factors over the last century. For example, public health concerns towards the end of the nineteenth century resulted in legislation in the States which gave local government the authority to make building regulations and inspect dwellings, a responsibility they have to this day. Also at that time, demand for housing exceeded supply, rents were high, and overcrowding and slum conditions continued to be a problem into the twentieth century. This led to States introducing further legislation for the provision of public rental housing for low income earners. In the 1920s, the Commonwealth moved to provide financial assistance for access to home ownership to moderate and low income groups, and a number of policy initiatives over recent decades have focused on this goal. Governments have continued to actively promote home ownership as part of an overall policy directed at achieving people's self-reliance in housing, and a quality of housing adequate for their needs.

The predominance of separate, free standing houses situated on 'quarter acre blocks' within the mainland capital city areas is a feature of Australian

urban development. More recently, governments have moved to promote higher housing densities, to provide greater choice of housing types and to make better use of existing infrastructure. This has resulted in changes to urban planning and building regulation. There have been some changes in the nature of housing, and efficiencies in the use of land and infrastructure. However, even within this new framework, green field developments and free standing houses still predominate. Households in such developments are still largely reliant on the family car to access many neighbourhood facilities and services.

This chapter provides information on the types of dwellings Australians live in and their tenure arrangements, the affordability of housing, and the government assistance provided through housing and income support programs. It is based largely on information from the 1999–2000 Survey of Income and Housing Costs, but also draws on the 1999 Australian Housing Survey, house price index data, data about finance commitments for owner occupation, and administrative data relating to public housing and rent assistance. Care should be taken when comparing statistics from different sources because of differences in the timing, conceptual bases and scope of individual statistical sources.

## Types of dwellings

Table 8.1 shows the different dwelling structure types in each State and Territory in 1999–2000. The table shows that the separate house is the most popular type of dwelling in Australia, making up almost 80% of all dwellings. Tasmania had the highest proportion of separate houses (87%) and Northern Territory the lowest (70%).

**8.1 DWELLINGS, By Dwelling Structure and State/Territory — 1999–2000**

State/Territory	Separate house %	Semi-detached/row or terrace house/townhouse %	Flat/unit/apartment %	Total(a) %	Total(a) '000
New South Wales	75.4	9.6	14.4	100.0	2 406.0
Victoria	81.7	9.2	8.6	100.0	1 753.2
Queensland	83.3	7.1	8.0	100.0	1 335.8
South Australia	77.5	12.9	8.8	100.0	612.1
Western Australia	79.3	15.1	5.4	100.0	719.1
Tasmania	86.7	7.6	*4.6	100.0	187.6
Northern Territory(b)	70.0	*11.0	*15.5	100.0	53.8
Australian Capital Territory	78.4	*11.6	*9.5	100.0	120.5
<b>Australia</b>	<b>79.3</b>	<b>9.9</b>	<b>10.1</b>	<b>100.0</b>	<b>7 188.1</b>

(a) Includes other dwelling structure. (b) Excludes remote and sparsely settled areas.

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

Flats, units or apartments comprise 10% of dwellings in Australia. The Northern Territory (16%) had the highest proportion of flats, units or apartments, followed by New South Wales (14%). Tasmania and Western Australia had relatively low percentages of flats, units or apartments (5%).

Semi-detached row or terrace houses and town houses accounted for 10% of dwellings in Australia. There was a substantially greater proportion of semi-detached housing than of flats, units or apartments in Western Australia, South Australia and Tasmania. Conversely, New South Wales had substantially more flats, units or apartments than semi-detached housing.

## Dwelling materials and physical condition

### Housing condition

Most Australian dwellings were reported to be in good condition in the 1999 Australian Housing Survey, the majority of households (80%) reporting no major structural problems. For those with problems, cracks in walls or floors were the most often reported (by 473,300 or 7% of households). Other problems were sinking or moving foundations (5%), rising damp (4%) and walls or windows out of plumb (4%) (table 8.2).

Some 43% of households reported that repairs were required to the inside of their home and a similar proportion (45%) reported that repairs were required to the outside of the dwelling. However, of these, almost two-thirds reported the repair to be desirable but low need.

**8.2 ALL HOUSEHOLDS, By Dwelling Structure and Physical Condition — 1999**

Selected characteristics	Separate house '000	Semi-detached '000	Flat '000	Total(a) '000
Major structural problems				
Rising damp	218.5	42.5	46.2	308.3
Major cracks in walls/floors	345.6	51.0	74.1	473.3
Sinking/moving foundations	284.9	31.4	20.5	338.3
Sagging floors	200.2	23.2	*9.4	235.8
Walls/windows out of plumb	234.2	27.1	35.1	298.4
Wood rot/termite damage	186.1	13.0	23.4	224.8
Major electrical problems	73.4	*7.8	21.7	104.2
Major plumbing problems	168.5	25.0	55.2	249.3
Major roof defect	136.7	14.7	26.8	181.2
Other problems	84.7	*8.0	25.7	121.0
Not known	61.7	12.7	25.2	99.6
No major structural problems	4 649.6	494.5	569.3	5 747.9
<b>Total(b)</b>	<b>5 735.4</b>	<b>641.4</b>	<b>798.5</b>	<b>7 216.9</b>
Need for interior repairs				
Essential and urgent need	67.0	*6.3	20.3	94.2
Essential need	172.2	26.8	37.6	239.6
Moderate need	642.8	66.3	111.8	825.3
Desirable but low need	1 611.4	153.2	205.8	1 980.1
No need	3 242.0	388.8	422.9	4 077.6
<b>Total</b>	<b>5 735.4</b>	<b>641.4</b>	<b>798.5</b>	<b>7 216.9</b>
Need for exterior repairs				
Essential and urgent need	66.7	*5.6	*7.7	80.5
Essential need	206.5	17.1	27.2	253.3
Moderate need	721.3	59.3	102.6	888.6
Desirable but low need	1 657.1	144.9	185.3	1 993.7
No need	3 083.8	414.5	475.7	4 000.7
<b>Total</b>	<b>5 735.4</b>	<b>641.4</b>	<b>798.5</b>	<b>7 216.9</b>

(a) Includes other dwelling structures. (b) Components do not add to total as more than one response is allowed.

Source: Australian Housing Survey, 1999 (4182.0)

## Repairs and maintenance

Some 55% of households reported that repairs or maintenance had been carried out to their current dwelling within the last twelve months. The most commonly reported types of repair or maintenance were painting (31%), plumbing (24%) and electrical work (17%) (table 8.3).

## Number of bedrooms

One indicator of dwelling size is the number of bedrooms. In 1999–2000, half of all dwellings in Australia had three bedrooms, 24% had four or more bedrooms and 20% had two bedrooms (table 8.4). Of separate houses, 58% had

three bedrooms, while two bedroom dwellings were more common in semi-detached houses and in flats, units and apartments (46% and 60% respectively).

Nearly one-fifth (19%) of three bedroom dwellings had only one person living in them, over a third (36%) had only two persons, a further 20% had three persons, and 18% had four persons (table 8.5). Of two bedroom dwellings, most had one or two persons living in them (43% and 40% respectively).

Information on the incidence of other types of rooms such as bathrooms, toilets, laundries and lounge/dining/family rooms is available from the 1999 Australian Housing Survey.

### 8.3 ALL HOUSEHOLDS, By Tenure and Landlord Type and Repairs/Maintenance — 1999

Selected characteristics	Renter							
	Without a mortgage '000	Owner with a mortgage '000	State/ Territory housing authority '000	Private landlord '000	Total renters(a) '000	Rent free '000	Other tenure '000	Total '000
<b>Type of repairs/maintenance in last 12 months</b>								
Painting	835.7	912.9	93.2	327.7	452.0	31.5	27.0	2 259.1
Roof repair/maintenance	355.5	256.1	25.4	121.7	161.3	16.4	8.4	797.6
Tile repair/replacement	145.1	179.5	23.7	84.3	115.7	*6.6	5.8	452.7
Electrical work	399.0	500.6	55.2	243.2	321.8	20.8	12.4	1 254.7
Plumbing	529.6	568.6	96.6	424.4	569.9	24.9	11.0	1 704.0
Other	226.4	257.0	59.9	190.0	268.9	11.9	8.8	773.0
No repairs/maintenance(b)	1 374.4	897.3	155.1	632.6	842.6	61.0	36.8	3 212.2
<b>Total(c)</b>	<b>2 800.3</b>	<b>2 256.1</b>	<b>368.8</b>	<b>1 463.2</b>	<b>1 966.6</b>	<b>120.9</b>	<b>73.0</b>	<b>7 216.9</b>

(a) Includes other landlord type. (b) Includes households which did not know whether repairs/maintenance had been done.

(c) Components do not add to total as more than one response is allowed.

Source: Australian Housing Survey, 1999 (4182.0)

### 8.4 NUMBER OF DWELLINGS, By Dwelling Structure and Number of Bedrooms — 1999–2000

No. of bedrooms	Separate house '000	Semi-detached/row or terrace house/townhouse '000	Flat/unit/ apartment '000	Total(a) '000
Bedsitter	50.2	67.3	194.0	329.1
One bedroom	639.7	327.0	437.3	1 421.9
2 bedrooms	3 311.1	285.7	81.0	3 691.2
3 bedrooms	1 696.4	28.8	*4.5	1 733.7
4 or more bedrooms	5 697.4	708.9	725.8	7 188.1
<b>Total(b)</b>	<b>5 529.0</b>	<b>619.3</b>	<b>821.0</b>	<b>7 012.3</b>

(a) Includes other dwelling structure. (b) Includes bedsits and dwelling with zero bedrooms.

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

**8.5 ALL HOUSEHOLDS, By Number of Persons and Number of Bedrooms — 1999–2000**

No. of bedrooms	One person	Two persons	Three persons	Four persons	Five or more	Total	Total '000
Bedsitter	77.5	19.5	*1.8	*1.1	**0.0	100.0	329.1
One bedroom	43.1	39.8	11.2	4.6	1.3	100.0	1 421.9
2 bedrooms	19.1	35.7	19.7	18.1	7.4	100.0	3 691.2
3 bedrooms	6.8	23.3	17.5	26.1	26.3	100.0	1 733.7
4 or more bedrooms	24.5	32.7	16.5	16.2	10.1	100.0	7 188.1
<b>Total(a)</b>	<b>24.1</b>	<b>32.9</b>	<b>15.9</b>	<b>16.0</b>	<b>11.1</b>	<b>100.0</b>	<b>7 012.3</b>

(a) Includes bedsits and dwellings with zero bedrooms

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

**Home ownership and renting**

Australia has a high rate of home ownership. Of the 7.2 million households in Australia in 1999–2000, 71% were living in their own home, and 26% were renting their dwelling from a State or Territory housing authority or private landlords (table 8.6).

In 1999–2000, 38% of households owned their homes outright. In addition, 32% of households were paying off a mortgage or loan secured against their dwelling.

Of the almost two million households renting their dwellings, 74% were renting from private landlords, 20% were renting from State or Territory housing authorities and the remaining 6% from other landlords such as the owner/manager of a caravan park, an employer (including a government authority) or a community or church group.

Around 90% of owners lived in separate houses in 1999–2000. Of renter households, 53% lived in separate houses and 26% lived in flats, units or apartments.

Over one-third of households (34%) that owned their own home outright were couples with no children. One parent households accounted for 6% of outright owners, and lone person households made up 27% (based on table 8.7).

For couple households with dependent children only, the majority (79%) were owners, while 20% were renting. Of one parent families, 49% were home owners, 17% were renting from a State or Territory housing authority and 30% were renting from private landlords.

**8.6 ALL HOUSEHOLDS, By Dwelling Structure and Tenure and Landlord Type — 1999–2000**

Tenure type	Separate house '000	Semi-detached/row or terrace house/townhouse '000	Flat/unit/apartment '000	Total(a) '000
Owner without a mortgage	2 455.4	171.7	106.2	2 758.3
Owner with a mortgage	2 094.9	134.8	78.8	2 315.7
Renter				
State/Territory housing authority	216.4	106.0	79.1	402.0
Private landlord	752.0	269.0	414.7	1 446.4
Total(b)	1 040.5	394.7	510.9	1 962.8
Other tenure(c)	106.6	*7.7	29.8	151.4
<b>Total</b>	<b>5 697.4</b>	<b>708.9</b>	<b>725.8</b>	<b>7 188.1</b>

(a) Includes other dwelling structure. (b) Includes other landlord type. (c) Includes rent free and life tenure.

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

**8.7 ALL HOUSEHOLDS, By Tenure and Landlord Type and Household Composition — 1999–2000**

Type of household	Owner		Renter				
	Without a mortgage	With a mortgage	State/ Territory housing authority	Private landlord	Total(a)	Other tenure(b)	Total
Couple, one family	'000	'000	'000	'000	'000	'000	'000
Couple only	936.6	448.0	37.5	236.0	287.5	22.7	1 694.9
Couple with dependent children only	369.2	984.8	47.4	272.9	345.9	*19.7	1 719.7
Couple — other(c)	414.1	315.9	24.5	57.6	92.1	n.p.	825.2
Total couples, one family	1 719.9	1 748.7	109.5	566.4	725.5	45.5	4 239.7
One parent, one family(d)	166.8	152.9	113.9	199.9	326.6	*9.8	656.0
Lone person	745.4	293.2	164.0	413.4	614.8	85.2	1 738.6
Other	126.2	120.9	*14.6	266.6	295.8	*10.9	555.8
<b>Total</b>	<b>2 758.3</b>	<b>2 315.7</b>	<b>402.0</b>	<b>1 446.4</b>	<b>1 962.8</b>	<b>151.4</b>	<b>7 188.1</b>

(a) Includes other landlord type. (b) Includes rent free and life tenure. (c) Includes couples with non-dependent children and may include other family members. (d) Includes one-parent families with dependants or non-dependent children and may include other family members.

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

Tenure patterns vary across States and Territories. Victoria had the highest proportion of overall home ownership, with 76% of dwellings either being purchased or owned outright (table 8.8). The lowest proportion of overall home ownership (56%) was in the Northern Territory. The Australian Capital Territory, the Northern Territory and Western Australia had the highest proportion of households still purchasing their home (42%, 38% and 38% respectively).

The Northern Territory had the highest proportion of renters at 40%. This was considerably higher than the national rate of 27%. The proportion of households renting from private landlords ranged from 17% in South Australia, Victoria and Tasmania to 25% in Queensland.

The differences in tenure partly reflect differences in the age and life structures across States and Territories (see the article *Housing and lifestyle*).

**8.8 ALL HOUSEHOLDS, By Tenure and Landlord Type and State/Territory — 1999–2000**

State/Territory	Owner		Renter				
	Without a mortgage	With a mortgage	State/ Territory housing authority	Private landlord	Total(a)	Other tenure(b)	Total
New South Wales	39.8	30.5	5.9	21.0	28.1	1.6	100.0
Victoria	43.6	32.0	4.1	17.0	22.1	2.3	100.0
Queensland	34.6	31.7	4.7	24.7	31.6	2.1	100.0
South Australia	37.5	32.0	9.5	16.7	28.2	*2.3	100.0
Western Australia	31.5	37.9	5.4	20.0	27.6	3.0	100.0
Tasmania	41.7	30.3	*6.5	17.0	25.1	*2.9	100.0
Northern Territory(c)	*17.7	*38.3	*9.4	*22.4	39.5	**4.5	100.0
Australian Capital Territory	25.8	42.4	*10.2	19.4	20.3	**1.6	100.0
<b>Australia</b>	<b>38.4</b>	<b>32.2</b>	<b>5.6</b>	<b>20.1</b>	<b>27.3</b>	<b>2.1</b>	<b>100.0</b>
							<b>7 188.1</b>

(a) Includes other landlord type. (b) Includes rent free and life tenure. (c) Excludes remote and sparsely settled areas.

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

## Housing costs

Housing costs cover different items for different types of tenure. For owners who have no mortgage, housing costs comprise the rates paid. For owners with a mortgage, housing costs comprise the value of the mortgage payments as well as property rates. For households renting their dwelling, housing costs comprise the regular rental amounts paid to landlords.

Housing costs for owners with a mortgage, at an average of \$210 per week, were higher than for other forms of tenure. Households renting from private landlords had mean weekly housing costs of \$166, compared to \$71 for tenants of State or Territory housing authorities.

### 8.9 OWNER AND RENTER HOUSEHOLDS, Housing Costs by Household Composition and Tenure and Landlord Type — 1999–2000

Tenure and landlord type	Couple, one family							Total
	Couple only	Couple with dependent children only	Couple — other	Total couples, one family	One parent, one family	Lone person	Other	
MEAN WEEKLY HOUSING COSTS (\$)								
Owner without a mortgage	20	27	25	23	22	18	33	22
Owner with a mortgage	224	219	200	217	167	178	248	210
Renter — State/Territory housing authority	81	105	132	103	71	49	*76	71
Renter — private landlord	178	180	180	179	152	133	201	166
<i>Total renters(a)</i>	162	163	165	163	121	107	190	143
<b>Total owner and renter households</b>	<b>99</b>	<b>166</b>	<b>108</b>	<b>128</b>	<b>106</b>	<b>79</b>	<b>167</b>	<b>117</b>
MEAN WEEKLY INCOME (\$)								
Owner without a mortgage	721	1 240	1 489	1 017	792	394	1 143	841
Owner with a mortgage	1 294	1 274	1 660	1 349	825	768	1 599	1 254
Renter — State/Territory housing authority	455	576	796	584	419	220	*831	398
Renter — private landlord	1 048	913	1 173	995	581	532	1 252	853
<i>Total renters(a)</i>	970	867	1 057	932	522	439	1 243	756
<b>Total owner and renter households</b>	<b>917</b>	<b>1 184</b>	<b>1 506</b>	<b>1 141</b>	<b>663</b>	<b>477</b>	<b>1 299</b>	<b>953</b>
MEAN HOUSING COSTS AS A PROPORTION OF INCOME (%)								
Owner without a mortgage	3	2	2	2	3	4	3	3
Owner with a mortgage	17	17	12	16	20	23	16	17
Renter — State/Territory housing authority	18	18	17	18	17	23	*9	18
Renter — private landlord	17	20	15	18	26	25	16	20
<i>Total renters(a)</i>	17	19	16	18	23	24	15	19
<b>Total owner and renter households</b>	<b>11</b>	<b>14</b>	<b>7</b>	<b>11</b>	<b>16</b>	<b>17</b>	<b>13</b>	<b>12</b>
HOUSEHOLDS ('000)								
Owner without a mortgage	936.6	369.2	414.1	1 719.9	166.8	745.4	126.2	2 758.3
Owner with a mortgage	448.0	984.8	315.9	1 748.7	152.9	293.2	120.9	2 315.7
Renter — State/Territory housing authority	37.5	47.4	24.5	109.5	113.9	164.0	*14.6	402.0
Renter — private landlord	236.0	272.9	57.6	566.4	199.9	413.4	266.6	1 446.4
<i>Total renters(a)</i>	287.5	345.9	92.1	725.5	326.6	614.8	295.8	1 962.8
<b>Total owner and renter households</b>	<b>1 672.1</b>	<b>1 700.0</b>	<b>822.1</b>	<b>4 194.2</b>	<b>646.3</b>	<b>1 653.4</b>	<b>542.9</b>	<b>7 036.8</b>
HOUSEHOLD AND DWELLING SIZE (no.)								
Average persons in household	2.0	4.0	3.9	3.2	2.7	1.0	3.0	2.6
Average bedrooms in dwelling	3.0	3.4	3.5	3.2	3.0	2.4	2.9	3.0

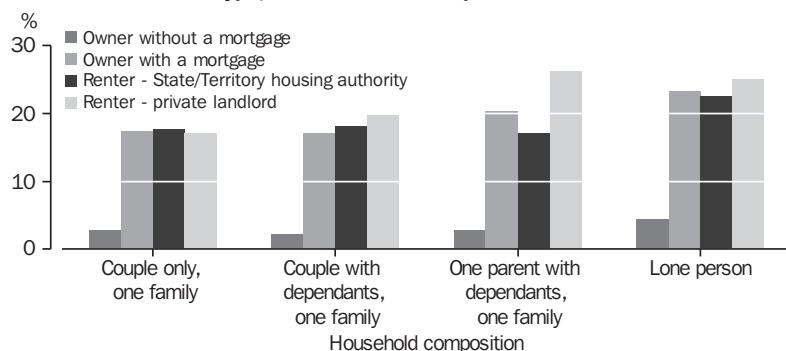
(a) Includes other landlord type.

Source: ABS data available on request, Survey of Income and Housing Costs 1999–2000.

For many households, weekly housing costs are a significant proportion of their weekly income. In 1999–2000, housing costs represented 17% of weekly income for owners with a mortgage, 18% of weekly income for tenants of State or Territory housing authorities and 20% of weekly income for tenants renting from

private landlords. Housing costs as a proportion of income differed depending on tenure type, landlord type and household composition (graph 8.10 and table 8.11).

#### 8.10 MEAN HOUSING COSTS AS A PROPORTION OF INCOME, By Tenure and Landlord Type, and Household Composition — 1999–2000



Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

#### 8.11 OWNER AND RENTER HOUSEHOLDS, Housing Costs as a Proportion of Income, By Tenure and Landlord Type — 1999–2000

	Owner without a mortgage	Owner with a mortgage	Renter			Total
			State/Territory housing authority	Private landlord	Total(a)	
<b>Housing costs as a proportion of income</b>						
25% or less	97.6	71.4	82.1	57.9	64.5	79.8
26–30%	n.p.	9.0	12.2	9.3	9.5	5.7
31–50%	*0.5	13.2	*4.1	21.7	17.1	9.3
More than 50%	*0.7	5.6	*1.3	9.6	7.7	4.3
Total(b)	100.0	100.0	100.0	100.0	100.0	100.0
Total owner and rental households	'000 2 758.3	'000 2 315.7	'000 402.0	'000 1 446.4	'000 1 962.8	'000 7 036.8

(a) Includes other landlord type. (b) Includes households with nil or negative total income.

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

## Housing and lifestyle

As people progress through different life-cycle stages and their family structures and financial situations change, so do their housing needs and preferences. An understanding of the relationships between life-cycle stage, income, housing costs and level of investment in home ownership can be useful in developing policies which enable home purchase among those who would otherwise find this difficult.

There are long-term benefits in home ownership. Initially, the cost of home purchase is often far greater than renting (due to the costs of deposits and fees, as well as ongoing mortgage repayments). However, the much lower costs associated with owning a home outright, and the investment that a home represents, can be major factors in the ongoing economic wellbeing of many Australians, particularly as many retire on considerably reduced incomes.

The data in this article come from the ABS 1999 Australian Housing Survey. More information about this survey can be found in *Australian Housing Survey: Housing Characteristics, Costs and Conditions, 1999* (4182.0).

### Housing costs

For the purpose of the 1999 Australian Housing Survey, ongoing housing costs comprise:

- mortgage or loan repayments (secured or unsecured) where the purpose of the loan is to buy or build, add to or alter the dwelling;
- rental payments;
- water and general council rates;
- land tax payments;
- body corporate or strata title payments; and
- expenditure on repairs and maintenance for the dwelling.

Only payments which related to the dwelling occupied at the time of interview were included. Payments for other dwellings were not regarded as housing costs, even if the usual dwelling had been offered as security.

The 1999 Australian Housing Survey estimated that the average weekly housing cost for all households was \$129. (This measure is different to the average weekly housing costs reported in the Survey of Income and Housing Costs,

1999–2000, due to different populations and collection procedures — see the section *Housing costs*). Outright owners (those without a mortgage) had the lowest average weekly housing cost (\$47), while those with a mortgage had the highest cost, spending an average of \$228 per week (although some of the cost for this group reflects the fact that 54% of these households chose to pay more than their minimum mortgage repayment). On average, those households which were renting paid \$146 per week in housing costs.

Most Australian households live in separate houses (80% in 1999). However, as with tenure, the type and size of dwellings and housing costs vary across different life-cycle groups.

### Life-cycle and housing

The life-cycle groups whose housing circumstances are discussed in this article include:

- lone person aged under 35 years;
- couple only, reference person aged under 35 years;
- couple, eldest child aged under 5 years;
- couple, at least one dependent child aged 15 years or over;
- lone-parent family with dependent children;
- couple only, reference person aged 65 years or over; and
- lone person aged 65 years or over.

*Dependent children* are children aged under 15 years plus full-time students aged 15 to 24 years living with a parent and without a partner or child of their own in the household.

The *reference person* for each household is chosen by applying, to all usual residents aged 15 years and over in the household, the selection criteria below, in order of precedence:

- the person with the highest tenure type ranked from owner without a mortgage, owner with a mortgage, renter, other tenure; or
- the person with the highest income; or
- the oldest person.

In 1999, 70% of Australian households owned their homes. The tenure of a household is strongly related to life-cycle stages, generally following a pattern of renting in early adulthood, moving to home purchase and mortgages as partnerships are formed and children are born, and owning the home outright in older age. However for some, family breakdown disrupts this pattern.

Between 1994 and 1999, the home ownership rates of various life-cycle groups showed little change. However, there were two exceptions. For young couple households without children, home ownership fell from 60% in 1994 to 52% in 1999, while home ownership for lone-parent families increased over the period (from 35% to 40%) (graph 8.12).

### **Young households (under 35 years)**

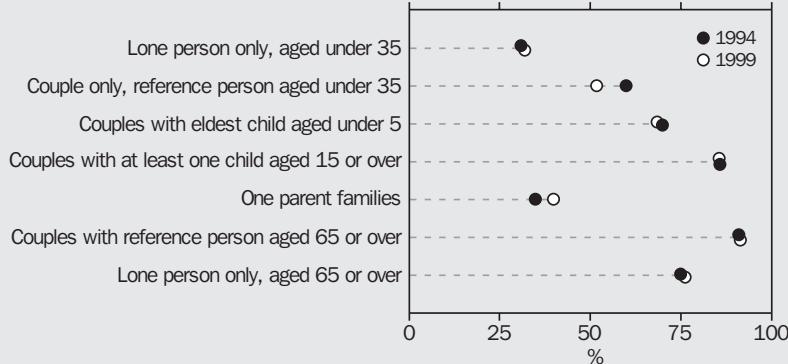
In 1999, young lone-person and couple-only households (those with a reference person aged under 35 years), comprised 10% of all households in Australia (each group around 5%). People in these households are generally more mobile. Many are studying or starting

their careers, and are likely to be on lower incomes than they will be at later stages in their lives. In many cases, they are yet to move into home ownership.

Young lone-person households were most likely of all life-cycle groups to be renting (62%), with most of these (84%) renting from private landlords. Less than one-third of young lone-person households had moved into home ownership, and most that had, did so with a mortgage. However, young people are more inclined to move into home ownership as they form couples. Just over half of young couple households without children owned their own home. As was the case for young lone-person households, most of these couples had a mortgage.

In keeping with their larger household size, young couples without children lived in dwellings where the average number of bedrooms was higher than for young lone persons (2.6 compared with 2.1). Young couple households without children were also more likely than young lone-person households to live in separate dwellings (68% compared with 46%), with the majority of young singles living in semi-detached dwellings or flats.

**8.12 PROPORTION OF HOME OWNERS , By Life-cycle Group**



Source: 1994 and 1999 Australian Housing Surveys.

Reflecting their lower household incomes, young lone persons spent on average over a fifth (22%) of their income on housing. Young couple households without children (many of whom are on dual incomes) on average spent a lower proportion of their income on housing costs (17%) than young lone-person households, despite the fact that they had much higher average weekly housing costs (\$234 compared with \$143) (table 8.13).

### Families with children

As families are formed and grow, housing needs and preferences change. The birth of children increases family size and often results in the household shifting back to dependence on a single income when children are very young. The trend to home purchase and moving into larger dwellings increases as couples and their children grow older. At this time, parents' incomes are likely to be higher than those in younger life-cycle groups due to their more established careers and the move of parents (mainly mothers) back into the workforce and full-time employment.

Of couple families with all children aged under 5 years, 69% were home owners (56% were paying off a mortgage). Among households

containing couple families with older children (at least one aged 15 years or over), home ownership was higher (86%) than for those with younger children and over a third (35%) owned their home outright.

Income levels vary considerably over a person's life cycle. Household incomes for couples, and hence their capacity to pay for larger, more expensive homes, usually increase as their children grow older. In 1999, most couple households with young children lived in separate houses and in homes with three or more bedrooms (85% and 78% respectively). However, couple households with older dependent children were even more likely to do so (96% and 97% respectively). Despite this, housing costs for couple households with young children were generally higher (\$211 on average per week, representing 19% of their average weekly income) than for couples with older children (\$159 which constituted 10% of their weekly income). This is likely to reflect the fact that couple households with young children usually have less equity in their homes than couples with older children. The former households are also more likely to have bought their home more recently and therefore to have purchased their house at a higher price.

**8.13 YOUNG PEOPLE, Selected Characteristics**

	Units	Household composition	
		Lone person aged under 35 years	Couple only, reference person aged under 35 years
Tenure type			
Owner without a mortgage	%	4.8	5.4
Owner with a mortgage	%	27.0	46.3
Renters	%	62.2	46.4
Average housing costs as a proportion of income			
Owner without a mortgage	%	*7.5	*9.5
Owner with a mortgage	%	26.6	20.6
Renters	%	22.8	13.8
All households	%	22.2	16.9
Proportion of income spent on housing costs(a)			
25% or less(b)	%	54.9	75.2
More than 50%	%	12.2	3.7
Proportion in a separate house			
Average weekly housing costs			
Owner without a mortgage	\$	*53	*139
Owner with a mortgage	\$	227	324
Renters	\$	130	164
All households	\$	143	234
Average number of bedrooms in dwelling	no.	2.1	2.6
<b>Total households</b>	'000	<b>327.6</b>	<b>366.2</b>

(a) Households with unknown housing costs and households with nil or negative income were excluded prior to the calculation of percentages. (b) Includes households which reported no housing costs.

Source: Australian Housing Survey: Housing Characteristics, Costs and Conditions, 1999 (4182.0)

For those who owned a house, average weekly housing costs for couples with young children ranged from \$259 for those with a mortgage to \$116 for those without a mortgage. For couples with older children, average weekly housing costs ranged from \$225 for those with a mortgage to \$67 for those without a mortgage. In contrast, households containing couple families which were renting had similar costs regardless of the age of children present (table 8.14).

When families are disrupted through divorce or separation, the trend towards home ownership is often reversed, reflecting reduced household incomes and the splitting of family assets. As a result, the household may move from home ownership back to renting, and also into a smaller, more affordable home. Lone-parent households with dependent children were more likely to be renting (58%) than to own their home (40%), and they were the life-cycle group most likely to be renting through a State or

Territory housing authority (21%). In 1999, while most lone-parent households with dependent children lived in separate dwellings (76%) and in dwellings with at least three bedrooms (77%), these proportions were lower than for couples with dependent children.

Average weekly housing costs for lone-parent households with dependent children were \$124, or 22% of their average weekly income. Among these households, private renters paid \$152, on average, in housing costs which represented 31% of average weekly income. Lone-parent households with dependent children were more than three times as likely as couple households with at least one dependent child aged 15 years or over to spend more than 25% of their income on housing (44% compared with 13%). Just over 10% of lone-parent households with dependent children spent more than 50% of their income on housing.

**8.14 FAMILIES WITH CHILDREN, Selected Characteristics**

	Units	Couple with eldest child aged under 5 years	Couple with at least one dependent child aged 15 years or over	Lone parent with dependent children
<b>Tenure type</b>				
Owner without a mortgage	%	12.7	35.0	15.0
Owner with a mortgage	%	55.9	50.6	24.8
Renters	%	28.5	12.4	58.3
<b>Average housing costs as a proportion of income</b>				
Owner without a mortgage	%	9.1	4.5	7.0
Owner with a mortgage	%	21.1	13.8	24.5
Renters	%	19.4	15.2	27.4
<i>All households</i>	%	18.8	10.5	22.1
<b>Proportion of income spent on housing costs(a)</b>				
25% or less(b)	%	69.0	87.5	56.2
More than 50%	%	5.7	2.8	10.3
<b>Proportion in a separate house</b>	%	84.5	95.6	75.9
<b>Average weekly housing costs</b>				
Owner without a mortgage	\$	116	67	53
Owner with a mortgage	\$	259	225	181
Renters	\$	168	169	120
<i>All households</i>	\$	211	159	124
<b>Average number of bedrooms in dwelling</b>	no.	3.0	3.6	3.0
<b>Average household size</b>	no.	3.4	4.4	2.8
<b>Total households</b>	'000	<b>415.4</b>	<b>708.9</b>	<b>415.5</b>

(a) Households with unknown housing costs and households with nil or negative income were excluded prior to the calculation of percentages. (b) Includes households which reported no housing costs.

Source: Australian Housing Survey: Housing Characteristics, Costs and Conditions, 1999 (4182.0).

## Older persons (65 years and over)

Home ownership is very high among older people, with outright ownership by far the most common tenure type for Australians aged 65 years and over. The benefits of this to older people include lower housing costs, security of tenure, and having an asset that may be realised for consumption or passed on to later generations as inheritance.

In 1999, older persons living in a couple-only household (those where the reference person was aged 65 years or over) had very high ownership rates (91%), with 88% owning their home outright. Older lone-person households (which are often formed after a partner dies) had a home ownership rate of 76%, with 73% owning their home outright. Older lone-person households were more likely to be renting than older couple-only households (19% compared with 7%), with 10% of older people living alone renting from State or Territory housing authorities.

In 1999, the average weekly income of older person households was lower than for any other life-cycle group (reflecting the likelihood that household members had retired). However, average weekly housing costs for this group were also lower than for other life-cycle groups (\$44 for couple households and \$40 for lone-person households). Even for those older person households with a mortgage, average weekly housing costs were relatively low (\$91 for older couple households and \$62 for older lone-person households) (table 8.15). This partly reflects the fact that many of these households purchased their first home some decades earlier when home prices and mortgages were considerably lower. However, for the small proportion who were renting, housing payments consumed a relatively large proportion of their incomes. The 7% of older lone-person households which were renting from private landlords spent a higher proportion of their income (49%) on housing costs than any other life-cycle group.

**8.15 OLDER PEOPLE, Selected Characteristics**

	Units	Household composition		
		Couple only, reference person aged 65 years or over	Lone person aged 65 years or over	
Tenure type				
Owner without a mortgage	%	87.6	72.8	
Owner with a mortgage	%	3.8	3.3	
Renters	%	6.8	19.3	
Average housing costs as a proportion of income				
Owner without a mortgage	%	7.4	11.4	
Owner with a mortgage	%	15.7	22.0	
Renters	%	26.7	33.7	
All households	%	8.8	15.2	
Proportion of income spent on housing costs(a)				
25% or less(b)	%	90.1	81.6	
More than 50%	%	2.7	6.0	
Proportion in a separate house	%	86.5	64.8	
Average weekly housing costs				
Owner without a mortgage	\$	38	31	
Owner with a mortgage	\$	91	62	
Renters	\$	103	70	
All households	\$	44	40	
Average number of bedrooms in dwelling	no.	2.9	2.4	
<b>Total households</b>	'000	<b>582.5</b>	<b>681.8</b>	

(a) Households with unknown housing costs and households with nil or negative income were excluded prior to calculation of percentages. (b) Includes households which reported no housing costs.

Source: Australian Housing Survey: Housing Characteristics, Costs and Conditions, 1999 (4182.0).

Reflecting their smaller household size, the homes of older lone persons were more likely to be smaller than those of older couples. Older lone persons were less likely to live in separate dwellings than older couples (65% compared with 87%), and more likely to be living in dwellings with fewer bedrooms than older couples (2.4 bedrooms on average compared with 2.9).

For many older people, the onset of diminished health and disabilities, and the need for security and ready access to services such as public transport, are often key considerations in their choice of housing, especially after the death of a partner. The growing proportion of older persons (in particular of persons aged 80 years and over) in Australia has led to the emergence of new types of housing such as self-care dwellings in retirement villages. In 1999, 1% of older couples and 3% of older lone persons were living in such accommodation.

## Housing costs in capital cities

In 1999–2000, the mean weekly housing costs for households in all capital cities was \$133 (table 8.16). However, there was considerable variation between capital cities. Hobart had the lowest mean housing costs at \$87 per week.

While Sydney had the highest housing costs for most tenure and landlord types, Canberra recorded the highest mean housing costs for total households (\$161 compared to Sydney's \$155) because of the larger proportion of households in Canberra purchasing their homes.

## House prices

House price indexes enable the comparison of price changes between cities, though not the price levels themselves.

From 1999–2000 to 2000–01, the price index of established houses increased in all capital cities except Darwin (table 8.17).

For the fourth year in a row, Melbourne recorded the greatest rise in established house prices, increasing by 10.0% in 2000–01. Other capital city price rises were in Canberra (8.8%), Sydney (7.0%), Adelaide (6.4%), Perth (6.4%), Brisbane (5.1%) and Hobart (4.0%). House prices in Darwin fell by 0.3%. The weighted average of eight capitals index rose by 7.4%.

In 2000–01, project home prices (cost of new dwellings excluding land) rose significantly in all capital cities (table 8.18). Canberra recorded the largest increase (16.4%), followed by Sydney (12.4%), Melbourne (12.2%), Brisbane (11.7%), Adelaide (11.6%), Hobart (11.5%), Perth (9.9%) and Darwin (9.5%). The index for the weighted average of eight capitals rose by 11.8%.

The price index of materials used in house building is discussed in *Chapter 20, Construction*.

**8.16 CAPITAL CITY OWNER AND RENTER HOUSEHOLDS, Housing Costs by Tenure and Landlord Type — 1999–2000**

Tenure and landlord type	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra	All capital cities(a)
MEAN WEEKLY HOUSING COSTS (\$)								
Owner without a mortgage	26	24	24	21	18	20	30	24
Owner with a mortgage	277	225	198	163	211	144	259	228
Renter — State/Territory housing authority	78	76	70	70	65	*78	*73	74
Renter — private landlord	227	168	156	143	142	*122	169	182
<i>Total renters(b)</i>	195	152	139	114	126	109	134	157
<b>Total owner and renter households</b>	<b>155</b>	<b>123</b>	<b>126</b>	<b>98</b>	<b>129</b>	<b>87</b>	<b>161</b>	<b>133</b>
MEAN WEEKLY INCOME (\$)								
Owner without a mortgage	995	1 003	835	797	870	703	1 037	945
Owner with a mortgage	1 485	1 300	1 372	1 066	1 237	1 095	1 479	1 337
Renter — State/Territory housing authority	480	401	380	382	334	*470	*380	421
Renter — private landlord	1 066	927	794	817	790	*608	1 040	928
<i>Total renters(b)</i>	947	836	761	646	715	569	819	826
<b>Total owner and renter households</b>	<b>1 132</b>	<b>1 068</b>	<b>1 004</b>	<b>843</b>	<b>985</b>	<b>797</b>	<b>1 160</b>	<b>1 047</b>
MEAN HOUSING COSTS AS A PROPORTION OF INCOME (%)								
Owner without a mortgage	3	2	3	3	2	3	3	3
Owner with a mortgage	19	17	14	15	17	13	18	17
Renter — State/Territory housing authority	16	19	19	18	20	17	19	18
Renter — private landlord	21	18	20	18	18	20	16	20
<i>Total renters(b)</i>	21	18	18	18	18	19	16	19
<b>Total owner and renter households</b>	<b>14</b>	<b>12</b>	<b>13</b>	<b>12</b>	<b>13</b>	<b>11</b>	<b>14</b>	<b>13</b>
HOUSEHOLDS ('000)								
Owner without a mortgage	577.3	523.5	178.3	156.7	159.6	28.9	31.0	1 664.9
Owner with a mortgage	459.4	430.4	216.9	152.3	222.3	25.1	51.1	1 578.2
Renter — State/Territory housing authority	85.2	42.3	30.9	44.5	25.7	*5.9	*12.2	251.8
Renter — private landlord	352.8	236.2	161.7	82.0	109.7	*15.1	23.4	993.0
<i>Total renters(b)</i>	447.2	285.4	204.4	134.9	139.4	21.0	36.5	1 290.0
<b>Total owner and renter households</b>	<b>1 483.8</b>	<b>1 239.3</b>	<b>599.7</b>	<b>443.9</b>	<b>521.3</b>	<b>75.1</b>	<b>118.6</b>	<b>4 533.1</b>

(a) Includes households in the Northern Territory, for which disaggregated data are not acceptable for most purposes. (b) Includes other landlord type.

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

**8.17 PRICE INDEX NUMBERS FOR ESTABLISHED HOUSES(a)**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
INDEX NUMBER									
1998–99	137.9	126.8	141.0	114.1	118.9	123.2	193.6	128.2	130.4
1999–2000	153.1	144.6	142.2	123.2	125.9	129.0	199.2	137.0	142.3
2000–01	163.8	159.1	149.4	131.1	133.9	134.2	198.7	149.1	152.8
CHANGE FROM PREVIOUS YEAR (%)									
1998–99	7.3	10.9	1.5	1.8	4.9	-1.8	-2.7	1.6	6.2
1999–2000	11.0	14.0	0.9	8.0	5.9	4.7	2.9	6.9	9.1
2000–01	7.0	10.0	5.1	6.4	6.4	4.0	-0.3	8.8	7.4

(a) Reference base year 1989–90 = 100.0.

Source: House Price Indexes: Eight Capital Cities (6416.0).

**8.18 PRICE INDEX NUMBERS FOR PROJECT HOMES(a)**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Weighted average of eight capital cities
	INDEX NUMBER								
1998–99	115.2	112.5	113.4	117.0	106.1	123.3	139.0	124.4	113.1
1999–2000	123.1	122.0	118.2	127.2	114.8	126.2	143.2	131.9	120.7
2000–01	138.4	136.9	132.0	141.9	126.2	140.7	156.8	153.5	134.9
	CHANGE FROM PREVIOUS YEAR (%)								
1998–99	2.7	3.6	0.9	3.4	3.8	0.0	1.2	0.7	2.5
1999–2000	6.9	8.4	4.2	8.7	8.2	2.4	3.0	6.0	6.7
2000–01	12.4	12.2	11.7	11.6	9.9	11.5	9.5	16.4	11.8

(a) Reference base year 1989–90 = 100.0.

Source: *House Price Indexes: Eight Capital Cities* (6416.0).**Value of dwellings**

In the 1999–2000 Survey of Income and Housing Costs, owners were asked to estimate the value of their dwelling. These estimates may differ significantly from valuations made by accredited valuers and from an achievable sale price of the dwelling. The extent of the possible difference has not been measured. Therefore some care needs to be exercised in the use of these data.

The median owner-estimated value of dwellings for capital cities was \$191,600, 17% higher than the national median (\$163,300). The median value was highest in Sydney at \$294,000 and lowest in Hobart at \$116,500 (table 8.19).

**Housing finance for owner occupation**

Secured housing finance commitments to owner occupiers are shown in table 8.20, split by purpose and type of lender.

There were 555,006 lending commitments (totalling \$75b) made by all lenders in 2000–01. The number of commitments in 2000–01 increased by 5,868 (or 10.7%) on the previous year, mainly due to strength in the June quarter (in which there were 157,809 commitments to lend). The value of all commitments over the year was down slightly (by \$356m or 0.5%) on 1999–2000. The average borrowing size fell from \$136,500 in 1999–2000 to \$134,400 in 2000–01, due to a slump in the average size of borrowing in the September and December quarters. The average size of borrowing strengthened considerably into 2001.

Commitments for construction of dwellings fell to 52,987 in 2000–01 (down 30.0% on the previous year), although a recovery had commenced by the June quarter. Commitments for the purchase of newly erected dwellings fell more moderately, down 4.5% to 17,697. The number of commitments for the purchase of established dwellings (including refinancing) increased by 6.5% to 484,322.

**8.19 CAPITAL CITY OWNER HOUSEHOLDS, Value of Dwelling(a) by Dwelling Structure — 1999–2000**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra	Capital city owner households(b)	Total owner households
	MEDIAN VALUE OF DWELLING ('\$000)								
Separate house	302.5	176.5	152.1	128.3	197.2	117.0	168.8	194.4	163.6
Semi-detached/row or terrace	233.3	205.2	*139.2	116.7	128.2	**99.2	*119.8	178.6	163.2
House/townhouse/flat/unit/apartment	256.1	148.3	*166.6	*115.4	*128.5	n.p.	*252.6	188.6	163.4
<b>Total(c)</b>	<b>294.0</b>	<b>176.2</b>	<b>151.2</b>	<b>125.7</b>	<b>176.8</b>	<b>116.5</b>	<b>165.5</b>	<b>191.6</b>	<b>163.3</b>
	NUMBER ('000)								
Households	1 036.6	954.0	395.2	309.0	381.9	54.1	82.1	3 243.1	5 074.0

(a) As reported by owners. (b) Includes households in the Northern Territory, for which data are not available separately due to high sampling error. (c) Includes other dwelling structure.

Source: ABS data available on request, Survey of Income and Housing Costs, 1999–2000.

**8.20 SECURED HOUSING FINANCE COMMITMENTS(a) By Purpose and Type of Lender(b)**

	Units	Type of lender			<b>Total</b>
		Banks	Permanent building societies	Other lenders(c)	
<b>CONSTRUCTION OF DWELLINGS</b>					
Dwelling units					
1997–98	no.	63 325	3 732	7 160	<b>74 217</b>
1998–99	no.	62 464	3 787	7 238	<b>73 489</b>
1999–2000	no.	65 673	3 276	6 733	<b>75 682</b>
2000–01	no.	44 127	2 755	6 105	<b>52 987</b>
Value of commitments					
1997–98	\$m	7 015	487	879	<b>8 380</b>
1998–99	\$m	7 935	520	901	<b>9 356</b>
1999–2000	\$m	9 293	474	849	<b>10 617</b>
2000–01	\$m	6 088	412	893	<b>7 394</b>
<b>PURCHASE OF NEWLY ERECTED DWELLINGS</b>					
Dwelling units					
1997–98	no.	18 889	227	4 154	<b>23 270</b>
1998–99	no.	17 903	282	1 963	<b>20 148</b>
1999–2000	no.	17 313	300	920	<b>18 533</b>
2000–01	no.	14 656	475	2 566	<b>17 697</b>
Value of commitments					
1997–98	\$m	2 402	28	477	<b>2 907</b>
1998–99	\$m	2 482	37	282	<b>2 802</b>
1999–2000	\$m	2 666	48	127	<b>2 841</b>
2000–01	\$m	2 322	55	361	<b>2 738</b>
<b>PURCHASE OF ESTABLISHED DWELLINGS(d)</b>					
Dwelling units					
1997–98	no.	309 033	15 770	59 883	<b>384 686</b>
1998–99	no.	323 840	14 917	55 779	<b>394 536</b>
1999–2000	no.	368 814	16 563	69 546	<b>454 923</b>
2000–01	no.	379 236	19 479	85 607	<b>484 322</b>
Value of commitments					
1997–98	\$m	34 883	1 618	6 874	<b>43 375</b>
1998–99	\$m	41 089	1 677	6 577	<b>49 342</b>
1999–2000	\$m	50 919	1 825	8 750	<b>61 495</b>
2000–01	\$m	50 893	2 244	11 327	<b>64 465</b>
<b>TOTAL</b>					
Dwelling units					
1997–98	no.	391 247	19 729	71 197	<b>482 173</b>
1998–99	no.	404 207	18 986	64 980	<b>488 173</b>
1999–2000	no.	451 800	20 139	77 199	<b>549 138</b>
2000–01	no.	438 019	22 709	94 278	<b>555 006</b>
Value of commitments					
1997–98	\$m	44 300	2 133	8 230	<b>54 662</b>
1998–99	\$m	51 506	2 234	7 760	<b>61 500</b>
1999–2000	\$m	62 878	2 347	9 726	<b>74 953</b>
2000–01	\$m	59 303	2 711	12 581	<b>74 597</b>

(a) Excludes alterations and additions. (b) Caution should be exercised in using these statistics to calculate market share because, while all banks and permanent building societies are selected, only a sample of other lenders are selected. (c) Includes wholesale lenders n.e.c. (d) Includes refinancing.

Source: ABS data available on request, Survey of Housing Finance for Owner Occupation.

The average size of commitments by banks fell for the year, down 2.7% to \$135,400, in contrast to permanent building societies (up 2.5% to \$119,400) and other lenders (up 5.9% to \$133,400).

## Housing assistance

While most Australians are able to house themselves without government assistance, such assistance remains important for various population groups, especially low income earners and social security recipients. Housing assistance is provided by the Commonwealth Government and the State and Territory Governments through a range of housing and other programs. Assistance for people with low incomes is provided through public housing, home purchase assistance and rent assistance schemes. Assistance is also provided to community organisations and local governments for refuges and crisis accommodation.

The *Housing Assistance Act 1996* provides the legislative basis for the Commonwealth's provision of financial assistance to the States and Territories for housing and related purposes. The Act authorises the Commonwealth to form and enter into a Commonwealth State Housing Agreement (CSHA) with the States and Territories. The current CSHA commenced on 1 July 1999. The CSHA sets out the terms for the provision of housing assistance for rental housing, home purchase and other specific housing programs. Details of Commonwealth assistance provided under the CSHA for 1999–2000 are set out in table 8.21.

The 1999–2003 CSHA includes a subsidiary National Housing Data Agreement outlining a commitment to the development and provision

of nationally consistent data (AIHW 2000a). The National Housing Data Agreement was signed by Housing Chief Executive Officers in January 2000. The ABS and the Australian Institute of Health and Welfare (AIHW) are also signatories to the Agreement, with the AIHW providing secretariat support. The three schedules to the Agreement identify the major work areas comprising development of national minimum data sets, national performance indicators and national data definitions and standards.

During 2000–01 national data development work under the Agreement included:

- development and data collection in respect of 1999–2000 as input to the new CSHA national performance reporting framework for public and community housing programs, as well as data collections for the four other CSHA areas, namely Home Purchase Assistance, Private Rental Assistance, Aboriginal Rental Housing Program and the Crisis Accommodation Program;
- the trial of a national public housing data repository to construct national administrative unit record data for public housing, and continued development of a national housing data repository to contain data for community and private rental housing assistance; and
- production of the first National Housing Assistance Data Dictionary.

### 8.21 COMMONWEALTH STATE HOUSING AGREEMENT, Payments to States — 2000–01

	NSW \$'000	Vic. \$'000	Qld \$'000	WA \$'000	SA \$'000	Tas. \$'000	ACT \$'000	NT \$'000	Aust. \$'000
Base funding	249 635	183 463	136 954	72 505	57 878	22 260	17 208	13 485	753 388
GST compensation	23 000	15 000	19 850	8 533	9 517	2 617	5 900	5 250	89 667
Community Housing Program	21 640	15 904	11 872	6 285	5 017	1 576	1 044	652	63 990
Aboriginal Rental Housing Program	17 777	3 638	25 227	15 862	8 342	696	—	19 458	91 000
Crisis Accommodation Program	13 410	9 856	7 357	3 895	3 109	977	647	404	39 655
Total	325 462	227 861	201 260	107 080	83 863	28 126	24 799	39 249	1 037 700

Source: Department of Family and Community Services.

## Public housing

Public housing comprises dwellings owned and managed by State and Territory housing authorities and which are made available at low cost to tenants. Rents are generally set at a maximum of 25% of income, thereby providing low cost housing to people on low incomes. The median weekly housing cost for those renting from a State or Territory housing authority in 1997–98 was \$53, compared to \$143 for those renting from a private landlord. Expenditure under the CSHA on public housing and related assistance was approximately \$1.3b in 1999–2000.

Over recent decades, public housing has been increasingly targeted towards those most in need. In 1997–98, 394,507 households (6% of all households) were living in public housing; of these, about 78% were in the lowest 40% of the household income distribution. Government pensions and benefits were the main source of income for the majority of households in public housing.

## Home purchase assistance

Under the CSHA, the State and Territory Governments provide home purchase assistance to low to moderate income earners, including loans, shared equity schemes, deposit assistance and mortgage relief.

## Rent assistance

Under the Commonwealth Government Rent Assistance Program, Rent Assistance is paid to people who rent privately (including boarders and lodgers, residents in retirement villages, caravan parks, etc.) and pay rent above minimum threshold rental levels. It is a non-taxable supplement payable by the Departments of Family and Community Services, Veterans' Affairs, and Education, Training and Youth Affairs to eligible income support recipients. At June 2001, there were 976,333 income units in receipt of Rent Assistance, where an income unit is defined as a single person with or without dependants, or a couple with or without dependants. Total expenditure on Rent Assistance in 2000–01 was \$1,717m. The level of Rent Assistance payable varies with the amount of rent paid, marital status and number of children in the family. The average rent paid by Rent Assistance recipients in June 2001 was \$237 per fortnight while the average Rent Assistance received was \$68 per fortnight.

As with public housing renters, a large proportion of Rent Assistance recipients are either lone persons or sole parents. In March 2001, 44% of those receiving rent assistance from the Department of Family and Community Services were single with no dependants, 23% were single with dependants, 15% were couples with dependants, and 8% were couples with no dependants.

Rent Assistance is indexed each March and September to the Consumer Price Index.

Under the CSHA, the State and Territory Governments also assist low income earners with the costs of rent, bonds and relocation in the private rental market. In 1999–2000 almost \$70m was provided through these arrangements.

Table 8.22 provides details of the numbers of recipients of Rent Assistance for June 2001, together with average fortnightly rates of Rent Assistance provided and rents paid. Total outlays on Rent Assistance are included in outlays on Pensions, Allowances and Family Tax Benefits (see Note 1 to table 7.16 in *Chapter 7, Income and welfare*).

## Crisis accommodation

Governments also provide assistance in meeting the short-term accommodation needs of homeless people who are identified as a priority target group under the CSHA. The Commonwealth Government provides funding of \$40m per annum for crisis accommodation through the Crisis Accommodation Program under the CSHA. The Commonwealth Government and the State and Territory Governments also provide assistance to people who are homeless or at imminent risk of homelessness, through the Supported Accommodation Assistance Program (SAAP).

Within the context of the SAAP IV Bilateral Agreements 2000–05, national funding (i.e. Commonwealth and State/Territory contributions) will be over \$1.4b. Total recurrent funding for the SAAP program during 2000–01 totalled \$268.8m. Such funding consisted of a Commonwealth contribution of \$157.7m and a State/Territory contribution of \$111.2m.

**8.22 RECIPIENTS OF RENT ASSISTANCE, Average Rent Assistance and Rent Paid — June 2001**

	Income units	Average rent assistance	Average rent paid
	no.	\$ per fortnight	\$ per fortnight
<b>Primary payment type(a)</b>			
Youth Allowance	91 212	54	180
Age Pension	153 454	62	205
Disability Support Pension	161 833	68	209
Newstart Allowance	227 204	64	218
Parenting Payment (Single)	193 359	81	279
Parenting Payment (Partnered)	29 266	91	335
Family Tax Benefit Part A	84 098	67	342
Other	35 907	66	225
<b>Income unit type</b>			
Single no dependants	530 408	60	190
Couple no dependants	74 304	66	267
Couple 1 or 2 dependants	102 965	76	328
Couple 3 or more dependants	43 866	86	341
Single 1 or 2 dependants	185 348	77	276
Single 3 or more dependants	34 570	91	307
Couple temporarily separated	2 103	78	240
Unknown income unit	2 769	54	181
<b>Total at June 2001</b>	<b>976 333</b>	<b>68</b>	<b>237</b>

(a) Couples paid Rent Assistance have been counted under a single primary payment type. The general order of priority is pensions, then allowances, then family tax benefit. For example, a couple receiving Disability Support Pension, Parenting Payment (Partnered) and Family Tax Benefit would appear as getting Rent Assistance with their Disability Support Pension.

Source: Department of Family and Community Services.

In 2000, the AIHW's Supported Accommodation and Crisis Services Unit published the 1999–2000 Supported Assistance Accommodation Program (SAAP) national data collection report (AIHW 2000b). The report showed that at least 90,000 clients were provided with support or supported accommodation through SAAP in Australia in 1999–2000. These contacts comprised a total of 157,600 occasions of support in 1999–2000.

Clients between 15 and 19 years of age were the single largest age grouping, accounting for 19% of all clients. Those aged between 20 and 24 constituted 16% of the total, and 14% were aged 45 years and over. Indigenous Australians constituted 14% of SAAP clients and people from non-English speaking backgrounds constituted 11%.

The most common form of client accommodation before support was private rental — some 20% of clients were living in the private rental market before support. A further 17% of support periods were for clients who had been staying at SAAP or Crisis Accommodation Program (CAP) funded accommodation. Clients who had been living in a car/tent/park/street or squat prior to seeking assistance accounted for 7% of all support periods (AIHW 2000b).

## Housing assistance programs for Indigenous people

The Aboriginal and Torres Strait Islander Commission (ATSIC) administers a number of programs to improve the living environment of Aboriginal and Torres Strait Islander people. Its second largest program is the Community Housing and Infrastructure Program (CHIP) which has the aim of providing appropriate, safe and affordable housing, and improving community and individual health and wellbeing.

CHIP provides funds for the construction, purchase, repair and management of community housing as well as for the provision and maintenance of housing related infrastructure (essential services such as water, sewerage, electricity and community roads) and recurrent funding for the provision of municipal services. Through CHIP, grants are provided to:

- Indigenous community organisations from ATSIC Regional Council allocations;
- State Indigenous Housing Authorities where bilateral agreements are in place; and
- contracted program managers to manage on behalf of Indigenous communities under the National Aboriginal Health Strategy.

In 2000–01, CHIP expenditure totalled \$235m, of which around half went to the provision of housing. Over 500 houses were purchased/constructed and over 1,000 upgraded/renovated. The program has a particular focus on environmental health infrastructure through a specific sub-program called the National Aboriginal Health Strategy (NAHS). In 2000–01 more than \$82m was spent under NAHS on large-scale projects targeting priority housing and infrastructure including power, water and waste removal, mainly in rural and remote Indigenous communities.

The Australian Bureau of Statistics undertook a Community Housing and Infrastructure Needs Survey for ATSIC during 1999 and the results were released in April 2000. To align with the 2001 Census, the survey is being repeated in 2001. This will provide a comprehensive picture on Indigenous housing circumstances across all tenures at a single point in time.

ATSIC's Community Housing and Infrastructure Program supplements the efforts of State/Territory Governments which also receive earmarked Indigenous housing funds from the Aboriginal Rental Housing Program (\$91m per annum) of the Department of Family and Community Services (FaCS).

The Commonwealth Government, through FaCS and ATSIC, has been implementing bilateral housing agreements with State and Territory Governments to maximise program efficiency and effectiveness and to better coordinate all housing programs specific to Indigenous people. At 30 June 2001, agreements had been signed with the Northern Territory, Western Australia, New South Wales, South Australia and Queensland while negotiations with other States are continuing.

In December 1999, the Agreement on National Indigenous Housing Information was signed by the Chief Executive Officers of the Commonwealth and State and Territory agencies administering Indigenous housing assistance (AIHW 2000c).

The ABS and the AIHW are also signatories to the agreement and the AIHW provides secretariat support. The agreement provides a framework to improve how outcomes for Indigenous housing are measured with a focus on developing national data sets.

In 2000–01 the ABS and the AIHW worked with agencies responsible for Indigenous housing assistance at the Commonwealth and

State/Territory levels to develop a work program which was endorsed by the Housing Ministers' Advisory Council to be undertaken in 2001–02.

The five projects in the work program seek to:

- establish an overall Indigenous Housing Information Management Strategy and an Action Plan;
- establish outcome measures through development of an Indigenous performance information framework;
- report on issues and improvements to data coverage and quality for targeted as well as mainstream assistance by reporting on community managed housing and Indigenous access to government managed assistance; and
- continue development of national data standards through work on areas of high priority for Indigenous housing assistance for inclusion in the national housing data dictionary.

### National Indigenous housing reforms

The Commonwealth-State Working Group on Indigenous Housing has developed to become a significant focus for coordinating national effort and provides a valuable forum for ATSIC, the Commonwealth and the States to share information and strategies.

Agreement has been achieved in a number of key areas including:

- a new multi-measure approach to Indigenous housing need and resource allocation that reflects the diversity of need;
- ways to improve the viability and effectiveness of the Indigenous community housing sector;
- healthy and sustainable Indigenous housing in remote and isolated areas; and
- a national approach to data collection and reporting on Indigenous housing program performance.

Achievements include:

- a substantially increased focus on providing sustainable housing for Indigenous people in most State and Territories;
- use of ARHP funds for recurrent purposes which has led to a greater focus on effective housing management and maintenance;

- a National Framework for the Design, Construction and Maintenance of Indigenous Housing which has been adopted in a number of States and Territories;
- introduction of Centrepay, Centrelink's voluntary direct deduction scheme, which is proving to be an effective means for Indigenous housing organisations (IHOs) to collect rent. At January 2000, 243 IHOs had joined Centrepay's voluntary rent deduction scheme and 4,318 Centrelink customers had deductions paid directly to IHOs;
- identification of strategic asset management principles and best practices for IHOs;
- an Agreement on National Indigenous Housing Information for reliable, coordinated and nationally comparable data development and collection; and
- a National Skills Development Strategy for Indigenous Community Housing Management.

In May 2001, the Commonwealth and State Housing Ministers and the Minister for Aboriginal and Torres Strait Islander Affairs adopted the ten year plan ('Building a Better Future: Indigenous Housing to 2010') to improve Indigenous housing outcomes. Strategies to achieve these outcomes will include: identifying and addressing unmet housing need; improving the capacity of IHOs; involving communities in planning and delivery; and achieving safe, healthy and sustainable housing.

All funding agencies, including the State housing authorities (SHAs), will be developing strategies to achieve the agreed outcomes within their jurisdiction. This will include the development of criteria for capital and recurrent funding and, in particular, strategies for ensuring that IHOs achieve effective and efficient management practices.

### **Home ownership**

The ATSIC Home Ownership scheme aims to reduce the disparity between the rate of home ownership in Indigenous communities and that in the wider Australian community. The rate of home ownership for Aboriginal family and lone-person households was estimated in the 1996 Census to be 31%. This compares with a national non-Indigenous figure of 71%.

ATSIC provides home loans at concessional interest rates to Aboriginal and Torres Strait Islander families. The Home Ownership scheme targets low income families with the capacity to repay a long-term loan, but who have difficulty

obtaining finance from traditional lending institutions. The total number of loans made in 2000–01 was about 480, with the total loan portfolio administered by ATSIC now at \$300m.

### **Other programs**

The Commonwealth Government, through the Department of Health and Aged Care, finances and regulates residential care for frail older people. The residential care is usually provided by the non-government sector, including religious, charitable and private sector providers. A small number of residential services are operated by the State and local government sectors. Capital assistance for upgrading or construction of facilities is made available to those aged care services catering largely for residents with special needs or on low incomes, and those in rural and remote areas of Australia (see the section *Residential Aged Care Program* in *Chapter 7, Income and welfare*).

Under the Commonwealth/State Disability Agreement, the Commonwealth provides funds to assist the States and Territories in the planning, policy setting and management of accommodation and other related services for people with disabilities. The State and Territory Governments are responsible for administering these services (see the section *People with disabilities* in *Chapter 7, Income and welfare*). Areas such as advocacy, and research and development continue to be a responsibility of both levels of government.

The Commonwealth also funds the AIHW. The AIHW's role is to gather, analyse and disseminate national data on health and welfare services, including housing assistance, in order to support both government and community organisations' planning and policy making. The Housing Assistance unit of AIHW is involved in describing the need for, provision and use of housing assistance in Australia, supporting the development of standard terminologies, definitions and classifications for use in measuring housing assistance and contributing to the development of nationally consistent data.

In December 2001, the AIHW published 'Australia's Welfare 2001: Services and Assistance' (AIHW 2001) which contains chapters on housing assistance and services for homeless people. Included in these chapters is information examining the need for assistance, government expenditure on services and assistance, the characteristics of recipients of assistance and outcomes.

A housing authority also exists in each State and Territory, which is responsible for the provision of public rental housing and often other housing related services such as home loans. These authorities are:

- New South Wales — Department of Housing;
- Victoria — Department of Human Services (Office of Housing);
- Queensland — Department of Housing;
- South Australia — Department of Human Services (South Australian Housing Trust);
- Western Australia — Ministry of Housing (Homeswest);
- Tasmania — Department of Health and Human Services (Housing Tasmania);
- Northern Territory — Territory Housing; and
- Australian Capital Territory — ACT Housing.

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*Australian Housing Survey: Housing Characteristics, Costs and Conditions* (4182.0) — issues for 1994 and 1999.

*Australian Social Trends* (4102.0).

*House Price Indexes: Eight Capital Cities* (6416.0).

*Household Investors in Rental Dwellings, Australia* (8711.0).

*Housing Finance for Owner Occupation, Australia* (5609.0).

*Housing Occupancy and Costs, Australia* (4130.0).

*Income Distribution, Australia* (6523.0).

### Other publications

Australian Institute of Health and Welfare (AIHW):

- 2000a, *The National Housing Data Agreement: a Subsidiary Agreement of the 1999–2003 Commonwealth–State Housing Agreement*, AIHW, Canberra.
- 2000b, *SAAP National Data Collection Annual Report 1999–2000, Australia*, AIHW, Canberra.
- 2000c, *The Agreement on National Indigenous Housing Information*, AIHW, Canberra.
- 2001, *Australia's Welfare 2001: Services and Assistance*, Canberra, AGPS.

Department of Family and Community Services, *Annual Report*, AGPS, Canberra.

The latest annual reports of the State and Territory Government housing authorities, and the latest annual report of the Department of Family and Community Service's *Housing Assistance Act 1996*, show further details of government activities in the field of housing.

### Internet sites

Aboriginal and Torres Strait Islander Commission, <http://www.atsic.gov.au>

Australian Institute of Health and Welfare, <http://www.aihw.gov.au>

Commonwealth Department of Family and Community Services, <http://www.facs.gov.au>

Commonwealth Department of Health and Aged Care, <http://www.health.gov.au>



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## Introduction

This chapter provides information on various aspects of the health of the Australian population and the activities of government and other bodies relating to health. The chapter uses data from the most up-to-date sources available, including the 1995 National Health Survey. Results for Indigenous people from the survey are provided in this chapter only for non-remote areas, because of concerns about the quality of the data for remote areas. The chapter also includes information on disability and long-term health conditions obtained from the 1998 Survey of Disability, Ageing and Carers.

The Australian health care system comprises a diversity of arrangements for planning, funding and delivering health services which feature a mix of private and public sector involvement. At the national level, health services in Australia are administered by the Commonwealth Government, through two ministers appointed to the portfolio of Health and Aged Care.

The Minister for Health and Aged Care has overall responsibility for the portfolio and has specific responsibility for Medicare benefits, hospitals, the private health industry, medical workforce issues, public health, health research, Aboriginal and Torres Strait Islander health issues, Commonwealth-State relationships and the Health Insurance Commission. The Parliamentary Secretary to the Minister for Health and Aged Care provides administrative assistance to the Minister and has specific responsibility for the Therapeutic Goods Administration, administrative aspects of the Pharmaceutical Benefits Scheme, the Australian Radiation Protection and Nuclear Safety Agency, the Australia New Zealand Food Authority, Health Services Australia, and general support for Aboriginal health in Northern Australia.

The Minister for Aged Care has specific responsibility for aged care services and Australian Hearing Services.

Health services for veterans and their dependants are the responsibility of the Minister for Veterans' Affairs.

The State and Territory Governments are heavily involved in the direct provision of health services, including hospitals, public health and mental health. Each State or Territory Government has a minister who is responsible for the administration

of its health authorities. In some States/Territories, the responsibility for health services is shared by several authorities, while in others one authority is responsible for all health functions.

Local governments and non-government organisations (both non-profit and for profit) are also involved in the direct provision of health services. Private, non-salaried practitioners provide most medical and dental care, and some other professional medical and allied health services such as physiotherapy.

Under the National Health Information Agreement, to which the Australian Bureau of Statistics, the Australian Institute of Health and Welfare, the Commonwealth Department of Health and Aged Care, and the various State and Territory health authorities are signatories, the National Health Information Development Plan sets out agreed national priorities for health information to be considered by the Australian Health Ministers' Advisory Council. This work is managed by the National Health Information Management Group.

In 1996, the Commonwealth Government and the State and Territory Governments established a National Public Health Partnership (NPHP), a collaborative arrangement to improve the health status of Australians, in particular those population groups most at risk, in recognition of the need for a national approach to public health and health promotion.

## Health status

The World Health Organization (WHO) defines health as "a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity". While the level of disease or infirmity can be assessed by mortality, disability and morbidity statistics, the presence of positive wellbeing is more difficult to measure. Multidimensional instruments which address physical, mental and social functioning continue to be developed and are increasingly being used to measure health and wellbeing in individuals and populations.

The following health status information includes morbidity, disability and mortality data. Other aspects of disability, such as information on carers, are contained in *Chapter 7, Income and welfare*.

## Health and wellbeing

The 1995 National Health Survey revealed that 83% of Australians aged 15 and over reported having good, very good or excellent health. This proportion varies from 93% of 15–19 year old females, to 54% of males aged 85 years or more. Because of this variation with age, all estimates in this section have been standardised by age and sex to remove the effects of different age structures in the populations being considered.

Although males had a similar rate of fair or poor health (17%, compared to 16% of females), there were some noticeable differences between the sexes within individual population groups (table 9.1). Of those not in the labour force, 31% of males reported fair or poor health, compared to 23% of females. However, a higher proportion of unemployed females (28%) reported fair or poor health than unemployed males (25%).

Among the overseas-born, 14% of females who had been in Australia for less than five years perceived their health to be fair or poor, while only 10% of males in this category reported fair or poor health. People who spoke English at home reported lower rates of fair or poor health than those who spoke a language other than English (16% compared to 23%).

There was a steady improvement in perceived health from people in households with the lowest income to those in households with the highest income. The socioeconomic status of the area in which people lived was also associated with self-reported health status. People living in the most disadvantaged areas of the nation were almost twice as likely to consider their health to be fair or poor as those living in the most advantaged areas.

### 9.1 SELF-ASSESSED HEALTH STATUS(a), Proportions Reporting Fair or Poor Health — 1995

	Males	Females	Persons
	%	%	%
Population characteristics			
Labour force status			
Employed	12.4	11.4	12.0
Unemployed (looking for work)	25.2	28.2	26.2
Not in labour force	31.1	22.7	25.4
Equivalent household income(b)			
Lowest income quintile	24.9	22.2	23.2
Second income quintile	23.2	20.3	21.6
Third income quintile	16.8	14.0	15.4
Fourth income quintile	13.9	11.2	12.6
Highest income quintile	8.9	9.9	9.3
Relative socioeconomic disadvantage of areas(c)			
Most disadvantaged areas quintile	21.2	20.3	20.7
Second quintile	20.3	17.4	18.8
Third quintile	17.0	17.5	17.3
Fourth quintile	16.7	13.7	15.1
Least disadvantaged areas quintile	11.7	11.7	11.7
Birthplace			
Born in Australia	16.6	15.7	16.1
Born overseas	17.8	17.8	17.8
Less than 5 years in Australia	10.3	14.0	12.4
5 years or more in Australia	18.2	18.1	18.1
Language spoken at home			
English	16.4	15.6	16.0
Language other than English	22.1	23.0	22.6
Self-assessed body weight			
Underweight	28.6	30.4	29.4
Acceptable weight	13.5	12.5	13.0
Overweight	21.7	20.1	20.8
All persons	16.9	16.3	16.6

(a) Indirectly standardised by age and sex. (b) Household income adjusted for the number of adults and children in the household, and the employment status of members of the household. Uses Henderson Equivalence scales. Includes respondents from households where all adults members stated their income. (c) The Socioeconomic Indexes for Areas describe the characteristics of the area in which a person lives, rather than the characteristics of the person.

Source: ABS data available on request, 1995 National Health Survey.

## 9.2 TOP TEN LONG-TERM CONDITIONS, By Sex — 1995

	Males	Females	Total
Long term conditions	%	%	%
Hypermetropia/far-sighted	18.5	23	20.8
Myopia/short-sighted	17.8	22.8	20.3
Hayfever	12.9	14.5	13.7
Asthma	10.7	11.4	11.1
Hypertension	9.5	10.9	10.2
Sinusitis	8.0	11.9	10.0
Deafness (complete/partial)	12.1	6.9	9.5
Presbyopia	7.5	8.9	8.2
Osteoarthritis	4.6	8.2	6.4
Arthritis n.e.c.	5.2	6.4	5.8
<b>Total</b>	<b>72.7</b>	<b>76.4</b>	<b>74.5</b>

Source: ABS data available on request, 1995 National Health Survey.

## Morbidity

The 1995 National Health Survey found that almost 75% of the Australian population of all ages experienced one or more long term conditions (i.e. conditions that have lasted, or are expected to last, six months or more). The most common long term conditions related to eyesight, particularly hypermetropia/far-sightedness and myopia/short-sightedness (table 9.2).

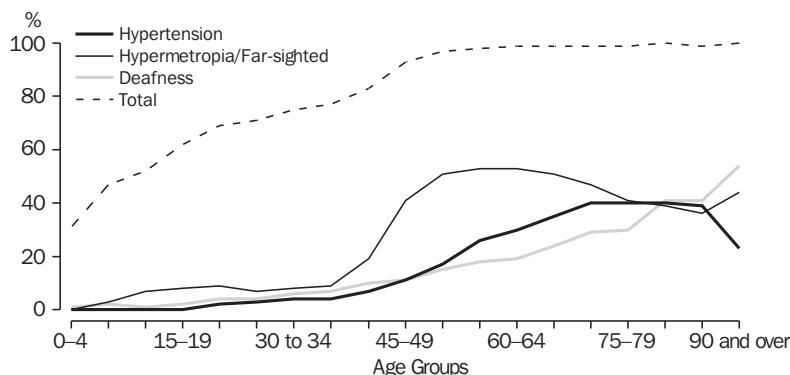
Females were more likely than males to experience long term conditions, partly due to their older age structure. The higher number of long term conditions reported by females may also reflect that women are more likely to consult health professionals, and hence have conditions diagnosed.

The proportion of the population with any long term conditions increased with age, from 31% of 0–4 year olds to over 99% of people aged 60 years and over (graph 9.3).

The prevalence of hypermetropia increased slowly with age to 10% of people aged 35–39, then increased strongly to over 50% of people aged 55–60 years. It remained at this level (approximately 50%) for people in their sixties until decreasing gradually to 40% of those aged 85–89 years.

The prevalence of deafness in the community also increased with age; of those aged 90 years and over, 54% reported deafness as a long term condition, indicating that as people age their hearing abilities deteriorate. Factors such as the natural ageing process, as well as environmental exposure to noise, could explain this pattern.

## 9.3 PREVALENCE OF LONG-TERM CONDITIONS — 1995



Source: ABS data available on request, 1995 National Health Survey.

Age is also a major determining factor in the prevalence of hypertension. Less than 1% of the Australian population aged under 20 experienced hypertension, compared to over 39% of those aged 70 years and over.

## Mortality

There were 128,102 deaths registered in 1999, consisting of 67,227 male and 60,875 female deaths. This represented an increase of 0.7% on the corresponding figure for 1998 (127,202 deaths). Malignant neoplasms and ischaemic heart diseases were the leading causes of death, accounting for 27% and 22% respectively of total deaths registered (table 9.4).

Examining deaths over the last decade, although the total number of deaths registered in 1999 was 3.1% greater than the number registered in 1989, the standardised death rate in 1999 (584 deaths per 100,000 population) was 23% lower than the corresponding figure in 1989 (759 deaths per 100,000 population). These figures are consistent with continuing improvements in life expectancy in Australia.

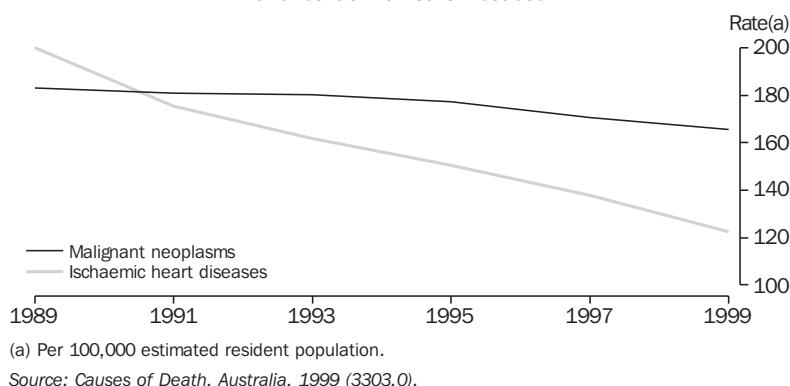
Over the ten years to 1999, there were quite different patterns of decline in the two leading causes of death, malignant neoplasms and ischaemic heart diseases, which together account for nearly half the total deaths. Between 1989 and 1999, the standardised death rate for malignant neoplasms decreased by 10%, while the rate for ischaemic heart diseases decreased by 39% (graph 9.5).

### 9.4 LEADING CAUSES OF DEATH — 1999

Cause of death and ICD-10 code	Males no.	Females no.	Persons no.	Proportion of total deaths
				%
<b>All causes</b>	<b>67 227</b>	<b>60 875</b>	<b>128 102</b>	<b>100</b>
Malignant neoplasms (cancer) (C00—C97)	19 866	15 187	35 053	27.4
Trachea, bronchus and lung (C33, C34)	4 655	2 148	6 803	5.3
Ischaemic heart diseases (I20—I25)	14 865	12 744	27 609	21.6
Cerebrovascular diseases (stroke) (I60—I69)	4 894	7 372	12 266	9.6
Chronic lower respiratory diseases (including asthma, emphysema and bronchitis) (J40—J47)	3 609	2 487	6 096	4.8
Accidents (V01—X59)	3 486	1 801	5 287	4.1
Transport accidents (V01—V99)	1 441	570	2 011	1.6
Diabetes mellitus (E10—E14)	1 485	1 462	2 947	2.3
Diseases of arteries, arterioles and capillaries (inc. atherosclerosis & aortic aneurysm) (I70—I79)	1 476	1 388	2 864	2.2
Intentional self-harm (X60—X84)	2 002	490	2 492	1.9
Organic, including symptomatic, mental disorders (F00—F09)	648	1 296	1 944	1.5
Influenza and pneumonia (J10—J18)	765	1 133	1 898	1.5
All other causes	14 131	15 515	29 646	23.1

Source: Causes of Death, Australia, 1999 (3303.0).

### 9.5 STANDARDISED DEATH RATES, Malignant Neoplasms and Ischaemic Heart Diseases



## Disability and long-term health conditions

This article discusses disability and long-term health conditions over time and for specific populations. Disability occurs when a person has an impairment such as loss of sight or is restricted in their activities or participation because of health condition(s). Government policy is designed to provide services to people who are restricted in the basic activities of daily living, referred to as core activities. Severity of disability is measured in terms of a person's ability to manage in these areas. These concepts are summarised below.

### Disability and restriction rates

According to the 1998 Survey of Disability, Ageing and Carers, there has been a steady rise in the underlying disability rate since the first disability survey in 1981. After adjusting for changes between surveys and in the age distribution of the population, the disability rate increased from 15% in 1981 to 19% in 1998 (table 9.6). During the same period the proportion with a core activity restriction increased from 9% to 14%. After removing the effect of population ageing, there are a number of possible explanations for these increases, such as changes in attitude to, and increased diagnoses of, disability.

Core activities are:

Self care	bathing or showering, dressing, eating, using the toilet and managing incontinence
Mobility	moving around at home and away from home, getting into or out of a bed or chair; and using public transport
Communication	understanding and being understood by others: strangers, family and friends

Severity of disability:

Profound	a person is unable to perform a core activity task, or always needs assistance
Severe	a person sometimes needs assistance to perform a core activity task
Moderate	a person does not need assistance, but has difficulty performing a core activity task
Mild	a person has no difficulty performing a core activity task, but uses aids or equipment because of a disability

**9.6 DISABILITY RATES — ADJUSTED(a), All Persons(b) by Selected Year — 1981 to 1998**

Disability status	Age-standardised rates			
	1981 %	1988 %	1993 %	1998 %
<b>MALES</b>				
Core activity restriction(c)				
Severe/profound	3.2	3.4	3.5	4.9
Moderate	2.6	4.1	2.5	3.1
Mild	2.8	5	6.2	6.5
<i>Total</i>	8.6	12.5	12.2	14.5
<b>Disability</b>	<b>15.0</b>	<b>16.8</b>	<b>18.1</b>	<b>19.9</b>
<b>FEMALES</b>				
Core activity restriction(c)				
Severe/profound	4.6	5.4	5.1	6.1
Moderate	2	3.6	2.3	2.7
Mild	2.7	4.5	5.2	5.4
<i>Total</i>	9.3	13.4	12.6	14.2
<b>Disability</b>	<b>14.2</b>	<b>16.2</b>	<b>16.3</b>	<b>15.6</b>
<b>PERSONS</b>				
Core activity restriction(c)				
Severe/profound	3.9	4.4	4.4	5.5
Moderate	2.3	3.9	2.4	2.9
Mild	2.7	4.8	5.6	5.9
<i>Total</i>	8.9	13.1	12.4	14.3
<b>Disability</b>	<b>14.6</b>	<b>16.5</b>	<b>17.2</b>	<b>18.8</b>

(a) Only criteria common to the four collections have been used and data age-standardised to the estimated resident population for March 1998. (b) Living in households or cared accommodation. (c) Core activities comprise self care, mobility and communication.

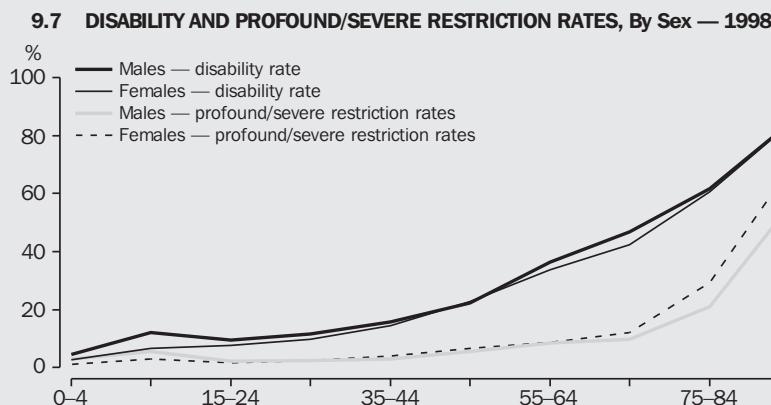
Source: ABS data available on request, Survey of Disability, Ageing and Carers 1998.

In 1998 some 3.6 million people in Australia, living in households or cared accommodation, had a disability (19%), and a further 3.1 million had a long-term health condition but no disability (17%). The overall proportions of males and females with a disability were similar, and as expected the likelihood of having a disability increased with age. From birth to early adolescence boys had higher rates of disability (5% to 12%) than girls (3% to 7%). This reflected the higher incidence of birth disorders in boys and their higher prevalence of childhood conditions, such as asthma and intellectual disorders. At the other end of the age spectrum, for persons 85 years of age or more, men and women had the same rate of disability (8%). As there were more women than men in this age group, the number of women with a disability was substantially higher (132,100) than the number of men (58,200).

Having a disability may not interfere with a person's participation in normal daily activities. That will depend on the level of restriction

associated with their particular disability. In 1998, a small proportion of the total population (6%) had a profound or severe restriction from their disability. Unlike the disability rate, which increased gradually over the lifespan, the likelihood of being profoundly or severely restricted remained relatively low (less than 9%) until about age 70. After this age it increased rapidly — from 14% for those aged 70–74, to 31% for those aged 80–84. From 85 years onwards almost two-thirds (65%) in this age group had a profound or severe restriction.

Men and women had similar rates of profound or severe restrictions to age 70 years. However, thereafter greater proportions of women than men had these levels of restriction (graph 9.7). This may be because men are more likely to develop potentially fatal disorders (e.g. resulting in heart attack or stroke), with only the most robust surviving to advanced old age with lower rates of restriction. In 1998 the median age of death for men was 74.5. There were 107,900 women aged 85 and over (69%) who had a



Source: ABS data available on request, Survey of Disability, Ageing and Carers 1998.

profound or severe restriction, compared with 38,600 men in this age group (56%). Of people in this age group, more than two-thirds (69%) were women.

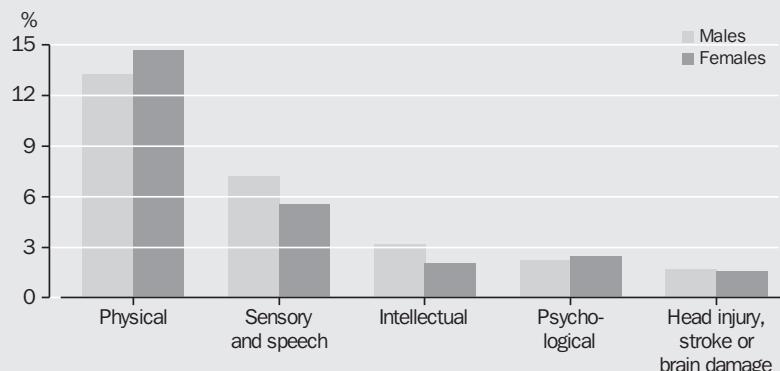
### Restricting impairment groups

All people with disabilities have been identified as having an impairment which restricts them in some aspect of everyday life. These impairments relate to specific functions or areas of the body or mind. The type and number of impairments and the level of restriction a person has determines the extent to which their everyday life is affected by their disabilities. For example, employment opportunities or participation in social activities may be reduced by having a higher level of restriction or more than one impairment.

In 1998 those restricted by a physical impairment were the largest group and comprised 14% of all people (2.6 million).

Some 6% (1.2 million) were restricted by a sensory impairment or by speech loss. Men had similar rates of sensory (including speech) and intellectual impairments (7% and 3% respectively) to women (6% and 2% respectively) (graph 9.8), but were more at risk than women of developing sensory impairments such as industrial deafness, and to have higher rates of intellectual disorders from birth. Intellectual disorders can also occur at varying times throughout the lifecycle and arise from many different types of conditions, such as brain damage through accident or injury, or senile dementia.

**9.8 RESTRICTING IMPAIRMENT GROUPS, By Sex — 1998**



Source: Disability and Long-Term Health Conditions, Australia, 1998 (4433.0).

**9.9 PERSONS WITH A DISABILITY(a), Restricting Impairment by Area of Restriction — 1998**

Area of restriction	Physical	Sensory and speech	Intellectual	Psychological	Head injury, stroke or brain damage	All with disability(b)
	%	%	%	%	%	
<b>0–64 YEARS</b>						
Self care	33.7	26.5	36.9	44.3	47.0	27.1
Mobility	75.0	52.2	67.5	81.6	84.2	65.0
Communication	7.3	38.7	39.2	25.1	22.7	12.6
Employment restriction	71.6	51.0	52.5	78.5	78.5	62.1
Schooling restriction	4.6	13.6	41.2	15.5	7.7	9.6
<b>Persons aged 0–64 years ('000)</b>	<b>1 649.8</b>	<b>565.1</b>	<b>346.8</b>	<b>275.5</b>	<b>159.7</b>	<b>2 363.0</b>
<b>65 YEARS AND OVER</b>						
Self care	45.2	34.5	70.9	67.4	68.2	36.2
Mobility	89.2	69.0	95.9	94.6	93.1	77.7
Communication	22.0	59.5	58.5	42.2	39.6	29.3
<b>Persons aged 65 years and over ('000)</b>	<b>795.3</b>	<b>503.7</b>	<b>36.4</b>	<b>55.9</b>	<b>82.9</b>	<b>1 063.3</b>

Source: *Disability, Ageing and Carers, Disability and Long-Term Health Conditions, Australia, 1998* (4433.0).

### Area of restriction

Being able to easily move about at home or in the community, to communicate with others without difficulty, or to perform basic self care functions such as dressing, washing and eating, are all important elements of independent living. In 1998 some 2.4 million Australians living in households had a mobility restriction, and just over one million had a restriction in the area of self care. As expected, the likelihood of being restricted in one of these areas, or in communication, was greater for older people. For people aged 65 and over who were restricted by a physical impairment, 89% had a mobility restriction and 45% a self care restriction (table 9.9). Many people are restricted in more than one area.

Of the small number of older people with an intellectual impairment (36,400), 96% had a mobility restriction and 71% a self care restriction. Many of those with a mobility restriction would have a need for supervision, for example people with dementia, rather than for actual physical assistance in walking or moving about.

### Persons aged 65 years and over

Older people are more likely than younger people to have a long-term health condition and to have developed degenerative conditions as a consequence of ageing. In 1998, there were 993,300 men and 1,277,900 women aged 65 and over. Of these, 827,900 men (83%) and 1,090,300 women (85%) had a long-term health condition (table 9.10). While some conditions affect both men and women at approximately the same rate, some are more gender specific. For example, a high proportion of both men and women in this age group had circulatory disorders (excluding heart disease) (43% and 47% respectively) but women were more likely to have arthritis (47%) than men (36%).

The level of restriction varied between men and women. Women with a long-term health condition were more likely than men to have a profound or severe restriction (25% and 16% respectively). This may reflect the fact that women live longer than men and this allows for the development of chronic conditions. For example, just over a third (34%) of women with arthritis had a profound or severe restriction compared with 20% of men with this condition.

**9.10 SELECTED LONG-TERM HEALTH CONDITIONS FOR PERSONS AGED 65 YEARS AND OVER(a), by Disability — 1998**

Long-term health condition	Profound/severe restriction(b)	Disability	Condition only, no disability(c)	Total with a condition
	'000	'000	'000	'000
<b>MALES</b>				
Arthritis	58.8	216.3	80.0	296.2
Other musculo-skeletal disorders	33.7	125.5	37.5	162.9
Heart disease	44.7	138.5	41.0	179.5
Other circulatory disorders	79.6	223.9	134.2	358.1
Diabetes	24.4	62.3	37.9	100.3
<b>Males aged 65 years and over with a condition</b>	<b>162.3</b>	<b>537.5</b>	<b>290.4</b>	<b>827.9</b>
<b>FEMALES</b>				
Arthritis	170.5	373.2	133.7	506.8
Other musculo-skeletal disorders	91.9	198.3	46.9	245.1
Heart disease	94.8	160.7	52.3	213.0
Other circulatory disorders	149.3	312.2	204.8	517.0
Diabetes	39.9	70.3	29.3	99.6
<b>Females aged 65 years and over with a condition</b>	<b>318.9</b>	<b>687.7</b>	<b>402.6</b>	<b>1 090.3</b>

(a) Living in households or cared accommodation. (b) Persons with a disability who are unable to do, or sometimes or always require help or supervision with, one or more of the core activities of self care, mobility and communication. (c) Persons with a long-term health condition who do not have a disability.

Source: ABS data available on request, Survey of Disability, Ageing and Carers 1998.

## Children aged 0 to 14 years

Greater ill health is commonly associated with the ageing process. However, children are also at risk of having a disability or long-term health condition, due to accidents, environmental factors, or because they were born with a particular disorder. A number of health conditions occur more frequently in this age group and are of particular interest. These include asthma, attention deficit disorder/attention deficit and hyperactivity disorder (ADD/ADHD), intellectual and developmental disorders and hearing or speech loss. Of the 3.9 million children aged 0 to 14 years in 1998, just under one in seven had a long-term health condition (594,600 or 15%), with boys more likely to be affected (18%) than girls (13%).

Asthma was the most common long-term health condition for this age group, affecting 312,000 children (8%). However, unlike other conditions, there was a lower level of restriction associated with this condition. Almost three-quarters (74%) of those with asthma had no disability.

While the overall prevalence of these selected conditions was greater for boys than for girls, the difference between the sexes was particularly pronounced in the case of ADD/ADHD. Of children with a long-term health condition, more boys (13%) had this condition than girls (3%) (table 9.11).

While ADD/ADHD only represents a small number of children overall, it is a condition which has been diagnosed more frequently during the last decade. It often causes difficulties in learning, which may potentially lead to more restricted education and employment opportunities, as well as problems in the home environment due to the behavioural aspects of the condition. Nearly half (49%) of children who had this condition had a profound or severe restriction and needed some form of assistance.

**9.11 SELECTED LONG-TERM HEALTH CONDITIONS FOR CHILDREN AGED 0–14 YEARS(a), By Disability Status — 1998**

Long-term health condition	Profound/severe core activity restriction(b)	Disability '000	Condition only, no disability(c) '000	All children with a condition '000	Proportion %
<b>MALES</b>					
Asthma	21.6	50.8	124.4	175.2	49.4
Intellectual/developmental	27.5	55.8	n.p.	56.4	15.9
Hearing/speech loss	24.6	43.6	*6.1	49.7	14.0
ADD/ADHD(d)	21.2	36.2	10.4	46.6	13.1
<i>Total with these conditions</i>	<i>77.8</i>	<i>154.4</i>	<i>137.3</i>	<i>291.7</i>	<i>82.3</i>
<b>Boys aged 0 to 14 with a condition</b>	<b>97.0</b>	<b>192.7</b>	<b>161.7</b>	<b>354.4</b>	<b>100.0</b>
<b>FEMALES</b>					
Asthma	12.2	30.1	106.7	136.8	57.0
Intellectual/developmental	14.5	24.6	..	24.6	10.2
Hearing/speech loss	9.8	21.4	*5.8	27.2	11.3
ADD/ADHD(d)	*4.9	*6.9	n.p.	*7.2	3.0
<i>Total with these conditions</i>	<i>32.2</i>	<i>69.2</i>	<i>112.0</i>	<i>181.2</i>	<i>75.5</i>
<b>Girls aged 0 to 14 with a condition</b>	<b>46.9</b>	<b>103.6</b>	<b>136.6</b>	<b>240.2</b>	<b>100.0</b>

(a) Living in households. (b) Persons with a disability who are unable to do, or sometimes or always require help or supervision with, one or more of the core activities of self care, mobility and communication. (c) Children with a long-term health condition who do not have a disability. (d) Attention deficit disorder and attention deficit/hyperactivity disorder.

Source: ABS data available on request, Survey of Disability, Ageing and Carers 1998.

## National Health Priority Areas

The health of Australians is among the best in the world. Nationwide efforts, such as the recognition of national health priority areas, will help to ensure that this status continues.

The National Health Priority Areas (NHPA) initiative emphasises collaborative action between Commonwealth Government and the State and Territory Governments, the National Health and Medical Research Council (NHMRC), the Australian Institute of Health and Welfare (AIHW), non-government organisations, appropriate experts, clinicians and consumers. It is overseen by the National Health Priority Action Council (NHPAC) which was established as a sub-committee of the Australian Health Ministers' Advisory Council (AHMAC) in June 2000, and comprises representatives of Commonwealth Government, the State and Territory Governments, Indigenous groups and consumer groups.

At present, six priority areas have been endorsed by Australian Health Ministers. These are:

- cardiovascular health;
- cancer control;

- injury prevention and control;
- mental health;
- diabetes mellitus; and
- asthma.

A range of program initiatives has been established, aimed at improving health outcomes in these areas, which together account for approximately 70% of the burden of disease and cost in Australia. The NHPA initiative recognises that specific strategies for reducing the burden of illness should be holistic, encompassing the continuum of care from prevention through treatment and management to rehabilitation and palliation, and should be underpinned by evidence based on appropriate research.

Diseases and conditions are identified as national health priorities through a national consultation process which considers issues related to their impact on the community and the potential for programs and interventions, as well as the feasibility of measuring the effect of these activities. Sets of indicators are being developed to assist in monitoring the priority areas and in particular the efficacy of program interventions.

In addition to the NHPA initiative, the National Public Health Partnership has endorsed the National Health Performance Committee's new National Health Performance Framework (NHPF). The NHPF covers a range of health system performance measures, as well as measures of population health status and outcomes and health determinants. Work is progressing on the development of a set of indicators for reporting against the NHPF.

### **Cardiovascular health**

Cardiovascular disease includes all heart disease, cerebrovascular disease, and diseases of the arteries, arterioles and capillaries. Ischaemic heart disease and stroke were the leading causes of burden of disease in Australia in 1996; together these conditions account for nearly 18% of healthy life lost through premature death or disability (AIHW 2000a).

According to consecutive ABS health surveys, the prevalence of cardiovascular disease in the adult Australian population increased from 17% (2.2 million) in 1989–90 to 21% (2.8 million) in 1995 (table 9.12). Age-standardisation of the data indicated that over this period the ageing of the Australian population played only a small part in the increase in prevalence of cardiovascular disease.

Leading cardiovascular conditions in 1995 were hypertension, which was reported by 14% of the adult population, followed by heart disease (4%). Age-specific prevalence rates for cardiovascular conditions increased from 4% for the 18–24 year age group to 61% for the 75 years and over age group. Hypertension, which is also a risk factor for other CVD, was the cardiovascular condition most strongly correlated with age.

In 1999, 40% (51,303) of all deaths were due to diseases of the circulatory system (the ICD-10 Chapter IX classifications I00–I99 that include cardiovascular disease). Ischaemic heart disease accounted for 22% of all deaths, and cerebrovascular diseases a further 10%. Between 1989 and 1999, age-standardised death rates for diseases of the circulatory system declined by 36% for males (from 433 per 100,000 persons, to 275), 35% for females (from 282 to 182) and 36% in total (from 349 to 225).

### **9.12 PREVALENCE OF CARDIOVASCULAR CONDITIONS, Persons Aged 18 Years and Over**

Type of condition	1989–90		1995	
	'000	%	'000	%
Hypertension	1 535.1	12.3	1 932.5	14.4
Heart disease	440.1	3.5	493.5	3.7
Atherosclerosis	45.7	0.4	25.5	0.2
Stroke (and other cerebrovascular disease)	89.6	0.7	115.7	0.9
Other diseases of the circulatory system	274.8	2.2	694.8	5.2
III-defined signs and symptoms of heart conditions	256.2	2.1	337.5	2.5
<b>Total cardiovascular conditions(a)</b>	<b>2 164.7</b>	<b>17.4</b>	<b>2 795.5</b>	<b>20.9</b>

(a) Each person may have reported more than one type of condition, and therefore components may not add to totals.

Source: National Health Survey: Cardiovascular and Related Conditions, Australia, 1995 (4372.0).

National statistics on deaths of Indigenous people are not available because of incomplete recording of Indigenous status in the death records of some States and Territories. However, in 1999 data on deaths were considered to be of acceptable quality for Queensland, Western Australia, South Australia and the Northern Territory. In that year, the leading cause of death among the Indigenous populations in these four jurisdictions was diseases of the circulatory system, which accounted for 29% of all Indigenous male deaths, and 31% of all Indigenous female deaths. The median age of Indigenous persons who died from circulatory diseases was 59 years, compared with 82 years for non-Indigenous persons (based on deaths from these States and the Northern Territory).

### **Cancer control**

The concept of cancer control recognises that, while it may not be possible to eradicate cancer, its impact and burden on the community can be reduced. Eight cancers have been targeted in this priority area — lung cancer, melanoma, non-melanocytic skin cancer, colorectal cancer, non-Hodgkin's lymphoma, prostate cancer and cancer of the cervix and breast. In 1996, lung cancer accounted for 4% of years of healthy life lost through premature death or living with disability, with colorectal cancer and breast cancer accounting for 3% and 2% respectively (AIHW 2000a).

## Incidence

The National Cancer Statistics Clearing House, within the Australian Institute of Health and Welfare, reported that 80,864 new cases of cancer were diagnosed in 1998. Of these, 43,595 were males and 37,269 were females — an age-standardised cancer incidence rate (age-standardised to the 1991 Australian Population Standard) of 475 for males and 346 for females per 100,000 persons. This equates to a lifetime risk of one in three males and one in four females who were directly affected by cancer (AIHW 2001a). This statistic excludes approximately 270,000 annual diagnoses of non-melanocytic skin cancers, which are the most common form of cancer in Australia, but for which data are not collected routinely by cancer registries.

Survival from cancer depends on a number of factors, including whether the cancer is fast or slow growing, its metastatic characteristics, its stage at diagnosis, the availability of appropriate treatment and other co-morbidities. The Australian Institute of Health and Welfare estimated that for the period 1992 to 1997, the five-year relative survival proportions for cancer were 57% for males and 63% for females (AIHW 2001b).

## Mortality

In 1999, malignant neoplasms (cancer) accounted for 35,053 deaths, which was 27% of all deaths. There were 19,866 male deaths and 15,187 female deaths due to cancer. Overall, cancer of the trachea, bronchus and lung was the leading cause of cancer deaths, accounting for 19% of all such deaths. Among males, the leading causes of cancer death were cancer of the trachea, bronchus and lung (23% of all male cancer deaths), followed by prostate cancer (13%) and colon cancer (9%). Among females the leading causes of cancer death were breast cancer (16% of all female cancer deaths), followed by cancer of the trachea, bronchus and lung (14%) and colon cancer (10%). Age-specific death rates for cancer increased markedly with age and were generally greater for males than for females, apart from age groups between 25 and 54 when female deaths from breast cancer tend to occur.

## Cancer screening

Screening is currently believed to be the most effective method of reducing mortality from breast and cervical cancer. The National Program

for the Early Detection of Breast Cancer was established in 1991; since 1994 it has been called BreastScreen Australia. The main aim is to detect small cancers in the breast which are more easily treatable while in their early stages and to reduce mortality and morbidity. The program recommends that women in the target age group (50–69 years) have a mammogram every two years. Women in their forties and seventies also have access to mammography without charge through this program, but are not actively recruited (AIHW 1998).

Although Pap smears have been available since the 1960s, the National Cervical Screening Program did not come into effect until 1991. The program seeks to detect the precursors to cancer or abnormalities of cells in the cervix which may lead to invasive cervical cancer. It is estimated that 90% of cervical cancers are potentially preventable (AIHW 1998).

## Injuries and deaths due to external causes

Injuries and poisoning are a significant source of preventable illness, disability and mortality in Australia, and place a heavy burden on health services. Injuries (e.g. fractured bones, lacerations) and poisoning (e.g. drug overdose) result from events such as car crashes, falls, suicide or attempted suicide, and interpersonal violence. Such events, and factors involved in them, are known collectively as 'External causes' of injury and poisoning.

"Injury, poisoning and certain other consequences of external causes" was recorded as the principal diagnosis for more than 413,735 episodes of inpatient care in Australian hospitals during 1999–2000 (table 9.13).

Falls are the most common external cause of injuries resulting in admission to a hospital. This is reflected in the draft National Injury Prevention Plan: Priorities for 2001–03, which nominated falls among persons aged 65 years and older and falls among children under 15 years of age as two of four areas for priority action. The other areas are drowning and near drowning; and poisoning of infants and children less than 5 years of age. Although the number of deaths from these four types of injuries is relatively small, they account for a large number of hospital admissions.

**9.13 EXTERNAL CAUSES OF MORTALITY(a) AND HOSPITAL SEPARATIONS(b), Australia**

	Transport accidents	Suicide (Intentional self-harm)	Other external causes	All external causes
Mortality(a)				
Number	2 011	2 492	3 858	8 361
Rate(b)	10.6	13.2	20.4	44.2
Hospital separations(c)				
Number	51 460	20 927	341 348	413 735
Rate(b)	270.1	109.8	1 791.7	2 171.7

(a) Deaths, for which the underlying cause was external cause, registered in the calendar year 1999. (b) Crude rate per 100,000 population. (c) Separations from hospital during the year beginning 1 July 1999 for which the principal diagnosis was "Injury, poisoning and certain other consequences of external causes".

Source: AIHW National Injury Surveillance Unit.

Suicide and transport accidents presently account for more than half of all injury deaths in Australia. Suicide numbers and rates have risen in recent decades, especially for young and middle-aged men, bringing this topic substantial public and government attention since the mid-1990s. In contrast, the annual number of road deaths has dropped to about half the number in 1970, despite large increases in population and the amount of travel on roads. This decrease is attributable to the range of agencies and programs at Commonwealth and State/Territory level which have had long-standing responsibility for road safety issues, and other aspects of transport safety.

In 1999, 7% of all deaths (8,361) were due to external causes (table 9.14). Leading external causes of death were suicide (30% of all external causes of death) followed by motor vehicle accidents (21%) and poisoning by drugs/medicaments (12%). Males accounted for 70% of all deaths due to external causes (the male death rate was 62 per 100,000 compared with 26 for females). The male death rate for suicide (21.2 per 100,000 population) was approximately four times the female rate (5.2), and for motor vehicle accidents it was more than double the female rate (12.9 compared with 5.5).

**9.14 EXTERNAL CAUSES OF DEATH — 1999**

Causes of death	no.	%	Crude death rate(a)
MALES			
Suicide (intentional self-harm)	2 002	34.1	21.2
Motor vehicle accidents	1 216	20.7	12.9
Accidental falls	309	5.3	3.3
Homicide	204	3.5	2.2
Accidental drowning and submersion	203	3.5	2.2
Poisoning by drugs/medicaments	745	12.7	7.9
Other	1 189	20.3	12.6
<b>All external causes</b>	<b>5 868</b>	<b>100.0</b>	<b>62.3</b>
FEMALES			
Suicide (intentional self-harm)	490	19.7	5.2
Motor vehicle accidents	525	21.1	5.5
Accidental falls	211	8.5	2.2
Homicide	96	3.9	1.0
Accidental drowning and submersion	75	3.0	0.8
Poisoning by drugs/medicaments	271	10.9	2.8
Other	825	33.1	8.7
<b>All external causes</b>	<b>2 493</b>	<b>100.0</b>	<b>26.2</b>
PERSONS			
Suicide (intentional self-harm)	2 492	29.8	13.2
Motor vehicle accidents	1 741	20.8	9.2
Accidental falls	520	6.2	2.7
Homicide	300	3.6	1.6
Accidental drowning and submersion	278	3.3	1.5
Poisoning by drugs/medicaments	1 016	12.2	5.4
Other	2 014	24.1	10.6
<b>All external causes</b>	<b>8 361</b>	<b>100.0</b>	<b>44.2</b>

(a) Deaths per 100,000 population.

Source: Causes of Death, Australia, 1999 (3303.0).

## Drug-related deaths

Drug abuse is often considered to be an indicator of general social dysfunction, a particularly serious consequence of which is the premature deaths of drug users. The number and nature of drug-related deaths in a community are the result of numerous social forces, including the prevalence of illicit drug use, the types of drugs being used, and the response of government and society to the issue of drug abuse. This article focuses solely on deaths occurring between 1979 and 1999 which were caused by the use of illegal drugs and the misuse of legal drugs other than tobacco and alcohol.

In 1998, 3.3 million Australians, or 23% of people aged 14 years and over, reported that they had used illicit drugs in the previous 12 months (AIHW 2000b). Cannabis was the most prevalent drug used (by 18% of people in this age group), with the more potentially lethal illicit drugs being used by much smaller proportions of people. Amphetamines were used by 4% of people aged 14 years and over, ecstasy by 2% and heroin by less than 1%.

## Trends in drug-related deaths

In 1999, there were 1,737 deaths where the underlying cause was identified as drug-related, representing 1.4% of all deaths in that year. The number of drug-related deaths in 1999 was almost two and a half times the number in 1979 (734). Over the 1979–1999 period, the standardised drug-related death rate increased by 79%, from 5 to 9 deaths per 100,000 population.

The overall increase in drug-related deaths over this 20 year period was driven primarily by increases in drug-related deaths of males. In 1979, males and females had similar standardised drug-related death rates (around five deaths per 100,000 population). By 1999, the rate for males had grown to almost 14 deaths per 100,000 while the rate for females was still around 5 per 100,000 (graph 9.15). Consequently, males accounted for 72% of drug-related deaths in 1999 compared with 48% in 1979.

*Drug-related deaths* are those caused directly by drug abuse, including deaths from organ damage caused by drugs. They include deaths from illegal drugs as well as the misuse of legal drugs.

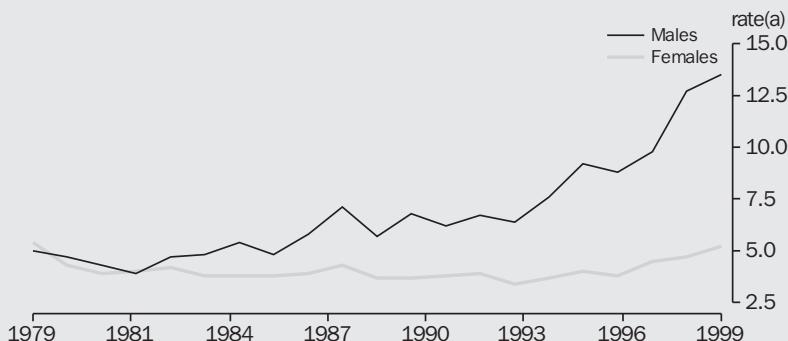
Excluded from the article are: deaths directly attributable to alcohol and tobacco use; deaths from poisoning or exposure to volatile organic compounds (such as petrol); and murder where drugs were the weapon. Also excluded are deaths such as some road traffic accidents or AIDS deaths where drug use partly contributed to the death.

Deaths from 1979 to 1998 were classified according to the International Classification of Disease Ninth Edition (ICD-9), while deaths in 1999 were classified according to the Tenth Edition (ICD-10). The drug-related deaths from these different classifications have been matched to facilitate comparisons over time.

In this article, drug-related deaths include the following categories from the ICD-10:

- suicide by drugs (X60–X64);
- accidental drug-related deaths which includes two components: accidental poisoning by drugs (X40–X44) and mental and behavioural disorders due to drug use (F11–F16, F19 and F55); and
- drug deaths where the intent of the poisoning was undetermined (Y10–Y14).

### 9.15 DRUG-RELATED DEATHS(a)



(a) Standardised rate per 100,000 persons.

Source: ABS data available on request, ABS Causes of Death collection.

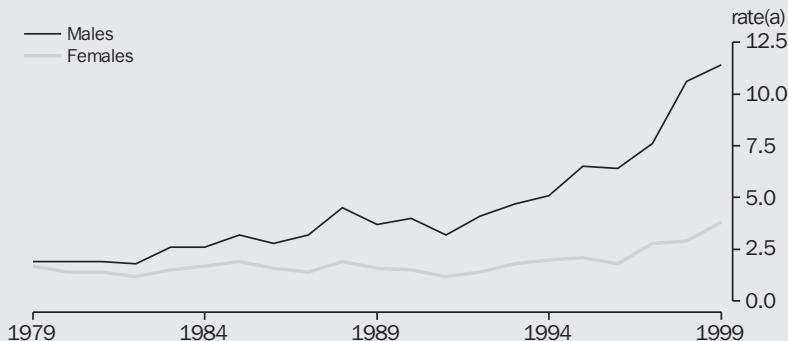
### Accidental drug-related deaths

Drug-related deaths are usually the result of an unintentional overdose or the effects of prolonged misuse of drugs. The rates of accidental deaths due to drugs increased more rapidly between 1979 and 1999 than those for all drug-related deaths, a fourfold increase from 2 to 8 deaths per 100,000 population. Of the total drug-related deaths in 1999, 81% were accidental, 16% were suicides and 3% were of undetermined intention. In contrast, accidental drug-related deaths comprised just 35% of all drug-related deaths in 1979.

The accidental drug-related death rate for males increased sixfold over the period to 11 deaths per 100,000 population, with 80% of this increase occurring since 1989. In comparison, the death rate for females increased from 2 to 4 deaths per 100,000 between 1979 and 1999 (graph 9.16). Consequently, despite having similar death rates in 1979, by 1999 the rate for males was almost three times that for females.

Increases in the use and availability of heroin (an opiate) have been a focus of public debate over the 1990s. Opiates were the cause of 31% of accidental drug-related deaths in 1979. By 1999, this had increased to 63%.

### 9.16 ACCIDENTAL DRUG-RELATED DEATH RATES(a)



(a) Standardised rate per 100,000 persons.

Source: ABS data available on request, ABS Causes of Death collection.

## Suicides by drugs

In contrast to accidental drug-related deaths, suicides by drugs decreased over the 1979–99 period. Furthermore, the death rates from suicides by drugs were more equally distributed between males and females. Rates for both males and females declined from 3 per 100,000 in 1979 to around half that in 1999 (graph 9.17).

The suicide rate for non-drug-related methods for males increased from 15 to 20 deaths per 100,000 population over the 1979–99 period, while the corresponding rate for females increased from 3 to 4 deaths per 100,000 population. Consequently, the proportion of all suicides from drugs has halved: from 16% to 8% of male suicides, and from 49% to 24% of female suicides.

## Demographic characteristics

The tendency of people to die from drug-related causes varies across the population, according to people's ages, marital status and place of residence. In addition, the demographic characteristics of people who died accidentally from drug-related causes differed substantially from those of people who suicided using drugs.

In 1999, rates of accidental drug-related deaths were highest among young adults, peaking among 25–29 year olds at 20 deaths per 100,000 population, gradually falling with age before stabilising at around 2 deaths per 100,000 for people aged 55 years and over (graph 9.18).

Over the last two decades there has been a steady increase in the age at which people die from accidental drug-related causes, due to the large increase in the death rate from this cause of men aged in their 30s and 40s. This may reflect the ageing of the population of illicit drug users over the period.

Accidental drug-related death rates were highest for people who had never married (25 deaths per 100,000) and for those who were divorced (16 per 100,000 population). In contrast, the death rate for people who were married was 2 deaths per 100,000 in 1999. The comparatively low rate for married people suggests they may be less likely to use drugs, especially more lethal drugs such as heroin.

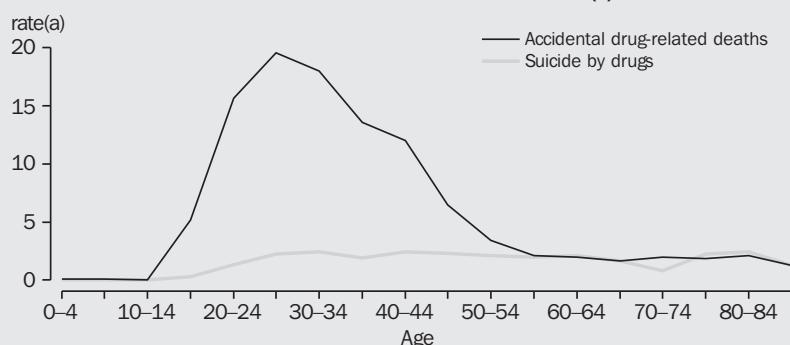
**9.17 RATES OF SUICIDE BY DRUGS(a)**



(a) Standardised rate per 100,000 persons.

Source: ABS data available on request, ABS Causes of Death collection.

### 9.18 AGE-SPECIFIC DRUG-RELATED DEATH RATES(a) — 1999



(a) Rate per 100,000 persons.

Source: ABS data available on request, ABS Causes of Death collection.

Accidental drug-related death rates in capital cities were around 50% higher than those in the rest of the country, with particularly high rates in Melbourne and Sydney. The highest rates tended to be in the inner suburbs of capital cities.

The demographic characteristics of people who committed suicide using drugs were very different to those of people who died accidentally from drug-related causes. They also had quite different characteristics to those who suicided using other methods.

In 1999, there were 278 suicides by drugs, accounting for 11% of all suicides in that year. Drugs were used in 25% of the suicides of females, making it the second most common method after hanging and strangulation (33%). Drugs were used in 8% of the suicides of males, making it the fourth most common method after hanging and strangulation (43%), exposure to gases (mostly carbon monoxide from motor vehicle exhaust) (24%), and firearms (13%).

Rates of suicide by drugs were relatively constant among all ages from 25 years on, with age-specific death rates around 2 deaths per 100,000 population (graph 9.18).

In contrast, the rate for all suicides peaked among 20 to 34 year olds and declined with increasing age. However, as a proportion of all suicides, drug suicides increased with age, with 13% of suicides of people aged 50 years and over from drugs, compared with 3% for those aged less than 20 years.

As with accidental drug-related deaths, unmarried people were more likely to die from drug-related suicides than married people. In 1999, the drug-related suicide rates for people who had never married, or who were divorced or widowed were five, four and eight deaths per 100,000 population respectively, compared with one death per 100,000 of people who were married (table 9.19).

In 1999, capital cities had a standardised death rate for suicides by drugs of 1.5 deaths per 100,000 population, compared with 1.2 outside capital cities. However, non-drug methods of suicide were more common outside the capital cities where the standardised rate was 13 deaths per 100,000 population (compared with 11 in the capitals).

**9.19 DRUG-RELATED DEATHS, Selected Characteristics — 1999**

	Accidental drug-related deaths  rate per 100,000	Suicide by drugs  rate per 100,000	All suicides  rate per 100,000	Proportion of all suicides due to drugs  %
Age specific rates				
0-19 years	1.4	0.1	2.7	3
20-34 years	17.8	2.0	20.7	10
35-49 years	10.8	2.2	17.7	12
50 years and over	2.3	1.8	13.8	13
Sex(a)				
Males	11.4	1.6	21.2	8
Females	3.9	1.2	5.1	25
Registered marital status(a)				
Never Married	24.8	5.1	38.0	14
Married	2.2	0.9	10.0	9
Widowed	9.9	7.7	29.6	26
Divorced	15.7	4.4	23.2	19
Part of State(a)				
Capital city	8.4	1.5	12.1	12
Balance of State	5.5	1.2	14.2	9
	deaths	deaths	deaths	%
<b>Total</b>	<b>1 403</b>	<b>278</b>	<b>2 492</b>	<b>11</b>

(a) Standardised.

Source: Data available on request, ABS Causes of Death Collection.

**Types of drugs**

Because of the pharmacological interactions between different drugs, having a mixture of drugs is more likely to result in adverse health effects including death, than use of a single type of drug. For example, alcohol increases the effects of some drugs, and was present in 14% of accidental drug-related deaths as a contributing factor rather than as the drug that ultimately caused the death.

In 1999, opiates were involved in 63% of accidental drug-related deaths, while benzodiazepines were involved in 27% (table 9.20). Opiates were involved in the highest proportions of accidental drug-related deaths of both males and females (67% and 50% respectively).

However, the accidental deaths of females were more likely to involve benzodiazepines (35%) and antidepressants (28%) than those of males (25% and 10% respectively).

The drugs used most commonly in suicides were benzodiazepines, antidepressants and opiates, with each involved in a third of all suicides by drugs. Antidepressants were more likely to be used by females who suicided than by males (46% and 23% respectively), as were drugs such as paracetamol (18% and 8% respectively). Alcohol was also used in combination with other drugs in 19% of suicides by drugs, although it was not the underlying cause of the death.

### 9.20 TYPES OF DRUGS(a) CONTRIBUTING TO DRUG-RELATED DEATHS — 1999

Drug poisoning	ICD-10 code	Example/ common name	Suicide by drugs		Accidental drug-deaths	
			Males	Females	Males	Females
4-Aminophenol derivatives	T391	Paracetamol	8	18	3	10
Opiates	T400–402	Heroin/morphine	34	32	67	50
Methadone	T403	Methadone	6	2	8	10
Other narcotics & hallucinogens	T404–409	Pethidine	10	8	15	18
Benzodiazepines	T424	Valium/tranquillisers	34	33	25	35
Antidepressants	T430–432	Antidepressants	23	46	10	28
Psychostimulants	T 436	Methylamphetamines	—	—	5	5
Alcohol(b)	T51	Alcohol	22	14	16	10
<i>Total(c)</i>			100	100	96	96
Long term organ damage			—	—	5	2
<b>Total(c)</b>			<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Deaths			no.	no.	no.	no.
			158	120	1 043	357

(a) Drugs mentioned on the medical certificate. These drugs may be the underlying cause, or may be a contributing part of a mixture of drugs which led to the death. (b) Alcohol is not included in the scope of accidental poisoning in this article. Therefore alcohol is not the underlying cause of death, but taken in conjunction with other drugs, has led to these deaths. (c) Death may be caused by more than one drug and therefore components do not add to total.

Source: Data available on request, ABS Causes of Death Collection.

## Diabetes mellitus

Diabetes mellitus is the sixth leading cause of death in Australia, and contributes to significant illness and disability. In 1996 diabetes mellitus was the seventh leading cause of burden of disease in Australia (AIHW 2000a). People with diabetes have reduced life expectancy and are more likely than people without diabetes to experience major health complications involving the eyes, kidneys, nerves and arteries (McCarthy et al. 1996). Population groups at particular risk of diabetes are older people, Indigenous people and some sections of the overseas-born population.

In the 1995 National Health Survey, 2.4% of Australians (430,700) reported that they had been diagnosed with diabetes mellitus at some time during their lives (table 9.21). In contrast, diabetes was reported by 7% of Indigenous adults aged 20–44 years, 24% of those aged 45–54 years and 17% of those 55 years and over. Indigenous people in non-remote areas were 7–8 times more likely to report diabetes than non-Indigenous people, in both the 25–44 and 45–54 year age groups, and were twice as likely in the age group 55 years and over.

The three major types of diabetes mellitus are Type 1 diabetes which is marked by a complete lack of insulin, Type 2 diabetes which is marked by reduced levels of insulin, or the inability of the body to use insulin properly, and Gestational diabetes which occurs during pregnancy in about 4–6% of females not previously diagnosed with diabetes (AIHW 2000a).

In 1999, diabetes mellitus was the underlying cause of death in 2,947 deaths, 2.3% of all deaths. Of these, 1,485 deaths were males and 1,462 females. The age-standardised diabetes death rate for persons was 14 per 100,000 persons (16 for males and 11 for females per 100,000 persons).

In 1999, the National Diabetes Register was established at the Australian Institute of Health and Welfare, as part of the National Diabetes Strategy. The register collects information about people who have been diagnosed with insulin-treated diabetes since January 1999. Major objectives of the register are to assist researchers in epidemiological studies of the causes, complications and prevention of diabetes (AIHW 2000a).

## Mental health

Although approximately 80% of the population enjoy 'good' mental health free of mental disorders, it has been estimated that mental disorders caused 13% of the total disease burden in 1996. In particular, mental disorders were estimated to be responsible for about 30% of the disability burden. For males, substance use disorders (from alcohol or other drugs) accounted for 33% of this burden, while for females, affective disorders such as depression were more significant and accounted for 39% of the non-fatal disease burden (AIHW 2000a).

## Policy initiatives

After completion of the initial National Mental Health Strategy (which covered 1992 to 1998), the Second National Mental Health Plan was endorsed in July 1998 as the framework for ongoing activity. The Plan is to operate over a five-year period from 1998–99 to 2002–03 and is a joint initiative of Commonwealth Government and the State and Territory Governments. The National Depression Initiative (being carried forward by an independent public company called 'beyondblue') will build on priorities identified in the National Action Plan for Depression. Commonwealth funding for the initiative is being significantly enhanced by financial contributions from State and Territory Governments (Commonwealth Department of Health and Aged Care 2001a).

In the 1999–2000 Commonwealth Budget, \$39.2m over four years from July 1999 was committed for a National Suicide Prevention Strategy (NSPS) to build on the former National Youth Suicide Prevention Strategy (NYSPS). While the Strategy will continue to focus on youth suicide, it will be expanded to include other age groups and those identified as being at high-risk, such as rural residents, the elderly, people with mental illnesses, people with substance use problems, prisoners, rural communities, and Aboriginal and Torres Strait Islander communities (Commonwealth Department of Health and Aged Care 2001b).

## Drug use disorders

The 1997 National Survey of Mental Health and Wellbeing of Adults showed that the prevalence of drug use disorders declined steadily with age. For instance, 12% of males and 4% of females aged between 18 and 24 years had a drug use disorder compared to only 1% of males and females in the 45 to 54 year age group (graph 9.22). This was similar to the pattern for the prevalence of harmful alcohol use and dependence, although alcohol use disorders occurred around twice as often as other drug use disorders. Married people were less likely to have alcohol or other drug disorders than those who were never married.

The vast majority of those with a drug use disorder had a drug dependency (98%), rather than a harmful drug use disorder (2%). Cannabis alone was responsible for most of the drug use disorders (76%). This was followed by sedatives and hypnotics (8%), stimulants (4%) and opioids (3%), while the remaining 9% of people had a multiple drug-type use disorder.

## Asthma

The 1995 National Health Survey estimated that 11.3% of Australians (2.04 million people) had asthma, generally as a long-term condition. This represents an increase from the prevalence in 1989–90 National Health Survey, which estimated that 8.5% of Australians had the condition.

The management of asthma is an important public health issue because of the personal burden it places on those with asthma and the financial burden it places on the health system.

In 1996, asthma was responsible for 2.6% of the total burden of disease in Australia (AIHW 2000a).

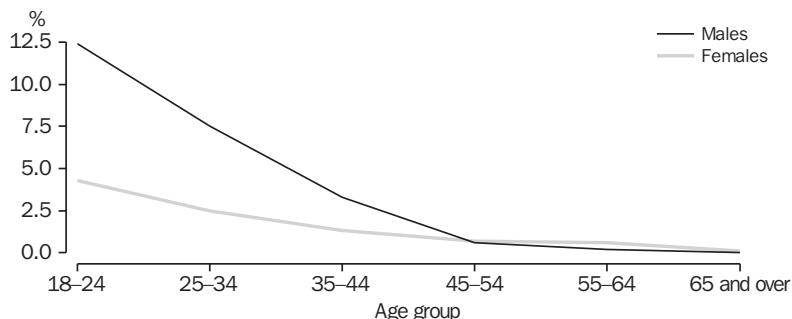
As illustrated in graph 9.23, asthma is particularly prevalent in children. The International Study of Asthma and Allergy in Childhood reported an estimated prevalence rate of approximately 25% in 6–7 year old Australian children and 29% in 13–14 year olds (ISAAC Steering Committee 1998). The 1995 National Health Survey found that the prevalence of asthma was most common in those aged less than 25 years, peaking in the 5–14 years age group (19%). People with asthma reported worse general health and wellbeing than people without asthma.

**9.21 PEOPLE WITH DIABETES(a), By Type and Sex — 1995**

Type of diabetes	Males '000	Females '000	Persons '000	Persons %
Non-insulin dependent diabetes mellitus — Type 2	92.9	88.9	181.8	42.2
Insulin dependent diabetes mellitus — Type 1	43.7	35.8	79.5	18.5
Gestational diabetes mellitus	—	27.0	27.0	6.3
Diabetes type unknown	69.6	72.8	142.4	33.1
<b>Total diabetes</b>	<b>206.2</b>	<b>224.5</b>	<b>430.7</b>	<b>100.0</b>

(a) Based upon people who reported a diabetes diagnosis at any time during their lives.

Source: National Health Survey: Diabetes, Australia, 1995 (4371.0).

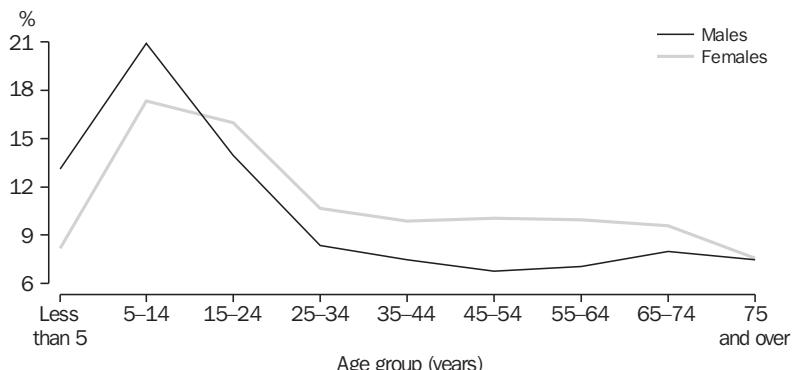
**9.22 PREVALENCE(a) OF DRUG USE DISORDERS(b), By Age and Sex**

(a) In the twelve months prior to interview. (b) Excludes alcohol and tobacco use disorders.

Source: ABS data available on request, National Survey of Mental Health and Wellbeing of Adults 1997.

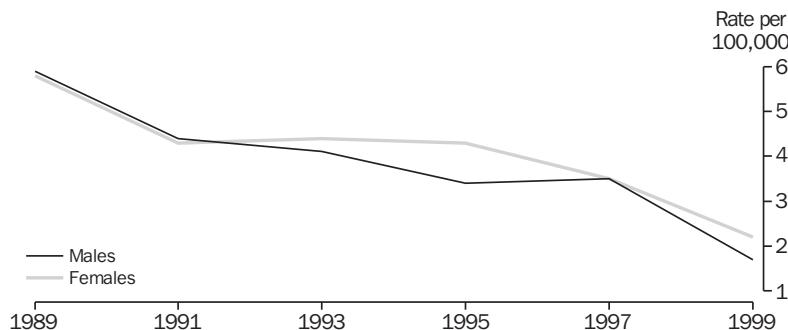
According to the Bettering the Evaluation and Care of Health (BEACH) survey, asthma is the sixth most frequently managed problem by general practitioners, accounting for 32 of every 1,000 encounters (AIHW General Practice Statistics and Classification Unit 1999). Asthma is also one of the top five reasons for doctors referring patients to hospital. During 1997–98,

asthma was the principal diagnosis in 60,280 hospital separations (1.1% of all hospital separations), with an average stay of 3.5 days. The number of hospital separations increases substantially to 251,470 (or 4.5% of all separations) if both principal and additional diagnoses of asthma are included.

**9.23 PREVALENCE OF ASTHMA, By Age Group and Sex — 1995**

Source: ABS data available on request, 1995 National Health Survey.

## 9.24 STANDARDISED DEATH RATES(a) FROM ASTHMA, By Sex — 1989 to 1999



(a) Standardised death rate per 100,000 of the mid-year 1991 population.

Source: *Causes of Death, Australia, 1999* (3303.0).

## Mortality

Asthma accounted for 0.3% of deaths in Australia in 1999, when 160 males and 264 females died from the disease. As graph 9.24 shows, between 1989 and 1999 the standardised death rates due to asthma declined for males (from 5.9 to 1.7 per 100,000) and females (from 5.8 to 2.2 per 100,000). In 1999 death rates were highest for those aged 65 years and over for both males and females.

## Communicable diseases

Communicable diseases (including infectious and parasitic diseases) are those diseases capable of being transmitted from one person to another, or from one species to another. In 1999 infectious diseases accounted for 1.3% of all deaths in Australia (1,603 deaths). Influenza and pneumonia accounted for a further 1.5% of deaths (1,898 deaths). Death rates increased with age and were greater for males than females in most age groups.

Under the National Notifiable Diseases Surveillance System (NNDSS), State and Territory health authorities submit reports of communicable disease notifications for compilation by the Commonwealth Department of Health and Aged Care. The range of diseases required to be reported to State and Territory health authorities has varied over time, and case

definitions of these diseases have varied from State to State. Since 1991 approximately 50 disease groups have been included, as recommended by the NHMRC. HIV infections are reported separately to the National Centre in HIV Epidemiology and Clinical Research.

Blood-borne diseases were the most frequently reported types of communicable diseases in 2000, accounting for 32.7% of all notifications; followed by sexually transmitted infections (27.5%) and gastrointestinal diseases (22.8%). Hepatitis C (unspecified) and Hepatitis B (unspecified) were the most commonly reported blood-borne diseases, chlamydial infection and gonococcal infection were the most frequently reported sexually transmitted diseases, and Campylobacteriosis and Salmonellosis were the leading gastrointestinal diseases. Between 1998 and 2000, total notifications to the NNDSS increased by approximately 5% each year. There were some increases in rates for blood-borne diseases and sexually transmitted diseases and some decreases in rates for gastrointestinal diseases. Among other diseases notified over this time period, the number of notifications of meningococcal infection increased by nearly a third (from 453 to 599), representing an increase from a rate of 2.3 to 3.1 per 100,000 persons, with most of this increase occurring between 1998 and 1999 (table 9.25).

## 9.25 NATIONAL NOTIFIABLE DISEASE SURVEILLANCE SYSTEM REPORTS — 1998 to 2000

Disease(d)	Notifications(a)			Rate per 100,000 population(b)		
	1998 no.	1999 no.	2000 no.	1998	1999	2000(c)
Blood-borne diseases						
Hepatitis B (incident)	262	304	434	1.4	1.6	2.3
Hepatitis B (unspecified)	6 629	8 075	8 804	35.4	42.6	46.0
Hepatitis C (incident)	346	380	527	1.8	2.0	2.8
Hepatitis C (unspecified)	19 010	21 120	20 399	101.5	111.4	106.5
Hepatitis D	10	21	27	0.1	0.1	0.1
Hepatitis n.e.c.	4	—	1	—	—	—
Gastrointestinal diseases						
Botulism	1	—	2	—	—	—
Campylobacterosis	13 283	12 515	13 522	107.2	99.7	106.5
Haemolytic uraemic syndrome	13	24	14	0.1	0.1	0.1
Hepatitis A	2 443	1 552	804	13.0	8.2	4.2
Hepatitis E	1	2	1	—	—	—
Listeriosis	55	71	58	0.4	0.4	0.3
Salmonellosis	7 489	7 084	6 030	40.0	37.3	31.5
Shigellosis	594	542	482	4.8	4.3	3.8
SLTEC, VTEC(e)	14	43	38	0.1	0.3	0.3
Typhoid	63	72	69	0.3	0.4	0.4
Yersiniosis	190	142	70	1.5	1.1	0.6
Quarantineable diseases						
Cholera	4	3	1	—	—	—
Sexually transmitted infections						
Chancroid	1	—	—	—	—	—
Chlamydial infection	11 338	13 917	17 559	60.5	73.4	91.7
Donovanosis	27	16	16	0.2	0.1	0.1
Gonococcal infection	5 398	5 593	5 972	28.8	29.5	31.2
Syphilis	1 677	1 934	1 888	9.0	10.2	9.9
Vaccine preventable diseases						
Haemophilus influenzae type b	34	39	30	0.2	0.2	0.2
Measles	290	229	107	1.5	1.2	0.6
Mumps	182	184	210	1.0	1.0	1.1
Pertussis	5 739	4 345	5 938	30.6	22.9	31.0
Rubella	745	372	319	4.0	2.0	1.7
Tetanus	8	2	6	—	—	—
Vector-borne diseases						
Arbovirus infection n.e.c.	83	62	59	0.4	0.3	0.3
Barmah Forest virus infection	531	628	629	2.8	3.3	3.3
Dengue	509	128	214	2.7	0.7	1.1
Malaria	647	718	935	3.5	3.8	4.9
Ross River virus infection	3 128	4 392	4 181	16.7	23.2	21.8
Zoonoses						
Brucellosis	43	51	24	0.2	0.3	0.1
Hydatid infection	40	29	25	0.3	0.2	0.2
Leptospirosis	189	317	233	1.0	1.7	1.2
Ornithosis	64	84	103	0.7	0.9	1.1
Q fever	560	509	506	3.0	2.7	2.6
Other diseases						
Legionellosis	262	248	478	1.4	1.3	2.5
Leprosy	4	6	4	—	—	—
Meningococcal infection	453	563	599	2.3	3.0	3.1
Tuberculosis	974	1 118	1 018	5.2	5.9	5.3
<b>Total</b>	<b>83 337</b>	<b>87 428</b>	<b>92 347</b>	..	..	..

(a) Year of notification. Date of notification is a composite of three components: (i) the true onset date from a clinician, if available, or (ii) the date the laboratory test was ordered, or (iii) the date reported to the State/Territory public health unit. The 1998 figures previously published were for year of report and differ from the figures presented here which are for year of notification, which is closer to the date of onset. (b) Rate per 100,000 population is calculated using the estimated resident population at the mid-point (30 June) of the relevant calendar year. Where a disease is not notifiable in a particular State or Territory, the population of that State or Territory is excluded from the Australian population when calculating the rate. Diseases not notifiable for all States/Territories are campylobacterosis, shigellosis and yersiniosis (not notifiable in NSW), hepatitis E (WA), SLTEC/VTEC (Qld, WA), donovanosis (NSW, Qld). (c) Notifications data for the year 2000 were provisional at the date of analysis (6 July 2001).

(d) Diseases under surveillance for which no notifications were received in the period 1998–2000 were plague, rabies, viral haemorrhagic fever, yellow fever, lymphogranuloma venereum, diphtheria and poliomyelitis. (e) SLTEC/VTEC is shiga-like toxins and verotoxin producing *E. coli* infections.

Source: National Notifiable Disease Surveillance System.

## HIV and AIDS

In collaboration with the State and Territory health authorities and the Commonwealth Government, surveillance for human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) is conducted by the National Centre in HIV Epidemiology and Clinical Research (NCHECR). This centre is part of the Faculty of Medicine, University of New South Wales and is funded primarily by the Commonwealth Department of Health and Aged Care through the Australian National Council on AIDS and Related Diseases (ANCARD).

By the end of 2000, it was estimated that 20,955 HIV cases, 8,616 AIDS diagnoses and 6,017 deaths attributable to AIDS had occurred in Australia (table 9.26). Surveillance indicates that AIDS incidence peaked during 1994, and a steady decline

was observed from 1994 to 1999. This decline can be attributed to the fall in HIV transmission in the mid 1980s and the introduction of more effective antiretroviral therapy for the treatment of HIV infection in the mid 1990s.

HIV infection continues to overwhelmingly affect males, and disease transmission continues to predominantly occur by sexual contact between men (table 9.27 and graph 9.28). Between 1992 and 2000, both the total annual number of new cases of HIV and the annual number of male homosexually acquired cases declined. Although the proportion of new cases acquired through heterosexual contact has increased over this period, peaking in 1998, the number of these new cases has remained relatively stable at 140 to 200 per year.

**9.26 NEWLY DIAGNOSED HIV CASES(a), AIDS CASES AND DEATHS FOLLOWING AIDS(b) — to 2000**

	Year of diagnosis										
	Prior to 1992	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
HIV cases(a)	12 672	1 241	1 091	1 023	937	926	826	772	734	723	20 955
AIDS cases(b)	3 428	791	845	955	807	664	376	311	184	255	8 616
AIDS deaths(b)	2 158	600	695	737	651	505	236	156	122	157	6 017

(a) Not adjusted for multiple reporting. Total includes 10 cases for which the date of HIV diagnosis was not reported.

(b) AIDS cases diagnosed and deaths following AIDS in 1998, 1999 and 2000 were adjusted for reporting delays; AIDS cases diagnosed and deaths following AIDS in previous years were assumed to be completely reported.

Source: *HIV/AIDS, Hepatitis C and Sexually Transmissible Infections in Australia Annual Surveillance Report 2001*, National Centre in HIV Epidemiology and Clinical Research, The University of New South Wales, Sydney, 2001.

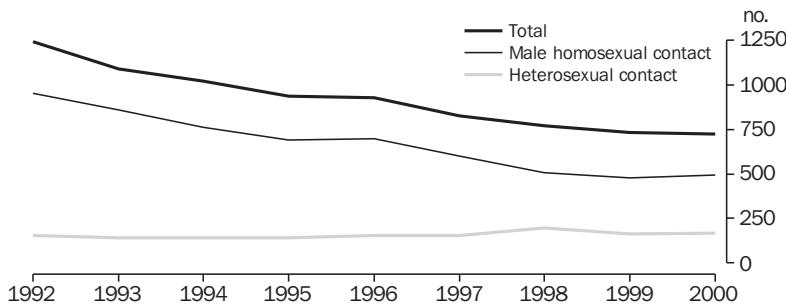
### 9.27 CHARACTERISTICS OF CASES OF NEWLY DIAGNOSED HIV INFECTION(a), Number of Cases and Percentage of Total Cases — to 2000

	Units	Prior to 1992	1992	1993	1994	1995	1996	1997	1998	1999	2000	Year of HIV diagnosis	Total(b)
Total cases	no.	12 672	1 241	1 091	1 023	937	926	826	772	734	723	20 955	
Males	%	93.7	92.3	92.5	90.8	91.9	91.7	89.6	87.2	89.5	89.2	92.5	
State/Territory													
New South Wales	%	60.8	57.6	55.6	49.8	58.0	50.3	53.3	54.1	53.4	46.3	57.9	
Victoria	%	20.5	20.5	20.4	21.1	17.5	20.2	21.8	18.1	19.1	26.0	20.5	
Queensland	%	8.3	12.4	12.6	16.2	12.3	16.7	13.8	13.6	16.9	16.2	10.7	
South Australia	%	3.5	2.7	5.0	3.6	3.3	5.0	4.2	4.5	3.0	3.2	3.6	
Western Australia	%	4.8	4.2	4.7	7.2	6.2	6.1	4.6	6.5	5.4	6.5	5.1	
Tasmania	%	0.4	0.8	0.2	0.2	0.6	0.3	—	0.4	0.4	—	0.4	
Northern Territory	%	0.5	0.5	0.9	0.5	0.2	0.5	1.3	1.6	0.7	0.4	0.6	
Australian Capital Territory	%	1.2	1.3	0.6	1.4	1.9	0.9	1.0	1.2	1.1	1.4	1.2	
Exposure category(c)													
Male homosexual contact	%	81.7	76.7	79.0	74.3	73.9	75.5	72.6	65.4	65.0	68.4	77.9	
Male homosexual contact and injecting drug use	%	3.5	4	3.6	6.2	4.9	3.9	4.4	4.6	6.1	3.6	3.9	
Injecting drug use(d)	%	4.8	4.8	3.5	3.4	4.5	2.8	3.2	3.4	5.6	4.4	4.5	
Heterosexual contact	%	4.8	12.3	12.8	13.9	15.3	16.8	18.7	25.4	22.4	23.1	10.2	
Haemophilia/coagulation disorder	%	3.0	0.4	—	—	0.1	—	—	0.1	0.5	—	1.7	
Receipt of blood/tissue	%	2.0	1.1	0.3	0.8	0.3	0.2	0.1	0.6	0.3	—	1.3	
Mother with/at risk of HIV infection	%	0.2	0.4	0.5	1.0	0.8	0.8	0.9	0.4	0.1	0.5	0.4	
Health care setting	%	—	0.3	0.2	0.3	0.1	—	—	—	—	—	0.1	
Other/undetermined	%	23.7	11.8	9.4	5.8	8.3	10.6	9.6	9.3	10.5	8.6	18.0	

(a) Not adjusted for multiple reporting. (b) Total includes 10 cases in males for which the date of HIV diagnosis was not reported. (c) The 'Other/undetermined' category was excluded from the calculation of the percentage of cases attributed to each HIV exposure category. (d) Excludes males who also reported a history of homosexual/bisexual contact.

Source: HIV/AIDS, Hepatitis C and Sexually Transmissible Infections in Australia Annual Surveillance Report 2001, National Centre in HIV Epidemiology and Clinical Research, The University of New South Wales, Sydney, 2001.

### 9.28 NUMBER OF NEWLY DIAGNOSED CASES OF HIV INFECTION, By Exposure Category, Australia — 1992 to 2000



Source: HIV/AIDS, Hepatitis C and Sexually Transmissible Infections in Australia, Annual Surveillance Report 2001, National Centre in HIV Epidemiology and Clinical Research, The University of New South Wales, Sydney, 2001.

### Children's immunisation

The Australian Childhood Immunisation Register (ACIR), which commenced operation on 1 January 1996, aims to provide accurate and comprehensive information about immunisation coverage for all children under the age of seven.

The register is administered by the Health Insurance Commission (HIC) on behalf of the Commonwealth Department of Health and Aged Care and is a key component of initiatives to improve the immunisation status of Australian children.

Immunisation coverage goals for Australia for the year 2000, recommended by the NHMRC, called for 90% or more coverage of children at two years of age, and near universal coverage of children at school-entry age, against diphtheria, tetanus, pertussis (whooping cough), poliomyelitis, measles, mumps, rubella and hib (haemophilus influenza type b).

ACIR data indicated that, at June 2001, 91.5% of one year olds and 86.6% of two year olds were fully immunised according to the NHMRC Recommended Immunisation Schedule. State summaries by age group based on ACIR data are published quarterly in Communicable Diseases Intelligence (CDI) bulletin.

## **Health care delivery and financing**

### **Government role**

The Commonwealth has a leadership role in policy formulation, particularly in areas such as public health, research and national information management. It funds, directly or indirectly, most non-hospital medical services, pharmaceuticals and health research. With the States and Territories, it jointly funds public hospitals, and home and community care for aged and disabled persons. Residential facilities for aged persons are funded by a number of sources, including the Commonwealth. Public health insurance is provided through Medicare, which is discussed in more detail later in this chapter.

The States and Territories are primarily responsible for the delivery and management of public health services and the regulation of health care providers. They deliver public hospital services and a wide range of community and public health services. For example, some State and Territory government funded organisations provide school dental care and dental care for low income earners, other dental care being delivered in the private sector without government funding. Local governments within States deliver most environmental health programs.

Public hospitals, which provide the majority of acute care beds, are funded by the Commonwealth Government and the State and Territory Governments, in addition to receiving revenue from services to private patients. Large urban public hospitals provide most of the more complex types of hospital care such as intensive

care, major surgery, organ transplants and renal dialysis, as well as non-admitted patient care. Public hospitals have their own pharmacies which provide medicines to admitted patients free of charge and do not attract direct Commonwealth subsidies under the Pharmaceutical Benefits Scheme. This is discussed in more detail later in this chapter.

A small number of doctors and paramedical professionals are salaried employees of the various tiers of government. Many salaried specialist doctors in public hospitals are able to treat some private patients in hospital and usually contribute to the hospital a portion of the income earned from fees charged. Other doctors may contract with public hospitals to provide medical services.

### **Private sector role**

The strong private sector, operating in the delivery of, and insurance for, health services, receives substantial direct and indirect government subsidies. Within this sector, organisations operating for profit and not for profit play a significant role in providing health services, public health and health insurance. For example, privately owned nursing homes provide the majority of long-term aged care beds. In the past, private hospitals tended to provide less complex non-emergency care, such as simple elective surgery. However, they are increasingly providing complex, high technology services. Separate centres for non-admitted and day-only admitted patient surgical procedures are mostly located in the private sector. This sector includes a large number of doctors and paramedical professionals who are self-employed, generally providing services such as general practice and specialist services, diagnostic imaging, pathology and physiotherapy.

Most prescribed pharmaceuticals dispensed by private sector pharmacies are directly subsidised by the Commonwealth through the Pharmaceutical Benefits Scheme.

An important component of the Australian health care system is private health insurance, which can cover part or all of the hospital charges to private patients directly, a portion of medical fees for services provided to private admitted patients in hospitals, paramedical services and some aids such as spectacles. The Commonwealth subsidises private health insurance premiums through a 30% rebate.

## National health care system

Australia has a national system for the delivery of health care which generally covers all permanent residents of Australia. The system is financed largely by general taxes, a proportion of which is raised by an income related Medicare levy. This is discussed in more detail in the following section.

There are five major kinds of Commonwealth health funding mechanisms:

- Grants to State and Territory Governments under the 1998–2003 Australian Health Care Agreements to assist with the cost of providing public hospital services;
- medical benefits, providing patients with rebates on fees paid to privately practising doctors and optometrists;
- pharmaceutical benefits, via the Pharmaceutical Benefits Scheme, providing patients with access to a broad range of subsidised medicines;
- Health Program Grants to government and non-government service providers for a range of health services (for example, radiation oncology (capital component), pathology and primary medical services). Health Program Grants are used to achieve health policy objectives such as improving access for specific population groups, influencing the growth and distribution of selected and potentially high cost services, or providing an alternative to fee-for-service arrangements, such as the Medicare and Pharmaceutical Benefits Schemes; and
- the 30% private health insurance rebate.

In addition to the specific funding mechanisms mentioned above, health services receive part of the general purpose grants provided by the Commonwealth to State and Territory Governments.

## Medicare levy

When Medicare began in 1984, the levy was introduced as a supplement to other taxation revenue, to enable the Government to meet the additional costs of the universal national health care system, which were greater than the costs of the more restricted systems that preceded it.

The Medicare levy, which was increased from 1% to 1.25% of taxable income on 1 December 1986, increased to 1.4% on 1 July 1993 and to 1.5% on 1 July 1995.

For 2000–01, the general Medicare levy rate was 1.5% of taxable income. No levy was payable by individuals with income less than \$13,807 per year or by families with income less than \$23,299, with a further \$2,140 per year allowed for each child. Single people with incomes above \$50,000 and families with incomes above \$100,000, with a further \$1,500 after the first child, who were not covered by private health insurance, paid a levy of 2.5% of taxable income, which includes a 1% Medicare Levy Surcharge.

In a Government decision of 24 May 2000, high income earners (\$50,000 single, \$100,000 families) who purchase a high front end deductible (FED) health insurance product are not exempt from the Medicare Levy Surcharge from 1 July 2000. A high FED costs over \$500 for single participants and over \$1,000 for families.

In 1999–2000, revenue raised from the Medicare levy was approximately 17.5% of total Commonwealth health expenditure and 8.3% of total national health expenditure. The Australian Taxation Office estimated revenue from the Medicare levy to be \$4.4b in 1999–2000.

## The Commonwealth Government's funding of hospitals

Total Commonwealth funding under the 1998–2003 Australian Health Care Agreements is currently estimated as \$31.6b over the five years. This is a real increase of around 28% over the life of the Agreements.

In 2000–01 total Commonwealth funding under the Australian Health Care Agreements was around \$6.3b. Of this amount:

- \$6,217m was paid to the States and Territories as Health Care Grants including: \$134m for quality improvement and enhancement practices in our hospitals, \$54m for the implementation of the Second National Mental Health Plan and \$30m for the implementation of the National Palliative Care Strategy;
- \$70m was paid to New South Wales, Victoria, Queensland and Tasmania from the National Health Development Fund; and
- the remainder was allocated to national initiatives in the areas of mental health, palliative care and casemix.

## 9.29 TOTAL HEALTH EXPENDITURE(a) AND RATE OF GROWTH

Year	Expenditure		Rate of growth	
	Current prices	Chain volume measures(a)	Current prices	Chain volume measures(a)
	\$m	\$m	%	%
1989–90	28 800	35 347	n.a.	n.a.
1990–91	31 270	36 136	8.6	2.2
1991–92	33 087	37 403	5.8	3.5
1992–93	34 993	39 043	5.8	4.4
1993–94	36 787	40 613	5.1	4.0
1994–95	38 967	42 314	5.9	4.2
1995–96	41 783	44 329	7.2	4.8
1996–97	44 851	46 757	7.3	5.5
1997–98	47 648	48 849	6.2	4.5
1998–99	51 011	51 011	7.1	4.4
1999–2000(b)	53 657	52 535	5.2	3.0
Average annual growth rate 1989–90 to 1992–93	..	..	6.7	3.4
Average annual growth rate 1992–93 to 1997–98	..	..	6.4	4.6
Average annual growth rate 1997–98 to 1999–2000	..	..	6.1	3.7
Average annual growth rate 1989–90 to 1999–2000	..	..	6.4	4.0

(a) Reference year 1998–99. Chain volume measures are discussed in detail in the section Chain volume or 'real' GDP of Chapter 29, National accounts. (b) Based on preliminary AIHW and ABS estimates.

Source: Australian Institute of Health and Welfare, *Health Expenditure Data Base*.

## Total health expenditure

For 1999–2000, the preliminary estimate of total expenditure on health services (including both public and private sectors) was \$53.7b, compared with expenditure of \$51.0b in the previous year (table 9.29). This represented an average rate of health services expenditure in 1999–2000 of \$2,817 per person. In 1999–2000, governments provided more than two-thirds (71%) of the funding for health expenditure, while the remaining 29% was provided by the private sector. Health expenditure in volume terms grew at an average annual rate of 4.0% between 1989–90 and 1999–2000. In 1999–2000, health services expenditure as a proportion of Gross Domestic Product (GDP) was 8.5%. The ratio was 8.6% in 1998–99, up from 8.4% in 1996–97 and 1997–98.

Based on available data, about \$1,245m was spent on health services provided to Aboriginal and Torres Strait Islander peoples in 1998–99. This figure represented 2.6% of total health expenditure for that year, and included both government and private expenditure. In 1998–99, the estimated expenditure per person was \$3,065 for Indigenous people, compared with \$2,518 for non-Indigenous people (AIHW Health Expenditure Data Base).

## Hospitals

### Public hospitals

In 1999–2000 there were 748 public hospitals nationally, including 24 psychiatric hospitals, compared with 756 in 1995–96. There were an

average of 52,947 beds in public hospitals during 1999–2000 (table 9.30), representing 68% of all beds in the hospital sector (public and private hospitals combined). Public hospital beds have declined from 3.3 beds per 1,000 population in 1995–96 to 2.8 beds in 1999–2000.

The number of patient separations (discharges, deaths, and transfers) from public hospitals during 1999–2000 was 3.9 million, compared with 3.6 million in 1995–96. Same-day separations accounted for 46% of total separations in 1999–2000 compared with 40% in 1995–96.

Total days of hospitalisation for public health patients during 1999–2000 amounted to 16.2 million, a decrease of 2% since 1995–96. The average length of hospital stay per patient in 1999–2000 was 4.2 days. For 1995–96 the corresponding figure was 4.6, reflecting the lower numbers of same-day patients compared with 1999–2000. If same-day patients are excluded, the 1999–2000 average length of stay was 6.9 days, compared with 7.0 days in 1995–96.

An average of 175,291 staff (full-time equivalent) were employed at public hospitals in 1999–2000, of whom 45% were nursing staff and 10% were salaried medical officers. Revenue amounted to \$1,223m. Most of this revenue (59%) was from patients' fees and charges. Recurrent expenditure amounted to \$14,350m, of which 62% was for salaries and wages. The difference between revenue and expenditure is made up by payments

from State/Territory consolidated revenue and specific payments from the Commonwealth for public hospitals, in roughly equal proportions.

### **Private hospitals**

There were 509 private hospitals in operation in 1999–2000, comprising 278 acute hospitals, 24 psychiatric hospitals and 207 free-standing day hospital facilities. The number of acute and psychiatric hospitals has continued to decline since 1995–96 when 323 of these hospitals were in operation. In contrast, day hospital facilities have shown strong growth for several years, with only 140 in operation in 1995–96.

The average number of beds available at private acute and psychiatric hospitals for admitted patients increased by 4% to 23,665 between 1995–96 and 1999–2000. Although there was a slight decrease in the average number of beds from 1998–99, the trend towards larger hospitals continues. There were 1.2 private hospital beds available per 1,000 population in 1999–2000. The average number of beds or chairs at free-standing day hospital facilities (used mainly for short post-operative recovery periods) increased over the same five-year period by 55% to 1,581. This large increase reflects the substantial growth in the numbers of free-standing day hospitals in recent years.

Private hospital separations in 1999–2000 totalled 2.1 million, of which 84% were from private acute and psychiatric hospitals and 16% from free-standing day hospital facilities. Same day separations accounted for 56% of all private hospital separations (compared with 46% of public hospital separations). This higher proportion of same day separations contributed to the lower average length of stay in private hospitals (3.2 days) compared to public hospitals (4.2 days) (table 9.30).

The average number of full-time equivalent staff employed at all private hospitals was 44,657, of whom 59% were nursing staff. Total operating expenditure for private acute and psychiatric hospitals during 1999–2000 amounted to \$3,794m. Some 57% of this amount was spent on salaries and wages (including on-costs). Revenue received during the year was \$4,012m, of which 91% was received as payments from or in respect of patients. Total recurrent expenditure for free-standing day hospital facilities during 1999–2000 amounted to \$163m, and revenue received during the year was \$192m.

### **Hospital care under Medicare**

Under the Australian Health Care Agreements between the Commonwealth Government and the State/Territory Governments, all eligible people are entitled to free accommodation, medical, nursing and other care as public patients in public hospitals.

Alternatively, patients may choose to be private patients in public hospitals, enabling them to choose their doctors. Medicare-eligible patients who elect to be private patients in public hospitals are charged separate fees for medical and hospital care. If patients have private insurance, this will usually cover all or part of the charges by a public hospital. Medicare pays benefits subsidising part of the cost of doctors' charges, while private insurance pays an additional amount towards these charges and other costs (e.g. surgically implanted prostheses) incurred as part of the hospital stay.

Private patients in private hospitals are charged doctors' fees and are billed by the hospital for accommodation, nursing care and other hospital services. If the patient holds private health insurance, it will contribute to the payment of these costs. Eligible Medicare patients in private hospitals generally attract Medicare benefits for doctors' fees.

The rate of Medicare benefit for doctors' services provided to a private patient in hospital, or an approved day surgery, is 75% of the Medicare Benefits Schedule (MBS) fee. The MBS lists a wide range of medical service items with a scheduled fee for each item. Registered private health insurers offer insurance to Medicare-eligible patients for the difference between 75% and 100% of the Schedule fee, and in some cases an additional amount agreed with the hospital and doctor to ensure that the patient has no out-of-pocket medical cost.

### **Medicare benefits for private doctors' and optometrists' services**

Costs incurred by patients receiving private doctors' services, and some optometrists' services, are generally reimbursed, either fully or in part, through Medicare benefits. These benefits are administered by the Health Insurance Commission through its Medicare Offices.

MBS fees are used to calculate Medicare benefit entitlements, but doctors are able to determine their own fees, provided the service is not 'bulk-billed'. If the service is bulk-billed by agreement between the doctor and patient, the doctor must accept the Medicare benefit, paid directly to the doctor, as payment in full.

## 9.30 PUBLIC AND PRIVATE HOSPITALS — 1999–2000

	Units	Public(a)	Private(b)	Total	Private hospitals as a proportion of total hospitals (%)
Bed supply					
Facilities	no.	748	509	<b>1 257</b>	40.5
Beds/chairs(c)	no.	52 947	(d)25 246	<b>(d)78 193</b>	32.3
Activity					
Total separations	'000	3 872	2 148	<b>6 020</b>	35.7
Same day separations	'000	1 767	1 206	<b>2 973</b>	40.6
Total patient days	'000	16 230	6 581	<b>22 811</b>	28.9
Average length of stay	days	4.2	3.1	<b>3.8</b>	n.a.
Average length of stay excluding all same-day separations	days	6.9	5.7	<b>6.5</b>	n.a.
Average occupancy rate	%	83.8	(e)72.0	<b>(e)77.1</b>	n.a.
Non-admitted patient occasions of service	'000	33 768	1 820	<b>35 558</b>	5.1
Staff (full-time equivalent)(c)	'000	175	45	<b>220</b>	20.5
Revenue	\$m	1 223	4 204	<b>5 427</b>	77.5
Recurrent expenditure	\$m	(f)14 350	3 957	<b>18 307</b>	21.6

(a) Acute and psychiatric hospitals. (b) Acute and psychiatric hospitals and free-standing day hospital facilities. (c) Annual average.  
 (d) Including beds, chairs, recliners at free-standing day hospital facilities. (e) Excluding free-standing day hospital facilities.  
 (f) Excluding depreciation.

Source: Australian Hospital Statistics, 1999–2000, Australian Institute of Health and Welfare; Private Hospitals, Australia, 1999–2000 (4390.0).

The rate of benefit for non-hospital medical services, such as visits to doctors in their rooms, is 85% of the MBS fee. Once the difference between the Schedule fee and benefit is more than \$52.50 (indexed annually) the benefit is the Schedule fee less \$52.50.

In any year, if the sum of the 'gap' payments (being payments above the benefit level and up to the level of the Schedule fee) for non-hospital services for an individual or registered family exceeds a specified amount (\$302.30 for 2001, compared with \$285.00 in 2000), all further benefits for the remainder of that year are paid at 100% of the Schedule fee.

For private medical services provided in hospital, Medicare benefits are payable at a different rate, as described in the preceding section.

Private insurers are prohibited from insuring all or part of non-hospital services which attract Medicare benefits. They may insure part of the fee for in-hospital medical services, as described in the preceding section.

## Pharmaceutical Benefits Scheme (PBS)

The Commonwealth Government provides Medicare-eligible persons with affordable access to a wide range of necessary and cost effective prescription medicines through the PBS. The following details relate to charges and safety net levels applying at 1 January 2001.

Medicare-eligible patients who do not hold a Health Care Card, Pensioner Concession Card or Commonwealth Seniors Health Card, are required to pay the first \$21.90 for each prescription item for medicines listed on the Pharmaceutical Benefits Schedule. Concessional patients who hold a concession card must pay \$3.50 per prescription item.

Individuals and families are protected from large overall expenses for PBS listed medicines by safety nets. For general patients (non-cardholders), once the eligible expenditure of a person and/or their immediate family exceeds \$669.70 within a calendar year, the additional payment the patient has to make per item (co-payment) decreases from \$21.90 to the concessional co-payment rate of \$3.50.

**9.31 PHARMACEUTICAL BENEFITS SCHEME (PBS), Prescription Volume and Cost — 1990–91 to 2000–01(a)**

Year	Prescription volume no. (millions)	Government cost \$m	Total cost(b) \$m	Prescriptions per capita no.	Average dispensed price in current prices \$	Average dispensed price as percentage of average weekly earnings(c) %
1990–91	96.3	1 171.5	1 330.5	5.6	13.82	2.49
1991–92	94.1	1 134.0	1 442.2	5.4	15.32	2.64
1992–93	106.2	1 419.5	1 779.4	6.0	16.76	2.84
1993–94	115.0	1 701.3	2 097.0	6.5	18.23	2.99
1994–95	118.7	1 897.4	2 341.9	6.6	19.73	3.11
1995–96	124.9	2 207.4	2 685.5	6.9	21.50	3.25
1996–97	124.1	2 348.3	2 878.5	6.7	23.20	3.37
1997–98	125.1	2 541.5	3 112.3	6.7	24.88	3.47
1998–99	128.9	2 795.6	3 397.0	6.8	26.35	3.55
1999–2000	138.1	3 187.2	3 839.0	7.2	27.80	3.62
2000–01	148.0	3 820.6	4 564.7	7.7	30.83	n.y.a.

(a) Includes PBS categories of Concessional, General, Safety Net and Emergency (Doctor's Bag) Drugs prescriptions. Excludes: (i) payments through miscellaneous services (Highly Specialised Drugs, IVF Centre Hormones, Human Growth Hormones, Safety Net Card issue costs, Aboriginal Health Services, etc.). In 1999–2000 this expenditure was \$311.7m. (ii) prescription medicines subsidised by the Commonwealth under the Repatriation Pharmaceutical Benefits Scheme (RPBS) administered by the Department of Veterans' Affairs. In 1999–2000, there were 12.0 million RPBS prescriptions at a cost to Government of \$272.3m. (b) Total cost consists of Government cost and patient co-payments. (c) Average weekly earnings is full-time adult ordinary time earnings (original), averaged over August, November, February and May reference periods.

Source: Pharmaceutical Benefits Branch, Commonwealth Department of Health and Aged Care.

For concessional and pensioner patients (cardholders), once their total eligible expenditure exceeds \$182.00 within a calendar year, any further prescriptions are free for the remainder of that year. All pensioners continue to have their pensions supplemented by a pharmaceutical allowance of \$2.90 per week payable fortnightly, or \$150.80 per year, to help defray their out-of-pocket pharmaceutical expenses. The allowance is not paid to other concessional beneficiaries.

Patients may pay more than the relevant co-payment where there is more than one brand of the same drug or alternative product that produces similar results. The Government subsidises on the basis of the lowest priced drug, and any difference in price due to brand or product preferences must be met by the patient.

The premium can not be counted towards the patient's safety net.

In 2000–01 the PBS dealt with over 148 million benefit prescriptions, representing a cost to the Government of \$3,820.6m and a total cost, including co-payments, of \$4,564.7m (table 9.31).

The number of PBS prescriptions per capita in 2000–01 was 7.7, compared with 7.2 in 1999–2000. The number of benefit prescriptions increased by 7% over the previous year, and the cost to government of these prescriptions grew by 20% at current prices.

The rate of growth in prescription numbers and their cost reflects the ongoing trend towards newer and more costly medicines. The average dispensed price (in current dollars) for PBS medicine in 2000–01 was \$30.83, compared with \$27.80 in 1999–2000. However, the average PBS dispensed price as a percentage of Average Weekly Earnings was 3.6% in 1999–2000, only slightly higher than in 1998–99.

**9.32 PERSONS WITH PRIVATE INSURANCE (HOSPITAL COVER), Proportion of Total Population**

	1990 %	1992 %	1994 %	1996 %	1998 %	June 2000 %	March 2001 %
With private hospital cover	44.5	41.0	37.2	33.6	30.5	43.0	45.1
With private ancillary cover	39.9	37.5	34.5	32.9	31.7	39.2	40.5

Source: *Private Health Insurance Administration Council, Quarterly Statistics, June 2000.*

## Private health insurance

Private health insurance is offered by 44 registered health insurers, giving a voluntary option to all Australians for private funding of their hospital and ancillary health treatment. It supplements Australia's Medicare system, which provides a tax-financed public system that is available to all Australians. Depending on the type of cover purchased, private health insurance provides cover against all or part of hospital theatre and accommodation costs in either a public or private hospital, medical costs in hospital, and costs associated with a range of services not covered under Medicare including private dental services, optical, chiropractic, home nursing, ambulance and natural therapies.

The private health sector funds around one-third of all health care in Australia. A sustainable balance is being sought between the public and private health care sectors to ensure a high level of access and choice now and into the future.

### Health insurance coverage

Participation in private health insurance showed a steady decline from the introduction of Medicare in 1984. In 1999–2000, participation in private hospital cover increased dramatically to 43% in June 2000, as a result of the introduction of the Federal Government 30% Rebate on private

health insurance, and the Government's Lifetime Health Cover policy. At 31 March 2001 the participation rate was 45.1% (table 9.32).

### Community rating and reinsurance

Community rating is the underlying principle of the current private health insurance system. Community rating means that people cannot be discriminated against in obtaining health insurance on the basis of health risk. It requires that in setting premiums, or paying benefits, private insurers cannot discriminate between contributors on the basis of health status, age, race, gender, sexuality, use of hospital or medical services, or general claims history.

The principle of community rating is supported by a reinsurance system within the private health insurance industry.

Reinsurance supports the principle of community rating by sharing between health insurers the hospital and medical costs of high risk members admitted to hospital. Insurers with a greater proportion of low risk members (generally the young) pay contributions into the reinsurance pool while those with a greater proportion of high risk groups (the chronically ill and the aged) receive transfers from the pool.

## **Rebate on private health insurance premiums**

In response to declining coverage of the population by private health insurance, from 1 January 1999 the Federal Government introduced a 30% Rebate (the Rebate) on premiums paid for private health insurance. All Australians eligible for Medicare and covered by a health insurance policy offered by a registered health fund are eligible for the Rebate. This initiative provides a 30% rebate on the cost of private health insurance premiums on hospital cover, ancillary cover and a combination of both. Since the Rebate is set at 30% of the actual cost of premiums, it keeps pace with any increases in individual fund or product premiums. The Rebate can be taken as a direct premium reduction, a refundable tax offset or a direct payment available from Medicare offices.

## **Lifetime Health Cover**

Lifetime Health Cover, introduced in July 2000, allows health funds to charge different premiums based on a person's age when they first take out hospital cover. People taking out hospital cover early in their lives pay lower premiums than those taking it out later in life. This rewards membership loyalty and early joining while deterring people who join health funds knowing they will need to claim for health services in the near future, but drop their membership soon afterwards. Under Lifetime Health Cover, the premium paid by people entering private health insurance is based on the age at which they first join and, once set, remains at that rate relative to premiums for people entering at different ages. In other respects the principle of community rating is maintained.

## **Recent initiatives in private health insurance**

Recent initiatives include the following:

- Expansion of 'no gap' and 'known gap' products. The 'gap' is the difference, paid by the health fund member, between fees charged by doctors for in-hospital medical services and the combined health insurance benefit and Medicare benefit. Private health insurers were required to offer either no gap or known gap products to their contributors by 1 July 2000 in order to continue to offer the Rebate as a premium reduction. As a result all private health funds now offer insurance cover which addresses the gap, so that consumers know in advance the out-of-pocket expenses.
- Simplified billing. This addresses the problems of multiple bills and unforeseen out-of-pocket costs for private patients. Simplified billing encourages hospitals, doctors and health funds to work together to simplify the billing process and make sure that patients are informed about any out-of-pocket costs they may have before they go into hospital. Patients benefit by receiving only one or two bills, rather than many from various doctors, and claims from health funds and Medicare are made on the patient's behalf.
- Other recent and planned initiatives addressing affordability, product innovation, industry efficiency and consumer awareness include:
  - improved consumer information on private health insurance;
  - private sector trials of coordinated care;
  - expanded private sector provision of outreach services; and
  - implementation of new capital adequacy and solvency standards for the private health insurance industry.

## Household expenditure on health and medical care

Average household expenditure on health and medical care has increased steadily between 1984 and 1998–99. As a proportion of total household expenditure on goods and services, health and medical care increased from 3.9% in 1984 to 4.7% in 1998–99 (table 9.33).

The Household Expenditure Survey (HES) provides estimates of expenditure on medical care and health by households across Australia. Expenditure is net of any refunds and rebates received from Medicare, private health insurance companies and employers. The ABS has undertaken the HES at five-yearly intervals since 1984. Average expenditure in this survey is calculated across all households, not just those households that spent money on specific goods or services.

Expenditure on accident and health insurance has accounted for the largest percentage of total expenditure on health and medical care in each of the survey periods. However, this percentage has declined markedly between 1993–94 and 1998–99 (from 50% to 41%), reflecting the decrease in hospital, medical and dental insurance from 44% of total health expenditure in 1993–94 to 35% in 1998–99. This decrease is largely due to the falling health insurance coverage, and has occurred despite increases in private health insurance costs between the surveys.

While the proportion of household health expenditure spent on health practitioner's fees has remained relatively constant since 1984, expenditures on individual items have fluctuated. In particular, general practitioner doctor's fees have decreased from 3.8% of total health expenditure in 1984 to 2.4% in 1998–99, while specialist doctor's fees have increased from 3.9% to 7.8%.

The proportion of total health expenditure spent on medicines, pharmaceutical products and therapeutic appliances has increased from 20% in 1984 to 25% in 1998–99.

## Health workforce

In 2000–01, about 361,200 people were employed in health occupations, and comprised 4% of the total number of employed persons in Australia (table 9.34). The health work force grew by an average of 2.2% per year from 1996–97 (the earliest available comparable year), around the same rate of growth for total employment (2.1%). Registered nurses and registered midwives increased in number between 1996–97 and 2000–01, while the number of enrolled nurses declined, reflecting the structural changes in nursing occupations.

**9.33 EXPENDITURE PER HOUSEHOLD ON MEDICAL CARE, Percentage of Total Health Expenditure — 1984 to 1998–99**

Expenditure category	1984	1988–89	1993–94	1998–99	1998–99 \$/week
Accident and health Insurance	50.1	44.4	49.6	40.6	13.18
Hospital, medical and dental insurance	45.7	40.0	43.9	35.0	11.37
Sickness and personal accident insurance	3.3	3.5	4.5	4.6	1.48
Health practitioner's fees	26.5	31.9	24.7	30.7	9.96
General practitioner doctor's fees	3.8	3.6	2.3	2.4	0.77
Specialist doctor's fees	3.9	6.2	5.5	7.8	2.53
Dental charges	10.6	13.3	10.4	13.5	4.37
Medicines, pharmaceutical products and therapeutical appliances	20.0	20.5	22.9	24.9	8.09
Prescriptions	6.2	6.1	8.0	9.1	2.94
Other medical care and health expenses	2.2	3.2	2.8	3.8	1.23
Hospital and nursing home charges	2.2	3.1	2.5	3.0	0.96
<b>Health as proportion of total expenditure on goods and services</b>	<b>3.9</b>	<b>4.3</b>	<b>4.5</b>	<b>4.7</b>	..

Source: ABS data available on request, Household Expenditure Surveys (various).

**9.34 EMPLOYED PERSONS IN HEALTH OCCUPATIONS — Averages over 2000–01(a)**

	'000	% males	% part-time workers
Health professionals	328.9	27.9	34.0
Generalist medical practitioners	34.6	67.2	16.4
Specialist medical practitioners	15.1	73.7	13.6
Registered nurses	163.2	8.7	42.0
Registered midwives	10.0	2.5	59.9
Physiotherapists	12.4	18.9	41.9
Other health professionals	93.6	43.2	25.8
Health paraprofessionals	27.6	8.5	50.7
Enrolled nurses	22.5	6.0	44.6
<b>Total(b)</b>	<b>361.2</b>	<b>26.4</b>	<b>34.9</b>

(a) Average calculated on quarterly estimates. (b) Includes Health service managers.

Source: ABS data available on request, Labour Force Survey.

More than one-third (35%) of the health workforce were employed on a part time basis, compared with 27% for the total Australian workforce. The high proportion of part-time employment in the health workforce may be attributed to the higher percentage of females working in the health sector, given that females have higher rates of part time employment than males. Around 44% of females in the health workforce were part-time employees, the same proportion as for the total female workforce. Among males in health occupations, 10% were part-time, compared with 13% for the total male workforce.

## Health-related organisations

### International

#### World Health Organization (WHO)

WHO is a specialised agency of the United Nations having as its objective the attainment by all peoples of the highest possible level of health. Australia is a member of the Western Pacific Region, one of WHO's six geographic regions, and sends representatives to attend the annual World Health Assembly meeting in Geneva as well as Western Pacific Regional Committee Meetings. Australia's assessed contribution to WHO's core budget for 2000 was \$A10.7m.

#### International Agency for Research on Cancer (IARC)

The IARC was established in 1965 within the framework of the WHO. The headquarters of the agency are located in Lyon, France. The objectives and functions of the agency are to provide for international collaboration in planning, promoting and developing research in all phases of the causation, treatment and prevention of cancer. Australia's contribution to the IARC for 2000 was \$A1.5m.

## Australian government

### Health and Community Services Ministerial Council (HCSMC)

The Health and Community Services Ministerial Council was formed in 1993 by a decision of the Council of Australian Governments (COAG), bringing together the Australian Health Ministers' Conference (AHMC) and the Community Services Ministers' Conference (CSMC). This combined Council meets as necessary to deal with the wider framework of health and community service issues of interest to members of both AHMC and CSMC.

The AHMC and its advisory body, the Australian Health Ministers' Advisory Council (AHMAC), provide a mechanism through which the Commonwealth, State and Territory and New Zealand Governments discuss matters of mutual interest concerning health policy, services and programs. Neither the Conference nor the Council has statutory powers, and decisions are reached by consensus.

In 2000–01, Health Ministers continued to focus on areas such as Aboriginal and Torres Strait Islander peoples' health, primary health care and aged care, as well as issues associated with safety and quality in Australian health care and health information management.

The CSMC and its advisory body, the Community Services Ministers' Advisory Council (CSMAC), have a similar mechanism concerning community services, and welfare policy and programs. In addition, Papua New Guinea is invited to participate.

In 2000–01, the CSMC discussed a wide range of issues such as gambling addiction, services for refugees, support for Indigenous families and communities, aged care and ageing, and a national families and community strategy.

Ministers with responsibilities for disability services matters, who are also Members of the HCSMC, meet as necessary to discuss future directions of disability services programs and services.

### **Commonwealth Department of Health and Aged Care**

The Commonwealth Department of Health and Aged Care provides policy advice to the Government and implements Commonwealth government health and aged care programs. The Department's mission is to lead the development of Australia's health and aged care system.

The Department's vision is for a world class health and aged care system for all Australians. To achieve this vision, the Department focuses on the following specific outcomes set by the Government for the Health and Aged Care portfolio:

- To promote and protect the health of all Australians and minimise the incidence of preventable mortality, illness, injury and disability.
- Access through Medicare to cost-effective medical services, medicines and acute health care for all Australians.
- Support for healthy ageing for older Australians and quality and cost-effective care for frail older people and support for their carers.
- Improved quality, integration and effectiveness of health care.
- Improved health outcomes for Australians living in regional, rural and remote locations.
- To reduce the consequence of hearing loss for eligible clients and the incidence of hearing loss in the broader community.
- Improved health status for Aboriginal and Torres Strait Islander peoples.
- A viable private health insurance industry to improve the choice of health services for Australians.
- Knowledge, information and training for developing better strategies to improve the health of Australians.

The Department works with other stakeholders, including the other agencies in the portfolio, to provide national coordination of health and aged care services. These stakeholders include consumers, communities, providers, peak bodies, industry groups, professional organisations and State and Territory Governments. The portfolio agencies include the Health Insurance

Commission, the Australian Institute of Health and Welfare, the Australia New Zealand Food Authority, Australian Hearing, Health Services Australia, the Australian Radiation Protection and Nuclear Safety Agency, the Private Health Insurance Administration Council, the Private Health Insurance Ombudsman, the Professional Services Review, and the Aged Care Standards and Accreditation Agency.

### **Australian Institute of Health and Welfare (AIHW)**

AIHW is a statutory authority within the Commonwealth Health and Aged Care portfolio. The Institute's mission is "To improve the health and well-being of Australians, we inform community discussion and decision making through national leadership in developing and providing health and welfare statistics and information". The Institute's main functions relate to the collation and dissemination of information related to health and welfare. The AIHW works closely with other agencies which collect data, produce statistics and undertake research and analysis in the health, community services and housing assistance fields.

The AIHW also provides support to the States and Territories in the health and welfare areas, primarily through AHMAC, CSMAC and the Housing Ministers' Advisory Committee, and the national information management groups which report to those advisory groups.

Five collaborating units (contracted with the organisations shown below) extend the scope of the Institute's expertise and assist the AIHW in performing its functions:

- National Perinatal Statistics Unit (University of New South Wales)
- Dental Statistics and Research Unit (University of Adelaide)
- Aboriginal and Torres Strait Islander Health and Welfare Information Unit (National Centre for Aboriginal and Torres Strait Islander Statistics, Australian Bureau of Statistics, Darwin)
- National Injury Surveillance Unit (Flinders University)
- General Practice Statistics and Classification Unit (University of Sydney).

The Institute's Board encourages judicious collaboration with suitable organisations to enhance the Institute's ability to meet its mission. In addition, the AIHW works collaboratively with a range of agencies such as the National Centre

for Classification in Health, the Australian Patient Safety Foundation and the National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases.

### National Health and Medical Research Council (NHMRC)

The NHMRC is a statutory body that reports to the Parliament through the Commonwealth Minister for Health and Aged Care. The NHMRC has statutory obligations to:

- raise the standard of individual and public health throughout Australia;
- foster the development of consistent health standards between the States and Territories;
- foster medical research and training, and public health research and training, throughout Australia; and
- foster consideration of ethical issues relating to health.

The NHMRC provides collaborative leadership to improve the health of Australians by fostering and supporting a high quality and internationally recognised research base, providing evidence based advice, applying research evidence to health issues, and promoting informed debate on health and medical research, health ethics and related policy issues.

The 29 members of Council are appointed under categories defined by the legislation, including expertise in fields of health, medicine and medical research, nominees of Commonwealth, State and Territory health authorities and the Aboriginal and Torres Strait Islander Commission, and the newly appointed Chief Executive Officer.

While the staff of the NHMRC report to an independent Chief Executive Officer, appointed by the Minister for Health and Aged Care, they are also members of staff of the Commonwealth Department of Health and Aged Care.

### Communicable Diseases Network Australia New Zealand

The Communicable Diseases Network Australia New Zealand (CDNANZ) was established in 1989 as a joint initiative of the National Health and Medical Research Council (NHMRC) and the Australian Health Ministers Advisory Council (AHMAC) to enhance the national capacity for communicable disease surveillance and control. The CDNANZ operates on a cooperative basis with the involvement of health authorities from the Commonwealth, States and Territories, and

New Zealand, as well as representatives from other government agencies including Agriculture, Fisheries and Forestry—Australia (AFFA), the Australia New Zealand Food Authority (ANZFA), the Australian Defence Forces and various key organisations which contribute to communicable disease control in Australia.

The CDNANZ meets fortnightly by teleconference, providing a forum for information exchange on communicable disease activity in Australia and New Zealand as well as activity overseas with potential or realised significance in our region. The Network oversees the coordination of national communicable diseases surveillance and communicable diseases outbreak control where a national response is required. The Network coordinates the surveillance of communicable diseases through the National Notifiable Diseases Surveillance System and a number of specialised surveillance systems. The CDNANZ is also involved in the development of communicable disease policy, drawing on expertise across the State, Territory and Commonwealth health departments, universities and other specialist organisations.

To complement the CDNANZ, the Public Health Laboratory Network (PHLN) was established in 1997 as a collaborative group of laboratories nominated by State and Territory health departments. They have expertise in public health microbiology and are major providers of public health laboratory services. The aim of the PHLN is to provide strategic advice, define priorities and share expertise at the national level in order to enhance the national capacity for the laboratory-based surveillance and outbreak management of communicable diseases in Australia.

### Disease registries

Disease registries exist for a range of diseases and medical procedures in Australia. The general aim is to compile a database of all cases (within a given time and place) of a particular disease. These data can be used for research, providing clinical services, developing and evaluating health prevention/intervention policies and for administration purposes. Some of the major national disease registries include:

- Australian Childhood Immunisation Register (ACIR) — the Health Insurance Commission collects immunisation data to provide comprehensive information on the immunisation status of all children under seven years of age living in Australia. ACIR enables parents and health care providers to check on a child's immunisation status. The Register is also

used to monitor immunisation coverage levels, service delivery and disease outbreaks.

<http://www1.bic.gov.au/general/acircirgome;>

- Australian Mesothelioma Register — compiled from notifications by health practitioners and authorities.

<http://www.nobsc.gov.au/Statistics;>

- Australian Spinal Cord Injury Register — enables patterns and trends of spinal cord injury (SCI) to be monitored, and provides an opportunity to conduct survival studies on people with SCI;

- Cancer Registries — cancer is a notifiable disease in all States and Territories of Australia. To maintain a national dataset, the National Cancer Statistics Clearing House at the AIHW receives incidence data from individual State and Territory cancer registries on all cancers diagnosed among Australian residents.

<http://www.aihw.gov.au/cancer/ncsch/ncsch.html;>

- Diabetes Register — based at the AIHW, provides statistics on diabetics who use insulin. The information is collected from records of people using the National Diabetic Services Scheme and the State-based registers of the Australian Paediatric Endocrine Group;

- National Cardiac Surgery Register and National Coronary Angioplasty Register — a joint project between the National Heart Foundation of Australia and the AIHW. The National Cardiac Surgery Register contains annual data on the number of heart surgery procedures and associated deaths from cardiac surgery units around Australia. The National Coronary Angioplasty Register contains information on coronary angioplasty procedures, indications, associated complications, lesion location, success rates and adjunctive techniques such as stenting from cardiac catheterisation units around Australia;

- National Notifiable Diseases Surveillance System — within this system, notifications are made to the relevant State or Territory health authority under the provisions of the public health legislation in their jurisdiction for more than 40 communicable diseases or disease groups. The data facilitate the detection, monitoring and control of disease outbreaks.

<http://www.health.gov.au/pubblth/cdi/nndss/nndss1.htm> ; and

- National Register of Pregnancies After Assisted Conception — contains data from all IVF centres performing in-vitro fertilisation, gamete

intrafallopian transfer and related procedures in Australia and New Zealand.

## Australian non-government

### Asthma Australia

Asthma Australia is an association of all the Asthma Foundations throughout Australia. The Asthma Foundations provide asthma education, information, research, community advocacy and support to people with asthma and their carers.

### Australian Cancer Society

The Australian Cancer Society (ACS) is Australia's peak national cancer control organisation. The Australian Cancer Society brings together Australia's leading State and Territory cancer organisations in a joint commitment to preventing and controlling cancer and providing support for people affected by cancer.

### Australian Kidney Foundation

Australian Kidney Foundation is a national non-profit organisation, which raises funds for research aimed at the prevention of kidney and urinary tract diseases. Among other activities the Foundation conducts a broad-based education program for patients, potential organ donors, medical practitioners and the general community.

### Consumers Health Forum of Australia

The Consumers Health Forum (CHF) is a national peak organisation funded by member contributions and DHAC. The strategic direction of the forum is set by voting members which are national, State and local consumer groups. CHF nominates and supports consumer representatives on government, industry and professional committees.

### Diabetes Australia

Diabetes Australia is part of a federation of twelve organisations — medical, education and scientific, research and community based — coordinated and facilitated through the national office in Canberra. It offers personalised and practical assistance to benefit people with diabetes and their carers and provides a forum for the development of national policies.

### National Heart Foundation

The Heart Foundation is an independent Australia-wide, non-profit health organisation, funded almost entirely by donations from Australians. The Foundation's purpose is to improve the heart health of Australians and to

reduce disability and death from heart and blood vessel disease by promoting and conducting research and promoting behaviour beneficial to heart and blood vessel health.

### **Red Cross**

The Australian Red Cross operates the blood transfusion service in Australia, based on donations from voluntary non-remunerated donors. The majority (98%) of funding is provided by Commonwealth and State Government grants. The cost of providing the service in 1999–2000 was \$172.2m. Plasma products are manufactured by CSL Ltd from the plasma from Red Cross donors. These products are distributed free of charge by Red Cross.

### **Royal Flying Doctor Service**

The Royal Flying Doctor Service of Australia is a not-for-profit charitable service providing aeromedical emergency and primary health care services together with communication and education assistance in regional and remote Australia.

### **The Mental Health Council of Australia**

The Mental Health Council of Australia (MHCA) is the independent, non-government sector peak body established under the National Mental Health Strategy to represent and promote the interests of the mental health sector and advise on mental health in Australia.

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## Introduction

**A**t the broadest level, education and training can be thought of as the lifetime process of obtaining knowledge, attitudes, skills, and socially valued qualities of character and behaviour. In this sense, education is initiated at birth, developed in schooling and other formal pathways of learning, and continued throughout adult life. Education can occur within a variety of environments, some more formal than others.

Formal learning has traditionally taken place within three major sectors: schools, vocational education and training, and higher education. Typically this is characterised by delivery that is systematic, planned and organised ahead of time, and which usually involves some evaluation of achievement. However, in recent years the boundaries between these sectors have become less distinct. Many other kinds of structured learning can take place outside formal institutions and can continue after a person has completed schooling or gained trade or higher qualifications. For instance, structured learning might be undertaken in the workplace, in order to acquire, develop or upgrade work-related skills.

At the other end of the spectrum is non-formal education, which is intentional, but is delivered in an informal and unstructured way, on an ad hoc basis. It does not necessarily involve any student-teacher relationship nor evaluation of achievement. Non-formal education includes on-the-job training and self-directed learning.

Core measures of educational activity in Australia currently focus on educational resources (the inputs), participation (the process of education), attainment (the outputs) and other outcomes. The structure of this chapter reflects these core measures. It begins with the funding inputs to the different categories of education, then discusses the inputs in the form of government assistance to students, before describing the processes for each category of education, and finally educational attainment.

## Commonwealth and State government responsibilities in education

The State and Territory Governments have the responsibility for most education and training, including the administration and substantial

funding of primary and secondary education, as well as the administration and major funding of Vocational Education and Training (VET).

The Commonwealth Government has special responsibilities in education and training for Aboriginal and Torres Strait Islander peoples, migrants, international relations in education, and assistance for students. It is also principally responsible for funding of higher education institutions, and provides supplementary funding for schools and for VET. The Commonwealth Government also provides special grants to the States and Territories for areas of particular need. Apart from its significant financial role, the Commonwealth is also involved in promoting national consistency and coherence in the provision of education and training across Australia.

## Expenditure on education

The estimates of government expenditure on education provided in this section accord with national accounting concepts. An explanation of these concepts is contained in *Government Finance Statistics: Concepts, Sources and Methods* (5514.0); *Information Paper: Developments in Government Finance Statistics* (5516.0); *Information Paper: Accruals-based Government Finance Statistics* (5517.0); and *Expenditure on Education, Australia* (5510.0).

The accrual-based estimates in tables 10.1, 10.2, and 10.3 are not comparable with the cash-based estimates published in past editions of Year Book Australia. An accrual system records transactions in the period in which income is earned or expenses incurred, regardless of whether a cash payment is made. A conceptual framework, derived from the international standard *A System of National Accounts 1993*, is used for these accrual-based estimates.

The total operating expenses on education for all Australian governments increased by 5.3% from \$32,335m in 1998–99 to \$34,036m in 1999–2000. In 1999–2000 total expenditure on non-financial assets for all Australian governments, a cash measure, was \$1,976m, up from \$1,718m in 1998–99. Cash-based private expenditure on education (final consumption expenditure plus gross fixed capital formation) increased by 6.3% from \$9,006m in 1998–99 to \$9,575m in 1999–2000; it represented 1.5% of Gross Domestic Product (GDP) in both years.

Because total operating expenses are an accrual measure, while both expenditure on non-financial assets and private expenditure on education are cash measures, the three should not be added together.

In 1999–2000, public expenditure on education was 5.4% of GDP, with private education spending at 1.5% of GDP. In 2000, some 9,595 schools provided primary and secondary education for 3.2 million school students, 69% of whom attended government schools. VET institutions were well patronised, with 1.7 million clients, and there were 695,500 higher education students. An estimated 612,100 persons were employed in the education industry, representing 6.9% of the civilian workforce.

Table 10.1 presents the total education expenses of governments in 1999–2000, by purpose. Primary and secondary education comprised 54% of total operating expenses on education, university education 28%, and technical and

further education 10%. Total operating expenses include depreciation of fixed assets, but do not include cash payments for expenditure on non-financial assets, a component of the broader financial statements.

Table 10.2 shows the components of operating expenses on education by economic transaction type in 1999–2000. Employee expenses accounted for 54%, with the balance largely in non-employee expenses (22%) and current transfer expenses (19%).

Table 10.3 summarises Commonwealth grants for education to the States and Territories in 1999–2000. The major beneficiary of Commonwealth grants (both current and capital) was primary and secondary education, receiving 59% of the total granted (both current and capital) for education. Another 27% of Commonwealth grants for education was directed to universities.

#### **10.1 EDUCATION OPERATING EXPENSES INCURRED BY GOVERNMENT, By Purpose — 1999–2000**

Purpose	Commonwealth \$m	State and local \$m	Multi- jurisdictional(a) \$m	Total sectors \$m	Intra- sector transfers \$m	Australia \$m
Primary and secondary education	5 330	17 752	—	23 082	4 627	18 455
Tertiary education						
University education	3 046	84	8 659	11 789	2 412	9 377
Technical and further education	1 292	3 152	—	4 444	943	3 501
Tertiary education n.e.c.	233	63	—	296	—	296
Total tertiary education	4 571	3 299	8 659	16 529	3 356	13 173
Preschool, special, and other education	273	998	—	1 271	160	1 111
Transportation of students	—	817	—	817	—	817
Other education expenses	123	357	—	480	—	480
<b>Total education operating expenses</b>	<b>10 299</b>	<b>23 225</b>	<b>8 659</b>	<b>42 183</b>	<b>8 147</b>	<b>34 036</b>

(a) The multi-jurisdictional sector currently includes only universities.

Source: ABS data available on request, Public Finance collection.

#### **10.2 GOVERNMENT OPERATING EXPENSES ON EDUCATION, By Economic Transaction — 1999–2000**

Economic transaction type	Commonwealth \$m	State and local \$m	Multi- jurisdictional(a) \$m	Total sectors \$m	Intra-sector transfers \$m	Australia \$m
Employee expenses	155	13 355	4 963	18 472	—	18 472
Non-employee expenses	266	4 406	2 734	7 407	—	7 407
Depreciation of fixed assets	138	941	641	1 719	—	1 719
Current transfer expenses	9 370	4 407	321	14 098	7 767	6 331
Capital transfer expenses	370	116	—	486	380	106
<b>Total</b>	<b>10 299</b>	<b>23 225</b>	<b>8 659</b>	<b>42 183</b>	<b>8 147</b>	<b>34 036</b>

(a) The multi-jurisdictional sector currently includes only universities.

Source: ABS data available on request, Public Finance collection.

### 10.3 COMMONWEALTH GRANTS FOR EDUCATION — 1999–2000

	\$m
Current grants to States, Territories and Universities	
Primary and secondary education	4 279
Technical and further education	927
Universities	2 052
Other education not definable by level	157
Total	7 415
Capital grants to States, Territories and Universities	
Primary and secondary education	337
Technical and further education	—
Universities	30
Other education not definable by level	4
Total	369
Total grants to States, Territories and Universities	
Primary and secondary education	4 615
Technical and further education	927
Universities	2 085
Other education not definable by level	159
Total	7 787

Source: ABS data available on request, *Public Finance collection*.

### Funding of schools

On an accrual basis, the primary and secondary education expenses of Australian governments totalled \$18,455m in 1999–2000.

Expenses associated with preschool education and education not definable by level were \$1,111m. State, Territory and local governments also contributed funds to other aspects of schooling such as student transport, costing \$817m in 1999–2000. As table 10.1 showed, preschool, primary, secondary, and other special education expenses were largely met by State, Territory and local governments.

While primary and secondary education is free in government schools in all States and Territories, fees may be charged for the hire of text books and other school equipment (particularly in secondary schools). Voluntary levies may also be sought from parents.

In addition to funding schools directly, most State and Territory Governments provide financial assistance to parents (under specified conditions) for educational expenses of school children. Assistance includes scholarships, bursaries, and transport and boarding allowances, many of which are intended to assist low-income families. The Commonwealth Government also provides a number of assistance schemes to facilitate access to education.

### Funding of Vocational Education and Training

VET recurrent revenue is provided primarily by the State and Territory Governments (58% in 2000), with additional funds being provided by the Commonwealth Government (21%). The balance of revenue (21% in 2000) comes from fee-for-service activities, ancillary trading, and student fees or charges.

All States and Territories charge most students some form of administration fee for VET courses. This varies according to the type of course and its duration. Nationally, in 2000 around 4% of recurrent revenue for VET institutions was provided by student fees and charges. Another 11% was received as fee-for-service revenue from full-fee paying overseas clients, employers and other individuals or organisations.

### Funding of higher education

Most higher education institutions are funded by the Commonwealth Government under the *Higher Education Funding Act 1988*. In 1999 the operating revenue (before abnormals) of these institutions amounted to \$8,730m, 45% of which came from Commonwealth government grants. Commonwealth government funding is also provided to higher education institutions through various research programs, mostly on the advice of the Australian Research Council (ARC).

In addition to government funding, institutions receive payments from students who are required to contribute to the cost of their education through the Higher Education Contribution Scheme (HECS), and from other fee paying students. Higher education fees and charges have increased in importance in recent years. In 1999, 19% of operating revenue was raised from HECS, while other fees and charges accounted for a further 18% of income. These fees and charges included \$79m (representing just over half of the fee income) from fee-paying overseas students. Some institutions rely more heavily than others on fees paid by overseas students. For example, the Royal Melbourne Institute of Technology University and the Curtin University of Technology in Western Australia received some 22% and 21% respectively of their revenue from fee-paying overseas students. This is above the overall national average of 7.3%.

## Government assistance to students

Commonwealth Government assistance is summarised in table 10.4. Student numbers should not be totalled, because students may transfer from one student assistance program to another during a year, and some students can receive the Student Financial Supplement Scheme (SFSS) in conjunction with one of the other payments (see the later section *Student Financial Supplement Scheme*).

### 10.4 STUDENT ASSISTANCE SCHEMES — 1999–2000

Scheme	Students no.	Assistance \$m
Youth Allowance	309 579	1 965
Austudy	42 838	221
Abstudy	49 755	154
Assistance to Isolated Children (AIC)	11 900	31
Youth Allowance SFSS	9 927	39
Austudy SFSS	17 222	68
Abstudy SFSS	8 979	47

Source: Department of Education, Training and Youth Affairs; Department of Family and Community Services.

## Austudy and Youth Allowance

In 1998, Youth Allowance replaced AUSTUDY (now called Austudy) and a number of other payments for young people under 25 years. Youth Allowance is for full-time students under 25 years and unemployed people under 21 years. Austudy now covers full-time students 25 years and over. Youth Allowance and Austudy are administered by the Department of Family and Community Services, and delivered by Centrelink. These systems aim to provide an equal opportunity for access to education by all Australians, through provision of financial assistance to support students who could not otherwise continue their studies. At 30 June 2000, some 309,579 and 42,838 students benefited from Youth Allowance and Austudy, respectively.

## ABSTUDY

ABSTUDY represents a major component of the Government's commitment, under the National Aboriginal and Torres Strait Islander Education Policy, to encourage Australian Aboriginal and Torres Strait Islander peoples to take full advantage of educational opportunities, to promote equality of education, to be involved in decision making, and to improve educational outcomes.

The scheme provides financial assistance for eligible Australian Aboriginal and Torres Strait Islander persons who undertake approved secondary or tertiary education courses by full-time study, by correspondence, or who undertake part-time tertiary study. There is also some assistance available to primary students aged 14 years or over who live at home. In 1999–2000, ABSTUDY assisted almost 50,000 students.

## Assistance for isolated children

The Assistance for Isolated Children (AIC) scheme helps the families of primary and secondary students, and tertiary students under 16 years old, who do not have reasonable daily access to an appropriate government school primarily because of their geographic isolation. An 'appropriate school' is a government school which offers the student's level of study or, if the student has special health-related or educational needs, one which provides access to the facilities, programs and/or environment required for those needs.

Apart from the additional Boarding Allowance, all AIC allowances are free from income and assets tests, but applicants must meet the eligibility criteria. In 1999–2000, the AIC scheme assisted 11,900 students, and expenditure was \$31m.

## Student Financial Supplement Scheme

The Student Financial Supplement Scheme (SFSS) is a voluntary loan scheme introduced in 1993. It is available to students receiving Youth Allowance, Austudy, ABSTUDY and the Pensioner Education Supplement. Dependent full-time students who are not eligible for Youth Allowance may still access a SFSS loan if parental income is below a certain threshold, which was \$55,350 in 1999–2000. Loan repayments do not commence until five years after the loan was taken out and only when income reaches a certain level (\$31,126 in 1999–2000).

During 1999–2000 some 36,128 students took up the SFSS option, receiving \$154m in loans. Students receiving Youth Allowance took out \$39m in SFSS loans, Austudy recipients took out \$68m in SFSS loans, and Abstudy recipients \$47m in loans.

## Early years education in Australia

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### Introduction

The early years of a child's education in Australia are referred to in different ways, and occur in a range of settings under the responsibility of many government and non-government agencies. This article gives a brief account of the diversity in early years education across Australia. In particular it features issues surrounding care and education such as school starting ages; naming of services; qualifications of staff; participation of children in early years education; outcomes of early years education; financial support; and research issues surrounding this level of education in Australia.

### Definition of early years education

It is generally recognised in Australia, and internationally, that children from birth to eight years display social, emotional and intellectual characteristics which are distinct from those shown in other periods of their lives. On that basis, there is wide acceptance of the categorisation of children in this age band into a distinct educational category or sector, providing specialist teachers and unique educational resources.

Early years education can be provided by schools, preschools or kindergartens, long day care or occasional care centres, multi-functional Aboriginal services, multi-purpose neighbourhood centres, rural and remote mobile services, in family day care homes, by parents or relatives in the child's own home and to a lesser extent at playgroups or playschools.

What unites these services under the banner of 'early years education' is the extent to which they meet stated or assumed criteria of 'education'. These criteria may include: involvement by a teacher who has been formally trained; the presence of a formal curriculum or program of learning in place; children taking part in activities that are recognised as 'learning'; learning that is monitored, assessed and reported on; and new ideas and skills that develop in a logical sequence as a result of teaching.

There is an increasing literature which embraces the early years concept, uses the term 'early years education' and encourages greater dialogue among researchers, practitioners and policy makers on these issues (Cullen 2000). This article uses the term 'early years education' to refer to the education of children from birth to eight years regardless of the educational setting in which it occurs.

### Diversity of early years education

While all State and Territory departments of education have taken some interest in the provision of early years education, the form this takes varies widely. In some parts of Australia, programs providing one or two years before Year 1 are funded and provided solely by the relevant departments of education and charge a nominal fee. In other States such as NSW, Victoria and Western Australia, there is a sharing of provision with the community sector, and fees can vary greatly.

The variety of programs for children before they start formal schooling is matched by the variability in entry to school and preschool programs across Australia (see table 10.5 below). The most striking difference is in the school starting age, which varies across States and Territories. Also, program names are inconsistent. For instance, there are five different names for pre-year 1 programs. These programs are all under the authority of departments of education, with most located in the school grounds, and with many, but not all, operating on a full-time (e.g. school time) or sessional basis (e.g. three extended mornings per week).

### Children's services: care, education or both?

Historically, services for children in their earliest years were seen as providing primarily care or education. This split came as early as 1905 in Australia when Kindergarten Unions, which brought education to poor inner city children, were criticised by the later-formed Day Nursery movement, for ignoring the needs of working mothers and not allowing children under the age of three years to be enrolled (Brennan 1998).

These tensions and differences of approach and philosophy are reflected in the development of the two main aims for early childhood services: providing early education, primarily for the benefit of the child; and providing a safe place for children to be while their parents are at work, primarily for the benefit of parents and employers. As a reflection of these dual aims, the Commonwealth Government provides a Child Care Benefit to families using child care facilities, mainly to assist working parents, but at the same time it provides an accreditation system for child care centres which promotes the provision of both quality care and education for children.

Also, because early years education has these dual aims, a large range of services has evolved and governments have taken some interest in, or ownership of, early childhood services. State and Territory education departments both fund and provide those services which are more clearly 'educational', including preschools.

Departments of community services in all States and the Territories have developed regulations and licensing requirements for child care centres and family day care schemes, and provide some funding to occasional care centres, vacation care and any special State-based services. Most State and Territory Governments also provide funding to assist children with special needs to access services.

While the Commonwealth has a major role in funding child care services, various other agencies are responsible for actually providing these services. The Commonwealth Government provides funding to assist long day care centres to be more inclusive of children from a range of backgrounds, under its Supplementary Services Program. It also funds long day care centres, both community based and private, through the provision of a Child Care Benefit to parents that is means tested and provided on a sliding scale. Commonwealth operational subsidies were withdrawn from community based long day care centres in 1996, but maintained for occasional care centres. Table 10.6 outlines the range of sponsorship of Commonwealth-funded children's services programs in 1997.

### **Participation of children in early years education**

In more recent years, professionals, parents and policy makers have realised that the ideal situation is one in which children's needs for quality early years education and parents' needs

for child care while they are at work are met in the same service. To this end, in some parts of Australia such services are now provided.

In 1999, 40% of the 1.3 million children aged 4 years and under in Australia used formal services of some kind, compared with 28% in 1990 (ABS 2000). The majority of children in both 1990 and 1999 were attending preschools or long day care centres, with the greatest increase in use over this time occurring in long day centres.

Graph 10.7 shows the number of children participating in the different service types for this age group.

### **Qualifications of staff**

While staff in Australian schools who are working with children aged 5 years and over must have university qualifications, most jurisdictions allow staff with a wide range of qualifications to be employed in services for younger children. 'Qualified' children's services staff under most State/Territory regulations could include a person with a Child Care Certificate, a Diploma of Children's Services or Child Care, a Registered Mothercraft Nurse, a 3 or 4 year degree in early childhood education, or other qualification deemed appropriate by the relevant accrediting agency or individual (OECD 2000).

Of some 60,000 staff employed in Commonwealth-funded long day care centres in Australia, almost half (46%) held no formal qualification, 38% held a Child Care Certificate or Diploma of Child Care, 12% held teaching qualifications, 4% held nursing qualifications and 7% held other relevant qualifications.

Similar proportions of staff in private and community-based centres had no formal qualifications (47% and 46%). In family day care schemes, 30% of coordination unit staff and 79% of caregivers had no formal qualifications.

### **Outcomes of early years education**

Policy development in early years education has been strongly influenced by a worldwide interest in neuroscience. Since the mid 1990s, a variety of journal papers, books, education reports and articles in the popular press have given evidence of this so-called 'brain-based' research supporting the impact of the early years of learning on brain development and later academic achievement (Lindsey 1998).

**10.5 EARLY YEARS EDUCATION, Government School and Preschool Entry Ages by State/Territory**

State/ Territory	Program name	Entry age	Two years before year 1		One year before year 1	Year 1
			Program name	Entry age	Entry age	Entry age
NSW	Preschool	4 by 31 July in year of entry	Kindergarten	5 by 31 July in year of entry	6 by 31 July in year of entry	
Vic.	Preschool	4 by 30 April in year of entry	Preparatory	5 by 30 April in year of entry	6 by 30 April in year of entry	
Qld	Kindergarten	4 by 31 Dec in year of entry	Pre-school	5 by 31 Dec in year of entry	6 by 31 Dec in year of entry	
SA	Kindergarten	Continuous entry after turning 4	Reception	Continuous entry after turning 5	Single entry to Year 1 is in Jan after spending between 2 and 5 terms in Reception depending upon initial term of entry	
WA	Kindergarten	4 in year of entry (by 30 June from 2001)	Pre-primary	5 by year of entry (by 30 June from 2002)	6 by 31 Dec in year of entry (by 30 June from 2003)	
Tas.	Kindergarten	4 by 1 Jan in year of entry	Preparatory	1 January in year of entry	6 by 1 January in year of entry	
NT	Preschool	Continuous entry after 4th birthday	Transition	5 by 30 June in year of entry. Continuous intake after 5th birthday in Term 1 and 2. Final intake	Continuous entry to Year 1, sometimes after a minimum of 2 terms in transition	
ACT	Preschool	4 by 30 April in year of entry	Kindergarten	5 by 30 April in year of entry	6 by 30 April in year of entry	

Source: Drawn from OECD 2000 and COAG Child Care Working Group 1995.

**10.6 SPONSORSHIP OF CHILDREN'S SERVICES, By Sponsoring Body and Service Type — 1997**

Type of Sponsorship	Community-based, not for profit	Private(a)	Family day care(b)	Outside school hours care(c)	Occasional/other care(d)
	%	%	%	%	%
Local government	35.2	0.5	41.5	12.7	17.4
Non-profit	52.9	6.0	38.0	64.8	72.1
Religious/charitable	11.7	1.5	17.2	13.6	5.0
Privately owned	—	90.9	—	(e)0.6	—
State/Territory Government	0.2	1.1	3.3	8.3	5.5
Total	100.0	100.0	100.0	100.0	100.0
Total agencies	no. 1 118	no. 3 052	no. 360	no. 3 958	no. 659

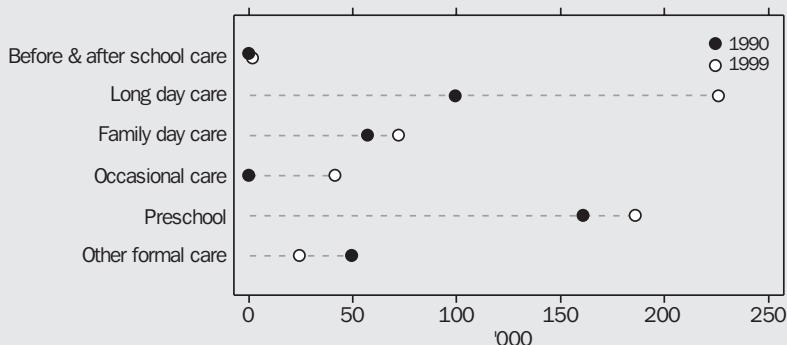
(a) Private-for-profit and employer-sponsored and other non-profit long day care centres. (b) Family day care coordination units. (c) For outside school hours care services, the 'sponsor' is counted for each service type rather than each agency. Note that one agency may provide more than one service type (before school care, after school care, vacation care). (d) Includes occasional care centres and neighbourhood model services, multifunctional Aboriginal services (MACS) and other multifunctional services. (e) At this time there were a small number of private-for-profit outside school hours care pilot programs (AIHW 1997).

Source: Australia's Welfare 1999, Services and Assistance.

Other research also suggests that early years education makes a difference to children's cognitive attainment and subsequent social outcomes (Fleer 2000). Studies have supported the view that spending money on early years

education is a better investment than paying for remediation programs later in life for problems rooted in poor early development (McCain and Mustard 1999).

**10.7 ATTENDANCE BY TYPE OF CARE, Children Aged 0 to 4 years — 1990 and 1999**



Source: *Child Care, Australia (4402.0)*.

In broad terms, money directed towards the period birth to 8 years has been shown to be a cost effective method of supporting children and young people to achieve their potential.

Governments in the United Kingdom and New Zealand have recognised the potential of investing in early childhood education, and have undertaken their own longitudinal research into the outcomes of early years education for children. In Australia the Commonwealth Department of Family and Community Services has commissioned a longitudinal study of children which may also identify outcomes for children and families in this area, although currently Australia must rely on overseas research to support policy and practice.

### **Quality services: defining the determinants and ensuring quality**

If the outcomes of early years education are to be realised, then the quality of the programs provided is essential. Determinants of quality early childhood education have been well documented and include: environmental factors such as staff to child ratios, group sizes and the appropriateness of the program; working conditions provided for staff and staff turnover; and formal early childhood education training of staff (Whitebook, Howes and Phillips 1989).

The two most important aspects of quality services are the nature of the program provided and the nature of the interactions that occur between staff and children. The program has to

be based on the developmental needs and interests of children and be culturally sensitive, with interactions which are warm, responsive and reciprocal.

Research has shown that staff with specialisation in early years education are more likely to provide programs with the above characteristics (Fleer 2000). There is further evidence that the salary paid (and therefore assumed increase in qualifications and experience of staff) is a significant contributor to quality outcomes for children (Farquhar 1999). In New Zealand there is also general agreement that further education results in higher quality interactional patterns and the implementation of higher quality programs for young children (Smith et al. 2000).

### **Conclusion**

Australia's involvement in the thematic review of early childhood education and care policy (OECD 2000) and other research on children's services provision in Australia (COAG 1995) marks the depth of interest in early childhood education held in Australia. However, a systematic framework is still needed, exploring both the range of services for children and families, and the level of staffing required to provide quality services. The need for nationally consistent data to support policy requirements in the areas of care and education has also been acknowledged (AIHW 1999). Such a framework could provide the impetus for further investment in the foundation for all later learning in life: early years education.

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## Primary and secondary education

### School attendance

School attendance is compulsory throughout Australia between the ages of 6 and 15 years (16 years in Tasmania). Most children commence primary school at 5 years of age.

As the preceding article illustrates, each State and Territory has developed its own approach to schooling, particularly in relation to the structure of Pre-year 1 education and the transition from primary to secondary schooling.

Primary schooling in most States and Territories begins with a preparatory or kindergarten year, followed by six or seven primary grades, then a further five or six years to complete a full secondary course of study. In total, most States and Territories offer 13 years of schooling (except Queensland and

Western Australia, which offer 12 years). While the final two years of schooling generally fall outside the compulsory stage of education, in 2000 some 85% of full-time secondary students remained at school until Year 11 and 72% remained until Year 12.

### School organisation and operation

Primary schooling provides a general elementary program lasting for seven or eight years until Year 6 or Year 7. Students enter secondary schools at Year 7 in some State (or Territory) systems and at Year 8 in others. Primary and secondary schools are usually separate institutions, but in some areas there are central or area schools which provide both levels of schooling. In Tasmania and the Australian Capital Territory, the final two years of government schooling are undertaken at separate secondary colleges.

Generally, schools in Australia have a considerable degree of autonomy. Most States and Territories have established regional administrations which are responsible for matters such as planning school buildings and deploying staff, while a central curriculum unit provides general guidelines on course planning. Typically, individual schools determine teaching and learning approaches within the given guidelines and offer various course options. The assessment of students varies across States and Territories, some having a completely school-based assessment system, while others combine school-based assessment with external examinations.

### **Primary schooling**

In early primary education, the main emphasis is on the development of basic language and literacy skills, simple arithmetic, moral and social education, health training and some creative activities.

In the upper primary years the focus is on development of the skills learned in earlier years. English, mathematics, social studies, science, music, art and craft, physical education and health are studied. There are also optional subjects such as religious instruction, foreign and community languages, and music.

### **Secondary schooling**

In some systems the first one or two years of secondary school consist of a general program which is undertaken by all students, although there may be some electives. In later years, a basic core of subjects is retained, with students able to select additional optional subjects.

In other systems, students select options from the beginning of secondary school.

In senior secondary years, a wider range of options is available in the larger schools and there is an increasing trend towards encouraging individual schools to develop courses suited to the needs and interests of their students, subject to accreditation and moderation procedures. There is also an increasing emphasis on the incorporation of vocational programs into the senior secondary curriculum. School students may obtain certificates in VET as part of their senior study and undertake some parts of their programs in the workplace.

Students reaching the minimum school leaving age may leave school and seek employment, or enrol in a vocational course with a VET institution, such as a Technical and Further Education (TAFE) institution or a private business college. For many VET courses, completion of

Year 10 of secondary school is a minimum entry requirement. For those continuing to the end of secondary school (Year 12), opportunities for further study are available at higher education institutions, VET institutions and other educational institutions. Students' eligibility to enter higher education institutions is assessed during, or at the end of, the final two years of secondary schooling.

### **Other schooling arrangements**

Children may be exempted from the requirement of compulsory attendance at a school if they live too far from a school or have a disability. These children receive tuition through a variety of educational delivery mechanisms, including distance education, Schools of the Air, and use of computer and facsimile technologies.

Children of some Indigenous groups in remote areas of the Northern Territory, who live in small decentralised communities such as outstations or homeland centres, receive schooling from Indigenous teaching assistants supported by visiting teachers from established schools.

Boarding facilities are available at some non-government schools, mainly in the larger towns and cities. A small number of government schools, in particular those catering for groups such as Indigenous people, have residential hostels close by.

Special education is provided by government and non-government authorities in special classes or units in regular schools, by withdrawal from regular classes for periods of intensive assistance by special staff, or in specialist schools.

In all States and Territories, and particularly in New South Wales, Queensland and Victoria, parents have formed voluntary organisations to establish additional schools catering for their children's special needs. The Commonwealth Government provides funds to States and Territories, non-government authorities and community groups to assist in the provision of services and upgrading of special education facilities.

### **Schools, students, and teaching staff**

There were 9,595 schools operating in Australia in August 2000, 73% of which were government schools. There were 150,600 (69%) full-time equivalent (FTE) teaching staff employed in government schools, and a further 67,400 (31%) employed in non-government schools (table 10.8).

In 2000, 3.2 million students were attending primary and secondary schools on a full-time basis, comprising 2.2 million (69%) in government schools and 1 million (31%) in non-government schools. Between 1990 and 2000, the number of students attending government schools increased by 40,400 (1.8%) while the number of students attending non-government schools increased by 97,600 (11%) (table 10.9).

Table 10.10 shows the percentage of students in 2000 by level of education. Of all primary school students, 73% attended government schools while 27% attended non-government schools. At the secondary level, attendance at government schools was 64% and at non-government schools 36%. One-fifth of all school students attended non-government Catholic schools (19% of primary school students and 21% of secondary school students).

Graph 10.11 shows student/teacher ratios at government and non-government schools by level, in 1990 and 2000. These ratios represent the number of full-time students divided by full-time equivalent teaching staff. In 1990, non-government schools had a higher student/teacher ratio than government schools. By 2000 the difference between government and non-government schools was minimal (14.9 students and 14.8 students per teacher, respectively). The greatest change in the student/teacher ratio was for Catholic primary schools, where the ratio declined from 21.1 students per teacher in 1990 to 19.1 students per teacher in 2000.

#### 10.8 SCHOOLS, STUDENTS(a) AND TEACHING STAFF — 2000

	Government Schools %	Non-government schools				All schools '000
		Anglican %	Catholic %	Other %	Total %	
Schools	72.6	5.1	64.4	30.6	27.5	9.6
Students(a)						
Males	69.6	10.8	64.2	25.0	30.4	1 651.0
Females	68.8	10.1	64.2	8.0	31.2	1 596.4
Persons	69.2	10.4	64.2	25.4	30.8	3 247.4
FTE of teaching staff(b)						
Males	67.9	15.0	54.0	31.0	32.1	731.4
Females	69.7	11.0	61.8	27.2	30.3	144.9
Persons	69.1	12.4	59.1	28.5	30.9	218.1

(a) Full-time students only. (b) Full-time teaching staff plus full-time equivalent (FTE) of part-time teaching staff.

Source: Schools, Australia (4221.0).

#### 10.9 STUDENTS(a), BY CATEGORY OF SCHOOL

	1990 '000	1996 '000	1997 '000	1998 '000	1999 '000	2000 '000
Government schools						
Males	1 123.0	1 136.6	1 140.9	1 144.8	1 148.4	1 149.8
Females	1 070.3	1 084.9	1 089.2	1 094.6	1 099.2	1 098.5
Persons	2 193.3	2 221.5	2 230.1	2 239.4	2 247.7	2 248.3
Non-government schools						
Males	425.5	464.1	473.9	482.4	491.7	501.2
Females	422.8	457.3	467.7	476.9	487.3	497.9
Persons	848.3	921.4	941.6	959.3	979.0	999.1
All schools						
Males	1 548.5	1 600.7	1 614.8	1 627.2	1 640.1	1 651
Females	1 493.1	1 542.2	1 556.9	1 571.4	1 586.5	1 596.4
Persons	3 041.6	3 142.9	3 171.6	3 198.7	3 226.6	3 247.4

(a) Full-time students only.

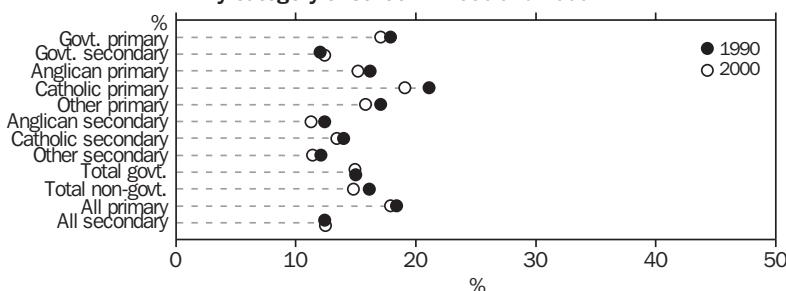
Source: Schools, Australia (4221.0).

**10.10 STUDENTS(a), By Level of Education — 2000**

	Government schools	Non-government schools				All schools		
		Anglican	Catholic	Other	Total	Males	Females	Persons
Level/year of education	%	%	%	%	%	%	%	'000
Primary								
Primary-pre year 1(b)	71.9	6.4	71.7	22.9	28.1	51.5	48.5	192.9
Year 1	73.2	6.2	71.1	22.7	26.8	51.4	48.6	269.4
Year 2	73.2	6.2	71.5	22.3	26.9	51.2	48.8	268.5
Year 3	73.2	6.8	70.6	22.6	26.8	51.3	48.8	266.0
Year 4	72.9	7.0	70.5	22.5	27.2	51.1	48.9	266.3
Year 5	72.1	8.3	68.6	23.1	27.9	51.2	48.8	263.8
Year 6	71.9	8.9	67.1	24.0	28.1	51.1	48.9	261.1
Year 7 (Qld, SA, WA, NT)	73.7	11.5	59.4	29.1	26.3	51.2	48.7	99.9
Ungraded	83.1	0.2	10.5	89.3	16.8	64.8	35.1	16.0
Total primary	72.8	7.3	69.2	23.4	27.2	51.4	48.7	1 903.9
Secondary								
Year 7 (NSW, Vic., Tas., ACT)	63.1	12.2	62.9	25.0	37.0	50.9	49.1	157.0
Year 8	64.3	12.9	59.5	27.6	35.7	51.2	48.8	255.7
Year 9	65.0	13.3	59.5	27.2	35.0	50.9	49.1	255.9
Year 10	64.8	13.9	58.7	27.4	35.2	50.5	49.5	251.4
Year 11	63.6	14.8	57.3	27.8	36.4	48.7	51.3	218.4
Year 12	61.3	15.5	56.7	27.8	38.8	46.9	53.1	185.8
Ungraded	87.5	7.1	28.3	64.6	12.9	60.4	39.7	19.2
Total secondary	64.2	13.8	58.8	27.4	35.8	50.1	49.9	1 343.5
<b>Total</b>	<b>69.2</b>	<b>10.4</b>	<b>64.2</b>	<b>25.4</b>	<b>30.8</b>	<b>50.8</b>	<b>49.2</b>	<b>3 247.4</b>

(a) Full-time students only. (b) Pre-year 1 does not include Queensland and Western Australia.

Source: Schools, Australia (4221.0).

**10.11 RATIOS OF STUDENTS TO TEACHING STAFF(a), By Category of School — 1990 and 2000**

(a) Full-time teaching staff plus full-time equivalent of part-time teaching staff.

Note: This table should not be used as a measure of class size.

Source: Schools, Australia (4221.0).

**Apparent attention rates**

Apparent retention rates are important measures of the performance of education systems and related government policies. The apparent retention rate is an estimate of the percentage of students of a given cohort who continued to a particular level or year of education. For instance,

in 2000 the apparent retention rate of full-time secondary school students from Year 7/8 to Year 12 was 72%. As in previous years, the apparent retention rate for female students remains higher than the corresponding rate for male students.

**10.12 SECONDARY STUDENTS, Apparent Retention Rates from Year 10 to Year 12 — 1995 to 2000**

	Full-time males %	Full-time females %	Full-time students %	All males %	All females %	All students %
1995	68.4	78.7	73.4	71.2	86.1	77.1
1996	68.6	78.7	73.6	71.7	83.2	77.3
1997	69.3	79.9	74.5	72.4	84.6	78.4
1998	68.9	79.4	74.1	71.8	83.6	77.6
1999	68.9	79.9	74.4	71.9	84.5	78.1
2000	69.0	80.0	74.4	72.1	84.7	78.3

Source: Schools, Australia (4221.0).

Table 10.12 shows apparent retention rates from Years 10 to 12 rather than from the commencement of secondary schooling, where attendance due to age requirements is most likely compulsory.

Retention rates have been calculated for full-time students, and for all students (full-time and part-time), who continued to Year 12 from their respective cohort at Year 10.

The apparent retention rate in 2000 of full-time students from Year 10 to Year 12 has increased by about 1% since 1995. The increase is similar over this period when part-time students are included.

Care should be taken in interpreting apparent retention rates since various factors affecting their calculation have not been taken into account. At the national level these include the effects of students who repeat a year of education, migration, and changing characteristics of the school population, such as the growing number of full-fee paying overseas students.

## Vocational education and training

### Vocational education and training institutions

Most VET in Australia is provided in government-administered colleges. In some States and Territories these are referred to as Colleges or Institutes of Technical and Further Education (TAFE). To a lesser extent, VET may also be provided by: Institutes of Technology; some higher education institutions; schools and agricultural colleges; adult and community education authorities; private providers of education (such as business colleges); and employers. VET institutions offer a wide range of

programs, ranging from recreation and leisure, through basic employment and educational preparation, to trades training, and para-professional and professional levels.

In 2000 there were 86 TAFE and other government institutes with 1,322 provider locations delivering VET training. A further 1,139 community education providers and 3,388 other providers delivering VET were at least partly publicly funded.

### Staff

Table 10.13 shows the number of teachers working in VET institutions in 1999–2000. Of all VET teachers, the majority (55%) were employed full-time. A majority of full-time VET teachers (56%) were male. In contrast, 69% of part-time VET teachers were female.

### 10.13 VOCATIONAL EDUCATION TEACHING STAFF — 1999–2000(a)

	Full-time staff '000	Part-time staff '000	All teaching staff '000
Males	7.6	3.4	11.0
Females	6.0	7.8	13.8
Persons	13.6	11.2	24.8

(a) Average over the financial year.

Source: ABS data available on request, Labour Force Survey, May 2000.

### Students and courses

Table 10.14 shows participation in publicly-funded VET programs. While there were more males than females in VET courses overall, from ages 30 to 59 more women undertook VET courses than men.

**10.14 VOCATIONAL EDUCATION AND TRAINING(a) CLIENTS(b), Vocational and Preparatory Courses(c) — 2000**

Age	Males '000	Females '000	Persons(d) '000
Under 16	19.3	16.3	35.7
16	37.8	33.4	71.4
17	48.1	38.8	87.0
18	55.4	43.0	98.6
19	50.5	38.0	88.7
20–24	147.1	117.2	264.9
25–29	99.2	91.7	191.3
30–39	164.3	172.7	337.7
40–49	124.6	157.8	283.1
50–59	70.6	83.2	154.0
60–64	15.7	15.5	31.2
65 and over	16.5	15.9	32.5
Not stated	35.9	34.4	73.3
<b>Total clients</b>	<b>884.9</b>	<b>857.9</b>	<b>1 749.4</b>

(a) Includes all VET delivery by TAFE and other government providers, registered community providers, some VET delivered in schools, and publicly-funded delivery by private providers. Fee for service VET delivery by private providers has been excluded.

(b) A client is any individual participating in a specific enrolment or training contract with a specific organisation.

(c) Courses leading to a vocational award. (d) Includes sex not stated.

Source: National Centre for Vocational Education Research, 'Australian Vocational Education and Training Statistics 2000: In Detail'.

VET programs are classified according to 12 fields of study on the basis of similar emphasis or subject matter orientation. These are broadly consistent with the fields of study covered by higher education institutions. Table 10.15 shows the number of course enrolments in each field of study in 2000. Since clients may be enrolled in more than one VET course, the number of course enrolments is greater than the total

number of clients — there were 2.1 million course enrolments in 2000 compared with 1.7 million clients.

The more popular fields of VET study included: Business, administration and economics; and Services, hospitality and transportation. Together these fields accounted for 37% of VET clients in 2000.

**10.15 VET(a) COURSE ENROLMENTS, Vocational and Preparatory Courses(b) by Field of Study — 2000**

	Males '000	Females '000	Persons(c) '000
Land and marine resources, animal husbandry	80.3	30.0	110.5
Architecture, building	92.0	9.3	101.4
Art, humanities and social sciences	54.3	90.8	145.5
Business, administration, economics	157.6	282.7	442.1
Education	22.2	31.6	53.9
Engineering, surveying	216.1	29.3	246.1
Health, community services	53.1	117.1	170.9
Law, legal studies	7.1	6.3	13.4
Science	83.8	78.7	163.1
Veterinary science, animal care	0.6	3.8	4.4
Services, hospitality, transportation	172.1	170.4	343.8
VET multi-field education	143.7	168.9	313.1
<b>Total enrolments(a)</b>	<b>1 082.9</b>	<b>1 018.8</b>	<b>2 100.7</b>

(a) Includes all VET delivery by TAFE and other government providers, registered community providers, some VET delivered in schools, and publicly-funded delivery by private providers. Fee for service VET delivery by private providers has been excluded.

(b) Courses leading to a vocational award. (c) Includes sex not stated.

Source: National Centre for Vocational Education Research, 'Australian Vocational Education and Training Statistics 2000: In Detail'.

**10.16 APPRENTICES AND TRAINEES(a), In Training at 31 December 2000**

Major Group	Males '000	Females '000	Persons '000	Total %
Managers and administrators	2.0	0.6	2.7	1.0
Professionals	1.3	1.1	1.5	0.6
Associate professionals	6.7	2.3	6.9	2.7
Tradespersons and related workers				
Mechanical and fabrication engineering	16.6	0.2	16.8	5.7
Automotive	22.7	0.4	23.1	7.8
Electrical and electronic	16.5	1.4	17.9	6.0
Construction	29.7	0.3	30.0	10.1
Food	14.5	4.7	19.2	6.5
Skilled agricultural and horticultural workers	4.2	0.5	4.7	1.6
Hairdressers	0.9	9.4	10.3	3.5
Tradespersons & related workers (n.e.c.)	0.1	0.0	0.1	0.0
Other	8.5	1.3	9.7	3.3
Total	113.7	18.2	131.9	44.6
Advanced clerical and service workers	0.1	0.5	0.5	0.2
Intermediate clerical, sales and service workers	14.1	38.0	52.2	17.6
Intermediate production and transport workers	16.6	2.4	19.0	6.4
Elementary clerical, sales and service workers	16.0	21.4	37.3	12.6
Labourers and related workers	29.0	8.4	37.4	12.6
<b>Total</b>	<b>199.5</b>	<b>96.1</b>	<b>295.6</b>	<b>100.0</b>

(a) Major groups are classified according to the Australian Standard Classification of Occupations (ASCO).

Source: National Centre for Vocational Education Research, 'Australian Vocational Education and Training Statistics 2000: In Detail'.

Over 50% of enrolments in Land and marine resources, animal husbandry; Architecture and building; and Engineering and surveying were by males. In contrast, in Business, administration and economics; Art, humanities and social sciences; Health and community services; and Veterinary science, animal care the enrolments were predominantly by females.

## Apprenticeships and traineeships

Some 45% of all apprentices and trainees in training at 31 December 2000 were in the broad occupational group Tradespersons and related workers. In this group, Construction and Automotive trades accounted for 23% and 18%, respectively, of the group total (table 10.16).

Some 86% of apprentices and trainees in the broad occupational group Trades and related workers were male. Within this group, however, over 90% of those in Hairdressing were female.

## Higher education

### Higher education institutions

There were 42 higher education institutions which received operating grants from the Commonwealth Department of Education,

Training and Youth Affairs (DETYA) in 2000, as well as the Australian Film, Television and Radio School, the National Institute of Dramatic Art and the Australian Defence Force Academy. The private Bond University in Queensland also provides teaching at the higher education level.

Apart from the Australian National University and the Australian Maritime College, which are established under Commonwealth legislation, Australian universities operate under State or Territory legislation. However, they are autonomous bodies responsible for their own governance and make their own decisions on allocation of funding, staffing and academic courses.

### Staff

Table 10.17 shows that in 2000 there were almost equal proportions of male and female staff in higher education. This has changed somewhat over the last decade — in 1990, 55% of all higher education staff were male.

Higher education staff may be classified as academic or non-academic. In 2000, as in previous years, there were more non-academic than academic staff. The largest numbers of academics were at the lecturer and senior lecturer levels.

While there were more male than female academics in 2000, the proportions were closer than they had been a decade earlier. In 2000, 64% of academics were male, compared to 70% in 1990. Men outnumbered women at all academic levels except 'below lecturer'. Between 1990 and 2000, the proportion who were women increased substantially for all academic levels.

### **Students and courses**

Most higher education institutions provide full-time courses, part-time courses and external or distance education courses. In addition, some institutions offer courses which associate full-time study with periods of employment.

Between 1990 and 2000 the total number of higher education students rose by 69%. Although most higher education students undertake study on a full-time basis, the prevalence of this has declined over the last decade. In 1990, 62% of higher education students were enrolled in full-time study, but by 2000 the equivalent proportion was 59%. This decline is largely due to the increasing proportion of higher education comprising external enrolments (table 10.18).

The basic undergraduate course at most institutions is a bachelor degree of three or four years' duration. At some institutions, courses may also be offered at the diploma or advanced diploma level. Most institutions also offer postgraduate level study. One to two years of full-time postgraduate study are required for a master's degree and three to five years for a doctoral degree. Postgraduate diplomas and certificates are offered in some disciplines. In 2000, 77% of higher education students were enrolled in bachelor courses, with a further 19% enrolled in higher degree and other postgraduate courses (table 10.19).

Higher education institutions offer a great variety of courses embracing such areas as Agriculture, Architecture, Arts, Business, Dentistry, Economics, Education, Engineering, Health, Law, Medicine, Music, Science and Veterinary science. Fields of study with the largest numbers of award course students in 2000 were Business, administration and economics (24%); Arts, humanities and social sciences (22%); and Science (15%).

**10.17 HIGHER EDUCATION STAFF, By Classification — 1990 and 2000**

	1990			2000		
	Males	Females	Persons	Males	Females	Persons
	%	%	no.	%	%	no.
<b>Academic staff</b>						
Above senior lecturer	90.9	9.1	4 761	83.9	16.1	6 972
Senior lecturer	83.8	16.2	6 943	70.6	29.4	8 217
Lecturer	62.4	37.6	11 219	55.9	44.1	11 467
Below lecturer	48.8	51.2	5 302	47.0	53.0	6 458
<b>Total academic staff</b>	<b>69.9</b>	<b>30.1</b>	<b>28 225</b>	<b>63.7</b>	<b>36.3</b>	<b>33 114</b>
Non-academic staff	43.5	56.5	39 076	38.8	61.2	43 764
<b>Total</b>	<b>54.6</b>	<b>45.4</b>	<b>67 301</b>	<b>49.5</b>	<b>50.5</b>	<b>76 878</b>

Source: Department of Education, Training and Youth Affairs, 'Staff 2000: Selected Higher Education Statistics'.

**10.18 HIGHER EDUCATION STUDENTS, By Type of Enrolment — 1990 and 2000**

	1990			2000		
	Males	Females	Persons	Males	Females	Persons
	PER CENT					
<b>Internal</b>						
Full-time	61.1	62.3	61.7	58.1	59.1	58.6
Part-time	28.5	26.4	27.4	28.7	26.8	27.6
External	10.4	11.3	10.9	13.1	14.2	13.7
<b>NUMBER '000</b>						
<b>Total</b>	<b>229.4</b>	<b>255.7</b>	<b>485.1</b>	<b>311.3</b>	<b>384.1</b>	<b>695.5</b>

Source: Department of Education, Training and Youth Affairs, 'Students 2000: Selected Higher Education Statistics'.

Table 10.20 shows higher education students by age group and sex. Although higher education students remain predominantly in the younger age groups, the overall proportion of younger students has declined over the last decade. Some 60% of higher education students in 2000 were less than 25 years old, compared to 62% in 1990.

In 1990, there were more male higher education students aged 20 to 29 years, but by 2000 women outnumbered men in all age groups. The overall proportion of female students in higher education increased from 53% in 1990 to 55% in 2000.

**10.19 HIGHER EDUCATION STUDENTS, By Level of Course and Field of Study(a) — 2000**

	Postgraduate degree '000	Postgraduate diploma or equivalent '000	Bachelor degree '000	Diploma and advanced diploma '000	Other education '000	Total courses '000
<b>Field</b>						
Agriculture, animal husbandry	1.3	0.4	7.1	2.3	0.1	11.2
Architecture, building	1.4	1.0	13.0	0.1	—	15.5
Arts, humanities and social sciences	18.9	6.0	141.0	1.8	2.7	170.4
Business, administration, economics	30.0	12.7	136.4	0.4	1.1	180.6
Education	10.9	9.4	51.8	0.8	0.8	73.7
Engineering, surveying	6.0	1.3	42.8	0.6	0.1	50.8
Health	11.6	7.0	60.1	0.9	0.1	79.7
Law, legal studies	2.8	1.4	28.0	4.1	—	36.3
Science	14.4	5.8	93.5	0.8	0.9	115.4
Veterinary science	0.3	—	1.6	—	—	1.9
<b>Total</b>	<b>97.6</b>	<b>45.0</b>	<b>575.3</b>	<b>11.8</b>	<b>5.8</b>	<b>(b)735.5</b>

(a) The data take into account the coding of combined courses to two fields of study. As a consequence, counting both fields of study for combined courses means that the data in the total row may be less than the sum of the data aggregated down each column. (b) Includes students in non-award courses.

Source: Department of Education, Training and Youth Affairs, 'Students 2000: Selected Higher Education Statistics'.

**10.20 HIGHER EDUCATION STUDENTS(a), By Age Group — 1990 to 2000**

	1990 '000	1996 '000	1997 '000	1998 '000	1999 '000	2000 '000
<b>Age group</b>						
19 and under						
Males	71.3	73.2	76.0	76.6	77.8	78.9
Females	90.6	98.6	102.4	104.8	107.7	110.4
Persons	161.8	171.8	178.4	181.4	185.5	189.3
20–24						
Males	71.9	97.3	101.0	103.0	105.2	107.1
Females	69.3	106.6	112.8	117.3	121.9	126.2
Persons	141.2	203.9	213.8	220.4	227.2	233.3
25–29						
Males	30.2	40.0	42.5	44.0	44.8	45.2
Females	27.4	41.3	44.4	46.7	48.1	49.0
Persons	57.6	81.3	86.9	90.7	92.9	94.1
30 and over						
Males	56.1	79.4	80.7	80.8	81.1	80.2
Females	68.3	97.7	99.1	98.6	99.6	98.6
Persons	124.5	177.2	179.8	179.4	180.7	178.8
<b>Total</b>						
Males	229.4	289.9	300.2	304.4	309.0	311.4
Females	255.7	344.2	358.7	367.5	377.3	384.1
Persons	485.1	634.1	658.8	671.9	686.3	695.5

(a) Includes students in enabling and non-award courses.

Source: Department of Education, Training and Youth Affairs, 'Students 2000: Selected Higher Education Student Statistics'.

## Adult and community education

Adult and community education (ACE) is the most decentralised of the education sectors. ACE refers to the provision of those general adult education programs and activities which fall outside, but complement, the formal programs and qualification pathways provided by the school, VET and higher education sectors. ACE focuses on the provision of learning opportunities at a community level, rather than work-related training. The community education and VET sectors are the largest providers of adult recreational and leisure courses.

Courses range from general interest, recreational and leisure activities, personal development, social awareness and craft through to vocational, remedial and basic education. Community-based adult education is open to all, and its non-formal characteristics demonstrate the capacity of the community to develop alternatives to institutionalised education. In 2000, 35% of students enrolled in ACE courses were enrolled in Arts, humanities and social sciences courses, 20% were enrolled in Health and community services courses, and 19% were enrolled in VET multi-field education courses (table 10.21).

**10.21 COURSE ENROLMENTS IN PERSONAL ENRICHMENT PROGRAMS — 2000**

Field of study	All		
	Males '000	Females '000	enrolments(a) '000
Land and marine resources, animal husbandry	1.7	3.2	5.0
Architecture, building	2.7	5.1	7.8
Art, humanities and social sciences	17.9	63.8	82.5
Business, administration, economics	4.1	6.5	10.6
Education	0.5	0.5	1.0
Engineering, surveying	2.5	3.5	6.0
Health, community services	9.9	35.3	45.9
Law, legal studies	0.2	0.3	0.4
Science	4.8	7.0	11.8
Veterinary science, animal care	0.0	0.1	0.1
Services, hospitality, transportation	6.6	12.1	18.8
VET multi-field education	16.5	26.5	43.0
<b>Total</b>	<b>67.3</b>	<b>163.9</b>	<b>232.9</b>

(a) Includes sex not stated.

Source: Data available on request, National Centre for Vocational Education Research.

Recreation, leisure, and personal enrichment enrolments are mainly undertaken with community-based providers (82% of students in 2000), the balance being almost entirely enrolled with government VET providers. There were 232,900 enrolments in these programs in 2000, 70% of which were by females.

## Indigenous education and training

### Indigenous school students

In 2000 there were 76,688 Indigenous students reported as attending primary school and 34,839 Indigenous students attending secondary school.

Most Indigenous students (88%) attended government schools in 2000. Of the remainder attending non-government schools, most were attending Catholic schools (67%) (table 10.22). The increase in ungraded students between primary and secondary education is mostly attributable to the classification of secondary-age students in Northern Territory remote Aboriginal schools as ungraded. This is due to the difficulty of classifying such students in terms of the normal urban secondary grade structure.

Graph 10.23 shows a decline in government school attendance from Year 1 onwards in 2000. The number of Indigenous students attending non-government schools remained relatively stable across the early grades, followed by a slight increase in Year 8 students, then a decline until Year 12.

Table 10.24 shows an increase in the number of Indigenous students between 1990 and 2000 from 64,735 to 111,527. Over this period, the number of Indigenous people attending each level of school increased in every State and Territory. New South Wales and Queensland experienced the largest increases in Indigenous school attendance, 15,790 and 13,372 respectively.

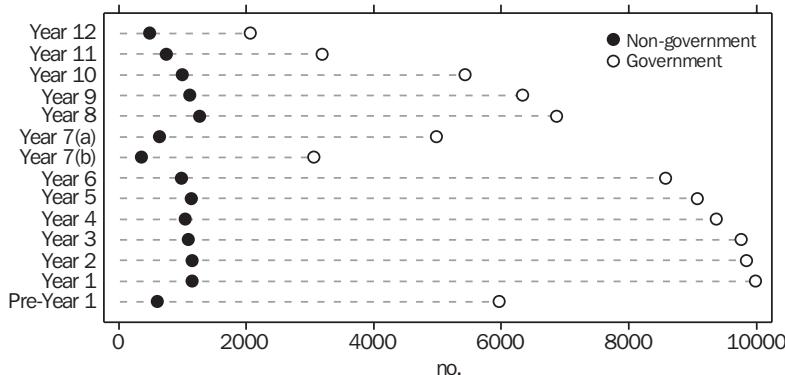
In both 1990 and 2000 there were more Indigenous males in primary education than females. In secondary education, the reverse was the case.

**10.22 INDIGENOUS SCHOOL STUDENTS(a), By Category of School and Level/Year of Education — 2000**

Level	no.	Government schools		Non-government schools		All schools no.
		Anglican	Catholic	Other	Total	
Primary						
Pre-year 1(b)	5 963	7	471	129	607	6 570
Year 1	9 986	9	866	272	1 147	11 133
Year 2	9 845	12	872	270	1 154	10 999
Year 3	9 763	14	823	257	1 094	10 857
Year 4	9 368	13	789	236	1 038	10 406
Year 5	9 075	5	857	270	1 132	10 207
Year 6	8 572	8	733	242	983	9 555
Year 7 (Qld., SA, WA, NT)	4 980	8	444	181	633	5 613
Ungraded	1 051	0	11	286	297	1 348
<i>Total Primary</i>	<b>68 603</b>	<b>76</b>	<b>5 866</b>	<b>2 143</b>	<b>8 085</b>	<b>76 688</b>
Secondary						
Year 7 (NSW, Vic., Tas., ACT)	3 054	4	269	82	355	3 409
Year 8	6 860	52	819	399	1 270	8 130
Year 9	6 332	63	718	339	1 120	7 452
Year 10	5 428	57	608	326	991	6 419
Year 11	3 188	49	469	226	744	3 932
Year 12	2 056	33	324	129	486	2 542
Ungraded	2 190	134	229	402	765	2 955
<i>Total Secondary</i>	<b>29 108</b>	<b>392</b>	<b>3 436</b>	<b>1 903</b>	<b>5 731</b>	<b>34 839</b>
<b>Total</b>	<b>97 711</b>	<b>468</b>	<b>9 302</b>	<b>4 046</b>	<b>13 816</b>	<b>111 527</b>

(a) Full-time students only. (b) Pre-year 1 does not include Queensland and Western Australia.

Source: Schools, Australia (4221.0).

**10.23 INDIGENOUS FULL-TIME SCHOOL STUDENTS — 2000**

(a) Includes students in Year 7 primary school in Qld., SA, WA, NT.

(b) Includes students in Year 7 secondary school in NSW, Vic., Tas., ACT.

Source: Schools, Australia (4221.0).

**Indigenous Vocational Education and Training clients**

In 2000, 53% of Indigenous VET clients were male. In all geographic regions, the number of male Indigenous clients outnumbered their female counterparts (table 10.25). Indigenous VET clients were not as strongly affiliated with

urban locations when compared to all VET students. Some 27% of Indigenous clients were located in capital cities compared with 56% of all clients, and a further 27% of Indigenous clients were located in remote areas compared with 4% of all clients.

**10.24 INDIGENOUS SCHOOL STUDENTS(a), By Level of Education — 1990 and 2000**

Level	NSW	Vic.	QLD(b)	SA	WA(b)	Tas.	NT	ACT(c)	Aust.
	no.	no.	no.	no.	no.	no.	no.	no.	no.
<b>Primary</b>									
Males									
1990	5 403	836	5 773	1 477	4 228	458	3 984	151	22 310
2000	10 887	1 984	10 903	2 422	6 348	1 390	5 098	282	39 314
Females									
1990	4 905	805	5 377	1 411	4 101	474	4 026	119	21 218
2000	10 348	1 965	10 327	2 367	5 861	1 356	4 882	268	37 374
Total Primary									
1990	10 308	1 641	11 150	2 888	8 329	932	8 010	270	43 528
2000	21 235	3 949	21 230	4 789	12 209	2 746	9 980	550	76 688
<b>Secondary</b>									
Males									
1990	3 089	537	3 080	531	1 792	319	1 103	50	10 501
2000	5 502	938	4 744	849	2 462	892	1 769	153	17 309
Females									
1990	3 167	581	3 125	645	1 690	349	1 096	53	10 706
2000	5 617	1 002	4 753	866	2 556	892	1 668	181	17 530
Total Secondary									
1990	6 256	1 118	6 205	1 176	3 482	668	2 199	103	21 207
2000	11 119	1 940	9 497	1 715	5 018	1 779	3 437	334	34 839
<b>Total</b>									
All Indigenous students									
1990	16 564	2 759	17 355	4 064	11 811	1 600	10 209	373	64 735
2000	32 354	5 889	30 727	6 504	17 227	4 525	13 417	884	111 527

(a) Full-time students only. (b) Pre-year 1 does not include Queensland and Western Australia. (c) Includes one government primary school in Jervis Bay Territory with 38 students (14 males, 24 females).

Source: Schools, Australia (4221.0).

**10.25 INDIGENOUS VET(a) CLIENTS(b), Vocational and Preparatory Courses(c) by Geographic Region of Client Address — 2000**

	Capital city	Other metropolitan	Rural	Remote	Other	Total
NUMBER '000						
Indigenous clients						
Males	7.4	1.7	10.2	7.4	0.4	27.2
Females	6.5	1.6	9.6	6.6	0.2	24.4
Persons	13.9	3.2	19.8	14.0	0.6	51.7
PER CENT						
All Indigenous clients	26.9	6.3	38.4	27.2	1.2	100.0
All clients	56.3	7.3	29.9	3.6	3.0	100.0

(a) Includes all VET delivery by TAFE and other government providers, registered community providers, some VET delivered in schools, and publicly-funded delivery by private providers. Fee for service VET delivery by private providers has been excluded. (b) A client is any individual participating in a specific enrolment or training contract with a specific organisation. (c) Courses leading to a vocational award.

Source: National Centre for Vocational Education Research, 'Australian Vocational Education and Training Statistics 2000: In Detail'.

Since clients may be enrolled in more than one VET course, the number of course enrolments is greater than the total number of clients. There were 70,400 Indigenous course enrolments in 2000 compared with 51,700 Indigenous clients.

There was an overall increase of 121% in Indigenous VET enrolments since 1994 (table 10.26). While the greatest increase in enrolments over the period 1994 to 2000 was for Art, humanities and social sciences

(5,500 enrolments), the most rapid growth over that period was for Education, where enrolments increased by more than 1000%.

In 2000 there were more Indigenous enrolments (29%) in multi-field VET courses (including school courses offered in VET institutions) than in other courses. Business administration and economics was the second most popular field of study, accounting for 12% of Indigenous enrolments.

**10.26 INDIGENOUS VET(a) COURSE ENROLMENTS, Vocational and Preparatory Courses(b) — 1994 and 2000**

Field of study	1994 '000	2000 '000
Land and marine resources, animal husbandry	1.6	5.6
Architecture, building	1.1	2.9
Art, humanities and social sciences	2.5	8.0
Business, administration, economics	4.4	8.6
Education	0.3	3.4
Engineering, surveying	2.2	5.4
Health, community services	2.0	7.2
Law, legal studies	0.1	0.5
Science	0.8	2.2
Veterinary science, animal care	—	—
Services, hospitality, transportation	2.1	6.3
VET multi-field education	15.0	20.1
<b>Total enrolments</b>	<b>32.2</b>	<b>70.4</b>

(a) Includes all VET delivery by TAFE and other government providers, registered community providers, some VET delivered in schools, and publicly-funded delivery by private providers. Enrolments in fee for service VET courses of private providers have been excluded.

Source: National Centre for Vocational Education Research, 'Australian Vocational Education and Training Statistics 2000: In Detail'.

## Indigenous higher education students

In 2000, some 7,350 Indigenous students were attending higher education. Females comprised 65% of Indigenous higher education students, compared to 55% of the total higher education student population.

Table 10.27 shows the distribution of Indigenous higher education students across States and Territories in 2000. New South Wales, Queensland and Western Australia had the largest number of Indigenous students, with the Australian Capital Territory and Tasmania having the lowest.

The proportion of Indigenous students who were females was highest in the Northern Territory, South Australia and Western Australia (71%, 68% and 66% females respectively). The Australian Capital Territory had the least differential between the number of male and female Indigenous students attending higher education institutions (52% were female).

Graph 10.28 illustrates the increasing trend in Indigenous participation in higher education over the past decade. Between 1990 and 2000 the number of Indigenous students increased from 3,609 to 7,350 (104%). The greatest annual increase of Indigenous students was between 1990 and 1991 (33%).

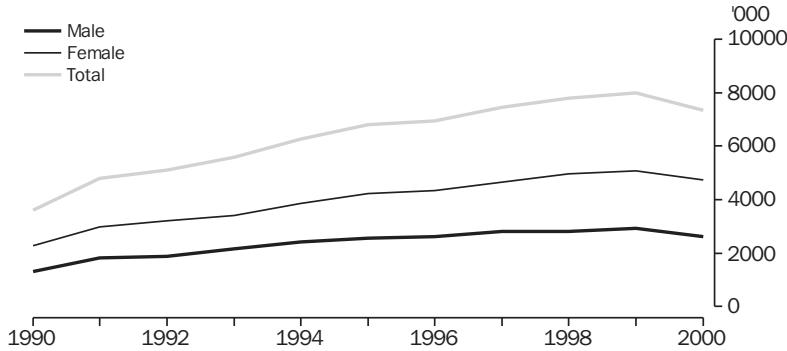
Table 10.29 shows that in 2000, Indigenous students were more likely to choose social or community-oriented courses, such as Arts or Education. Arts, humanities and social sciences had the highest percentage of Indigenous student enrolments (38%), followed by Education (28%).

**10.27 INDIGENOUS HIGHER EDUCATION STUDENTS, By State — 2000**

State/Territory	Commencing Indigenous students			All Indigenous students		
	Males no.	Females no.	Persons no.	Males no.	Females no.	Persons no.
NSW	347	518	865	748	1 247	1 995
Vic.	127	196	323	268	426	694
Qld	256	393	649	541	884	1 425
WA	287	509	796	499	975	1 474
SA	75	143	218	162	345	507
Tas.	36	47	83	81	132	213
NT	115	292	407	184	458	642
ACT	28	38	66	78	85	163
Multi-State(a)	25	78	103	49	188	237
<b>Total</b>	<b>1 296</b>	<b>2 214</b>	<b>3 510</b>	<b>2 610</b>	<b>4 740</b>	<b>7 350</b>

(a) Multi-State institution(s) have campuses in more than one State and/or Territory.

Source: Department of Education, Training and Youth Affairs, 'Students 2000: Selected Higher Education Statistics'.

**10.28 ALL INDIGENOUS HIGHER EDUCATION STUDENTS, By Sex — 1990 to 2000**

Source: Department of Education, Training and Youth Affairs, 'Students 2000: Selected Higher Education Statistics'.

**10.29 INDIGENOUS HIGHER EDUCATION STUDENTS, By Broad Field of Study and Level of Course — 2000**

Field of study	Postgraduate degree	Postgraduate diploma or equivalent	Bachelor degree	Diploma and advanced diploma	Other education	Total
Agriculture, animal husbandry	2	—	53	61	6	122
Architecture, building	3	12	41	—	—	56
Arts, humanities and social sciences	161	35	1 696	483	419	2 794
Business, administration, economics	62	27	512	60	2	663
Education	84	61	922	321	636	2 024
Engineering, surveying	6	3	91	2	—	102
Health	62	76	594	237	3	972
Law, legal studies	20	10	385	55	—	470
Science	33	18	357	6	32	446
Veterinary science	—	—	17	—	—	17
Non-award	—	—	—	—	—	12
<b>Total(a)</b>	<b>433</b>	<b>242</b>	<b>4 343</b>	<b>1 225</b>	<b>1 095</b>	<b>7 350</b>

(a) The data take into account the coding of combined courses to two fields of study. As a consequence, counting both fields of study for combined courses means that the data in the total row may be less than the sum of the data aggregated down each column.

Source: Department of Education, Training and Youth Affairs, 'Students 2000: Selected Higher Education Statistics'.

## Education and training: How does Australia compare internationally?

This article was contributed by Brendan O'Reilly, Department of Education, Training and Youth Affairs.

### Introduction

Traditionally, the key statistics used to evaluate Australia's education system have come from the institutional collections of our main education sectors and from the survey data collected by the Australian Bureau of Statistics. By their very nature these collections can only provide a domestic context in which to evaluate educational progress. The development over recent decades of international collections has filled this gap, and international educational statistics and indicators are now becoming widely used, both as a reference source for comparable country statistics and as benchmarks to assess the relative performance of national education systems.

The most relevant international education statistics publications to Australia are those of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the Organisation for Economic Co-operation and Development (OECD). The most high profile publication is the OECD's *Education At A Glance*, EAG for short, a volume of statistical/accounting indicators which has been published annually since 1992. The most significant UNESCO publication has been its *Statistical Yearbook*, produced annually from 1963 to 1999 and containing international data in the fields of education, science and technology, culture and communication.

International education statistics are classified according to the International Standard Classification of Education (ISCED), which provides a means of presenting data from different national systems in a consistent format. The ISCED level structure comprises seven levels: pre-primary (0), primary (1), lower secondary (2), upper secondary (3), post-secondary non-tertiary (4), tertiary (5) and advanced research (6). Secondary and tertiary levels are further sub-classified by orientation (academic (A), vocational leading to further

courses (B), and vocational leading directly to the workforce (C)). The structure of the Australian school sector closely matches ISCED levels 0 to 3A, while Australian Vocational Education and Training (VET) courses are classified across ISCED levels 2, 3, 4, and 5 (Diplomas are 5B while Certificates are classified at the lower levels, generally with either B or C orientations). Nearly all Australian university degree and post-graduate programs are classified as ISCED 5A. The exception is research doctorates, which are 6A.

### Comparing Australia and other OECD countries

EAG educational indicator data are generally released two to three years in arrears, and indicator results usually show only minor changes from year to year. The publication currently presents data for 30 OECD countries, as well as for developing countries participating in the World Education Indicators program. Because of imperfections in translating domestic data to international classifications and definitions, undue significance should not be attributed to minor differences in country results.

Australia performs relatively well on most EAG measures. Features of our performance include very high rates of part-time study, generally above average participation and attainment in tertiary education, and a relatively higher private contribution to educational expenditure than in most OECD countries. The most notable international trend evident from EAG results over the past decade has been strong growth in tertiary participation, with completion of upper secondary education having become the norm in most countries. In many cases spending at tertiary level has not kept pace with the growth in enrolments.

### Expenditure on education

According to EAG 2001, Australian expenditure on educational institutions was slightly below the OECD average in 1998: 5.46% of GDP compared with an OECD country mean of 5.66%. This mainly reflects Australia's low spending on preschools (0.1% of GDP compared to an OECD country mean of 0.4%). Australia's spending on tertiary educational institutions was above the average (1.59% of GDP compared with an OECD country mean of 1.33%) while spending on primary, secondary and post secondary non-tertiary educational institutions was marginally above the average (3.8% of GDP compared with an OECD country mean of 3.71% and OECD total of 3.64%) (see table 10.30). Expenditure per full-time equivalent student in Australia was above the OECD average for all non-preschool sectors. The OECD, however, cautions that lower unit expenditure should not be equated with lower school performance, with countries such as Japan, the Republic of Korea and the Netherlands, which have comparatively modest expenditure per student, having some of the highest performance by 8th grade students in mathematics.

The private sector is more important as a source of funds for educational institutions in Australia than for most OECD countries. Some 24.5% of

funding for Australian educational institutions comes from private sources, compared to the OECD country mean of 13.4%. In Japan and the US, more than half of all final funds for tertiary institutions originate from private sources, and in the Republic of Korea the proportion exceeds 80%.

### Educational attainment and participation

Table 10.31 shows that in Australia the proportion of the 25 to 64 year population who are university educated is slightly above the OECD average, and that the proportion of this age group who have not completed secondary education is also slightly higher than the OECD average. Some 43% of Australians in this age group had attained below the Upper Secondary level in 1999 and 18% had attained University level, compared with OECD country means of 38% and 14% respectively. Only 35% of Australians aged 25–34 years had attained below the Upper Secondary level and 20% had attained the University level, indicating higher educational attainment for younger cohorts. Reflecting increasing participation in education over recent decades, the EAG 2001 figures for Australia showed an improvement of about one percentage point over those in EAG 2000.

**10.30 DIRECT AND INDIRECT EXPENDITURE ON EDUCATIONAL INSTITUTIONS FROM PUBLIC AND PRIVATE SOURCES, GDP by Level of Education and Source of Funds, OECD Countries — 1998**

	Primary, secondary and post-secondary non-tertiary education			Tertiary education		
	Public %	Private %	Total %	Public %	Private %	Total %
Australia	3.21	0.59	3.80	1.09	0.51	1.59
Canada	3.72	0.34	4.06	1.53	0.32	1.85
Germany	2.79	0.89	3.68	0.97	0.08	1.04
Ireland	3.18	0.10	3.28	1.08	0.30	1.38
Mexico	3.00	0.48	3.48	0.78	0.11	0.89
New Zealand	4.61	n.a.	n.a.	1.06	n.a.	n.a.
Spain	3.26	0.40	3.65	0.84	0.27	1.11
Sweden	4.51	0.01	4.52	1.49	0.17	1.67
United Kingdom	3.40	n.a.	n.a.	0.83	0.28	1.11
United States	3.40	0.35	3.74	1.07	1.22	2.29
Country Mean	3.47	0.35	3.71	1.06	0.29	1.33
OECD total	3.28	0.37	3.64	0.93	0.67	1.59

Source: 'Education at a Glance 2001' (OECD), table B2.1b.

In OECD countries there are differing ages of compulsory attendance (the ending age varies from 14 to 18 years) and sharp differences in the incidence of part-time study. Australia, for example, experiences very high rates of part-time study relative to other countries. This contributes to Australia having the second highest measured ‘school expectancy’ (the number of full-time and part-time years a five year old child can expect to spend in education over a lifetime) in the OECD. School expectancy (full-time and part-time combined) is 19.9 years for Australia as against an OECD country mean of 16.7 years. Many OECD countries do not differentiate between full-time and part-time study, which makes it impossible to make comparisons based on full-time equivalents. The OECD does, however, provide a full-time/part-time breakdown for most countries. Australia has slightly below average full-time school expectancy (14.3 years compared with 15.4 years for the OECD country mean) but by far the highest part-time school expectancy (5.6 years compared with 1.2 years).

Australia’s graduation rate for Upper Secondary (General) education is significantly above the OECD country mean (66% of the population of typical graduation age compared with 57%), though figures are missing for a number of countries with high attendance rates (e.g. US, Canada). Australian graduation data are not available for Vocational programs, but are likely to be below average at Upper Secondary level. Australia has relatively high rates of participation in tertiary education (ISCEDs 5 and 6) and has the highest proportion of part-time students in the OECD, especially for vocational programs (table 10.32).

### The learning environment and returns to education

EAG contains data on teaching salaries, age and gender distribution of teachers and education staff, teachers' hours, instruction time of students, student to teaching staff ratios, information and communication technology,

and use of computers in schools. In OECD countries primary teacher salaries tend to be less than those of other public sector professionals, and a public primary or secondary school teacher also takes an average of 25 years to progress from minimum to maximum salary in the OECD. Salaries for Australian teachers are generally above the OECD country mean in Purchasing Power Parity terms; also, in Australia, Denmark, England and New Zealand public school teachers reach the maximum salary after less than ten years’ service.

A substantial body of empirical research shows a strong positive correlation between earnings and educational attainment, and this is evident across all countries. Table 10.33 shows earnings relativities within each country using the earnings of those with upper secondary attainment as a benchmark. The wage differentials imply a higher rate of return for university compared with non-university tertiary education, and the data also show wage differentials to be generally narrower in Australia.

### Learning outcomes

Table 10.34 shows that OECD countries, including Australia, witnessed an increase in mean performance in Science and to a lesser extent Mathematics between 1995 and 1999. According to the OECD, in only two cases — Canada and Hungary — is this increase statistically significant, but the increase in Australia’s scale score ranks just below these two. In Mathematics, where the picture is more varied, eight of the thirteen OECD countries showed increases in performance levels. Australia was one, but again the increase was not statistically significant. In absolute terms the high achievement of Japan and the Republic of Korea and the poor performance of the United States and New Zealand are notable, while Australia is among the middle ranking countries.

**10.31 POPULATION AGED 25 TO 64 YEARS, Distribution by Educational Attainment,  
OECD Countries — 1999**

	Below upper secondary	At least upper secondary	Any tertiary	University level
Country	%	%	%	%
Australia	43	57	27	18
US	13	87	35	27
Canada	21	79	39	19
UK	38	62	25	17
Ireland	49	51	21	11
New Zealand	26	74	27	13
Germany	19	81	23	13
Spain	65	35	21	15
Turkey	78	22	7	x
OECD Country Mean	38	62	22	14

Note: x denotes data included in another column of the table.

Source: 'Education at a Glance 2001' (OECD), tables A2.2a and A2.2b.

**10.32 ACCESS TO AND PARTICIPATION IN TERTIARY EDUCATION, Selected Data,  
Selected Countries — 1999**

Country	Expected years of education		% part-time students	
	In vocational education (FT+PT)	In academic education (FT+PT)	In vocational courses	In academic courses
Australia	0.7	2.2	68.9	37.2
US	0.7	2.8	57.1	41.2
Canada	0.7	2.0	14.6	31.4
UK	0.8	1.8	68.7	24.2
France	0.6	1.8	..	..
New Zealand	0.7	2.2	55.4	29.3
Germany	0.3	1.7	15.1	..
Spain	0.2	2.5	0.6	8.2
Mexico	—	0.9	..	..
Country Mean	0.4	1.9	19.9	14.9

Source: 'Education at a Glance 2001' (OECD), tables C3.2, C3.3.

**10.33 RELATIVE EARNINGS(a) OF PERSONS AGED 25–64 YEARS, By Level of Education,  
Selected Countries — 1999**

Country	Below upper secondary	Tertiary vocational (Tertiary Type B)	University level (Tertiary Type B)
Australia	79	103	136
US	67	118	180
Canada	83	106	152
UK	65	128	171
Ireland	75	114	165
New Zealand	76	n.a.	n.a.
Germany	78	106	157
Country Mean	77	124	163

(a) Based on 'upper secondary education' earnings as 100%.

Source: 'Education at a Glance 2001' (OECD), table E5.1.

**10.34 TRENDS IN MEAN ACHIEVEMENT SCORES(a), Mathematics and Science, 8th Grade,  
OECD Countries — 1995 and 1999**

Country	Mathematics achievement		Change between 1995 and 1999	Science achievement		Change between 1995 and 1999
	1995	1999		1995	1999	
Australia	519	525	6	527	540	14
Belgium (Fl)(b)	550	558	8	533	535	2
Canada	521	531	10	514	533	19
Czech Republic	546	520	-26	555	539	-16
England	498	496	-1	533	538	5
Hungary	527	532	5	537	552	16
Italy	491	485	-6	497	498	1
Japan	581	579	-2	554	550	-5
Korea	581	587	6	546	549	3
Netherlands	529	540	11	541	545	3
New Zealand	501	491	-10	511	510	-1
USA	492	502	9	513	515	2
Country Mean	528	529	1	530	534	4

(a) Denotes the comparison between the mathematics and science achievement of 8th-grade students in 1999 (in TIMSS-R) with that of 8th-grade students in 1995 (in TIMSS). (b) Flemish community.

Source: 'Education at a Glance 2001' (OECD), table F1.1.

## References

Organisation for Economic Co-operation and Development (OECD), Centre for Educational Research and Innovation 2001, *Education At A Glance: OECD Indicators*, OECD, Paris.

United Nations Educational, Scientific and Cultural Organisation (UNESCO), *Statistical Yearbook*, UNESCO, Paris, various issues.

## Participation in education and training

In May 2000, 2.5 million people aged 15–64 years had applied to enrol in a course of study for that year (table 10.35). Of all applicants, 89% gained a place and were studying.

**10.35 PARTICIPATION IN EDUCATION,  
Persons Aged 15–64 — May 2000**

	Males	Females	Persons
	'000	'000	'000
Applied to enrol for 2000	1 199.2	1 328.6	2 527.8
Studying in May 2000	1 080.1	1 176.3	2 256.4
Gained placement but deferred study	76.5	108.9	185.4
Unable to gain placement	42.6	43.4	86.0

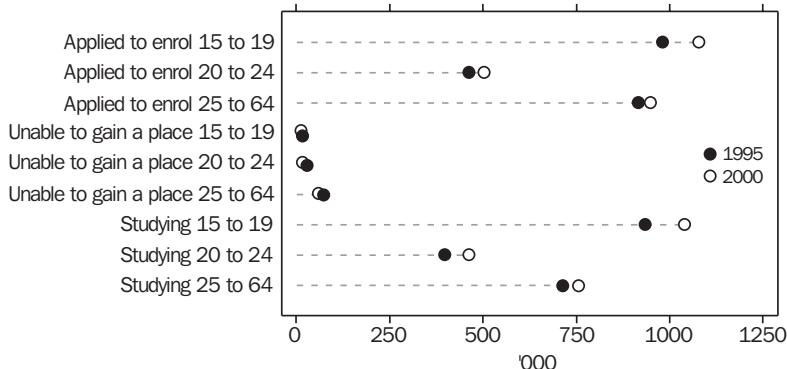
Source: *Transition from Education to Work, Australia* (6227.0).

Between 1995 and 2000, the demand for education increased, as did the number of people being accepted into educational institutions. Although there was a rise in the number of

enrolment applications across all age groups, there was a slight decrease in the number of people unable to get into courses (graph 10.36).

While participation in education may occur at any age, many young people continue in full-time education immediately after completing compulsory schooling, either in post-compulsory schooling or within other forms of education such as VET. Some young people also return to full-time study after a period of absence some time after completing compulsory schooling. In all, 70% of 15–19 year olds at May 2000 were in full-time education (including 51% still at school). At age 20–24 years, 22% were undertaking full-time study (including less than 1% still at school) and 13% were participating in part-time tertiary study (table 10.37).

Many people aged 25 years and over return to study, to upgrade their skills or to gain new skills, and often in conjunction with employment (see the article *Combining work and study* at the end of this chapter). The participation rate at May 2000 for people in this age group was higher for those in part-time study (6%) than for those in full-time study (2%).

**10.36 PARTICIPATION BY AGE GROUP — 1995 and 2000**

Source: *Transition from Education to Work* (6227.0).

**10.37 EDUCATION PARTICIPATION RATES, Persons Aged 15–64 — May 2000**

	Age (years)		
	15–19	20–24	25–64
	%	%	%
Attending school	50.7	*0.2	*0.1
Attending tertiary(a)			
Full-time	19.2	21.5	1.8
Part-time	7.8	12.8	5.7
Total tertiary	27.0	34.3	7.5
Total attending	77.7	34.4	7.6
Not attending	22.4	65.7	92.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Education institutions offering post-school courses.

Source: ABS data available on request, *Transition from Education to Work Survey*.

**Educational attendance and the labour force**

Graph 10.38 indicates the labour force status of all students aged 15–64 years at May 2000. Some 59% of school students were not in the labour force, while 34% were employed. In contrast, 25% of other students were not in the labour force and 68% were employed.

Most young people aged 15–19 years attending an educational institution to study for a recognised qualification at May 2000 were either not in the labour force at all (50%) or were employed part-time (35%). Some 36% of students aged 20–24 years were employed part-time, and another 29% were not in the labour force (table 10.39). In both age groups, students who undertook part-time study were more frequently employed full-time than part-time.

The 'full-time participation rate' describes the proportion of the population, at specific ages, in full-time education or training, or in full-time work, or in both part-time education or training and part-time work. The full-time participation rate identifies the proportion of the population which has a low risk of marginal participation or non-participation in the labour market, and consequently determines the proportion that is at risk. At May 2000 the full-time participation rate for people aged 15–19 years was 86%; for 20–24 year olds it was 76%.

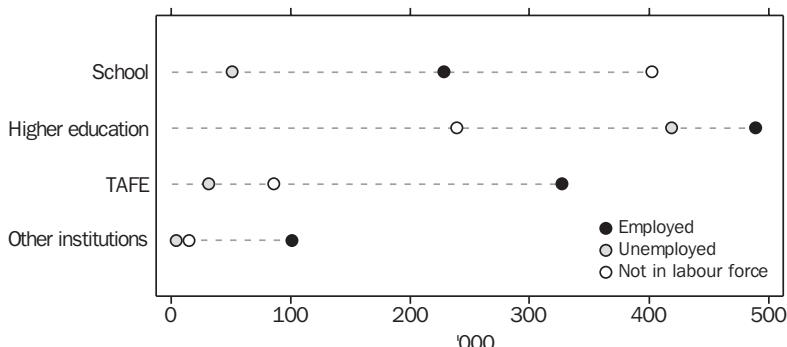
**Educational attainment**

In May 2000, 5.5 million people aged 15–64 (44%) had completed a recognised post-school qualification, 6.4 million (51%) had no recognised post-school qualification, and the remaining 683,700 (5%) were still at school (table 10.40).

Of all people with a recognised post-school qualification, 1.5 million (26%) held a skilled vocational qualification (such as a trade qualification), and 1.5 million (26%) reported holding bachelor degrees. The smallest category comprised those with a higher degree, reported by 255,700 people (5% of those with post-school qualifications).

Of the 660,300 15–19 year olds who were no longer at school in May 2000, 9% had gained a post-school qualification — predominantly a vocational qualification (89% of the latter). By age 20–24 years, 543,500 people held a post-school qualification, 49% as a vocational

**10.38 PERSONS AGED 15–64 ATTENDING AN EDUCATIONAL INSTITUTION — MAY 2000**



Source: ABS data available on request, *Transition from Education to Work Survey*.

qualification and 31% as a bachelor degree. Of the 4.9 million people aged 25–64 who had gained a post-school qualification, 45% held

vocational qualifications and 26% held bachelor degrees.

**10.39 PERSONS AGED 15–24, Whether Attended an Educational Institution(a) and Labour Force Status — May 2000**

	Attended an educational institution				
	Full-time	Part-time	Total	Not attending	Total
Labour force status	'000	'000	'000	'000	'000
15–19 YEARS					
In the labour force					
Employed					
Full-time	*4.4	74.5	78.9	147.4	226.4
Part-time	341.4	13.2	354.6	72.4	427.0
<i>Total</i>	345.8	87.7	433.5	219.8	653.4
Unemployed	74.2	*2.8	77.1	56.2	133.3
Not in the labour force	498.3	*4.3	502.6	49.1	551.7
<i>Total</i>	918.4	94.8	1 013.2	325.1	1 338.3
20–24 YEARS					
In the labour force					
Employed					
Full-time	10.1	117.7	127.8	608.3	736.1
Part-time	134.7	19.1	153.8	116.2	270.0
<i>Total</i>	144.8	136.7	281.6	724.5	1 006.1
Unemployed	16.6	8.1	24.7	83.8	108.5
Not in the labour force	117.8	5.9	123.7	104.4	228.1
<i>Total</i>	279.2	150.8	430.0	912.7	1 342.7

(a) To study for a recognised qualification.

Source: *Transition from Education to Work, Australia* (6227.0).

**10.40 PERSONS AGED 15–64, Educational Attainment — May 2000**

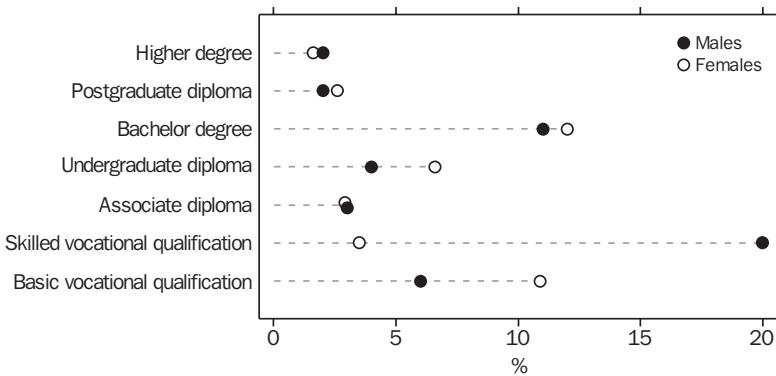
	Age group (years)			
	15–19 '000	20–24 '000	25–64 '000	Total '000
With post-school qualifications(a)	58.4	543.5	4 937.3	5 539.2
Higher degree	**_	*1.6	254.1	255.7
Postgraduate diploma	**0.8	6.8	264.5	272.2
Bachelor degree	**0.5	165.8	1 290.2	1 456.6
Undergraduate diploma	*3.7	61.0	592.3	656.9
Associate diploma	*1.7	43.5	338.8	383.9
Skilled vocational	13.0	129.8	1 324.1	1 467.0
Basic vocational	38.7	134.8	873.3	1 046.9
Without post-school qualifications(b)	602.0	797.4	5 030.4	6 429.9
Completed highest level of school	369.1	534.3	1 471.8	2 375.2
Attending tertiary in May 2000	253.1	290.1	136.9	680.1
Not attending tertiary in May 2000	116.0	244.2	1 335.0	1 695.1
Did not complete highest level of school	232.1	262.4	3 549.2	4 043.8
Attending tertiary in May 2000	89.9	36.3	112.0	238.1
Not attending tertiary in May 2000(c)	142.2	226.1	3 437.4	3 805.7
Still at school	678.0	*1.8	*3.9	683.7
<b>Total</b>	<b>1 338.3</b>	<b>1 342.7</b>	<b>9 971.6</b>	<b>12 652.7</b>

(a) Includes persons who never attended school. (b) Includes persons who never attended school. (c) Includes persons whose study was not intended to result in a recognised educational qualification.

Source: *Transition from Education to Work, Australia* (6227.0).

Graph 10.41 shows the proportions of males and females with each category of recognised post-school qualifications at May 2000. While a greater proportion of women had basic

vocational and undergraduate diploma level qualifications than did men, the reverse was the case for skilled vocational qualifications.

**10.41 EDUCATIONAL ATTAINMENT — MAY 2000**

Source: ABS data available on request, *Transition from Education to Work Survey*.

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Ministerial Council on Education, Employment, Training and Youth Affairs, <http://www.curriculum.edu.au/mceetya>

# Combining work and study

## Introduction

Between 1990 and 2000, the number of Australians combining study and work increased by 333,300. Full-time students working part-time accounted for 64% of this growth.

For a range of reasons people may choose to participate in both study and work at different stages in their lives. For younger students, working part-time may provide a source of personal income and therefore a certain level of independence, as well as work experience which may enhance future employment opportunities. For people already in the workforce, study can be a way of acquiring new skills or upgrading them in order to remain competitive in the labour market. Along with increasing numbers of students, the last decade of the 20th century saw increases in the number of students who were both studying and working.

Over the 1990s, the number of students participating in post-compulsory schooling increased by 28%, with students of all ages between 15 and 64 years contributing to this increase (see the article 'Beyond compulsory schooling' in *Australian Social Trends 2000* (4102.0), pp. 93–97). Over the same period, the proportion of people who were both working and studying increased from 55% to 58% (1.3 million people in 2000). However, the way that students combined their study and work commitments reflects the diversity in their ages, work experience, previous level of study and family situations. Furthermore, growth in the numbers of students combining study and work did not occur across all combinations of study and work.

## Study and work –relevant concepts

The data in this article come from the Transition from Education to Work Survey which is conducted by the ABS annually in May. The most recent data available come from the survey conducted in May 2000.

The survey provides information on the education and labour force participation of persons aged 15–64 years, including those attending an educational institution either full-time or part-time who were employed (either full-time or part-time).

- *Educational institutions* include schools; higher education establishments; colleges of technical and further education (TAFEs); and other providers of tertiary education, such as business colleges and industry skills centres.
- *Persons employed full-time* are those who usually work 35 hours a week or more and others who, although usually working less than 35 hours a week, worked 35 hours or more during the reference week of this survey.
- *Persons employed part-time* are those who usually work less than 35 hours a week and who did so during the reference week of this survey. Average number of hours worked are calculated as the sum of all the hours worked divided by the number of people who worked, during the reference week of this survey.

## Combinations of study and work

Most people combining study and work fall into two main groups: full-time students who undertake part-time work, and full-time workers undertaking part-time study. In 2000, 42% and 44% of working students respectively fell into these categories. While these combinations of study and work were also predominant in 1990, the proportion of full-time students who work part-time has increased (from 34%), while the proportion of part-time students working full-time has decreased (from 53%).

In 2000, close to 12% of working students were combining part-time work and part-time study (table S3.1). Relatively few students (less than 3%) both worked and studied on a full-time basis, and for the remainder of this article data relating to this group will be combined with full-time workers who study part-time.

The ages of students across the different combinations of study and work varied considerably. In 2000, most full-time students working part-time (89%) were aged under 25 years (graph S3.2). However, students working full-time were typically older (63% were aged 25 years and over), while part-time students working part-time were distributed in similar proportions across the ages 15 to 54 years.

### Full-time students working part-time

In the five years from 1995 to 2000, the number of full-time students working part-time grew from 407,100 to 542,900 people — a greater rate of growth than for any other group of people combining study and work. In keeping with their young age profile, full-time students working

part-time were commonly still at school or were continuing with study after completing compulsory schooling. In 2000, 42% of full-time students working part-time were still attending school and 64% were aged 15–19 years. A large proportion of this group was not yet old enough to hold a qualification. Accordingly, this group was the least likely to hold post-school qualifications (14%) of all people combining study and work.

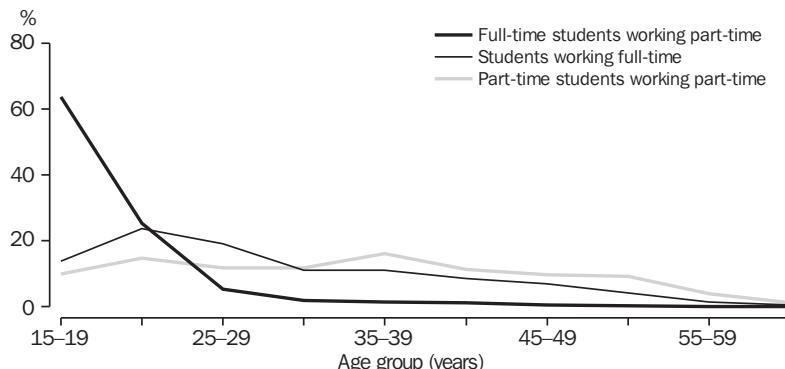
Many young students still live with their parents and are dependent on them to some extent. In 2000, few full-time students working part-time were married (6%), and on average they were working only 11 hours per week, not enough hours to earn a full-time wage (table S3.3).

**S3.1 PEOPLE COMBINING STUDY AND WORK**

	1990		1995		2000	
	'000	%	'000	%	'000	%
Full-time students						
Working full-time	32.2	3.3	29.7	2.5	35.1	2.7
Working part-time	329.4	33.9	407.1	34.9	542.9	41.6
Part-time students						
Working full-time	511.5	52.6	599.3	51.4	573.6	43.9
Working part-time	99.4	10.2	130.1	11.2	154.2	11.8
<b>Total people who study and work</b>	<b>972.5</b>	<b>100.0</b>	<b>1 166.1</b>	<b>100.0</b>	<b>1 305.8</b>	<b>100.0</b>
As a proportion of all students	..	54.8	..	57.0	..	57.8

Source: ABS data available on request, Transition from Education to Work Survey, 1990, 1995 and 2000.

**S3.2 PEOPLE WHO COMBINE WORK AND STUDY, Age Distribution — 2000**



Source: ABS data available on request, Transition from Education to Work Survey, 2000.

### S3.3 FULL-TIME STUDENTS WORKING PART-TIME — 1995 and 2000

	1995	2000
Selected characteristics	%	%
Females	60.1	58.0
Married	3.6	6.3
Born overseas	12.7	18.1
With post-school qualifications	9.2	13.7
Attending school	46.0	41.5
Attending higher education	40.4	45.2
Attending TAFE	11.1	10.8
Attending other institutions	2.5	2.6
Median age	years 18	years 18
Average hours worked	hours 10	hours 10

Source: ABS data available on request, *Transition from Education to Work Survey, 1995 and 2000*.

Between 1995 and 2000, the proportion of full-time students working part-time and attending higher education institutions increased from 40% to 45%. This partly reflects increased participation levels over the period.

### Students working full-time

In 2000, some 608,700 students were working full-time, making up almost half of all people combining study and work. However, their numbers had declined slightly (by 20,300) since 1995.

Even if already qualified, further study while working can provide a person with new skills and increase their competitiveness in the labour market or for a particular job. In 2000, over half of the students working full-time already held a post-school qualification (down slightly on the proportion in 1995) (table S3.4) and 63% were aged 25 years and over. In addition, 30% of these students were employed as Professionals and 25% as Trade and related workers — occupations where the job holder would usually be expected to already hold a qualification.

Almost half of the full-time workers who were studying were married (45%). The median age of full-time workers who were studying was 28 years and a relatively high number of hours were spent in paid employment each week (43 hours on average). Less than half (42%) of this group were women, which may reflect the fact that many married women in this age group have caring responsibilities for young children. However, over the five years to 2000, the proportion of this group who were women increased from 38%, in keeping with the trend toward delayed

parenthood and increased female labour force participation (see the article 'Older mothers' in *Australian Social Trends 2001* (4102.0), pp. 55–58).

Close to half the students who worked full-time did not have post-school qualifications. Almost 14% of full-time workers who were studying were aged 15–19 years, and overall the group was more likely to be attending TAFE (43%) than any other educational institution. It is likely that some of these students were in trainee schemes or undertaking apprenticeships centred around a combination of full-time work and part-time study (see also the article 'Developments in contracted training: apprenticeships and trainees' in *Australian Social Trends 2000*, pp. 102–106).

### S3.4 STUDENTS WORKING FULL-TIME — 1995 and 2000

	1995	2000
Selected characteristics	%	%
Females	38.2	41.9
Married	47.5	44.7
Born overseas	18.4	19.2
With post-school qualifications	58.8	55.9
Attending higher education	38.0	35.0
Attending TAFE	43.8	43.2
Attending other institutions	17.4	21.3
Median age	years 29	years 28
Average hours worked	hours 42	hours 43

Source: ABS data available on request, *Transition from Education to Work Survey, 1995 and 2000*.

### S3.5 PART-TIME STUDENTS WORKING PART-TIME — 1995 and 2000

	1995	2000
	%	%
Females	76.4	77.4
Married	52.9	57.6
Born overseas	19.6	24.7
With post-school qualifications	52.9	53.2
Attending higher education	33.6	31.6
Attending TAFE	46.7	41.1
Attending other institutions	18.2	25.9
Median age	years 34	years 35
Average hours worked	hours 19	hours 19

Source: ABS data available on request, *Transition from Education to Work Survey, 1995 and 2000*.

## Part-time students working part-time

Despite the increasing proportion of enrolments in full-time study since 1989, over the ten years to 2000 the number of part-time students working part-time increased from 99,400 to 154,200. These students worked more hours per week on average (19 hours) than those committed to full-time study working part-time (11 hours) (table S3.5).

Participation in either study or work can be a full-time commitment in its own right. The combination of part-time work with part-time study provides not only balance between the two activities themselves, but also the opportunity to meet family commitments and participate in leisure and other activities. This option was one chosen by equal numbers of students across a range of ages, and almost equally by people with and without post-school qualifications, suggesting a variety of reasons for this choice.

That said, more than three-quarters of people both studying and working on a part-time basis were women, and close to half had dependent children (compared with 25% of students working full-time and 4% of full-time students working part-time), suggesting that many students in this group were combining part-time work and part-time study with family commitments. In keeping with this, 58% were married.

In 2000, some 25% of these working students were born overseas. This was the highest proportion of overseas born in any of the three groups of working students (although it was only slightly higher than the proportion of overseas born in the Australian population).



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## Introduction

The effects of criminal activity, as well as people's perceptions about the extent of such activity, are issues which impact directly or indirectly on the quality of people's lives. This chapter provides an overview of the Australian criminal justice system. Many of the data presented are based on national crime and justice statistics produced by the Australian Bureau of Statistics. These are sourced from surveys such as the Crime and Safety Survey and administrative by-product collections, covering crimes recorded by police, caseload information for criminal courts, and information on prisoners dealt with by correctional services agencies. The objective of national crime and justice statistics is to standardise data in order to make them comparable across the different systems of criminal law in Australia, and so provide indicators of the level and nature of crime and the activities of criminal justice agencies. The chapter also draws upon data sources other than the Australian Bureau of Statistics to ensure a more complete coverage of issues relevant to crime and justice.

## The criminal justice system

The criminal justice system consists of the State/Territory and Commonwealth institutions, agencies, departments and personnel responsible for dealing with the justice aspects of crime, victims of crime, persons accused or convicted of committing a crime, and related issues and processes.

In all States and Territories, two systems of criminal justice exist: the federal criminal justice system, based on offences against Commonwealth laws; and the relevant State system, based on offences against State laws. Criminal law is administered principally through the federal, State and Territory police, the National Crime Authority, the courts and State and Territory corrective or penal services. There is no independent federal corrective service, and the relevant State or Territory agencies provide corrective services for federal offenders.

The States and Territories have independent legislative powers in relation to all matters that are not otherwise specifically vested in the Commonwealth of Australia, and it is the statute law and the common law of the States and Territories that primarily govern the day-to-day lives of most Australians.

The eight States and Territories have powers to enact their own criminal law, while the Commonwealth has powers to enact laws, including sanctions for criminal offences, in relation to its responsibilities under the Constitution. Thus, in effect, there are nine different systems of criminal law in existence in Australia.

The various agencies that comprise the criminal justice system can be seen as acting within a broader process in which criminal incidents and offenders move through a number of stages. Figure 11.1 indicates these broad stages and the points at which the different justice agencies make their contribution.

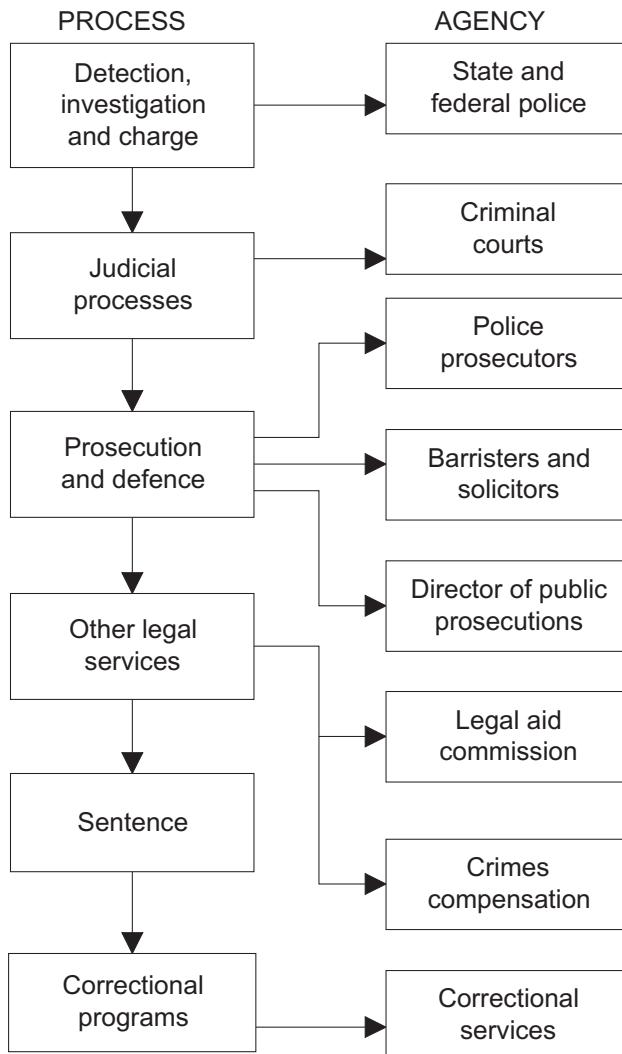
Police agencies are responsible for the prevention, detection and investigation of crimes. Where an alleged offender is detected by police, charges may then be laid before a criminal court. The court, consisting of a judicial officer, a jury (in the higher courts), the prosecution and the defence, determines the guilt or innocence of the defendant.

In addition to the court itself, a number of other agencies are involved in the court process. These include legal representatives for the prosecution and defence of alleged offenders. Police Prosecutors are generally responsible for less serious matters heard before courts of summary jurisdiction, while Crown Prosecutors normally handle prosecution of the more serious matters dealt with at the Supreme or Intermediate (District or County) court levels. For defendants, legal aid may be available to handle their defence.

Following the hearing of the charges, in cases where a finding of guilt is made by the court a sentence may be imposed. These may include imprisonment, community work of various kinds, fines or bonds. A number of jurisdictions have also introduced penalties such as home detention or work outreach camps which are administered by correctional agencies. Fines and bonds are the most common penalties handed down by the courts.

For victims of crime, compensation may be available through the courts, and this is normally handled through a special tribunal. The State provides compensation to victims who can demonstrate an injury or suffering as a result of a criminal incident. The State will then seek these funds from the offender, if they have been identified and convicted.

## 11.1 THE CRIMINAL JUSTICE SYSTEM



Source: National Centre for Crime and Justice Statistics, ABS.

## Expenditure on public order and safety

The Steering Committee for the Review of Commonwealth/State Service Provision, in its *Report on Government Services 2001*, estimated that approximately \$330 per person was spent by governments on justice. This figure is based on recurrent expenditure and does not include spending by governments on items such as capital works (i.e. new police stations, prisons or

court facilities). Of the total recurrent expenditure of over \$6b, the majority (\$4b) was spent on police services, followed by expenditure on corrective services of over \$1b.

Between 1995–95 and 1999–2000 expenditure grew fastest in real terms for corrective services (annual average growth rate of 12%), and most slowly for criminal courts administration (annual average growth rate of 4%).

### 11.2 GOVERNMENT EXPENDITURE ON JUSTICE(a)(b)

Justice sector	1995–96 \$m	1996–97 \$m	1997–98 \$m	1998–99 \$m	1999–2000 \$m	Growth(c) %
Police services	3 498	3 645	3 688	4 036	4 197	7.6
Court administration — criminal	351	337	363	389	388	4.0
Court administration — civil(d)	364	418	420	456	479	11.6
Corrective services(e)(f)	1 021	1 096	1 085	1 193	1 345	11.7
Total justice system	5 235	5 495	5 555	6 074	6 409	8.4

(a) In 1999–2000 dollars. (b) Recurrent expenditure plus depreciation less revenue from own sources. (c) Average annual growth rate over the period 1995–96 to 1999–2000. (d) Excludes the costs of probate hearings. (e) Includes costs of prisoner transport and escort services. For all years, the expenditure on corrective services is the same as that reported in the corresponding Report on Government Services. (f) Excludes WA community corrections expenditure during 1996–97. NT prison and community corrections did not deduct revenue from own sources between 1995–96 and 1996–97.

Source: Steering Committee for the Review of Commonwealth/State Service Provision, Report on Government Services 2001.

## The police

Australia is served by police agencies in each State and the Northern Territory, with the Australian Federal Police also being responsible for policing the Australian Capital Territory. Among its responsibilities, the National Crime Authority also has a policing role.

The principal duties of the police are the prevention and detection of crime, the protection of life and property, and the enforcement of law to maintain peace and good order. They may perform a variety of additional duties in the service of the State. These duties include the prosecution of summary offences, regulation of street traffic, and acting as clerks of petty sessions, Crown land bailiffs, mining wardens and inspectors under the Fisheries Act and other relevant Acts.

With the exception of the Australian Federal Police and the National Crime Authority, police in Australia are under the control of the relevant State Government and the Northern Territory Government. However their members also perform certain functions on behalf of the Commonwealth Government, such as the registration of aliens, and they enforce various Commonwealth Acts and Regulations in conjunction with the Australian Federal Police and other Commonwealth officers.

## Commonwealth policing agencies

### Australian Federal Police (AFP)

The AFP is a Commonwealth statutory authority brought into existence by the *Australian Federal Police Act 1979*. The AFP has its headquarters in Canberra. Its Criminal Investigations Program is conducted through six Regional Commands, its Headquarters Investigations Department and its numerous Liaison Officers in many countries.

The AFP is responsible for the prevention, detection and investigation of criminal offences such as drug offences, money laundering and organised crime, identifying the proceeds of crime, and investigation of fraud against Commonwealth revenue and expenditure such as social security and taxation fraud. In the Australian Capital Territory, the AFP provides a full range of general community policing services, including traffic control, special operations, search and rescue services and conventional crime investigations.

### National Crime Authority (NCA)

The NCA was established by the Commonwealth Government in July 1984 through the *National Crime Authority Act 1984*. Similar legislation was passed in each State, the Northern Territory and subsequently the Australian Capital Territory, to underpin the work of the NCA in those jurisdictions. This makes the NCA the only law enforcement agency in Australia whose investigations are not limited by jurisdictional or territorial boundaries.

The decision to establish the NCA was taken in response to the findings of several Royal Commissions conducted in the late 1970s and early 1980s, which revealed the extent of organised criminal activity in Australia. The NCA's mission is to counteract organised criminal activity and reduce its impact on the Australian community, working in cooperation and partnership with other agencies.

## Number of sworn police officers

The number of sworn police officers in the various Australian police services is shown in table 11.3. The figures in the table are not directly comparable across the various jurisdictions, as those for NCA and AFP do not differentiate between full-time and part-time officers, whereas those for the States and Territories are on a full-time equivalent basis. Between 1999 and 2000, Queensland, the Northern Territory and South Australia all experienced increases in the number of sworn police officers, compared with falls in the other States and the Australian Capital Territory. The number of sworn police officers per 100,000 population was noticeably higher in the Northern Territory than elsewhere, at 462 per 100,000.

Further detail on the operations of each police agency may be found in the relevant annual reports to its Minister.

## National crime statistics

The aim of national crime statistics is to provide comparable data across the States and Territories. These statistics cover selected crimes recorded by State and Territory police in Australia and provide a measure of the level and nature of crime in Australia.

Two sources of national statistics provide a picture of crime in Australia: crimes recorded by police, and crime victimisation surveys. Crimes recorded by police relate to offences that have become known to and have been recorded by police. These offences may have been reported by a victim, witness or other person, or they may have been detected by police. These statistics do not provide a total picture of crime, as not all crimes come to the attention of police. In addition, care should be taken in interpreting police statistics, as fluctuations in recorded crime may be a reflection of changes in community attitudes to reporting crime, changes in police procedures or changes in crime recording systems, rather than a change in the incidence of criminal behaviour. Significant events occurring in particular years may also contribute to fluctuations in recorded crime.

To gain a more comprehensive picture of the nature and extent of crime, police statistics are complemented by information from other sources such as crime victimisation surveys. These surveys are conducted on a household basis and collect information on crimes of which people know they have been victims (and can recall the incident/s), whether or not they reported the crimes to the police. Crime victimisation surveys allow crime information to be related to personal and household characteristics, and facilitate the study of patterns of victimisation over time and across crime categories.

**11.3 NUMBER OF SWORN POLICE OFFICERS — 1 July 1999 and 2000**

Police officers	1999		2000	
	no.	rate per 100,000	no.	rate per 100,000
National Crime Authority(a)	124	n.a.	130	n.a.
Australian Federal Police(a)	1 224	n.a.	1 344	n.a.
ACT	664	215	632	202
NSW	13 305	210	13 172	203
Vic.	9 556	205	9 359	196
Qld	6 981	202	7 319	205
SA	3 443	232	3 479	232
WA	4 676	255	4 658	246
Tas.	1 069	227	1 049	223
NT	876	461	905	462

(a) Based on actual number of sworn officers, rather than full-time equivalents which is the basis for the figures for all the States and Territories.

Source: NCA Annual Report; Report on Government Services 2001 Attachment 8A table 8a15 for all other State and Territory figures; Australian Federal Police annual report.

Not all types of crime are suitable for measurement by household surveys. No reliable information can be obtained about crimes where there is no specific victim (e.g. trafficking in narcotics). Crimes of which the victim may not be aware cannot be measured effectively; some instances of fraud and many types of attempted crimes fall into this category. It may also be difficult to obtain information about some crimes, such as sexual offences and assault by other household members, so that some of these crimes are not fully reflected in the data collected. Finally, no reliable data can be collected by household surveys on crimes against commercial establishments.

In essence, crime victimisation surveys are more suitable for measuring crimes against individuals or households with specific victims who are aware of and recall the incident and how it happened, and who are willing to relate what they know.

### Crime and safety

The Crime and Safety Survey, a survey of households, will next be conducted nationally by the ABS in April 2002. The survey was conducted nationally in 1993 and 1998. It has been conducted annually since 1990 in New South Wales; in 1999 and 2000 in Western Australia; in 1999 in South Australia; and in 1995 in all States and Territories except Tasmania and the Northern Territory.

The survey provides data on selected household and personal crimes against persons aged 15 years and over for the 12 month period prior to the survey, and the risk factors associated with crime victimisation. The 2002 survey will collect data on sexual assault for males and females aged 18 years and over (from previous surveys data

were only available concerning sexual assaults against females). The 2002 survey results are expected by June 2003.

### Crimes affecting households and persons

Households and individuals in Australia experience a diverse range of crimes. The Crime and Safety Survey focuses on those categories of more serious crime that affect the largest number of people: household break-in, motor vehicle theft, assault (including sexual assault) and robbery.

In the 12 months prior to the 1998 Crime and Safety Survey, 8% of households in Australia were victims of either a break-in or an attempted break-in: 5% of households had at least one break-in to their home, garage or shed and 3% found signs of at least one attempted break-in (table 11.4).

An estimated 0.5% of persons aged 15 years and over were victims of robbery and 4% of persons aged 15 years and over were victims of assault in the 12 months prior to the survey. An estimated 0.4% of females aged 18 years and over were victims of sexual assault in the same time period.

### Reporting to police

Crime is not always reported to the police, with many factors influencing whether or not a crime is reported. In particular, rates of reporting to the police vary depending on the type of offence, as shown in graph 11.5. People are much more likely to report crimes against property to the police (a requirement for any associated insurance claim) than crimes against the person (i.e. assault or sexual assault). The five year period to 1998 saw an increased willingness for victims of sexual assault to report their assault to the police.

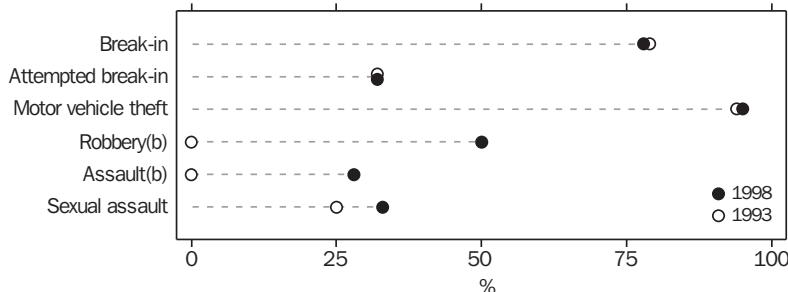
**11.4 VICTIMS OF CRIME — 12 Months Prior to April 1998**

Type of crime	Victims '000	Relevant populations '000	1993 %	1998 %
Break-in	349.9	(a)7 031.2	4.4	5.0
Attempted break-in	226.4	(a)7 031.2	3.1	3.2
Break-in/attempted break-in	534.1	(a)7 031.2	6.8	7.6
Motor vehicle theft	117.9	(a)7 031.2	1.7	1.7
Robbery	79.1	(b)14 456.0	..	0.5
Assault	618.3	(b)14 456.0	..	4.3
Sexual assault	30.1	(c)6 937.4	0.6	0.4

(a) Households. (b) Persons aged 15 years and over. (c) Females aged 18 years and over.

Source: *Crime and Safety, Australia, April 1998* (4509.0).

**11.5 REPORTING RATE(a) TO POLICE FOR THE MOST RECENT INCIDENT —  
12 Months Prior to April 1993 and 1998**



(a) Of household/person victims. (b) No 1993 rate has been provided as data are not comparable between 1998 and 1993 surveys.

Source: *Crime and Safety, Australia, April 1998* (4509.0).

### Crimes recorded by police

The number of victims of crimes recorded by police increased between 1999 and 2000 for almost all of the offences listed in table 11.6. The largest proportional increases were recorded for victims of driving causing death (12%), sexual assault (11%) and other theft (10%). The main falls were for murder and kidnapping/abduction (by of 12% and 10% respectively). As well as increases in the number of victims, there have also been increases in victimisation rates for many of the offence types.

The annual recorded counts for murder victims in Australia have fluctuated over the period 1995 to 2000. This is due in large part to the following incidents: Tasmania in 1996 where 35 lives were taken in a single incident at Port Arthur; South Australia in 1999 where 12 bodies were discovered at Snowtown; Western Australia in 1999 where 9 victims resulted from two family murder/suicide incidents; and Queensland in 2000 where victims of the fire at Childers were recorded. Despite this fluctuation in the number of murder victims, the victimisation rates for murder in Australia have remained relatively stable over the last six years, ranging from 1.5 to 1.8 victims per 100,000 persons.

### Personal crime

Males were more likely than females to be victims of personal crime, with two exceptions: sexual assault and kidnapping/abduction (graph 11.7).

The sexual assault victimisation rate for females (129 victims per 100,000) was more than four times the male victimisation rate (29 victims per 100,000). Males experienced higher recorded assault rates across all age groups.

As table 11.6 shows, assault is the most common category of offences recorded against the person; police recorded 141,124 victims of assault during 2000, representing a victimisation rate of 737 victims per 100,000 persons. There were 15,630 cases of sexual assault recorded, a rate of 82 victims per 100,000 persons, and 302 victims of murder, a rate of 1.6 victims per 100,000 persons.

### Property crime

Unlawful entry with intent (UEWI) and other theft are the most frequently occurring of the more serious property offences. The UEWI victimisation rate increased 13% between 1995 and 2000 to be 2,281 victims per 100,000 persons in 2000. The victimisation rate for motor vehicle theft increased by 9% between 1995 and 2000. The rate of other theft was 3,523 victims per 100,000 persons, representing a 38% increase since 1995.

**11.6 NUMBER OF VICTIMS AND VICTIMISATION RATE, By Selected Offences Recorded by Police**

Offence category	1995	1996	1997	1998	1999	2000
NUMBER						
Homicide and related offences	976	1 027	n.a.	995	970	989
Murder	326	312	321	285	343	302
Attempted murder	300	335	318	387	359	391
Manslaughter	30	38	39	47	43	44
Driving causing death(a)	320	342	n.a.	276	225	252
Assault	101 710	114 156	124 500	130 903	134 271	141 124
Sexual assault	13 099	14 542	14 353	14 336	14 104	15 630
Kidnapping/abduction	459	480	562	705	766	688
Robbery	14 564	16 372	21 305	23 801	22 606	23 314
Armed robbery	5 258	6 256	9 054	10 850	9 452	9 474
Unarmed robbery	9 306	10 116	12 251	12 951	13 154	13 840
Blackmail/extortion	157	268	360	272	255	254
Unlawful entry with intent	385 162	402 079	421 569	434 376	415 735	436 865
Property theft(b)	303 227	313 902	332 525	339 512	322 983	(b)n.a.
Other(b)	81 935	88 177	89 044	94 864	92 752	(b)n.a.
Motor vehicle theft(c)	127 094	122 914	130 138	131 587	129 552	139 094
Other Theft	490 518	521 762	530 881	563 482	612 559	674 813
RATE PER 100,000						
Homicide and related offences	5.4	5.6	n.a.	5.3	5.1	5.2
Murder	1.8	1.7	1.7	1.5	1.8	1.6
Attempted murder	1.7	1.8	1.7	2.1	1.9	2.0
Manslaughter	0.2	0.2	0.2	0.3	0.2	0.2
Driving causing death(a)	1.8	1.9	n.a.	1.5	1.2	1.3
Assault	562.9	623.5	672.2	699.0	709.2	736.8
Sexual assault	72.5	79.4	77.5	76.6	74.5	81.6
Kidnapping/abduction	2.5	2.6	3.0	3.8	4.0	3.6
Robbery	80.6	89.4	115.0	127.1	119.4	121.7
Armed robbery	29.1	34.2	48.9	57.9	49.9	49.5
Unarmed robbery	51.5	55.3	66.1	69.2	69.5	72.3
Blackmail/extortion	0.9	1.5	1.9	1.5	1.3	1.3
Unlawful entry with intent	2 131.7	2 196.2	2 276.2	2 319.5	2 195.7	2 280.8
Property theft	1 678.2	1 714.6	1 795.4	1 812.9	1 705.8	(b)n.a.
Other	453.5	481.6	480.8	506.6	489.9	(b)n.a.
Motor vehicle theft(c)	703.4	671.4	702.7	702.7	684.2	726.2
Other theft	2 714.7	2 850.0	2 866.4	3 008.9	3 235.2	3 523.1

(a) A change in the recording practices for driving causing death offences in New South Wales resulted in incomplete counts for this offence in 1997. (b) A change in the legislation related to unlawful entry with intent (UEWI) offences in South Australia resulted in an inability to provide UEWI disaggregated into property theft and other for 2000. (c) Counts for motor vehicle theft prior to 1997 are not directly comparable with those for other years as Western Australia included the theft of caravans and trailers in addition to motor vehicle theft.

Source: Recorded Crime, Australia (4510.0).

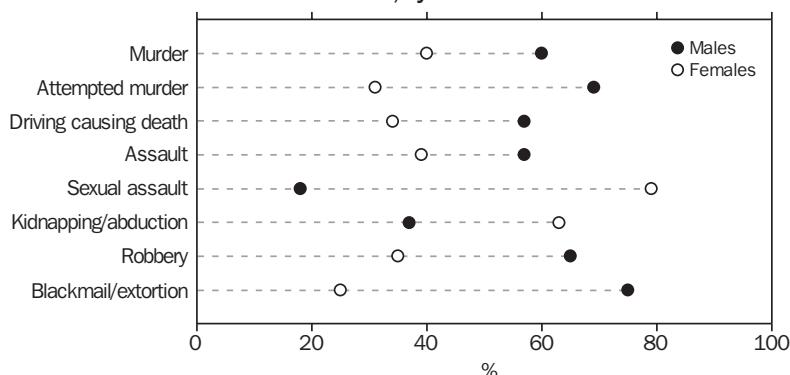
**Age and sex of victims**

Young people aged 15–24 years in particular, and those aged 25–34 years to a slightly lesser extent, experienced the highest levels of recorded crime victimisation. For the main offence categories (assault, sexual assault and robbery) the rates for these groups were at least twice the average for those offences (table 11.8).

**Weapon use**

The majority of murders and attempted murders involved the use of a weapon (in 59% and 83% of offences, respectively, in 2000) (table 11.9 and graph 11.10). These crimes are much more likely to involve weapon use than other crimes against the person — robbery (weapon used in 41% of offences in 2000), kidnapping (in 21%) and assault (in 12%). There were some fluctuations between 1999 and 2000, but the proportions were broadly similar.

11.7 VICTIMS, By Sex — 2000



Source: Recorded Crime, Australia, 2000 (4510.0).

11.8 VICTIMISATION RATES(a) OF SELECTED CRIMES(b), By Age and Sex — 2000

Offence category	0-14	15-19	20-24	25-34	35-44	45 and over	Total(d)
MALES							
Murder	0.3	2.2	2.2	2.7	2.9	1.8	1.9
Attempted murder	1.0	2.8	7.0	5.9	2.9	1.4	2.8
Driving causing death	0.5	4.1	3.3	1.9	1.3	1.1	1.5
Assault	329.8	1 731.0	1 653.7	1 517.5	941.8	359.5	839.7
Sexual assault	78.3	54.2	30.4	19.0	8.5	1.9	29.4
Kidnapping/abduction	4.9	5.9	6.5	2.5	1.3	0.4	2.7
Robbery(c)	48.5	548.3	310.7	152.8	92.5	46.4	128.2
Blackmail/extortion(c)	n.p.	2.5	1.7	1.7	3.1	1.5	1.6
FEMALES							
Murder	0.5	1.2	2.1	2.2	1.8	0.8	1.2
Attempted murder	0.6	0.6	1.7	2.3	2.1	0.7	1.2
Driving causing death	0.3	2.4	1.1	1.2	0.5	0.9	0.9
Assault	210.4	1 298.0	1 317.0	1 119.6	707.8	186.4	579.6
Sexual assault	250.7	430.7	204.1	121.1	64.1	13.4	128.9
Kidnapping/abduction	8.1	17.8	7.7	4.5	1.6	0.4	4.5
Robbery(c)	9.6	134.5	136.7	83.5	63.0	54.9	63.8
Blackmail/extortion(c)	—	0.6	0.6	0.8	0.7	0.6	0.5
PERSONS							
Murder	0.4	1.7	2.1	2.5	2.3	1.3	1.6
Attempted murder	0.8	1.7	4.4	4.1	2.5	1.0	2.0
Driving causing death	0.4	3.3	2.2	1.6	0.9	1.0	1.3
Assault	272.2	1 524.9	1 497.9	1 325.5	828.3	270.9	736.8
Sexual assault	162.7	238.9	115.9	70.2	36.5	7.9	81.6
Kidnapping/abduction	6.5	11.7	7.1	3.5	1.5	0.4	3.6
Robbery(c)	29.7	347.7	227.2	118.8	78.3	51.1	97.9
Blackmail/extortion(c)	n.p.	1.6	1.2	1.2	1.9	1.0	1.1

(a) Rate per 100,000 population. (b) As recorded by police forces in all jurisdictions. (c) For Robbery and Blackmail/extortion where the victim can be an organisation, figures shown only include person victims. (d) Includes victims for whom age and/or sex was not specified.

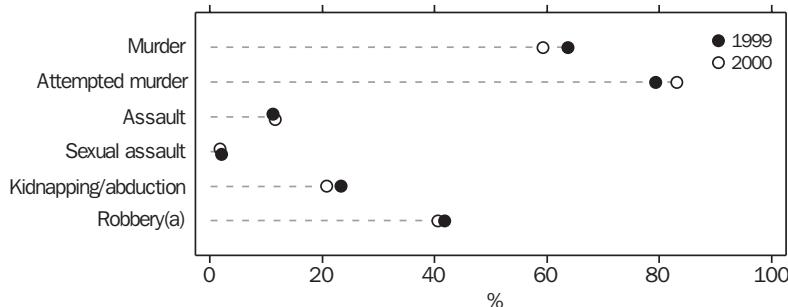
Source: Recorded Crime, Australia, 2000 (4510.0).

**11.9 VICTIMS OF REPORTED CRIME(a), By Use of Weapon in Commission of Offence**

Offence category	Firearm	Other weapon	Total where weapon used(b)	No weapon used	Total victims	Total victims
	%	%	%	%	%	no.
2000						
Homicide						
Murder	19.5	38.4	59.3	40.7	100.0	302
Attempted murder	30.7	52.2	83.1	16.9	100.0	391
Assault	0.6	10.6	11.6	88.4	100.0	141 124
Sexual assault	0.2	1.6	1.8	98.2	100.0	15 630
Kidnapping/abduction	7.1	13.4	20.8	79.2	100.0	688
Robbery	5.7	32.3	40.6	59.4	100.0	23 314
1999						
Homicide						
Murder	17.8	43.9	63.7	36.4	100.0	342
Attempted murder	31.6	47.8	79.3	20.7	100.0	358
Assault	0.5	10.3	11.2	88.8	100.0	133 602
Sexual assault	0.2	1.7	2.0	98.0	100.0	14 074
Kidnapping/abduction	7.9	15.1	23.3	76.7	100.0	763
Robbery	6.3	31.7	41.8	58.2	100.0	22 590

(a) Victims of armed robbery refers to individual persons or organisations. All other offence categories used in this table refer to individual persons. (b) Includes data where a weapon was used but was not further defined.

Source: Recorded Crime, Australia, 1999 (4510.0); Recorded Crime, Australia, 2000 (4510.0).

**11.10 PROPORTION OF CRIMES RECORDED BY POLICE, Where a weapon was used — 1999 and 2000**

(a) Victims of armed robbery refers to individual persons or organisations. All other offence categories used in this graph refer to individual persons.

Source: Recorded Crime, Australia, 1999 (4510.0); Recorded Crime, Australia, 2000 (4510.0).

## Drug offences

The traffic in and abuse of illicit drugs results in significant costs to individuals and the community. To minimise the harm associated with illicit drug activity there is close cooperation between the Commonwealth Government, the State and Territory Governments, the various police services and other law enforcement agencies. Included in these is the Australian Customs Service, which has responsibility for the enforcement of laws controlling importing and exporting of illicit drugs. These agencies direct

particular attention to monitoring the popularity of the various types and forms of illicit drugs and identifying emerging patterns of use through the analysis of law enforcement data on illicit drug seizures and arrests.

As table 11.11 shows, in 1999–2000 by far the largest category of drug offenders involved cannabis offences, with 55,480 offenders (67% of the national total). The next largest category of offenders involved heroin offences, with 11,223 offenders (14% of the national total).

**11.11 TOTAL OFFENDERS, By Drug Type — 1 July 1999 to 30 June 2000**

Drug type	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.(a)(b)
Cannabis	14 121	7 419	13 654	11 789	6 798	799	900	n.a.	55 480
Cocaine	356	43	23	5	6	—	—	n.a.	433
Heroin	3 782	5 952	644	326	495	9	15	n.a.	11 223
Amphetamine	2 786	1 140	2 158	743	1 104	28	124	n.a.	8 083
Hallucinogens	68	—	79	62	72	1	8	n.a.	290
Steroids	45	—	22	—	—	1	6	n.a.	74
Other drugs	2 335	2 431	1 304	264	403	44	31	n.a.	6 812
Total	23 493	16 985	17 884	13 189	8 878	882	1 084	n.a.	82 395

(a) Excludes Australian Federal Police drug arrests data. (b) Excludes data for the Australian Capital Territory.

Source: Australian Bureau of Criminal Intelligence, Australian Illicit Drug Report, 1999-2000.

Information on the widespread problems arising from drug abuse in Australia, and on how these problems are being approached, is presented in the Australian Illicit Drug Report produced by the Australian Bureau of Criminal Intelligence.

### Outcomes of police investigations

Statistics about the outcomes of investigations describe the status of the processes of police investigations that are initiated following the reporting or detection of an offence. The status of investigations includes:

- investigations that were not finalised (i.e. were still continuing, were pending or suspended);
- investigations that were finalised without an offender being proceeded against because the reported offence was not verified, the complaint was withdrawn, or the alleged offender could not be proceeded against because of some statutory or procedural bar; and

- investigations that were finalised and an offender was proceeded against by initiating court action or some other form of formal proceeding (e.g. a diversionary conference or a caution).

In 2000 a higher proportion of offences against the person (homicide, assault, sexual assault and kidnapping/abduction) reached a finalised status within 30 days of initiation of the investigation than was the case for offences against property (unlawful entry with intent, theft and motor vehicle theft offences). Similarly, the proportion of offenders proceeded against was higher for offences against the person than for property offences.

Table 11.12 presents national statistics on the outcome of investigations, at 30 days after initiation, into selected offences recorded by police in 2000.

**11.12 VICTIMS OF RECORDED CRIME, By Outcome of Investigations at 30 Days — 2000(a)**

	Murder	Attempted murder	Assault	Sexual assault	Kidnapping/Abduction	Robbery(b)	UEWI(c)	Motor vehicle theft
Investigation status	%	%	%	%	%	%	%	%
Investigation not finalised	35.8	26.9	42.0	59.4	54.7	78.1	92.7	90.3
Investigation finalised								
No offender proceeded against	5.3	3.3	12.9	17.1	22.2	4.9	1.2	2.2
Offender proceeded against	58.9	69.8	45.1	23.5	23.1	17.0	6.1	7.4
Total Investigation finalised	64.2	73.1	58.0	40.6	45.3	21.9	7.3	9.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For selected offences recorded by police during 1 January to 31 December 2000. (b) Robbery includes both Armed and Unarmed robbery. (c) Unlawful entry with intent.

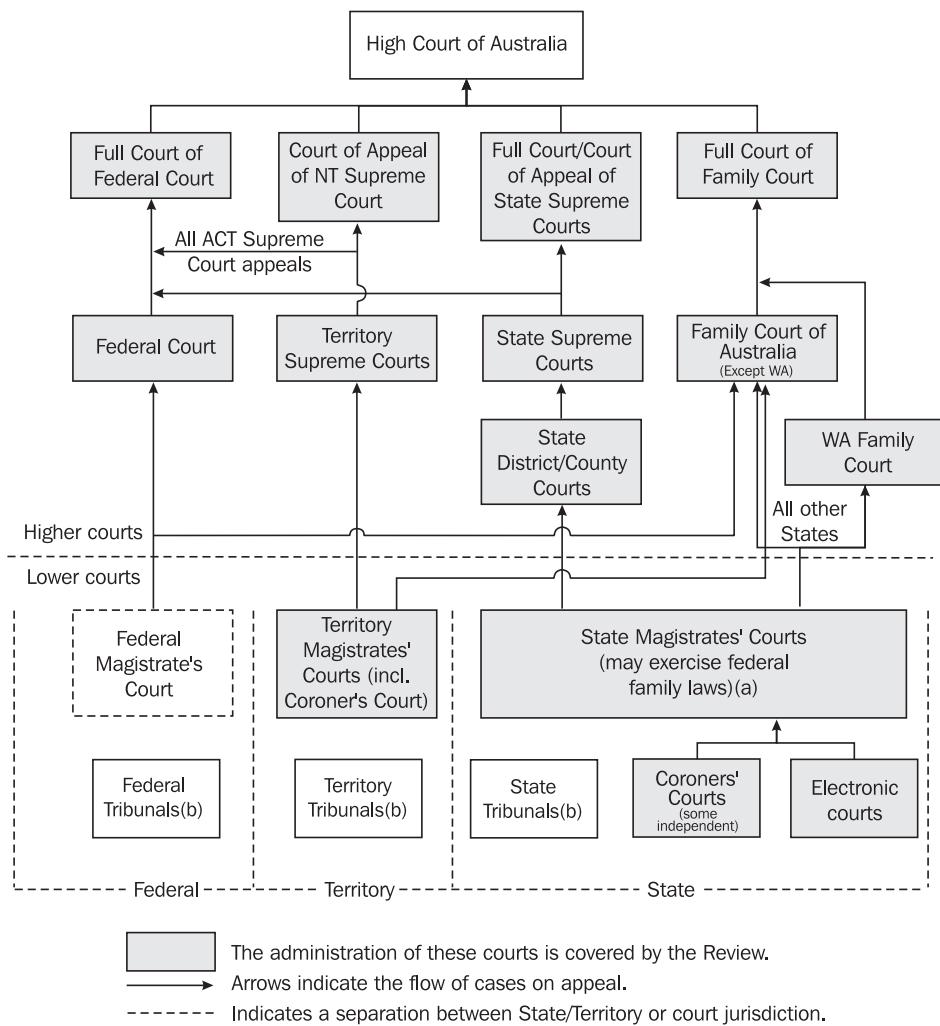
Source: Recorded Crime, Australia, 2000 (4510.0).

## Courts

Courts exist in all Australian States and Territories for the hearing of both criminal and civil cases. A criminal case arises from a charge laid by police or other prosecuting authorities, and is an allegation of a breach of the criminal law. A civil case, by contrast, is a dispute between two or more individuals or corporations, in which one side is seeking a legal remedy for an injury or loss from the other party who is alleged to be liable.

The courts are arranged in a hierarchy, with the bulk of less serious matters being heard before magistrates and more serious matters being heard before judges. In the civil context, the seriousness of a case is usually determined through the amount of money sought in compensation, while for criminal matters seriousness is determined by the nature of the offence alleged. Figure 11.13 illustrates the arrangement of the court system in Australia.

### 11.13 HIERARCHY OF COURTS



(a) Appeals from lower courts in NSW go directly to the Court of Appeal in the NSW Supreme Court. (b) Appeals from Federal, State and Territory tribunals may go to any higher court in their jurisdiction.

Source: Steering Committee for the Review of Commonwealth/State Service Provision, Report on Government Services 2001.

The hierarchy of courts also applies to the system of appeals. Where grounds for appeal exist, then appeals are available to the unsuccessful party in a civil matter, and to the defendant in a criminal matter, from all levels of court. The High Court of Australia is the highest court of appeal for both criminal and civil cases.

While the civil jurisdiction and system of appeals are important aspects of the justice system, this section focuses on the criminal jurisdiction of the courts.

## Criminal courts

A system of courts for the hearing of criminal matters exists in all Australian States and Territories. Once charges are laid by police, the court will hear evidence by both prosecution and defence, and will make a decision as to whether or not the defendant is guilty. In cases where the defendant is found guilty, the court may also record a conviction and impose a penalty.

The courts in Australia are arranged hierarchically. The lowest level of criminal court is the Magistrates' Court or Court of Summary Jurisdiction. The majority of all criminal cases are heard in these courts. Cases heard in Magistrates' Courts do not involve a jury; the magistrate acts to determine the guilt of the defendant. This is known as a summary proceeding. Only relatively minor offences such as property damage or minor road traffic offences can be dealt with in this way. More serious offences are dealt with by the higher court levels. All States and Territories have a Supreme Court, which can deal with all criminal matters. The larger jurisdictions also have an intermediate level of court, known as the District or County Court, which deals with the majority of serious offences. The Supreme Court and Intermediate Court are collectively referred to as the Higher Courts.

All offences which are dealt with by the Higher Courts have an automatic entitlement to a trial before a judge and jury. In some jurisdictions, the defendant may elect to have the matter heard before a judge alone. Offences which must be heard before a judge and jury are known as indictable offences. These include offences such as murder and drug importation as well as serious sexual offences, robberies and assaults.

The defendant in a criminal matter is entitled to appeal against the conviction or the severity of penalty imposed. Under some circumstances, the prosecution is also entitled to appeal against the leniency of the penalty. The States and Territories differ in the ways in which they deal with appeals. Some appeals from Magistrates' Courts may be heard before the Intermediate Courts. In other jurisdictions, the Supreme Court may hear these appeals. In most jurisdictions, an appeal court or Court of Criminal Appeal may be constituted to hear appeals from the Supreme or Intermediate Courts. In Australia, the highest court of appeal from all jurisdictions is the High Court of Australia.

## National criminal courts statistics

The aim of national criminal courts statistics is to provide comparable data across the States and Territories. The data provided are indicators of the volume and flow of criminal matters through the Supreme and Intermediate Courts (together comprising the Higher Courts), and provide a basis for measuring changes over time.

## Higher criminal courts

Table 11.14 summarises the flow of defendants through the Higher Courts during 1999–2000. The workload of the criminal courts can be shown by the number of defendants involved in cases started before 1999–2000 and which are still being processed (pending at start) and by the number of defendants with cases started in the Higher Courts during 1999–2000 (initiated). Excluding defendants in Queensland (for which there are only partial data — see footnote (b) in table 11.14), there were 7,649 defendants pending at the start of 1999–2000 and 11,007 defendants initiated during 1999–2000, giving a total workload of 18,656 defendants who had criminal cases active at some time during 1999–2000. Of this total workload, 11,511 defendants (62%) were finalised in the Higher Courts during 1999–2000. The number of defendants initiated in Queensland during 1999–2000 was 5,985; the number finalised was 7,379.

**11.14 DEFENDANTS INITIATED, FINALISED AND PENDING — 1999–2000(a)**

Status	NSW	Vic.	Qld(b)	SA	WA	Tas.	NT	ACT	Aust.(b)
SUPREME COURT									
Pending at start	193	77	n.a.	40	86	277	153	182	n.a.
Initiated	98	113	n.a.	58	206	718	315	196	n.a.
Transferred in	—	—	n.a.	34	15	..	..	..	n.a.
Transferred out	7	—	n.a.	10	1	..	..	..	n.a.
Finalised	126	103	856	70	211	730	265	182	2 543
Pending at end	158	87	n.a.	52	95	265	203	196	n.a.
INTERMEDIATE COURT(c)									
Pending at start	3 151	1 329	n.a.	410	1 751	..	..	..	n.a.
Initiated	3 338	2 122	n.a.	965	2 878	..	..	..	n.a.
Transferred in	7	—	n.a.	10	1	..	..	..	n.a.
Transferred out	—	—	n.a.	34	15	..	..	..	n.a.
Finalised	4 079	2 106	6 523	840	2 799	..	..	..	16 347
Pending at end	2 417	1 345	n.a.	511	1 816	..	..	..	n.a.
TOTAL HIGHER COURTS(c)									
Pending at start	3 344	1 406	n.a.	450	1 837	277	153	182	n.a.
Initiated	3 436	2 235	5 985	1 023	3 084	718	315	196	16 992
Transferred in	7	—	n.a.	44	16	..	..	..	n.a.
Transferred out	7	—	n.a.	44	16	..	..	..	n.a.
Finalised	4 205	2 209	7 379	910	3 010	730	265	182	18 890
Pending at end	2 575	1 432	n.a.	563	1 911	265	203	196	n.a.

(a) Data exclude defendants in appeal cases. (b) Initiation data for Queensland only include defendants committed; data for other methods of initiation are not currently available. The Queensland data for 'finalised' exclude bench warrants being issued. Counts of defendants pending and defendants transferred are not currently available for Queensland. (c) There is no Intermediate Court in Tasmania, the Northern Territory or the Australian Capital Territory.

Source: *Higher Criminal Courts, Australia, 1999–2000* (4513.0).

Table 11.15 indicates the methods by which defendants involved in criminal cases were finalised in the Higher Court system during 1999–2000. A defendant is regarded as finalised when all the charges laid against them have been concluded in some manner. There were 18,890 defendants finalised in the Higher Criminal Courts during 1999–2000. Of the 16,143 defendants finalised as a result of the charges being adjudicated (proven guilty or acquitted), 91% had at least one charge with a proven outcome (guilty verdict or guilty plea), while the remainder were acquitted.

The process involved in adjudicating criminal charges depends on how a defendant pleads to the charges laid against them. Defendants who

plead guilty to all charges are not subject to a jury trial and go through a sentence hearing to determine the penalty. In contrast, defendants who plead not guilty to at least one charge are typically subject to a trial by jury which determines whether they are acquitted or found guilty. Information on the pleas entered by defendants at the start of their criminal cases provides an indication of the potential demand for trials in the Higher Courts, while information on the final pleas entered by defendants provides an indication of the trials that were actually completed.

**11.15 DEFENDANTS FINALISED, By Method of Finalisation — 1999–2000(a)**

Method of finalisation	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
SUPREME COURT									
Adjudicated									
Acquitted	19	13	28	17	8	33	19	13	150
Proven guilty									
Guilty verdict	37	36	58	16	38	72	9	18	284
Guilty plea	61	48	654	25	146	492	188	109	1 723
Total proven guilty	98	84	712	41	184	564	197	127	2 007
<i>Total adjudicated</i>	<i>117</i>	<i>97</i>	<i>740</i>	<i>58</i>	<i>192</i>	<i>597</i>	<i>216</i>	<i>140</i>	<i>2 157</i>
Non-adjudicated									
Bench warrant issued	1	—	n.a.	—	7	22	12	8	(b)50
Withdrawn	7	6	116	12	9	101	37	30	318
Other finalisation	1	—	—	—	3	10	—	4	18
<i>Total non-adjudicated</i>	<i>9</i>	<i>6</i>	<i>(b)116</i>	<i>12</i>	<i>19</i>	<i>133</i>	<i>49</i>	<i>42</i>	<i>(b)386</i>
<b>Total defendants finalised</b>	<b>126</b>	<b>103</b>	<b>(b)856</b>	<b>70</b>	<b>211</b>	<b>730</b>	<b>265</b>	<b>182</b>	<b>(b)2 543</b>
INTERMEDIATE COURT(c)									
Adjudicated									
Acquitted	431	198	365	57	225	..	..	..	1 276
Proven guilty									
Guilty verdict	394	163	317	78	355	..	..	..	1 307
Guilty plea	2 640	1 653	4 711	499	1 900	..	..	..	11 403
Total proven guilty	3 034	1 816	5 028	577	2 255	..	..	..	12 710
<i>Total adjudicated</i>	<i>3 465</i>	<i>2 014</i>	<i>5 393</i>	<i>634</i>	<i>2 480</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>13 986</i>
Non-adjudicated									
Bench warrant issued	147	11	n.a.	46	94	..	..	..	(b)298
Withdrawn	418	78	1 122	151	208	..	..	..	1 977
Other finalisation	49	3	8	9	17	..	..	..	86
<i>Total non-adjudicated</i>	<i>614</i>	<i>92</i>	<i>(b)1 130</i>	<i>206</i>	<i>319</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>(b)2 361</i>
<b>Total defendants finalised</b>	<b>4 079</b>	<b>2 106</b>	<b>(b)6 523</b>	<b>840</b>	<b>2 799</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>(b)16 347</b>
TOTAL HIGHER COURTS(c)									
Adjudicated									
Acquitted	450	211	393	74	233	33	19	13	1 426
Proven guilty									
Guilty verdict	431	199	375	94	393	72	9	18	1 591
Guilty plea	2 701	1 701	5 365	524	2 046	492	188	109	13 126
Total proven guilty	3 132	1 900	5 740	618	2 439	564	197	127	14 717
<i>Total adjudicated</i>	<i>3 582</i>	<i>2 111</i>	<i>6 133</i>	<i>692</i>	<i>2 672</i>	<i>597</i>	<i>216</i>	<i>140</i>	<i>16 143</i>
Non-adjudicated									
Bench warrant issued	148	11	n.a.	46	101	22	12	8	(b)348
Withdrawn	425	84	1 238	163	217	101	37	30	2 295
Other finalisation	50	3	8	9	20	10	—	4	104
<i>Total non-adjudicated</i>	<i>623</i>	<i>98</i>	<i>(b)1 246</i>	<i>218</i>	<i>338</i>	<i>133</i>	<i>49</i>	<i>42</i>	<i>(b)2 747</i>
<b>Total defendants finalised</b>	<b>4 205</b>	<b>2 209</b>	<b>(b)7 379</b>	<b>910</b>	<b>3 010</b>	<b>730</b>	<b>265</b>	<b>182</b>	<b>(b)18 890</b>

(a) Data exclude defendants finalised in appeal cases. (b) These totals exclude Qld defendants finalised by a bench warrant being issued. (c) There is no Intermediate Court in Tasmania, the Northern Territory or the Australian Capital Territory.

Source: Higher Criminal Courts, Australia, 1999–2000 (4513.0).

Graph 11.16 indicates the proportion of defendants whose initial and final pleas were guilty. Of the defendants who were finalised by adjudication, the proportion with an initial plea of guilty varied considerably among the States and Territories, ranging from 6% in the Northern Territory to 54% in Western Australia. The proportion of defendants changing their plea from not guilty to guilty was highest in the Northern Territory (81%) and lowest in Western Australia (20%). The proportion of defendants with a final plea of guilty ranged from 72% in South Australia to 87% in the Northern Territory.

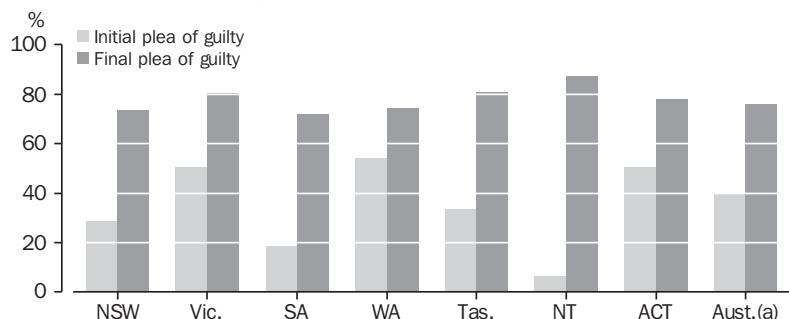
For defendants who have been dealt with by the courts, duration figures are available that indicate the elapsed time taken to finalise all charges for a defendant from the date the defendant's case commenced. The total duration for a finalised defendant includes the time taken by the defence and prosecution to prepare their cases, the time taken to list the case and the actual time taken for any hearings.

Table 11.17 provides median duration statistics from initiation to finalisation for defendants in each State and Territory. The median duration was shortest in Tasmania at 14 weeks and longest

in the Australian Capital Territory and New South Wales at 33 weeks. Duration is affected by issues such as the seriousness of the offence with which a defendant has been charged and the type of plea entered. In terms of the type of offences considered, there are differing Higher Criminal Court workloads across the States and Territories. Those Courts which have a higher proportion of cases dealing with charges relating to crimes such as murder, attempted murder or serious assault would expect to have a longer median duration compared with Courts hearing a lower proportion of cases with such charges. Defendants finalised in 1999–2000 by the trial outcome of guilty verdict had the longest median duration time at 49 weeks.

Defendants finalised by guilty plea are divided into those with an initial plea of guilty (i.e. initiated for sentence) and those with a initial plea of not guilty (i.e. initiated for trial). Data on initial pleas were not available for Queensland. In most other States and Territories, the median duration for defendants who initially pleaded not guilty was more than double that of defendants who initially pleaded guilty.

**11.16 PROPORTION OF DEFENDANTS MAKING INITIAL AND FINAL PLEAS OF GUILTY,  
By State/Territory — 1999–2000**



(a) Excludes Qld where data on both initial and final pleas were not available.

Source: *Higher Criminal Courts, Australia, 1999–2000* (4513.0).

**11.17 DEFENDANTS IN HIGHER CRIMINAL COURTS, Median Duration (Weeks) to Finalisation — 1999–2000(a)**

Method of finalisation	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Acquitted	46.2	42.4	29.4	27.8	63.4	35.9	52.9	50.4	41.3
Guilty verdict	67.4	52.1	32.7	29.8	64.6	32.7	64.4	51.7	49.3
Guilty plea	27.0	18.6	17.9	17.0	11.7	10.8	15.1	19.3	17.4
Initial plea of Not Guilty(b)	39.3	37.4	n.a.	20.1	26.3	15.5	15.5	34.6	n.a.
Initial plea of Guilty(b)	15.3	14.8	n.a.	9.4	10.7	7.3	10.9	13.7	n.a.
Other finalisation(c)	36.1	32.9	27.1	14.9	25.5	21.3	26.1	46.3	27.1
<b>Total defendants finalised</b>	<b>33.0</b>	<b>23.4</b>	<b>20.6</b>	<b>19.3</b>	<b>14.7</b>	<b>14.4</b>	<b>18.1</b>	<b>33.1</b>	<b>22.1</b>

(a) Data exclude defendants finalised in appeal cases. (b) Information on both initial and final pleas was not available in Queensland. (c) Includes defendants who were withdrawn by the prosecution, remitted to the Magistrates' Court or finalised by another non-adjudicated method.

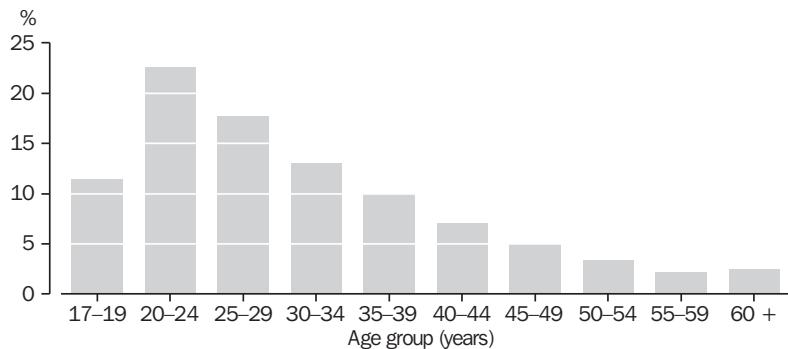
Source: *Higher Criminal Courts, Australia, 1999–2000* (4513.0).

Graph 11.18 shows the proportion of defendants by age group during 1999–2000. Just over half (52%) of the defendants finalised during 1999–2000 were aged between 17 and 29 years, with more than one in five defendants (22%) falling in the 20–24 year age group. The median ages of male and female defendants were almost the same at 29 and 28 years respectively. The majority (87%) of finalised defendants were male.

**Total criminal cases**

Table 11.19 shows the total number of criminal cases handled in the courts of Australia, including appeal and non-appeal cases. Of all the criminal cases filed in Australia during 1999–2000, 98% were filed in the Magistrates' Courts, with Victoria and Queensland contributing 62% to the national total. A large proportion of cases in the Magistrates' Court in most States and Territories are minor traffic matters.

**11.18 TOTAL HIGHER COURTS — DEFENDANTS FINALISED, Proportion by Age Group(a) — 1999–2000**



Source: *Higher Criminal Courts, Australia, 1999–2000* (4513.0).

**11.19 CRIMINAL COURT CASES(a)(b), By Court Level — 1999–2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Court level	'000	'000	'000	'000	'000	'000	'000	'000	'000
Supreme Court	1.0	0.7	1.4	0.4	0.5	0.7	0.3	0.2	5.2
District/County Court(c)	9.7	4.1	8.4	1.1	3.0	..	..	..	26.2
Magistrates' Court	290.6	628.2	379.4	187.2	62.8	49.7	18.5	10.6	1 626.8
<b>Total</b>	<b>301.3</b>	<b>633.0</b>	<b>389.2</b>	<b>188.7</b>	<b>66.3</b>	<b>50.4</b>	<b>18.8</b>	<b>10.8</b>	<b>1 658.3</b>

(a) Cases are defined as one or more defendants with one or more criminal matters before the courts. (b) Data include appeal and non-appeal cases. (c) The Northern Territory, the Australian Capital Territory and Tasmania do not have District/County Courts.

Source: Steering Committee for the Review of Commonwealth/State Service Provision, *Report on Government Services 2001*.

## Corrective services

Corrective services are responsible for administering the penalties handed down by the criminal courts which require some form of supervision or custody of the offender. This may include imprisonment on either a full- or part-time basis, community service and other forms of supervised work, home detention or good behaviour bonds under supervision. Most persons for whom corrective services have responsibility have received a sentence from a criminal court, but some persons have been given orders pending judgement or sentencing (e.g. unsentenced prisoners).

All States and Territories operate prisons and other types of corrective services. Separate provisions exist in each State and Territory for dealing with juvenile offenders. Convicted adult prisoners from the Australian Capital Territory serve their sentences in New South Wales prisons, but local provision is made for the custody of unsentenced prisoners and periodic detainees, and for community corrections (e.g. probation and parole). The Commonwealth Government does not operate any prisons or other corrective services, as federal offenders (persons convicted of offences under Commonwealth laws) are supervised by State agencies for correctional purposes.

A number of jurisdictions have established privately operated prison facilities. These prisons operate in conjunction with State operated prisons and are monitored by the Corrective Services authorities in a similar manner to State operated prisons.

Corrective Services comprise prisons, periodic detention and community-based corrections. Community-based corrections include restricted movement, reparation (fine option and community service) and supervision (parole, bail and sentenced probation). In the June quarter 2000 there were 20,828 persons in prison in Australia, 1,336 persons in periodic detention and 59,190 persons in community-based corrections (table 11.20).

## Prisoners in Australia

The annual National Prisoner Census, conducted on the night of 30 June, counts all adult offenders who are held in custody in gazetted Australian prisons, including periodic detainees in New South Wales and the Australian Capital Territory. The Prisoner Census provides a snapshot of the number of persons in prison, and is not representative of the flow of prisoners. The majority of prisoners in the Prisoner Census are serving long sentences for relatively serious offences, but the flow of offenders in and out of prisons consists primarily of persons serving short sentences for relatively minor offences.

Based on the results of Prisoner Censuses, the total prison population in Australia increased by 52% from 14,305 in 1990 to 21,714 in 2000. There were 20,329 male prisoners on 30 June 2000, comprising 94% of the total prisoner population (table 11.21). The average age of prisoners in Australia was 33 years for males and 32 years for females. The majority of prisoners in Australia are young adult males, just over 56% of all prisoners being males aged between 20 and 35 years.

**11.20 PERSONS SUBJECT TO PENALTY, By Type of Penalty — June Quarter 2000**

Type of penalty	NSW(a)	Vic.	Qld	SA	WA	Tas.	NT	ACT in NSW(a)	ACT	Aust.
NUMBER										
Prison(b)	7 346	3 130	4 892	1 312	3 038	429	632	151	49	20 828
Periodic detention(b)	1 264	..	..	..	..	..	..	..	72	1 336
Community-based corrections(c)(d)										
Restricted movement	209	..	300	136	87	..	22	..	..	754
Reparation										
Fine option	309	1 147	11 133	1 418	434	117	171	..	..	14 729
Community service	5 861	950	2 086	1 425	1 770	452	88	..	153	12 785
Supervision (compliance)										
Parole	3 709	916	1 601	1 036	1 089	76	118	..	108	8 653
Bail	—	—	—	232	—	..	3	..	135	370
Sentenced probation	11 451	3 718	7 139	2 439	2 441	647	214	..	648	28 697
Total community-based corrections(d)	19 354	6 561	20 189	5 982	4 313	1 152	595	..	1 044	59 190
RATE PER 100,000 ADULT POPULATION										
Prison	151.0	85.4	182.2	114.9	218.1	120.4	459.3	64.8	20.9	143.9
Periodic detention	26.0	..	..	..	..	..	..	..	30.8	9.2
Total persons in community-based corrections	397.6	178.4	749.6	523.7	308.8	322.8	431.5	..	448.3	408.0

(a) Persons sentenced to full-time custody in the ACT are held in NSW prisons. These persons are included in the NSW figure, as well as being reported separately under 'ACT in NSW'. (b) Average daily number. (c) Number on first day of month. (d) As a person may have more than one type of order, the sum of the components may be greater than the total.

Source: Corrective Services Australia (4512.0).

**11.21 PRISONERS, By Jurisdiction — 30 June 2000**

Sex	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT in ACT	ACT in NSW	Aust.(a)
NUMBER										
Males	7 971	2 970	4 224	1 224	2 876	370	620	74	142	20 329
Females	576	183	258	75	248	20	15	10	13	1 385
All prisoners	8 547	3 153	4 482	1 299	3 124	390	635	84	155	21 714
RATE PER 100,000 ADULT POPULATION										
Males	325.4	164.3	314.1	214.4	401.9	212.9	838.6	62.9	120.8	280.3
Females	22.9	9.7	18.9	12.6	34.7	10.9	23.2	8.3	10.8	18.6
All prisoners	172.0	85.4	165.5	111.5	218.4	109.1	458.1	35.3	65.2	147.7

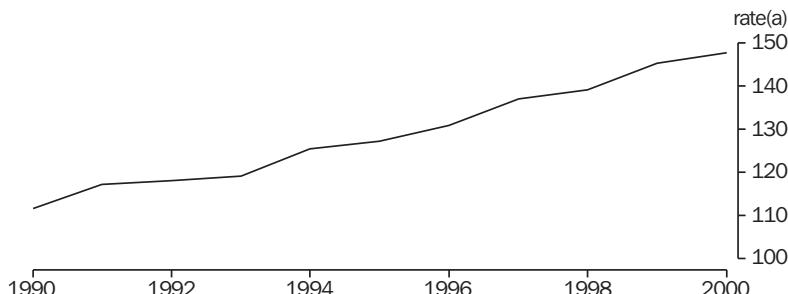
(a) Full-time prisoners sentenced in the ACT are held in NSW prisons. The ACT in NSW figures are a subset of the NSW figures and are not separately counted in the Australian totals.

Source: Prisoners in Australia, 2000 (4517.0).

The proportion of prisoners who were unsentenced increased from 13% in 1990 to 17% in 2000. Some of the factors which have influenced the size of the prison population over this period include legislative changes affecting the length of time prisoners spend in prison; the abolition of a sentence-reducing mechanism such as remission; significant court delays leading to an increase in unsentenced prisoners in some jurisdictions; and an increase in Australia's population as well as an increase in the amount of recorded crime. Graph 11.22 shows a time series of the rate of adult prisoners per 100,000 adult population. The rate has steadily increased since 1990.

Nationally, the imprisonment rate was 148 per 100,000 adult population at 30 June 2000. The imprisonment rates vary between jurisdictions, with the Northern Territory recording the highest imprisonment rate of 458 per 100,000 adult population (graph 11.23). This was substantially greater than the next highest rates, recorded in Western Australia and New South Wales, of 218 and 172 prisoners per 100,000 adult population respectively.

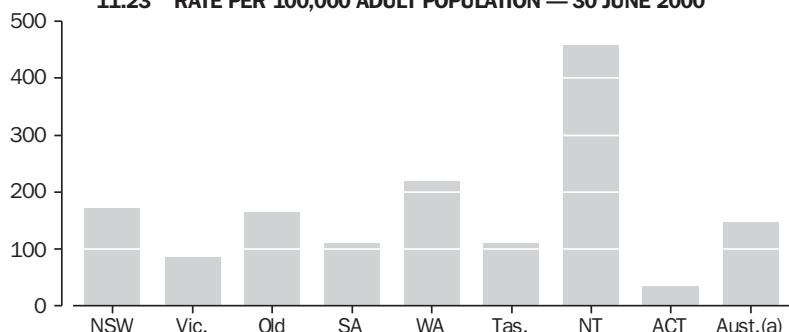
**11.22 IMPRISONMENT RATE(a)**



(a) The data are a snapshot of the prison population as at 30 June each year. The rate is per 100,000 adult population.

Source: Australian Institute of Criminology, 1990 to 1993; and 1994 to 2000 Australian Bureau of Statistics, *Prisoners in Australia*, 2000 (4517.0).

**11.23 RATE PER 100,000 ADULT POPULATION — 30 JUNE 2000**



(a) Full time prisoners sentenced in the ACT are held in NSW prisons. The ACT in NSW figures are a subset of the NSW figures, and are not separately counted in the Australian totals.

Source: *Prisoners in Australia*, 2000 (4517.0).

## Most serious offence

The most serious offence is the offence for which prisoners have received the longest sentence. Nearly half (47%) of all sentenced prisoners were convicted of offences involving violence or the threat of violence, including homicide (10%), assault (11%), sex offences (12%), and robbery (14%) (table 11.24). Some 12% were in prison for break and enter, while a further 10% were serving sentences for drug offences and 5% were convicted of driving offences.

Differences between men and women in the prison system extend beyond the fact that there were 16 male prisoners for every female prisoner. There were also some differences in the types of offences for which men and women were imprisoned, reflecting the differences in the patterns of offending between men and women. Graph 11.25 shows that the most common offences for males in 2000 were robbery (14%), sex offences (13%), break and enter (12%) and assault (11%). In the case of female prisoners, nearly half (48%) of the most serious offences were accounted for by drug offences (13%), robbery (13%), fraud and misappropriation (12%) and government security offences (10%).

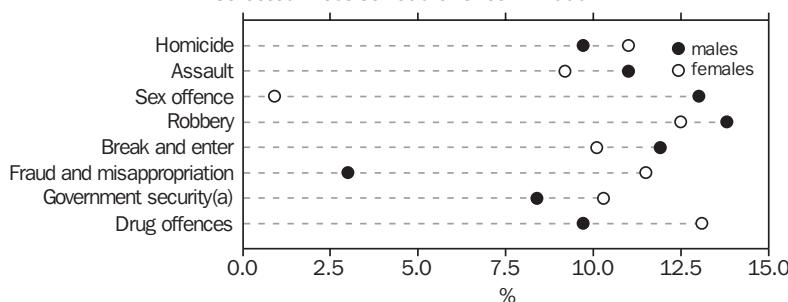
**11.24 SENTENCED PRISONERS, By Most Serious Offence(a) — 30 June 2000**

Offence Category	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(b)	Aust.	Aust.
	%	%	%	%	%	%	%	%	%	no.
Homicide	7.4	11.7	11.8	15.2	8.4	13.9	10.6	10.2	9.7	1 744
Assault	12.2	5.7	12.2	10.7	9.2	6.8	22.3	6.8	10.9	1 949
Sex offences	9.8	13.3	15.5	10.0	14.8	11.9	8.9	12.2	12.3	2 199
Robbery	13.6	11.6	15.4	14.3	15.3	11.0	4.1	15.0	13.7	2 453
Break and enter	10.9	12.9	10.7	14.8	13.2	18.7	7.4	8.8	11.8	2 109
Fraud and misappropriation	4.2	3.5	2.5	7.8	2.5	1.0	0.4	0.7	3.5	635
Other theft	5.9	9.2	5.6	4.6	5.2	8.1	6.3	8.2	6.2	1 113
Government security(c)	11.3	10.3	4.2	6.3	7.1	11.0	3.5	8.2	8.6	1 535
Drug offences	11.7	10.8	8.9	7.5	8.6	1.9	3.6	16.3	9.9	1 777
Driving offences	7.7	0.6	1.9	0.8	3.7	5.5	10.8	4.1	4.5	811
Other offences	5.2	10.3	11.3	8.0	11.8	10.3	22.1	9.5	8.9	1 604
<b>Total</b>	<b>100.0</b>	<b>17 929</b>								

(a) The most serious offence is the offence with the longest sentence a prisoner has received. Where the sentences are equal, or the longest sentence cannot be determined, the most serious offence is the offence with the lowest Australian National Classification of Offences code. (b) Prisoners sentenced to full-time custody in the ACT are held in NSW prisons and are also included in the NSW figures. (c) Government security offences include offences such as treason; they also include offences against justice procedures, such as perjury and resisting police.

Source: *Prisoners in Australia, 2000, Companion Data* (4517.0).

**11.25 SENTENCED PRISONERS, By Sex and Selected Most Serious Offence — 2000**



(a) Government security offences include offences such as treason; they also include offences against justice procedures, such as perjury and resisting police.

Source: *Prisoners in Australia, 2000, Companion Data* (4517.0).

Aggregate length of sentence is a measure of the sentences imposed on an offender, taking multiple offences into account. It is not measured for prisoners who receive an indeterminate type of sentence such as life, and periodic detainees' sentences are measured separately. At 30 June 2000 the average aggregate sentence of all prisoners was 4.8 years. Male prisoners were serving an average aggregate sentence of 4.9 years, compared to an average of 3.4 years for female prisoners.

Prisoners serving sentences of one year to less than five years accounted for the highest proportion of prisoners in all States and the Northern Territory (table 11.26). Prisoners with indeterminate sentences made up 5% of all prisoners.

### Indigenous prisoners

At 30 June 2000 there were 4,095 Indigenous prisoners in Australia (19% of the Australian prisoner population) with a national rate of imprisonment for Indigenous persons of

1,727 per 100,000 adult Indigenous population. Western Australia recorded the highest imprisonment rate (2,909 Indigenous persons per 100,000 adult Indigenous population) followed by New South Wales (1,882). Nationally, the Indigenous rate of imprisonment was approximately 14 times that of the non-Indigenous population.

### Deaths in custody

In 1991 the Royal Commission into Aboriginal Deaths in Custody, which investigated the deaths of 99 Indigenous persons in police or prison custody which had occurred between January 1980 and May 1989, presented its findings and recommendations. One of the outcomes was the establishment of a National Deaths in Custody Monitoring and Research Program at the Australian Institute of Criminology (AIC). The following is based on an analysis of deaths in custody undertaken by the AIC for the periods 1980–89 and 1990–99.

**11.26 SENTENCED PRISONERS, Proportion by Aggregate Length of Sentence(a)(b) — At 30 June 2000**

Length of sentence	NSW(c)	Vic.	Qld	SA	WA	Tas.	NT	ACT(c)	Aust.
Less than 1 year	17.3	27.5	16.1	9.1	13.9	31.3	31.4	10.9	18.3
1 to <5 years	32.3	39.8	35.1	40.7	43.0	42.9	43.0	38.1	36.4
5 to <10 years	20.3	19.0	26.6	28.4	22.8	9.0	12.8	31.3	21.8
10 years and over	11.4	12.1	13.7	10.4	12.9	7.4	6.3	17.0	11.9
Indeterminate (e.g. life)	1.7	1.7	8.5	11.5	7.3	9.4	6.5	2.7	4.7

(a) Excludes periodic detainees, who comprised 6.9% of all sentenced prisoners nationally. (Periodic detention applies only in NSW and in the ACT.) (b) The aggregate sentence is the longest period that the offender may be detained under sentence in the current episode. Charges pending which are likely to extend the current episode are ignored. (c) Prisoners sentenced to full-time custody in the ACT are held in NSW prisons and are also included in the NSW figures.

Source: *Prisoners in Australia, 2000, Companion Data* (4517.0).

**11.27 INDIGENOUS IMPRISONMENT — 30 June 2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(a)	ACT in NSW	Aust.
Number	1 248	138	1 048	225	1 003	39	386	8	10	4 095
Rate(b)	1 882.1	993.3	1 622.0	1 656.5	2 908.7	417.6	1 176.0	n.p.	n.p.	1 727.4
Ratio(c)	12.6	12.1	12.5	17.8	19.1	4.1	5.0	n.p.	n.p.	14.2

(a) Refers to unsentenced prisoners in ACT prison custody. (b) Rate of Indigenous prisoners per 100,000 adult Indigenous population. (c) Ratio of Indigenous to non-Indigenous rates of imprisonment.

Source: *Prisoners in Australia, 2000* (4517.0).

While the number of deaths of Indigenous persons in places of detention increased slightly between the two reference periods (a 5% increase from 110 to 115), there was a notable change in where such deaths occurred. For the period 1980–89, 61% of Indigenous deaths in places of detention were in police custody and 35% were in prison; however, for the period 1990–99, 18% occurred in police custody and 81% in prisons. The 93 Indigenous deaths in prisons represented 18% of all deaths in prisons during 1990–99. Between the same reference periods, there was a 21% increase in the number of non-Indigenous people who died in places of detention.

Apart from deaths in places of detention, deaths in custody also take into account deaths which occurred in the process of justice operations (such as in the process of attempting to detain suspects or other operations such as sieges). The proportion of deaths of Indigenous persons associated with justice operations was slightly lower than that for deaths in places of detention.

#### 11.28 DEATHS IN CUSTODY, By Indigenous Status — 1980 to 1989 and 1990 to 1999

	1980 to 1989			1990 to 1999		
	Indigenous	Non-Indigenous	Total	Indigenous	Non-Indigenous	Total
<b>Deaths in places of detention(a)</b>						
Police	67	136	203	21	78	99
Prison	39	284	323	93	429	522
Juvenile justice/welfare	4	3	7	1	6	7
<i>Total</i>	<i>110</i>	<i>423</i>	<i>533</i>	<i>115</i>	<i>513</i>	<i>628</i>
<b>Deaths in process of justice operations(b)</b>						
Attempt to detain						
Motor vehicle pursuit	n.a.	n.a.	n.a.	12	38	50
Other	n.a.	n.a.	n.a.	8	78	86
Other operations	n.a.	n.a.	n.a.	10	44	54
<i>Total</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>30</i>	<i>160</i>	<i>190</i>

(a) Death, wherever occurring, of a person who is in prison custody, police custody, or detention as a juvenile. Includes causes such as suicide, accidents, accidental hanging, natural causes, homicide, other. (b) Death, wherever occurring, of a person who dies or is fatally injured, in the process of police or prison officers attempting to detain that person.

Source: Adapted from tables 1 and 2 in the AIC Trends and Issues Paper No. 203, based on data from the National Deaths in Custody database.

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- National Crime Prevention, <http://www.ncp.gov.au>
- NSW Bureau of Crime Statistics and Research, <http://www.lawlink.nsw.gov.au/bocsar>
- NSW Police Service, <http://www.police.nsw.gov.au>
- NT Police, <http://www.nt.gov.au/ntpif>
- Office of Crime Statistics at the S.A. Attorney General's Department, <http://www.ocs.sa.gov.au>
- Productivity Commission, <http://www.pc.gov.au>
- Qld Criminal Justice Commission, <http://www.cjc.qld.gov.au>
- Qld Police Service, <http://www.police.qld.gov.au>
- SA Police, <http://www.sapolice.sa.gov.au>
- Tasmania Police, <http://www.police.tas.gov.au>
- University of Melbourne, Criminology Department, <http://www.criminology.unimelb.edu.au>
- University of Western Australia, Crime Research Centre, <http://www.law.ecel.uwa.edu.au/crc>

Victoria Police, <http://www.police.vic.gov.au>

WA Police, <http://www.wapol.gov.au>

Window on the Law at the Attorney General's Department, <http://www.law.gov.au/wotl.html>

### **International sites**

Bureau of Justice Statistics, <http://www.ojp.usdoj.gov/bjs>

Canadian Centre for Justice Statistics at Statistics Canada, <http://www.statcan.ca>

Dept of Justice Canada, [http://canada.justice.gc.ca/index\\_en.html](http://canada.justice.gc.ca/index_en.html)

Home Office, United Kingdom, <http://www.homeoffice.gov.uk>

International Victimology website, <http://www.victimology.nl>

National Institute of Justice, <http://www.ojp.usdoj.gov/nij>

NZ Dept of Justice, <http://www.govt.nz/justice>

Office of Justice Programs, <http://www.ojp.usdoj.gov>

United Nations Crime and Justice Information Network, <http://www.uncjin.org>

United Nations Office for Drug Control and Crime Prevention, <http://www.odccp.org>

U.S. Dept of Justice, <http://www.usdoj.gov>

World Justice Information Network, <http://www.justinfo.net>

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## Introduction

**C**ultural and recreational activities are essential to a shared sense of quality of life. They take many forms including involvement in creative and performing arts, music, literature, cultural heritage, libraries, radio, television and sports.

This chapter reviews a range of cultural and recreational activities which Australians undertake and provides a statistical summary (where available) for those activities. Data are drawn mainly from household surveys conducted by the ABS.

The chapter also provides information on the industries providing a range of culture and leisure services in Australia. These statistics have been obtained through industry surveys conducted by the ABS, and its compilations of administrative data, such as information about government funding of cultural activities. Government and non-government organisations have also supplied a range of industry data, either through reports or through communication with the ABS. Further detail about some of the industries providing culture and leisure services can be obtained in *Chapter 21, Service industries*.

## Cultural and natural heritage

Australia's heritage draws on its cultural and natural environments and the history of its people. It encompasses all the things that are significant to Australians which have survived from the past.

Cultural heritage includes historic places of significance, such as: old towns and residential and commercial buildings; Indigenous ceremonial grounds and rock art galleries; shipwrecks and streetscapes; as well as paintings, objects, books, aircraft and natural history specimens. Increasingly what was formerly intangible, such as traditions, customs and habits, is being recorded and documented in photographs, films, tapes and digital records.

Movable cultural heritage refers to items of cultural heritage which are capable of being transported. Australia is one of only a few countries which have developed and published a specific policy and strategy to care for their movable cultural heritage. Through the Heritage Collections Council, governments at all levels work collaboratively with the museums sector and non-government

organisations to conserve, promote, manage and provide access to Australia's collections of movable cultural heritage.

Natural heritage refers to the importance of ecosystems, biological diversity and geodiversity to the existence of life, and to their scientific, social, aesthetic and life-support value to present and future generations of people. It includes places of scientific or aesthetic importance, and geological features and landscapes.

Extensive areas of coastline, forests, wetlands and deserts are included in national parks, nature reserves and wilderness areas.

Many smaller sites are important habitats for native flora and fauna, enabling the conservation of threatened species. Many natural places are significant to Indigenous communities for cultural reasons.

Conservation of heritage places involves identifying them, surveying their values, and classifying and managing them.

These functions are shared between all levels of government and their statutory authorities, with assistance from academic and professional bodies, individuals and community conservation organisations such as the National Trusts, and conservation councils in each State and Territory.

The Commonwealth Government works in partnership with the community and with State and Territory Governments. It undertakes heritage activities on its own account. Examples of this include the nomination of sites for World Heritage listing, the protection of Aboriginal heritage, and the development of the Register of the National Estate — Australia's national heritage list. In December 2000, the Commonwealth Government introduced legislation to change the role of the Commonwealth in national heritage protection. It proposes to create a new heritage list of places that are significant to the nation as a whole.

See also the section *Protecting natural heritage* in *Chapter 14, Environment*.

## National Estate

The term 'the National Estate' was coined by William Clough Ellis, a British architect in the 1940s. It was introduced into Australia when the Federal Government set up a Commission of Inquiry into the National Estate, headed by Hon. Mr Justice R.M. Hope. The inquiry aimed to "preserve and enhance the quality of the National Estate". Following the recommendations of this

inquiry, the Australian Heritage Commission Act was passed in 1975 with the support of all political parties.

'The National Estate' is defined in the legislation as:

"... those places, being components of the natural environment of Australia, or the cultural environment of Australia, that have aesthetic, historic, scientific or social significance or other special value for future generations as well as for the present community".

Both publicly and privately owned places form part of the National Estate. It encompasses places which are important to local communities, as well as those which are of regional or State significance. The National Estate also includes places which have national or international significance. Broad stretches of coastline, desert, forest and national parks, as well as isolated geological monuments and small areas which might provide habitats for endangered plant or animal species are part of the National Estate. It can cover whole villages and suburbs, streetscapes, single mansions, cattlemen's huts, railway yards and other reminders of the evolution of Australia's society and economy. Places of Aboriginal or Torres Strait Islander significance such as rock engravings, galleries of rock art, fish traps, carved trees, meeting places, ceremonial sites and reminders of early European settlement, such as mission stations, are part of Australia's National Estate.

The Australian Heritage Commission has a statutory obligation to identify the National Estate. It has established the Register of the National Estate to place on public record Indigenous, historic and natural places to assist

in their management and conservation, and, in particular, their protection from potentially adverse Commonwealth actions.

During 2000–01, the number of places in the Register of the National Estate increased by a net 227 to 12,845. This compares with a net increase of 254 in 1999–2000. Details by State and type, and comparisons with the previous year, are shown in table 12.1.

More comprehensive statistics on the types of places on the Register of the National Estate can be found in the annual reports of the Australian Heritage Commission.

## National parks

National parks and other protected areas are areas of land and/or sea especially dedicated to the protection of biodiversity and other natural and cultural resources. They are established under Commonwealth or State/Territory laws or other legal means. All governments participate in the development of a comprehensive, adequate and representative national reserve system as part of Australia's obligation under the United Nations Biodiversity Convention established in 1993. Most national parks and other protected areas in Australia are declared and managed by State and Territory Governments, although Indigenous Protected Areas and protected areas managed by conservation or other groups have commenced recently, building on support from the Commonwealth's National Reserve System Program. The Commonwealth Government declares and manages parks and reserves on land owned or leased by the Commonwealth, in Commonwealth waters and on Aboriginal land leased to the Commonwealth.

### 12.1 PLACES ON THE REGISTER OF THE NATIONAL ESTATE, By Number and Type

State/Territory	Indigenous places		Historic places		Natural places		Total	
	1999–2000	2000–01	1999–2000	2000–01	1999–2000	2000–01	1999–2000	2000–01
New South Wales	219	218	3 020	3 055	453	474	3 692	3 747
Victoria	106	106	2 334	2 387	239	245	2 679	2 738
Queensland	152	154	737	737	304	319	1 193	1 210
Western Australia	74	74	958	962	254	267	1 286	1 303
South Australia	147	148	1 165	1 202	385	389	1 687	1 739
Tasmania	65	65	1 183	1 186	242	252	1 490	1 503
Northern Territory	104	105	147	144	59	62	310	311
Australian Capital Territory(a)	27	27	169	178	30	31	226	236
External Territories	—	—	37	38	18	20	55	58
<b>Total</b>	<b>894</b>	<b>897</b>	<b>9 740</b>	<b>9 889</b>	<b>1 984</b>	<b>2 059</b>	<b>12 618</b>	<b>12 845</b>

(a) Includes Jervis Bay.

Source: Australian Heritage Commission.

Although there are nearly 50 different designations in Australia for protection, all protected areas are classified into one or more of the IUCN (World Conservation Union) six Protected Area Management Categories, the most common being 'national park' and 'nature reserve'. The type of management ranges from: strictly protected areas managed mainly for science with very limited public access; to areas where recreation is encouraged, but where resource development inimical to the purpose of conservation of the environment is not; to multiple use areas where ecologically sustainable resource utilisation, recreation and nature conservation can coexist.

### Use of national parks

Table 12.2 gives the numbers and profile of people visiting national parks in Australia. These findings are derived from an ABS household survey, conducted over a 12 month period in 1996–97. In the three month period preceding conduct of the survey a total of 3.3 million people (25.3% of the Australian population aged 18 and over) went to a national park. Of these, 1.7 million were males and 1.6 million were females.

### 12.2 VISITORS TO NATIONAL PARKS — 1996–97

Visitors	'000
Sex	
Male	1 725
Female	1 613
Total	3 339
Age	
18 to 24 years	520
25 to 34 years	846
35 to 44 years	920
45 to 54 years	536
55 to 64 years	281
65 years and over	235
Birthplace	
Australian-born	2 528
Overseas-born	810

Source: Population Survey Monitor, 1996–97.

### National park organisations

The ABS Survey of Zoos, Parks and Gardens in respect of 1996–97 showed that there were 684 organisations operating national parks, and recreational parks and gardens at the end of June 1997. These organisations operated 462 individual national parks, 52,164 separate recreational parks and gardens, 270 wildlife sanctuaries, 42 tourist caves and 24 marine parks (table 12.3).

### 12.3 NATIONAL PARKS AND RECREATIONAL PARKS AND GARDENS, Key Aggregates — 1996–97

	Unit
Organisations at end June 1997	no.
Locations at end June 1997	
National parks	no.
Recreational parks and gardens	no.
Wildlife sanctuaries	no.
Tourist caves	no.
Marine parks	no.
Total locations	no.
Area at end June 1997	
National parks	ha.
Recreational parks and gardens	ha.
Wildlife sanctuaries	ha.
Tourist caves	ha.
Marine parks	ha.
Total area	ha.
Employment at end June 1997	
Full-time	no.
Part-time	no.
Total employment	no.
Volunteers during June 1997	no.
Income	\$m
Expenses	\$m
Industry gross product	\$m

Source: Zoos, Parks and Gardens Industry, Australia (8699.0).

### Museums and art museums

Museums are defined by the International Council of Museums as institutions, generally housed in one or more buildings, primarily engaged in the collection, acquisition, conservation and exhibition of the material evidence of people, their culture and environment, for the purpose of education and enjoyment by the general public and/or specialists. Conceptually, museums include art museums and historical theme parks, such as Sovereign Hill, but exclude commercial art galleries as they are regarded as retail outlets. However, in the discussion below and in tables 12.4 and 12.5, museums and art museums have been treated as separate entities.

In many cases, State museums and art museums were established many years before their national counterparts. As a result, a number of notable national collections are housed in museums operated by or through State Governments, rather than in the national institutions. The main national museums, art museums and cultural institutions are the National Museum of Australia, the National Gallery of Australia, the Australian National Maritime Museum, the Australian War Memorial, the National Science and Technology Centre (Questacon), and the National Portrait Gallery. There are over 1,700 museums and art museums operating in Australia.

#### 12.4 ATTENDANCE(a) AT MUSEUMS AND ART MUSEUMS — 1999

	Museums	Art museums
Attendees	'000	'000
Sex		
Male	1 378.5	1 315.1
Female	1 596.9	1 844.7
Total	2 975.4	3 159.7
Age		
15 to 24 years	541.7	564.4
25 to 34 years	588.1	584.5
35 to 44 years	719.5	627.4
45 to 54 years	529.3	639.7
55 to 64 years	309.4	369.6
65 years and over	287.3	374.1
Birthplace		
Australian-born	2 245.3	2 348.7
Overseas-born	730.1	811

(a) Attendance in the 12 months prior to interview.

Source: *Attendance at Selected Cultural Venues, April 1999 (4114.0)*.

An on-line national access program, *Australian Museums On Line* (AMOL), has a database of information on over 1,000 museums. The site aims to offer access to information about every item held in museums in Australia. AMOL is an initiative of the Heritage Collections Council, which coordinates national approaches to caring for, and promoting access to, Australia's heritage collections. More detailed information on AMOL is shown in the section *Multimedia*.

Museums Australia, the peak industry association, has a membership base comprising those who work and contribute to Australia's museums and public galleries. The association's primary role is to advocate for the industry and provide a range of professional services to its members.

The services are offered at a national, State and interest group level, and include professional development and training opportunities, newsletters, advocacy and representation.

#### Museum and art museum attendance

The 1999 Survey of Attendance at Selected Culture/Leisure Venues revealed that 3.0 million people, or 19.9% of the Australian population aged 15 and over, had visited a museum at least once in the previous 12 months. A total of 3.2 million people (21.2% of the Australian population aged 15 and over) had visited an art museum (table 12.4).

#### Museums and art museums industry

The ABS conducted a survey in respect of the 1999–2000 financial year of organisations operating enclosed areas storing artefacts, artworks and museum objects and which were open to the general public.

At the end of June 2000, there were 2,049 museum establishments comprising 249 art museums/galleries, 411 historic properties and 1,389 other museums (e.g. social history, natural history and science museums) (table 12.5). The majority of these establishments (58.0%) were operated on a volunteer basis. More detailed information from this survey is shown in *Chapter 20, Service industries*.

The 78 museums with 100 or more employees averaged 121,300 admissions each (34.4% of museum admissions) in 1999–2000. This compares to an average of 34,800 admissions for museums with 20–99 employees, 29,100 admissions for museums with 5–9 employees and 7,100 admissions for museums with 1–4 employees. Museums which were operated solely by volunteers had an average of 4,200 admissions in 1999–2000.

#### 12.5 MUSEUMS, Summary of Operations — 1999–2000

	Art museums/ galleries	Historic properties	Other museums	Total
Units				
Museum/gallery establishments at end June 2000	no.	249	411	1 389 <b>2 049</b>
Artefacts/artworks/museum objects at end of June 2000	'000	1 157.5	*2 740.0	57 737.8 <b>61 635.3</b>
Admissions	'000	6 527.6	*7 260.0	13 744.2 <b>27 531.8</b>
Employment at end June 2000	no.	1 741	1 010	4 205 <b>6 956</b>
Volunteers for the month of June 2000	no.	4 177	5 929	19 857 <b>29 963</b>
Income	\$m	197.2	64.4	454.8 <b>716.4</b>
Expenses	\$m	164.4	57.4	420.7 <b>642.5</b>

Source: *Museums, Australia, 1999–2000 (8560.0)*.

At the end of June 2000, there were 61.6 million artefacts, artworks and museum objects located in museums, of which 16.1% were on display. The majority (59.3%) of these artefacts, artworks and museum objects were in the 78 large museums with employment of 100 or more. These large museums displayed only 1.6% of their artefacts, artworks and museum objects.

## **Botanic gardens, zoological parks and aquaria**

### **Botanic gardens**

Botanic gardens and arboreta (tree collections) are scientific and cultural institutions established to collect, study, exchange and display plants for research and for the education and enjoyment of the public. Some botanic gardens augment the living botanical displays with a herbarium (a scientific collection of dried preserved plant specimens used for the accurate classification and identification of plants and plant material and for taxonomic studies), and some botanic gardens (those in Adelaide, Melbourne and Sydney) have annexes to extend the range of cultivated plant displays.

At the end of the 19th century Australia had about 30 botanic gardens. By the beginning of the 21st century there were about 100 botanic gardens (including herbaria) and about 20 significant arboreta. Many of the recently established gardens operate under the auspices of local government or community groups and have a native plant and conservation focus.

There are major botanic gardens in each capital city, managed by the State or Territory Governments (except for Brisbane, which is municipal, and Canberra, which is Commonwealth). The Commonwealth also manages the Booderee Botanic Gardens at Jervis Bay on behalf of the traditional Aboriginal owners of the land, the Wreck Bay Aboriginal Community Council, under arrangements in place since December 1995.

The Council of Heads of Australian Botanic Gardens (CHABG), with its secretariat located at the Australian National Botanic Gardens in Canberra, coordinates the liaison between the various botanic gardens in Australia and represents these gardens in national and international matters.

The Council of Heads of Australian Herbaria (CHAH) with a rotating secretariat, coordinates the liaison between the various herbaria. This body is also responsible for 'Australia's Virtual Herbarium' being developed to link the databases of all the herbaria to provide plant information and locational data on the Internet.

The Australian National Botanic Gardens occupies a 90 hectare site on the lower slopes of Black Mountain in Canberra. It contains the national collection and one of Australia's most comprehensive displays of living native plants. Officially opened in 1970, it was proclaimed a Commonwealth Reserve in 1991 and is managed within the framework of the *Environment Protection and Biodiversity Act 1999*.

The Australian National Botanic Gardens maintains about 100,000 plants constituting about 7,000 species, one-third of the vascular plants recorded for Australia. It receives about 330,000 visitors each year, with peaks in October for the spring flowering and January for the holiday tourist season. It is on the Register of the National Estate in recognition of its importance as a research and teaching-based botanic garden established to display and interpret Australian flora. The Australian National Herbarium, containing the dried specimens of the living plants in the Gardens, is managed jointly with CSIRO Plant Industry as part of the Centre for Plant Biodiversity Research. It currently houses about 1.3 million herbarium specimens.

### **Attendance at botanic gardens**

The 1999 Survey of Attendance at Selected Culture/Leisure Venues showed that almost 5.4 million people (36.1% of the Australian population aged 15 and over) attended a botanic garden at least once in the 12 months ending 30 April 1999 (table 12.6). The Census of Botanic Gardens estimated that during 1999–2000 there were 11.8 million visits to botanic gardens. The six largest botanic gardens (i.e. those employing 50 or more persons) accounted for 61.9% of these visits at an average of just over 332,000 visits per location.

### **Botanic gardens industry**

The ABS Census of Botanic Gardens in respect of 1999–2000 found that there were 72 employing organisations operating botanic gardens at the end of June 2000. The operations of these organisations covered 3,664 hectares, comprising 3,050 hectares of botanic gardens and 614 hectares of arboreta (table 12.7).

### 12.6 ATTENDANCE(a) AT BOTANIC GARDENS — 1999

Attendees	'000
Sex	
Male	2 427.1
Female	2 952.8
Total	5 379.8
Age	
15 to 24 years	902.4
25 to 34 years	1 152.5
35 to 44 years	1 146.3
45 to 54 years	984.7
55 to 64 years	561.9
65 years and over	631.9
Birthplace	
Australian-born	3 869.1
Overseas-born	1 510.7

(a) Attendance in the 12 months prior to interview.

Source: *Attendance at Selected Cultural Venues, April 1999 (4114.0)*.

### 12.7 BOTANIC GARDENS, Key Aggregates — 1999–2000

	Unit	
Organisations at end June 2000	no.	72
Locations at end June 2000		
Botanic gardens	no.	74
Arboreta	no.	24
Herbaria	no.	25
Total	no.	123
Hectares at end June 2000		
Botanic gardens	ha	3 050
Arboreta	ha	614
Total	ha	3 664
Employment at end June 2000		
Permanent full-time	no.	971
Permanent part-time	no.	108
Casuals	no.	171
Total	no.	1 250
Volunteers during June 2000	no.	1 991
Income	\$m	91.8
Expenses	\$m	81.5

Source: *Botanic Gardens, Australia, 1999–2000 (8563.0)*.

### Zoological parks and aquaria

Zoological parks and aquaria (i.e. animal, fauna, bird life and reptile parks, aquaria, aviaries, butterfly houses and dolphinariums) are primarily engaged in the breeding, preservation, study and display of native and/or exotic fauna in captivity, enclosures or natural environments, so as to be accessible to the general public. 'Marine parks' refers to legally declared marine parks such as the Great Barrier Reef Marine Park and the Great Australian Bight Marine Park. These have been created for conservation purposes, and are treated for statistical purposes as part of the natural environment.

Melbourne was the location of the first zoo in Australia; the Melbourne Zoo was founded in 1857. There are now zoos and wildlife sanctuaries throughout Australia. As well as the four traditional zoos in Sydney, Melbourne, Adelaide and Perth, there are numerous wildlife parks and sanctuaries, some associated with urban zoos and others privately owned. Some of the better known zoological parks and sanctuaries are Healesville Sanctuary (60 km from Melbourne), the Western Plains Zoo (Dubbo), Victoria's Open Range Zoo at Werribee (a Melbourne suburb), The Territory Wildlife Park (Darwin), Monarto Zoological Park (70 km from Adelaide), Lone Pine Koala Sanctuary (Brisbane) and Currumbin Sanctuary (Gold Coast). The best known aquarium in Australia is Sea World at Surfers Paradise, Queensland.

The Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) was formally established in 1990 at Auckland Zoo, New Zealand, and was incorporated in Australia in 1991. The Australian regional office is located in New South Wales. ARAZPA is administered by a Board of Management, with committees addressing the region's species management program, ethics, budget and policy review, and animal husbandry. There are currently 47 full institutional members, which are zoological parks and aquaria, along with a large number of individual memberships. A key purpose of the association is to promote and maintain professional standards of operation in the zoological industry and to maximise its collective resources for the conservation of biodiversity.

### Zoological parks and aquaria attendance

The 1999 Survey of Attendance at Selected Culture/Leisure Venues shows that over 5 million people (33.9% of the Australian population aged 15 and over) visited a zoological park or aquarium during the 12 months ending April 1999 (table 12.8). Of these, 3.1 million (20.8% of the Australian population aged 15 and over) visited a zoo at least once during the year.

### 12.8 ATTENDANCE(a) AT ZOOLOGICAL PARKS AND AQUARIA — 1999

	'000
Attendees	
Sex	
Male	2 301.0
Female	2 747.5
Total	5048.5
Age	
15 to 24 years	950.3
25 to 34 years	1 279.6
35 to 44 years	1264
45 to 54 years	758
55 to 64 years	418.2
65 years and over	378.4
Birthplace	
Australian-born	3 687.3
Overseas-born	1 361.3

(a) Attendance in the 12 months prior to interview.

Source: *Attendance at Selected Cultural Venues, April 1999 (4114.0)*.

### Zoological parks and aquaria industry

An ABS survey of zoos, parks and gardens shows that there were almost 8 million paid admissions to zoological parks and aquaria in the 12 months ending 30 June 1997 (table 12.9). Admissions income of \$69.2 million accounted for 48.6% of total income.

### 12.9 ZOOLOGICAL PARKS AND AQUARIA, Key Aggregates — 1996–97

	Units
Organisations at end June 1997	
Zoological gardens	no. 53
Aquaria	no. 12
Total organisations	no. 65
Locations at end June 1997	
Area of zoos, aquaria at end June 1997	ha. 3631
Employment at end June 1997	
Full-time	no. 1 268
Part-time	no. 677
Total employment	no. 1 946
Volunteers during June 1997	
Paid admissions	no. 1 591
Income	
Admissions	\$m 69.2
Other	\$m 73.2
Total	\$m 142.4
Expenses	\$m 126.9
Operating surplus	\$m 16.3
Industry gross product	\$m 74.4

Source: *Zoos, Parks and Gardens Industry, Australia, 1996–97 (8699.0)*.

## Libraries and archives

### Libraries

The main activities of libraries are the acquisition, collection, organisation, conservation and loan of library materials such as books, magazines, manuscripts, musical scores, maps and prints.

The National Library of Australia is Australia's largest library. It was established as a separate entity in 1960 by the National Library Act.

The Library, formerly known as the Commonwealth National Library, grew out of the Commonwealth Parliamentary Library which was established in 1901.

The Library builds and maintains a national collection of Australian library materials and provides an effective gateway to national and international sources of information. The Library acquires Australian printed material (monographs, serials, maps and music) using the Legal Deposit provisions of the *Copyright Act 1968* and other formats and materials through purchase or voluntary deposit. The National Library identified as its goal for the years 2000 to 2002 that all Australians, at their place of choice, will have access to both Australia's documentary heritage and the information resources of the world.

In recent years the Library's Internet site has become a primary means of information service delivery for both on-site and off-site users.

The continued development of Kinetica, a modern Internet-based service for Australian libraries and their users, represents a significant advance in the Library's use of information technology. The core of Kinetica is the National Bibliographic Database (NBD) which records the location details of over 10 million items in more than 1,000 Australian libraries. Through Kinetica, libraries also have access to other databases, including the USA's Research Libraries Information Network (RLIN database) which has over 30 million bibliographic records.

### Public Lending Right

Public Lending Right (PLR) is a cultural program of the Commonwealth Government, administered by the Department of Communications, Information Technology and the Arts, which makes payments to eligible Australian book creators and publishers on the basis that income is lost from the availability of their books for loan in public lending libraries.

It also supports the enrichment of Australian culture by encouraging the growth and development of Australian writing and publishing. Australia is one of 15 countries operating a PLR program.

The *Public Lending Right Act 1985* provides the legislative framework for the PLR Scheme. A Public Lending Right Committee is appointed by the Minister to administer the Scheme and the Act provides for the gazettal of a PLR Scheme by the Minister.

Payment is determined by the number of copies of eligible books that are held in public lending libraries. This information is obtained from an annual survey of the books held in a sample of public lending libraries. If 50 or more copies of an eligible book are estimated to be held in Australian public lending libraries, a payment may be made.

Books are surveyed annually for three consecutive financial years following their year of publication. If, in the third year, a book is still held in sufficient numbers in public lending libraries, it will be resurveyed once every three years. Books with less than 50 copies in the third or subsequent surveys are dropped from the survey cycle.

Some 8,253 book creators and their publishers received PLR payments in 1999–2000, totalling almost \$5.4m. The PLR rates of payment under the current PLR Scheme are \$1.25 per copy of each eligible book for creators and \$0.3125 per copy of each eligible book for publishers.

## Library attendance

The 1999 Survey of Attendance at Selected Culture/Leisure Venues provides data on persons aged 15 years and over who attended a National, State or local government library at least once over the 12 month survey period. Table 12.10 shows that almost 5.7 million people (38.1% of the Australian population aged 15 and over) attended one of these libraries at least once during the 12 months ending April 1999.

## Libraries industry

An ABS survey of libraries in respect of 1999–2000 showed that there were 99.4 million visits to local government, national and State libraries, an 11.0% increase in visits since 1996–97. There were 54.3 million books and other library materials at the end of June 2000, of which 36.4 million were available as lending stock. Additional data on the libraries industry are shown in *Chapter 21, Service industries*.

## 12.10 ATTENDANCE(a) AT LIBRARIES(b) — 1999

Attendees	'000
<b>Sex</b>	
Male	2 234.6
Female	3 449.6
<i>Total</i>	5 684.1
<b>Age</b>	
15 to 24 years	1 201.1
25 to 34 years	1 044.8
35 to 44 years	1 270.0
45 to 54 years	884.4
55 to 64 years	509.4
65 years and over	774.5
<b>Birthplace</b>	
Australian-born	4 170.4
Overseas-born	1 513.7

(a) Attendance in the 12 months prior to interview.

(b) National, State or local government library only.

Source: *Attendance at Selected Cultural Venues, April 1999* (4114.0).

## Reading habits and book buying

A household survey conducted in February 1995 by the ABS revealed that 87.9% of males and 82.4% of females aged 18 and over had read a newspaper in the week prior to the survey. The survey also found that 46.8% of males and 57.8% of females aged 18 and over had read a book in the week prior to the survey.

An ABS Survey of Aspects of Literacy in 1996 measured the ability of people aged 15 to 74 to use and understand everyday prose and documents (magazine articles, brochures, medicine labels, bus timetables etc.). The survey found that 63.8% of people read newspapers or magazines daily, 33.2% read books daily and 11.1% used a public library at least weekly (table 12.11).

In all, about 2.6 million people were assessed as having very poor prose skills (Level 1 rating) in 1996. Of these, 52.7% read newspapers or magazines daily, 21.4% read books daily and 6.3% used a public library at least once a week.

In contrast, 70.4% of the 2.3 million people with good/very good prose literacy (Level 4/5 rating) read newspapers or magazines daily, 47.0% read books daily, and 15.8% used a public library at least weekly.

**12.11 SELECTED LITERACY-RELATED ACTIVITIES IN DAILY LIFE, By Prose Skill Level — 1996**

Skill level(a)	Read newspapers or magazines daily		Read books daily		Wrote material more than one page in length at least weekly		Used a public library at least weekly		Total persons '000
	'000	%	'000	%	'000	%	'000	%	
Level 1	1 373.1	52.7	557.6	21.4	366.9	14.1	164.4	6.3	2 607.4
Level 2	2 310.0	63.6	997.9	27.5	720.7	19.8	323.4	8.9	3 631.9
Level 3	3 124.6	66.9	1 748.6	37.5	1 299.8	27.8	612.4	13.1	4 668.9
Level 4/5	1 627.1	70.4	1 086.7	47.0	856.6	37.0	366.0	15.8	2 312.5
<b>Total</b>	<b>8 434.8</b>	<b>63.8</b>	<b>4 390.7</b>	<b>33.2</b>	<b>3 244</b>	<b>24.5</b>	<b>1 466.3</b>	<b>11.1</b>	<b>13 220.8</b>

(a) Level 1—very poor, Level 2—poor, Level 3—average, Level 4/5—good/very good.

Source: Aspects of Literacy: Assessed Skill Levels, Australia, 1996 (4228.0).

**Book publishing**

Data were collected from 207 employer businesses predominantly engaged in book publishing in 1999–2000. Table 12.12 shows that these organisations generated \$1,290.0m in income, of which \$1,199.6m was from the sales of books. Of the total book sales, \$736.2m was attributed to Australian titles.

**12.12 BOOK PUBLISHERS, Key Aggregates — 1999–2000**

	Units
Organisations at end June 2000	no. 207
Sales of all books	\$m 1 199.6
Sales of Australian titles	\$m 736.2
Sales of imported titles	\$m 463.4
Sales of other goods	\$m 15.1
Other income	\$m 75.3
Total income	\$m 1 290.0
Average income per business	\$m 6.2
Wages and salaries paid	\$m 192.8
Royalties and fees paid	\$m 81.6
Other expenses	\$m 939.4
Total expenses	\$m 1 213.8
Average expenses per business	\$m 5.9
Ratio of royalties and fees paid to sales of Australian titles	% 11.1
Export sales of books	\$m 160.3
Internet sales of books	\$m 0.9
Operating profit before tax	\$m 102.6
Profit margin	% 7.9
Industry Value Added	\$m 369.2

Source: Book Publishers, Australia, 1999–2000 (1363.0).

**Archives**

The primary function of archives is the permanent preservation of unique records, selected because of their administrative, financial, legal or other information value. The records are generally no longer required for the conduct of current activities by government agencies, non-government organisations or private

individuals. While much archival work is an adjunct to other activity, a growing number of archival bodies, funded by governments and private sources, employ specialist staff to serve the legal, administrative and research needs of individuals and organisations.

The National Archives of Australia is the Commonwealth organisation, established by the *Archives Act 1983*, responsible for the broad management of the range of Commonwealth records. It has offices and reading rooms in all the States and Territories. The national headquarters in Canberra also houses the Treasures Gallery, the Exhibitions Gallery and the Federation Gallery. Constructed as part of the Centenary of Federation, the Federation Gallery houses Australia's original birth certificates including the Constitution and Queen Victoria's Royal Commission of Assent. The National Archives administers the legislative framework for Commonwealth records management (including arrangements for the disposal of records), maintains information systems, provides appropriate custody and preservation arrangements (including archival storage) and makes records available under the relevant legislation. Records covered by the Act occur in all formats including files, index cards, architectural models, photographs, films, video tapes and electronic media. It also curates touring exhibitions, produces publications based on its collections, and presents education and events programs. The Archives database 'Recordsearch' and many of its record keeping publications and reference guides are now on-line. The Archives also maintains the 'Documenting a Democracy' website ([at \*http://www.foundingdocs.gov.au\*](http://www.foundingdocs.gov.au)) presenting 99 founding documents of democratic governments in Australia.

Each State and Territory Government also maintains its own archives and provides for public access to records. In addition, archives have been established by some churches, business corporations, universities and city councils.

The Australian War Memorial collects private material concerning Australians at war and it is also custodian of certain official Commonwealth records relating to war or warlike operations.

ScreenSound Australia collects cultural material relevant to the film and sound media. Other corporate and private records continue to be collected by some State archives offices, libraries and universities.

The National Archives has established an Internet site 'Archives of Australia' (at <http://www.archivenet.gov.au>), which enables all other archives in Australia to place information about themselves and their holdings on the Internet.

## Music

Music covers all areas of the industry: composition; live performances ranging from the latest pop styles to classical instrumental, vocal and orchestral forms; recording and publishing; studio and concert performances; and the marketing of sheet music.

### Attendance at music performances

Attendance at music performances is a significant aspect of the cultural life of Australians.

Table 12.13 shows the number of people attending popular and classical music concerts in the 12 months to April 1999. Almost 3.8 million people (25.4% of the Australian population aged 15 and over) attended at least one popular music concert, while 1.3 million (8.8% of the Australian population aged 15 and over) attended at least one classical music concert.

### Musica Viva

Musica Viva is Australia's national chamber music entrepreneur. It began life as a performing ensemble — Sydney Musica Viva — on 8 December 1945, as an initiative of violinist, conductor and inventor Richard Goldner. Sydney was still in the throes of wartime blackouts when the first concert was held, at the Sydney Conservatorium, with car headlights illuminating the entrance for patrons. A non-profit company with headquarters in Sydney, Musica Viva has a Board with members throughout Australia, a State committee structure and branch offices in capital cities.

### 12.13 ATTENDANCE(a) AT MUSIC PERFORMANCES — 1999

	Popular music concert	Classical music concert
Attendees	'000	'000
Sex		
Male	1 844.8	521.2
Female	1 937.1	789.1
Total	3 781.8	1 310.3
Age		
15 to 24 years	1 086.8	159.0
25 to 34 years	936.1	209.1
35 to 44 years	751.4	252.6
45 to 54 years	571.1	291.8
55 to 64 years	269.9	191.5
65 years and over	166.6	206.2
Birthplace		
Australian-born	3 066.8	891.9
Overseas-born	715.0	418.4

(a) Attendance in the 12 months prior to interview.

Source: Attendance at Selected Cultural Venues, April 1999 (4114.0).

Some 2,501 concerts were presented by Musica Viva in 2000 in Australia and overseas, with attendance exceeding 431,000 Australian patrons and in excess of 37,500 overseas patrons (table 12.14).

New market initiatives proved successful with the introduction of the 'Ménage' series of concerts in Sydney for people aged 35 years and younger, and the expansions of its outreach activities into retirement villages with the 'Musica Viva comes to the Village' program.

### 12.14 MUSICA VIVA AUDIENCES(a)

	1997 no.	198 no.	1999 no.	2000 no.
New South Wales	276 889	291 292	274 495	263 162
Victoria	41 929	42 853	34 183	48 096
Queensland	11 118	15 303	22 144	27 608
South Australia	24 209	23 089	16 073	19 624
Western Australia	30 665	43 015	44 474	43 999
Tasmania	8 060	9 599	8 024	11 408
Northern Territory	5 562	4 703	7 171	8 336
Australian Capital Territory	13 919	12 911	12 947	9 102
Australia	412 351	442 765	419 511	431 335
Overseas	20 600	50 000	34 350	37 500
<b>Total</b>	<b>432 951</b>	<b>492 765</b>	<b>453 861</b>	<b>468 835</b>

(a) Includes audiences at regional touring concerts, education concerts, subscription concerts and special events.

Source: Musica Viva Australia.

In 2000, *Musica Viva in Schools* student audiences topped 368,000 across Australia and in Singapore.

### Symphony Australia Orchestral Network

The Symphony Australia Orchestral Network comprises Australia's six major professional symphony orchestras — Adelaide Symphony Orchestra, Melbourne Symphony Orchestra, Queensland Orchestra, Sydney Symphony Orchestra, Tasmanian Symphony Orchestra and West Australian Symphony Orchestra — and the national service organisation, Symphony Australia. The network was established as a division of the Australian Broadcasting Corporation (ABC) over a number of years from 1932. The orchestras and the national service organisation now operate as subsidiary companies of the ABC. The orchestras present live concerts in Australia's major performing arts venues and in free open-air concerts. They also present broadcasts on ABC radio and television, make recordings for international record labels, accompany opera and ballet performances, undertake international tours, and give performances in regional and country areas throughout Australia. In 1999–2000, the six orchestras presented more than 800 concerts to audiences totalling more than 1.1 million people (table 12.15) and reached much larger audiences through their recording and broadcast activities.

### Music businesses

The first comprehensive study of Australian music businesses by the ABS shows that in 1995–96 these businesses had an income of \$1,064.0m (table 12.16), about the same size as Australia's book publishing industry. The 541 music businesses comprised record companies, distributors, manufacturers of recorded music, music publishers and sound recording studios.

Total employment was 3,886 persons (including working proprietors), with 60% employed by record companies and distributors, 21% by sound recording studios and the remainder by music publishers and manufacturers.

### Performing arts

The performing arts encompass opera, musical comedy, theatre in its various forms and the various styles of dance. They also include artists working as acrobats, clowns, magicians, comedians, revue artists, poetry readers and other performing artists.

### Attendance at the performing arts

The popularity of opera and musicals is reflected in attendance numbers at the performing arts. Table 12.17 shows that in the 12 months prior to April 1999 over 2.4 million people (16.3% of the Australian population aged 15 and over) attended at least one performance of musical theatre, while 1.3 million (9% of the Australian population aged 15 and over) attended at least one dance performance.

### Performing arts industries

There were 1,437 employing businesses mainly engaged in the performing arts industries at the end of June 2000. Of these, 705 mainly provided live theatrical or musical presentations (i.e. music and theatre productions); 125 operated venues for performing arts such as concert halls and entertainment centres; and 606 provided services to the arts industry such as festival management, casting agency operation, costume design and set designing. They employed 16,429 persons at the end of June 2000. During 1999–2000 they accrued total income of \$1,633.8m, of which \$460.5m was from box office income and \$470.0m from government funding. Additional data on the performing arts industry are shown in *Chapter 21, Service industries*.

**12.15 SYMPHONY ORCHESTRAS, Performances and Total Attendances**

	1998–99		1999–2000	
	Concerts	Total attendances	Concerts	Total attendances
Type of performance	no.	no.	no.	no.
Paid orchestral concerts	483	701 594	530	744 409
School concerts	242	99 424	203	103 919
Free concerts	29	290 447	49	261 024
<b>Total</b>	<b>754</b>	<b>1 091 465</b>	<b>782</b>	<b>1 109 352</b>

Source: Australian Broadcasting Corporation, Annual Report 1999–2000.

**12.16 MUSIC BUSINESSES, Key Aggregates — 1995–96**

	Unit	Record companies and distributors	Manufacturers of recorded music	Music publishers	Sound recording studios	Total
Businesses at end June 1996	no.	153	23	73	292	541
Employment at end June 1996	no.	2 324	493	269	800	3 886
Income	\$m	792.4	95.0	119.9	56.6	1 064.0
Expenses	\$m	751.5	82.2	112.1	48.8	994.6
Net capital expenditure	\$m	24.5	9.7	6.9	6.5	47.5
Operating profit before tax	\$m	48.5	15.5	8.3	7.8	80.1
Profit margin	%	6.1	16.3	6.9	13.8	7.5
Business gross profit	\$m	162.1	46.2	17.2	29.9	255.4

Source: *Business of Music, Australia* (4143.0).

**12.17 ATTENDANCE(a) AT THE PERFORMING ARTS — 1999**

	Dance performance	Opera/Musical	Theatre	Other performing arts
Attendees	'000	'000	'000	'000
Sex				
Male	496.0	876.6	993.0	1 170.6
Female	848.9	1 553.8	1 471.9	1 477.3
Total	1 345.0	2 430.4	2 464.9	2 648.0
Age				
15 to 24 years	242.5	394.2	477.0	468.5
25 to 34 years	267.6	486.6	500.2	631.0
35 to 44 years	311.5	449.4	486.7	678.3
45 to 54 years	270.1	505.6	492.9	404.2
55 to 64 years	134.8	297.8	269.8	225.1
65 years and over	118.5	296.9	238.4	240.9
Birthplace				
Australian-born	962.4	1 859.2	1 888.2	1 999.4
Overseas-born	382.6	571.2	576.7	648.5

(a) Attendance in the 12 months prior to interview.

Source: *Attendance at Selected Cultural Venues, Australia, April 1999* (4114.0).

**Opera Australia**

In 1997 the Australian Opera and the Victorian State Opera merged to become Opera Australia. More reliant on box office receipts than many of the world's arts companies, 65% of Opera Australia's revenue comes directly from ticket sales.

With a repertoire spanning the history of opera, almost 250 performances are staged each year (table 12.18). With about 200 performances in 2000, the company is the third busiest in the world after the Vienna State Opera and the Metropolitan Opera, New York. To support this schedule, the company engages a full-time opera chorus and two resident orchestras — The Australian Opera and Ballet Orchestra, based in Sydney, and the State Orchestra of Victoria in Melbourne.

**12.18 OPERA AUSTRALIA, Key Indicators**

	1997	1998	1999	2000
	no.	no.	no.	no.
Employees	1 212	1 175	1 118	1 300
Performances	243	237	237	196
Attendances	293 300	268 866	290 770	254 212

Source: *Opera Australia*.

**The Australian Ballet**

The Australian Ballet gave its first performance in 1962. The company has received international acclaim for its presentations of great ballet classics, as well as modern repertoire created by Australian and international choreographers.

In 2000 the company gave 203 performances, up from 184 in 1999. It employed 139 persons, down slightly from the number in recent years (table 12.19).

**12.19 THE AUSTRALIAN BALLET, Performances and Employment**

	1995	1996	1997	1998	1999	2000
PERFORMANCES						
Theatres in Australia						
New South Wales	81	81	81	94	80	81
Victoria	61	60	62	63	48	61
Queensland	11	10	10	7	6	10
South Australia	7	7	6	8	6	8
Western Australia	6	—	6	—	—	6
Australian Capital Territory	6	6	8	7	—	6
Other venues in Australia						
Sydney Olympic Arts Festival	..	..	..	..	..	16
Regional (The Dancers Company)	18	28	10	18	23	14
Open-air	1	1	1	1	1	1
ABC-TV simulcasts	2	—	—	—	—	—
Overseas	—	14	—	—	20	—
<b>Total performances</b>	<b>193</b>	<b>207</b>	<b>184</b>	<b>198</b>	<b>184</b>	<b>203</b>
EMPLOYMENT(a)						
Dancers	65	62	62	62	62	61
Staff						
Artistic	9	8	12	12	12	11
Music	5	5	6	5	5	5
Production and theatre	24	25	23	24	24	22
Marketing and publicity	23	23	22	21	21	20
Administration and finance	20	21	19	20	20	20
<b>Total employment</b>	<b>146</b>	<b>144</b>	<b>144</b>	<b>144</b>	<b>144</b>	<b>139</b>

(a) On average for the year.

Source: *The Australian Ballet, Annual Reports*.

## Film and video

### Film and video production

Australia has a well developed audiovisual production industry which is composed, for the most part, of small specialised companies. They produce programs ranging from feature films to sports coverage, documentaries and television commercials. A relatively small number of companies engage exclusively in film and television drama production. The majority specialise in the production of commissioned programs such as commercials and corporate communications.

The major market for Australian audiovisual producers is the domestic television broadcast industry. Export markets are important mainly for feature films and television dramas, some high-budget documentaries and some commercials.

The film and video production industry comprises businesses mainly engaged in the production of motion pictures on film or video tape for theatre or television projection. Services such as casting, film editing and titling are also included.

A survey of the film and video production industry was conducted by the ABS in respect of 1999–2000. At the end of June 2000, there were 1,975 businesses in the film and video production industry, employing 15,195 persons. In 1999–2000 these businesses generated \$472.2m from the production of television programs, \$233.1m from the provision of production services to other businesses, \$262.6m from the provision of post-production/laboratory services to other businesses, and \$505.9m in other income.

During 1999–2000, businesses in the television services industry, film and video production industry, and film and video distribution industry incurred total film and video production costs of \$1,791.7m. Of these costs, \$1,315.4m was spent on productions specifically for television, \$243.0m on commercials and advertisements, and \$233.4m on productions other than for television. These businesses completed, or were working on, 5,410 productions other than for television, of which 4,727 were corporate, marketing or training videos and 51 were feature films. Additional information on these industries is shown in *Chapter 21, Service industries*.

The Commonwealth Government provides assistance and encouragement, through measures such as the investment program of the Australian Film Finance Corporation, the development program of the Australian Film Commission and the Australian content regulations of the Australian Broadcasting Authority, for the production of high cost feature films, television dramas and documentaries. Table 12.20 shows the number and value of both Australian titles produced in Australia and overseas and foreign titles shot in Australia from 1995–96 to 1999–2000.

### Film and video distribution

The film and video distribution industry comprises businesses mainly engaged in leasing or wholesaling motion pictures on film or video tape to organisations for exhibition or sale. Agents mainly engaged in leasing and wholesaling films and videos to organisations are also included.

At 30 June 2000, there were 58 businesses in the industry, employing 1,426 people. In 1999–2000 these businesses generated \$1,141.8m in total income and had an operating profit before tax of \$103.6m. The main sources of income were \$841.1m from the sales, rental or lease of prerecorded video tapes, disks, films and interactive software, and \$169.2m from the provision of channels to pay television broadcasters. Additional information on the industry is shown in *Chapter 21, Service industries*.

### Motion picture exhibition

The motion picture exhibition industry comprises businesses mainly engaged in screening motion pictures on film or video tape. It also includes businesses mainly engaged in drive-in theatre operation, cinema operation and film or video festival operation.

The ABS conducted a survey on the motion picture exhibition industry in respect of 1999–2000.

At the end of June 2000, there were 173 businesses in the industry, employing 9,282 people. The motion picture exhibition industry had an operating profit before tax of \$113.3m for 1999–2000, which represented a profit margin of 11.4%.

At the end of June 2000, there were 326 cinema sites and 17 drive-in sites in Australia. For 1999–2000, there were 79 million paid admissions to cinemas.

More findings of the survey are shown in *Chapter 21, Service industries*.

### Cinema attendance

The 1999 Survey of Attendance at Selected Culture/Leisure Venues found that almost 10 million persons (67.0% of the Australian population aged 15 and over) attended a hardtop cinema, drive-in or other public screening of a film at least once in the 12 months ending 30 April 1999 (table 12.21).

**12.20 FILM AND VIDEO PRODUCTION INDUSTRY, Number and Value of Titles(a)**

Type of film	1995–96		1996–97		1997–98		1998–99		1999–2000	
	no.	\$m	no.	\$m	no.	\$m	no.	\$m	no.	\$m
Features	30	221	36	198	41	246	45	292	34	412
Adult TV drama & mini-series	9	70	6	69	3	12	4	62	3	23
Series and serials	19	100	20	158	20	165	20	234	20	228
Telemovies	18	38	12	26	12	41	16	59	24	76
Children's TV drama	20	115	12	72	16	109	8	52	12	86

(a) Includes production budgets of Australian, co-produced and foreign features and TV drama shot in Australia, and in-house production by television stations.

Source: Australian Film Commission.

**12.21 ATTENDANCE(a) AT CINEMAS — 1999**

Attendees	'000
Sex	
Male	4 715.6
Female	5 272.0
Total	9 987.6
Age	
15 to 24 years	2 374.2
25 to 34 years	2 244.2
35 to 44 years	2 105.2
45 to 54 years	1 604.8
55 to 64 years	836.1
65 years and over	823.1
Birthplace	
Australian-born	7 577.9
Overseas-born	2 409.7

(a) Attendance in the 12 months prior to interview.

Source: *Attendance at Selected Cultural Venues, April 1999 (4114.0)*.

## Multimedia

Multimedia is a significant creative medium. It is a presentation, by means of an electronic non-linear delivery system, of some combination of media forms such as voice, music, video, photographs, graphics, animation and text. An electronic non-linear delivery system is a combination of hardware and software which gives the user control over the order in which content is accessed.

Until a few years ago, most computer software was aimed primarily at business and education markets. However the household market has grown rapidly in recent years. In 2000, 53% of households (3.8 million) had access to a computer at home and 33% (2.3 million) had home Internet access.

In 2000, 9.1 million persons aged 18 years or over, 66% of Australian adults, used a computer. Over this period, 46% of adults used a computer at home, 42% used one at work and 37% did so at sites other than home or work. Over half of the adults using a computer at home (53%) did so for work-related purposes. Other popular uses were for study or learning (40%), for personal or family correspondence (43%), to keep personal or family records (36%) and to play games (35%). Each of these purposes was reported by more than a third of those adults who used a computer at home over the period.

In 2000, 6.5 million persons aged 18 years or over, 47% of the adult population, accessed the Internet. Over this period 29% of adults accessed the Internet at home, 23% accessed it at work and

22% did so at sites other than home or work. Two-thirds of adults accessing the Internet at home used email or visited chat sites (68%). Over half were browsing or surfing (57%), and one-third accessed the Internet for work related purposes over the period (36%). During 2000, about 967,000 adults (7%) used the Internet to purchase or order goods and services for private use. For more information see *Chapter 24, Communications and information technology*.

The Department of Communications, Information Technology and the Arts (DOCITA), through multimedia programs such as *Australia on CD* and *Australia's Cultural Network*, has undertaken to promote and provide access to Australia's cultural collections, while forming partnerships with the cultural institutions and multimedia producers involved. DOCITA has developed the Internet site *ArtsInfo* as a single point of access to the Australian cultural sector and has supported the development of the *Australian Museums On Line* site and the *Archives of Australia* site.

The *Australia on CD* program is designed to showcase a wide range of Australian cultural endeavour, artistic performance and heritage achievements, and to foster the development of the Australian multimedia industry.

Through the *Australia on CD* program, the Commonwealth Government has funded the production of ten interactive CD-ROMs covering areas such as Australia's prehistory, the environment, the performing and visual arts, the history of immigration of Australia, sport, science and rock'n'roll. Two copies of each title have been distributed to all Australian primary and secondary schools, public libraries, Austrade offices, overseas missions and members of Parliament.

*Australia's Cultural Network*, relaunched in June 2001 as the [www.cultureandrecreation.gov.au](http://www.cultureandrecreation.gov.au) portal, is the on-line gateway to Australia's cultural organisations, resources, activities and events. The Network has two main objectives: to improve and develop on-line access to, and participation in, Australian cultural endeavour, activities and events; and to improve the prosperity of Australian cultural organisations and cultural workers. This gateway Internet site provides fast access to hundreds of cultural Internet sites nationwide. A national calendar of cultural events is a key feature of the site, with a range of resources to assist Australian cultural industries.

The *Performing Arts Multimedia Library*, a joint project between DOCTA and Cinemedia, involves the creation of a digital library of significant Australian performances, new and existing, across the range of live performance, for use in multiple electronic environments such as the Internet, Pay TV, video and multimedia. The project has been used as a testbed program for government and performing arts companies to identify and attempt to resolve the legal, contractual and technical issues associated with the recording and electronic distribution of recorded performances.

*Australian Museums On Line* (AMOL) is the electronic gateway to Australian museums, galleries and cultural institutions. AMOL is an initiative of the Heritage Collections Council, which coordinates national approaches to caring for, and promoting access to, Australia's heritage collections. AMOL's Guide to Australian Museums lists over 1,000 national, regional and local museums across Australia, with information being accessible through a range of search options such as region, collection type and collection strength. The Open Collections section of AMOL offers a searchable collection database comprising almost half a million object level records, including over 50 full collections. It also features a growing number of knowledge-based stories about various collections and objects within collections. The Museum Craft section provides access to a range of resources for museums workers, including conservation resources and information, online discussion forums, an online Open Museum Journal, links to important Australian and overseas museums sites, and information about contacts and associations, jobs and training, events, publications and grants. Since October 1998, the site has averaged well over 250,000 hits per month, representing more than 9,000 users in 2000.

The *ArtsInfo* Internet site brings together information on the wide array of cultural grants and support programs, as well as industry training and development programs, offered by all levels of government and by non-government organisations. ArtsInfo also provides access to a business showcase of Australia's cultural products and services and a resource section including industry bulletin boards, a directory of training, tutorials, a festival directory and fact sheets.

Two important amendments to the *Copyright Act 1968* have been introduced in the last twelve months. They are the *Copyright*

*Amendment (Digital Agenda) Act 2000*, which came into force on 4 March 2001, and the *Copyright Amendment (Moral Rights) Act 2000*, which has been in force since late December 2000. These Acts update Australian copyright law to take account of the Internet and the rapid changes being made in technology, and introduce new rights for creators to allow them to protect their works from derogatory treatment.

## Radio and television broadcasting

Broadcasting services in Australia are regulated primarily through the *Broadcasting Services Act 1992*. The Act identifies and defines categories of broadcasting services, establishes regulatory arrangements for broadcasting services, and establishes the Australian Broadcasting Authority (ABA) as the independent regulator for radio and television in Australia.

The Act defines six categories of broadcasting services covering both radio and television:

- national broadcasting services — the Australian Broadcasting Corporation (ABC) and the Special Broadcasting Service (SBS) are largely regulated through separate legislation;
- community broadcasting services — non-profit free-to-air services provided for community purposes;
- commercial broadcasting services — free-to-air radio and television services operated for profit and funded predominantly by advertising revenue;
- subscription broadcasting services — services with general appeal to the public and funded predominantly by customer subscriptions;
- subscription narrowcasting services — services with limited appeal to the public (either because of content or availability) and funded predominantly by customer subscriptions; and
- open narrowcasting services — services providing programs targeted to special interests groups (e.g. foreign language), or of limited appeal because of content or availability, and not funded by subscriptions.

## Broadcasting and transmission

In March 1999, the telecommunications company ntl won the bid to own and operate the National Transmission Network, previously managed by the National Transmission Agency. The transmission network comprises 560 strategic sites across metropolitan, regional and rural Australia, and ntl's core business is to transmit the analogue television and radio broadcasts by the ABC and SBS. Commercial and community broadcasters, emergency services and telecommunications operators have also leased space on the sites.

## Australian Broadcasting Corporation (ABC)

The ABC has been in existence since 1932 as Australia's only national, non-commercial broadcaster. At 30 June 1999 the ABC provided:

- a national television service carried on about 600 transmitters;
- six distinctly targeted radio networks across Australia on over 6,000 transmitters which include metropolitan radio stations in nine cities, 39 regional radio stations and 11 smaller studios, Radio National, ClassicFM and the Triple-J (FM) youth radio network;
- Radio Australia, an international radio service broadcast by shortwave to Papua New Guinea and the Pacific, and via satellite to the Asia-Pacific regions in English and other languages;
- a 24-hour news and parliamentary broadcast radio service to all capital cities and to Newcastle;
- an international network of press offices; and
- an on-line service which includes news and program related sites.

Additional information about the ABC can be found on its website at <http://www.abc.net.au>

## Special Broadcasting Service (SBS)

SBS was established by the Commonwealth Government in 1978. Its principal function is to provide multilingual and multicultural radio and television services that inform, educate and entertain all Australians and, in doing so, reflect Australia's multicultural society.

Both SBS Radio and SBS Television broadcast nationally. The radio service has its origins in 1975 when ethnic radio stations 2EA in Sydney and 3EA in Melbourne began limited broadcasts.

By 1996 SBS Radio had expanded to its current five signal service broadcasting in 68 languages. It operates a national signal heard in all capital cities and key regional centres, and separate AM and FM signals in Sydney and Melbourne. It broadcasts in more languages than any other radio network in the world.

SBS Television, which began in 1980, is watched by more than six million people each week. More than half of the programs broadcast are in languages other than English, but they are made accessible to all Australians through subtitling. SBS Television broadcasts in more than 60 languages, more than any other television network in the world, and has access to over 400 national and international program sources.

Under the Commonwealth Government's \$120m Television Fund, announced in 1999, SBS Television has progressively been introduced to 30 regional areas, each containing more than 10,000 people. The scheme, involving the installation of 78 new transmitter sites, was completed in mid-2001. This will make SBS available to an additional 1.2 million potential viewers.

Additional information about the SBS can be found on its website at <http://www.sbs.com.au>

## Radio and television operations

### Australian Broadcasting Authority (ABA)

The ABA, established in October 1992 under the *Broadcasting Services Act 1992*, is the regulator for radio and television broadcasting, digital broadcasting and Internet content in Australia. As well as planning the availability of segments of the broadcasting services bands (VHF/UHF television, FM and AM radio), the Authority has the power to allocate, renew, suspend and cancel licences and collect any fees payable for those licences.

Under the *Television Broadcasting Services (Digital Conversion) Act 1998*, the ABA was empowered to regulate for the introduction of digital broadcasting services in Australia from 1 January 2001.

The commercial and national broadcasters will use the DVB-T standard in providing their digital television services. They will also be required to simulcast their signal using the analogue service for the first eight years. Provision also has been made for datacasting services to use the broadcasting services bands.

The ABA continues to monitor international developments in Digital Radio Broadcasting.

The ABA is empowered to:

- conduct research into community attitudes on programming matters;
- develop program standards relating to broadcasting in Australia;
- assist broadcasting service providers (licensees) develop codes of practice;
- monitor compliance with licence conditions and codes of practice; and
- investigate complaints about services.

The ABA administers a co-regulatory scheme for Internet content which applies to Internet content hosts and Internet service providers. It will also have a role in administering aspects of the *Interactive Gambling Act 2001*. The key provisions, to become operational in January 2002, include investigation of complaints about interactive gambling content, and registration of industry codes of practice (and/or determination of industry standards) relating to certain interactive gambling matters.

Additional information about the ABA can be found on its website at <http://www.aba.gov.au>

### **Television and radio services — summary of operations**

Since the last edition of Year Book Australia, data summarising operations for 1999–2000 have become available for private television broadcasters. For private radio broadcasters and for public radio and television the operations data relate to 1996–97 (though some more current data are included in the above sections on the ABC and SBS).

At the end of June 2000 there were 41 private sector television broadcasters operating 48 television stations and 7 pay television stations. In 1999–2000 their total income was \$4,181.9m, they employed 10,668 persons and had a net worth of \$2,810.1m. Commercial free-to-air television broadcasters recorded an operating profit before tax of \$803.5m, while pay television broadcasters reported a loss of \$675.8m.

At 30 June 1997, there were 261 private broadcasters in radio services which employed 5,064 persons. Most of the income of private broadcasters in 1996–97 was derived from the sale of airtime. Private radio broadcasters had an operating surplus of \$92.6m.

The two public broadcasters of radio and television services employed a total of 5,248 persons at the end of June 1997. Their income totalled \$775.6m in 1996–97, with expenses totalling \$772.1m.

### **Training in the arts**

Training in the arts in Australia covers a broad range of resources. Formal training is available through courses in Technical and Further Education institutions, universities and private institutions. A number of on-the-job training programs are also available in the arts, and many organisations offer in-house training programs for their staff. The last decade has seen the development in some States of multi-disciplinary tertiary institutions providing training in the arts.

A number of national specialised education institutions have been established to provide training in cultural fields. For example, the Australian Film, Television and Radio School is the national training centre for the film and broadcasting industries. The National Institute of Dramatic Art is the national training school for people who wish to enter the profession of theatre, film or television as actors, directors, designers, stage managers, theatre crafts technicians, production managers or teachers of voice and movement. The Australian Ballet School provides full-time training to the highest standard for young Australian dancers seeking a career in the classical dance profession. The Australian National Academy of Music offers master classes and short-term programs which bring distinguished national and international performers and music educators into contact with students.

CREATE Australia is the national Industry Training Advisory Board (ITAB) for cultural industries. Its primary task is to help cultural industries develop and run high quality, relevant vocational education and training programs. CREATE Australia supports cultural industries by:

- developing quality training programs for industry — including competency standards, training packages, curriculum and assessment;
- encouraging innovation in training development and delivery, and giving advice to industry about training;
- encouraging partnerships between industry and training providers;
- giving advice to government on policy and training priorities based on industry consultation; and

- coordinating training development and implementation in conjunction with State and Territory industry training advisory bodies.

Products developed and produced by CREATE Australia include: the national entertainment industry training package; the national library and information services industry training package; the national museums industry training package; language, literacy and numeracy resources to support training in the entertainment industry; the first national careers guide for the Australian entertainment industry; the national multimedia education and training strategy; and the community cultural development training directory (available on-line).

In 2001 CREATE launched the national music industry training package and the national film, television, radio and multimedia industries training package.

## Festivals

Festivals have become a major part of Australian life, offering a unique and valuable contribution to our culture. Community festivals in regional Australia are increasing both in number and popularity. They range in size from small community celebrations to major cultural events, and feature a variety of themes as diverse as flower arranging, heritage, food and wine, multicultural events, music and the arts.

There are now some 1,300 festivals Australia-wide each year, ranging from major international events such as the Sydney, Melbourne and Adelaide International Festivals to the more regional and community based events. These festivals provide tangible benefits by giving their communities a creative focus, generating pride in the community and providing economic benefits by attracting tourists to the area.

Table 12.22 reflects the findings of a survey of festivals conducted in 1995 by the Australia Council, and shows that the total government grant, backing small and large arts festivals in Australia, amounted to \$13.3m. Box office and subscription sales for larger arts festivals amounted to \$16.6m, while sponsorships and donations amounted to \$10.7m. Income totalled \$46.9m for larger arts festivals and \$7.6m for smaller arts festivals. The Australia Council defined large festivals as those with expenditure of \$300,000 and over. Using this measure, 31 arts festivals were included in the 'larger' group.

### 12.22 OPERATING INCOME AND EXPENDITURE OF ARTS FESTIVALS — 1995

	Larger arts festivals	Smaller arts festivals
	\$m	\$m
Government funding	11.5	1.8
All other income	35.4	5.8
<i>Total income</i>	46.9	7.6
Salaries and fees	17.0	3.0
All other expenditure	28.9	4.6
<i>Total expenditure</i>	45.9	7.6

Source: Australia Council, Festival Survey 1995.

Four quarterly surveys in 1995 and 1996, which asked about attendance at festivals over the previous 12 months, were conducted by the ABS. Over half of the attendances (2.4 million or 58.7%) were to main arts festivals, followed by popular music festivals (632,000 or 15.4%), art/museum exhibitions (287,000 or 7.0%) and film/video festivals (252,000 or 6.2%). Females were more likely to have attended a festival in the previous 12 months (23.0%) than males (20.8%) (table 12.23).

### 12.23 ATTENDANCES AT FESTIVALS(a)(b) — November 1995 to September 1996

	Males	Females	Persons
	'000	'000	'000
Main arts festivals	1 101	1 303	2 404
Other festivals			
Art/museum exhibition	138	149	287
Popular music	335	297	632
Classical music	32	31	63
Film/video	115	136	252
Theatre	*17	50	67
Dance	53	35	88
Other performing arts	89	77	166
Craft	*17	24	42
Other	42	50	92
<i>Total</i>	840	849	1 689
Total attendances	1 941	2 152	4 094
Total number of people attending	1 335	1 518	2 853
	%	%	%
Participation rate(c)	20.8	23.0	21.9

(a) Attendances during the previous 12 months. (b) Includes all people who attended a festival, whether they went to paid or free events. (c) For each group the total number attending expressed as a percentage of the civilian population in that group.

Source: Attendance at Festivals, Australia, November 1995 to September 1996, Department of Communications and the Arts.

## Employment and participation in cultural activities

This section contains a selection of ABS statistics ranging over the spectrum of cultural industries and activities. More comprehensive data can be found in the publications listed in the Bibliography.

### Employment in cultural occupations

According to the 1996 Census of Population and Housing, there were 156,739 people working in a cultural occupation as their main job at the time of the Census. Females accounted for 48.4% of these people — this is higher than their proportion (44.1%) in the employed labour force. Table 12.24 shows that the most common cultural occupations were graphic designers, architects, librarians, library assistants and music teachers.

### Involvement in culture and leisure activities

Four ABS surveys were conducted from November 1998 to August 1999 which collected information about the involvement of persons aged 18 years and over in selected culture and leisure activities during the previous 12 months. Results from these four quarterly surveys have been combined to produce annual estimates. Involvement in selected culture and leisure activities was defined to include both paid and unpaid work, but excluded involvement solely for the respondent's own use or that of their family.

As table 12.25 shows, in a 12 month period in 1998–99, 3.5 million people (25.6% of the Australian population aged 18 and over) were involved in selected culture and leisure activities. Of these persons, 36.6% received some payment.

Many persons were involved in more than one type of activity. There were almost 6.7 million involvements, the most common activities being writing, organising festivals, design, organising fetes, teaching cultural activities and photography. Almost half (46.6%) of these involvements were of a short-term and part-time nature, being 13 weeks or less duration and less than ten hours a week.

### How Australians spend their free time

Generally, Australians fit their leisure activities into their free time, i.e. the time left over after personal, family, educational and employment responsibilities. The 1997 Time Use Survey showed that Australians aged 15 years or more spent on average a little over 5 hours (316 minutes) or 22% of their time per day on free time activity as their main activity (table 12.26). People frequently undertake more than one activity at the same time (e.g. housework and listening to the radio). If simultaneous activities are included, Australians spent just over nine hours (552 minutes) on free time activities. Time spent using audio/visual media (e.g. watching television and listening to the radio) showed the largest increase when comparing all activities (including simultaneous activities) with main activities. As a main activity, an average of just over two hours (131 minutes) was spent on audio/visual media. However, when simultaneous activities were included, time spent on this activity nearly doubled to over four hours (257 minutes).

**12.24 NUMBER OF PERSONS IN SELECTED CULTURAL OCCUPATIONS — 1996**

Occupation group	Males	Females	Total
Graphic designers	7 066	6 020	13 086
Architects	8 290	1 671	9 961
Librarians	1 723	7 843	9 566
Library assistants	1 236	7 379	8 615
Music teachers	2 121	4 992	7 113
Photographers	4 405	1 854	6 259
Print journalists	3 238	2 585	5 823
Instrumental musicians	4 208	1 325	5 533
Library technicians	561	4 940	5 501
Architectural associates	4 164	939	5 103
Media producers	2 863	1 889	4 752

Source: Employment in Selected Culture/Leisure Occupations, 1996 Census of Population and Housing (6273.0).

**12.25 PERSONS(a) INVOLVED IN CULTURE AND LEISURE ACTIVITIES — 1998–99**

	Paid involvement only '000	Unpaid involvement only '000	Paid and unpaid involvement '000	Total persons involved '000	Persons with no involvement '000	Total persons '000	Participation rate %
NSW	134.3	799.5	273.1	1 206.9	3 421.2	4 628.1	26.1
Vic.	124.0	532.5	212.7	869.2	2 584.3	3 453.5	25.2
Qld	77.8	393.9	159.8	631.5	1 809.6	2 441.1	25.9
SA	29.7	164.2	62.7	256.5	828.0	1 084.6	23.7
WA	55.0	211.1	72.5	338.5	968.6	1 307.2	25.9
Tas.	12.2	46.1	18.4	76.6	262.5	339.1	22.6
NT	3.9	18.2	7.1	29.2	71.6	100.8	29.0
ACT	10.4	39.7	20.2	70.3	144.1	214.4	32.8
<b>Aust.</b>	<b>447.1</b>	<b>2 205.1</b>	<b>826.5</b>	<b>3 478.8</b>	<b>10 090.0</b>	<b>13 568.7</b>	<b>25.6</b>

(a) Aged 18 years and over.

Source: *Work In Selected Culture/Leisure Activities, Australia, 1998–99* (6281.0).**12.26 AVERAGE TIME SPENT ON FREE TIME ACTIVITIES(a) — 1997**

Free time activites	Main activity	All activities
	minutes per day	minutes per day
Social and community interaction		
Socialising	11	12
Visiting entertainment and cultural venues	5	5
Religious activities/ritual ceremonies	5	5
Other	24	24
Total	45	47
Recreation and leisure		
Sport and outdoor activity	27	28
Games/hobbies/arts/crafts	16	20
Reading	25	37
Audio/visual media	131	257
Talking (including phone)	35	115
Other	35	48
Total	271	505
<b>Total free time activities</b>	<b>316</b>	<b>552</b>

(a) Free time is the amount of time left over after necessary time, committed time and contracted time have been taken out of a person's day. Necessary time includes time spent on activities such as sleeping, eating and personal care. Committed time includes time spent on activities such as housework, care of children and shopping. Contracted time includes time spent on paid work and regular education.

Source: *Time Use on Cultural/Leisure Activities, 1997* (4173.0).

**Public attitudes to the arts**

The November 1997 Population Survey Monitor showed that Australians hold different views about what range of activities is included in the arts: 81% included plays, ballet and opera; 80% music (concerts, orchestra and singing); 77% painting, drawing and sculpture;

62% literature, books and poetry; 54% craft, pottery and weaving; 54% photography; 35% architecture and design; and 9% sport.

Libraries were considered to be either very important or important in the community by 95% of the population. The corresponding figure for museums was 77%, for performing arts venues 76% and for art galleries 72%. These levels of support were irrespective of whether or not the reporting individuals were users of the facilities.

A quarter of the population indicated that they were not adequately informed about the arts, whereas only 7% indicated that they were not adequately informed about sport. The most commonly used sources of information about the arts were newspapers, magazines or books (69%) and television (63%).

**Art and craft purchases**

Results from surveys conducted during 1997 show that, in the three months prior to interview, 21.4% of Australian people purchased a total of 0.9 million art items and 3.9 million craft items. Of these, 0.7 million art items and 3.0 million craft items were made in Australia (table 12.27). The value of Australian made art items purchased in the three months prior to interview was \$138m with a mean price of \$195; the value of craft items was \$318m with a mean price of \$107. Extrapolated to expenditure for a full year, this would be in the order of \$550m on art items and \$1,250m on craft items.

**12.27 AUSTRALIAN MADE ART AND CRAFT PURCHASES — Purchases over 3 months, 1997(a)**

	Number(b)	Value(c)
	'000	\$m
Art items		
Paintings	334.3	84.2
Other	389.7	53.7
Total	724.0	137.9
Craft items		
Pottery/ceramics	885.5	44.4
Garments/clothing	435.3	26.5
Jewellery	383.9	58.6
Wood crafts	352.9	21.7
Other	982.2	166.4
Total	3 039.8	317.5
<b>Total art and craft items</b>	<b>3 763.8</b>	<b>455.4</b>

(a) Purchases of Australian made art and craft in a three month period. (b) Includes items where the price was not known. (c) Excludes items where the price was not known.

Source: *Art and craft purchases, 1997, Department of Communications and the Arts.*

## Funding for Culture

### Government funding for culture

Culture in Australia receives considerable financial support from the Commonwealth Government in the form of direct grants and through the provision of taxation benefits. This support is complemented by State, Territory and local governments.

Total outlays for cultural funding of the Commonwealth Government and State, Territory and local governments for 1999–2000 were \$3,977.7m. Table 12.28 shows the government outlays on culture for 1999–2000.

The largest funding category for the Commonwealth Government was Radio and television broadcasting (\$713.8m). The largest funding category for State and Territory Governments was National parks and wildlife services (\$684.8m). For local governments, the largest cultural funding category was Libraries and archives (\$447.1m).

### Business sponsorship

In 1996–97 some 2,900 employing businesses (0.5%) sponsored art and cultural activities to the value of \$29m. The Communication, property and business services sector was the biggest provider with \$8.8m of sponsorship. Almost half (48.6%) of the businesses sponsoring arts and cultural activities sponsored creative arts.

## Children's participation in cultural and leisure activities

A survey of children's activities in the 12 months to April 2000 found that 777,700 children (29%) were involved in at least one of four selected organised cultural activities outside of school hours. Girls were twice as likely as boys (40% compared with 20%) to participate in at least one of these activities (table 12.29).

During the year, 10% of girls were involved in more than one of the selected organised cultural activities outside of school hours, compared with 3% of boys.

The rate of children's participation in at least one of the organised cultural activities ranged from 22% in the Northern Territory to 34% in the Australian Capital Territory.

Playing a musical instrument was the most popular of the selected cultural activities (18%), followed by dancing (10%), singing (5%) and drama (5%). The activity with the highest ratio of girls to boys was dancing, with 11 times more girls participating than boys.

Participation in dancing was highest for children aged 6 years (13%) and lowest for children aged 14 years (7%). Participation in the other three activities peaked between 10 and 12 years of age. During the 12 month period, 93% of children involved in dancing had dancing lessons. Some 75% played a musical instrument, 69% participated in drama and 57% in singing.

In the two school weeks prior to interview in April 2000, 44% of children (34% of boys and 55% of girls) undertook art and craft activities. This compares to 97% of children who watched television or videos and 69% who played electronic or computer games.

Children's participation in organised sports and other leisure activities is outlined in the section *Children's participation in sports and leisure activities.*

**12.28 CULTURAL FUNDING, By Level of Government — 1999–2000**

	Level of government			
	Commonwealth		State/Territory	Local
	\$m	\$m	\$m	\$m
Cultural facilities and services				
Zoological and botanic gardens	5.8	95.6	24.6	126.0
Libraries and archives	81.4	306.3	447.1	834.8
Literature and publishing	10.5	4.2	3.4	18.2
Museums	151.7	207.0	10.2	368.9
Art galleries	39.9	85.2	30.9	156.0
Visual arts/crafts and photography	14.3	10.6	4.9	29.8
Cultural venues	9.8	108.3	65.6	183.7
Music (excluding opera)	52.6	13.5	1.8	67.8
Other performing arts	37.7	67.2	5.3	110.2
Cultural heritage	74.9	49.0	19.6	143.5
<i>Total</i>	478.7	946.8	613.3	2 038.7
Broadcasting and film				
Radio and television broadcasting	713.8	0.5	0.6	714.9
Film and video	74.8	40.9	2.7	118.4
Multimedia	0.9	0.7	0.1	1.7
<i>Total</i>	789.5	42.2	3.3	835.0
Culture n.e.c.				
Administration of culture	41.0	31.0	12.7	84.7
Community cultural activities	35.7	13.0	9.9	58.6
Public halls and civic centres	0.0	0.1	158.2	158.3
National parks and wildlife services	60.2	684.8	7.1	752.1
Other culture n.e.c.	24.6	15.6	10.1	50.3
<i>Total</i>	161.4	744.5	198.0	1 103.9
<b>Total</b>	<b>1 429.6</b>	<b>1 733.5</b>	<b>814.6</b>	<b>3 977.7</b>

Source: *Cultural Funding in Australia, 1999–2000* (4183.0).

**12.29 CHILDREN INVOLVED IN CULTURAL ACTIVITIES(a) — April 2000**

Activity	Age										
	5 years	6 years	7 years	8 years	9 years	10 years	11 years	12 years	13 years	14 years	Total
PARTICIPATION RATE (%)											
Males											
Playing a musical instrument	*4.0	9.8	11.0	16.5	17.0	20.4	20.2	20.8	19.7	18.1	15.8
Singing	**1.1	**0.6	*2.1	*3.2	*3.8	*4.1	*3.0	*4.4	*3.6	*2.8	2.9
Dancing	**1.2	*2.2	*2.1	**0.8	*1.5	*1.6	**0.5	*2.8	*2.7	*1.7	1.7
Drama	**0.1	*1.3	*3.6	*3.5	*2.8	*4.7	*2.4	*4.3	*4.2	*4.8	*3.2
<i>Total</i>	6.2	12.6	15.2	20.5	20.5	25.2	23.5	24.6	24.4	24.0	19.7
Females											
Playing a musical instrument	5.4	8.2	15.6	23.7	24.1	27.3	29.4	23.0	23.7	20.0	20.2
Singing	**1.1	*3.5	*4.1	7.5	7.7	10.3	7.7	8.8	7.6	7.7	6.7
Dancing	23.3	25.0	22.0	21.0	21.4	19.5	20.4	15.2	15.7	11.6	19.5
Drama	**0.7	*2.6	*5.1	5.8	5.7	7.8	7.2	10.5	8.4	7.0	6.1
<i>Total</i>	27.9	32.8	37.1	41.8	44.8	45.0	48.0	42.1	41.5	34.6	39.7
Persons											
Playing a musical instrument	4.7	9.1	13.2	20.1	20.5	23.7	24.5	22.0	21.7	19.0	17.9
Singing	*1.1	*1.9	3.0	5.3	5.8	7.0	5.2	6.7	5.6	5.1	4.7
Dancing	12.1	12.9	11.7	10.8	11.3	10.1	9.9	9.3	9.1	6.5	10.4
Drama	**0.4	*1.9	4.3	4.6	4.2	6.2	4.7	7.5	6.3	5.8	4.6
<i>Total</i>	16.9	22.0	25.8	31.1	32.5	34.6	35.1	33.8	32.8	29.1	29.4

(a) Outside of school hours during the 12 months prior to interview in April 2000.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, April 2000* (4901.0).

## Sport and recreation

Australia is recognised internationally as a nation very much involved in sport. Sport and recreation form an integral part of Australian culture and there are believed to be many benefits associated with participating in sport and physical activity, including enjoyment, social interaction, health, personal achievement, national pride and community involvement.

In many ways sport unites and personifies the nation. Interestingly, we competed internationally as 'Australia' in sport before we federated as a nation. Sport and recreation can be a whole-of-life activity, and is an important part of a well-balanced lifestyle.

Governments invest in sport and recreation because it returns both tangible and intangible benefits to the nation. Federal, State, Territory and local governments all play an important role in the development of Australian sport and recreation. The provision of quality facilities, whether they be state of the art stadiums or community cycling paths, encourage physical activity and, importantly, good health.

## Administration

### Sport and Recreation Ministers' Council

The Sport and Recreation Ministers' Council provides the major mechanism for liaison between the Commonwealth Government and State and Territory Governments on matters concerned with sport and recreation in Australia. The Council is a forum for consultation and cooperation between the respective governments, its membership comprising ministers with prime responsibility for sport and recreation.

### Australian Sports Commission

The Australian Sports Commission (ASC) was established in 1989 and is responsible for the implementation of the Federal Government's sport policy, including the funding and development of sport. It works closely with State and Territory Governments and national sporting organisations.

Within the ASC, the Australian Institute of Sport (AIS) is responsible for the development of elite athletes and teams. Covering 27 sports, it has responsibility for developing joint or decentralised programs with State and Territory institutes and academies of sport. For the

purposes of elite sport development, the ASC integrates sports science and medical services, sports management activities, athlete welfare and technical support services. More information on the AIS is provided in the article which follows.

Also within the ASC, the Sports Development Unit aims to enhance the management and business capabilities of sports organisations and is developing the base of Australian sport through the Active Australia initiative. The ultimate aim of this initiative is to increase the number of Australians involved in sport in the long term. This is achieved through jointly funded partnerships between government, business, national sporting organisations and local sporting clubs. The emphasis on increased participation is delivered through the Commission's range of sport development programs including coaching, officiating, junior sport, women in sport, harassment-free sport, Indigenous sport, volunteers, club management, SportNet and research.

### National Sporting Organisations

Sports in Australia are managed and coordinated by National Sporting Organisations. Each organisation manages the participation and development of a specific sport in Australia. They are able to offer guidance and further contacts for those seeking information on their sport. There are 129 such organisations in Australia.

### Australian Sports Drug Agency

The Australian Sports Drug Agency (ASDA) is the custodian of Australia's athlete anti-doping program and plays a leading role, within Australian and international sports communities, in delivering drug testing and education services. ASDA also provides policy advice to sporting organisations and the Commonwealth Government regarding 'drugs in sport' issues. ASDA is an independent statutory authority and was established in 1990.

### Australia Sport International

Australia Sport International (ASI) was established by the Australian Government to connect international business to Australian suppliers of sport and recreation related goods and services. ASI helps organisations in the Australian sports and recreation industry to enhance their export performance by providing access to a range of services designed to support their international marketing efforts.

## Sport Industry Australia

The peak body for the sport and recreation industry in Australia is Sport Industry Australia. Established in 1976 as the Confederation of Australian Sport, it sees its role as maximising the contribution that sport and recreation makes to the health and wellbeing of individual Australians, their community and the Australian economy. Sport Industry Australia represents the sport and recreation industry to a wide range of government, industry, corporate, media and community organisations.

## Australian Olympic Committee

The Australian Olympic Committee (AOC) is recognised by the International Olympic Committee (IOC) as the National Olympic Committee in Australia, responsible for the protection and development of the Olympic Movement in this country, as well as the promotion of its goals and principles. The AOC is committed to the development of Australia's athletes, organising and funding Australia's Olympic Teams, encouraging the development of high performance sport, and spreading Olympism throughout the wider community.

The AOC is a non-profit organisation independent of government other than the contributions made by State Governments to the State Olympic Councils for the Olympic Team Appeal. The AOC raises the necessary funds for the preparation, participation and recognition of members of Australia's Olympic Teams through corporate sponsorship, licensing and traditional fundraising activities. Each State Olympic Council has the task of raising funds via traditional fundraising activities. The AOC is an Incorporated Association whose members are the National bodies of sports on the Olympic program.

The AOC provides funds through the Medal Incentive Scheme (MIS) and the Medal Reward Scheme (MRS). The MIS provides direct financial support and incentive to athletes and their coaches who are medal winners at the 2000 Olympic Games. The AOC committed \$18 million to fund the MIS over the four years prior to the 2000 Olympic Games.

## Sport and Recreation Training Australia

Sport and Recreation Training Australia (SRTA) is a national Industry Training Advisory Board for sport and recreation industries. It has eight State/Territory counterparts.

The primary roles of Sport and Recreation Training Australia are to advise government on, and assist industry with, vocational education and training matters for the sport and recreation industries.

Some of the key activities undertaken by Sport and Recreation Training Australia include:

- industry consultation, research and analysis relating to vocational education and training matters;
- information dissemination and marketing to all industry stakeholders;
- development and maintenance of national Training Packages;
- management of and participation in nationally based vocational education and training projects (e.g. workplace assessment, case studies, and support materials); and
- participation in industry and government committees, forums, networks, and consultation and planning processes.

SRTA has developed training packages for various sectors of the sport and recreation industry, including outdoor recreation, sport, fitness and community recreation. The latter two packages were released in 2001.

## Australian Council for Health, Physical Education and Recreation (ACHPER)

ACHPER is a national professional association representing people who work in the areas of health education, physical education, recreation, sport, dance, community fitness or movement sciences.

ACHPER is a membership based non-profit organisation, governed by a Volunteer Board comprising professionals from educational and community sectors. ACHPER advocates and lobbies on behalf of its members; undertakes research and provides an advisory consultancy service; conducts teacher professional development programs; and conducts leadership training programs for community fitness instructors.

## Australian Institute of Sport

### Establishment and growth

The Australian Institute of Sport (AIS) is the leading institution for the development of elite sport in Australia. Its results speak for themselves and it is regarded as a world best practice model for elite athlete development. The Institute was established following disappointing results from the Australian team at the 1976 Montreal Olympics in which Australia won just one silver medal and four bronze medals. The Commonwealth Government conducted a review of Australia's elite sport system, which determined that Australia needed a centre to prepare athletes for the rigours of international competition.

The AIS was opened by the Prime Minister, Malcolm Fraser, on Australia Day 1981 on a 65 hectare site, 10 minutes from Canberra's city centre. The first intake of 150 athletes in eight sports (basketball, swimming, weightlifting, track and field, gymnastics, netball, soccer and tennis) was based in Canberra under 26 world class coaches, as reported in an article in *Year Book Australia 1984*. Now the AIS offers scholarships every year to almost 600 athletes in 27 sports, and employs around 70 coaches. The 1990s also saw a decentralising of the national system, with programs now also located in Adelaide, Perth, Brisbane, Melbourne, Sydney, the Gold Coast and Mount Buller.

### Support programs

In 1989 the AIS first offered a scholarship to disabled athletes. An expanded scholarship program, Athletes with Disabilities, began in 1993.

Since 1995, the implementation of career development and education programs such as the Athlete Career and Education (ACE) program, have provided great benefits for Australia's elite athletes. This has encouraged them to adopt a more balanced and holistic approach to achieving success in life as well as sport. This has been shown to not only enhance their capacity to perform, but also to improve their chance of leading a fulfilling life when their sporting careers are over.

The Sports Science and Sports Medicine Division of the AIS leads the world in sport science and research developments. The Division comprises some of the world's leading authorities in physiology, biomechanics,

psychology, nutrition and sports medicine. The Division is credited with many revolutionary breakthroughs, including the ice-jacket used at the Atlanta Olympics, the 'super roo bike', and the use of the Altitude House as an important facility in helping athletes prepare for competition. The cutting edge work of the AIS in the field of sport science is best exemplified by the recent development (in conjunction with the Australian Sports Drug Testing Laboratory) of a test for erythropoietin (EPO); EPO is a hormone which occurs naturally in the human body, but artificial EPO can be injected in order to improve performance. This test was endorsed by the IOC Medical Commission and approved by the International Olympic Committee (IOC) Executive in the lead-up to the 2000 Olympics.

### Results

The turnaround in Australia's sporting performances since 1976 has been quite remarkable, climaxing in a best ever result at the Sydney Olympic Games. Furthermore, the number of sports in which Australia has won Olympic medals has increased from four to nineteen during this period (table 12.30).

**12.30 AUSTRALIA'S MEDAL TALLY AT OLYMPIC GAMES — 1976 to 2000**

Year	Host city	Gold	Silver	Bronze	Total
1976	Montreal	0	1	4	5
1980	Moscow	2	2	5	9
1984	Los Angeles	4	8	12	24
1988	Seoul	3	6	5	14
1992	Barcelona	7	9	11	27
1996	Atlanta	9	9	23	41
2000	Sydney	16	25	17	58

Source: National Elite Sports Council.

The AIS made a significant contribution to Australia's efforts at the 2000 Sydney Olympic Games, with 315 of the 620 members of the team being current or former AIS scholarship holders. Of the record 58 medals won at the Sydney Olympics, 31 were won by current or former institute athletes. They won 7 gold, 11 silver and 13 bronze medals. It was a similar story at the 2000 Paralympics, with just under half of the record 149 medals won by current or former AIS athletes. AIS Paralympians won

32 gold, 14 silver and 13 bronze medals (see also the article *A look back at the Sydney Olympics and Paralympics*).

The AIS scholarship programs are also aimed at developing world class Australian sportsmen and women for international competition in winter sports and in non-Olympic sports. In 1999 Australia won two world championships in skiing, with Zali Steggall winning the women's

slalom and Jacqui Cooper the women's freestyle aerials. Australia has also recently won the World Netball Championships, the rugby World Cup and the cricket World Cup. More than 60% of the members of these teams were former AIS scholarship holders.

The AIS initiative is widely recognised as the single most important factor in the resurgence of Australian sport on the world stage.

## References

Australian Sports Commission, *ASC Factsheets — Australian Institute of Sport*, at <http://www.ausport.gov.au/asc/media/factais.htm>

Pyke, F. and Norris, K. (National Elite Sports Council) 2001, *Australia from Montreal to Sydney: A History of a Change in Model*, in the proceedings of the 2nd International Forum on Elite Sport at the Centre d'Alt Rendiment of Sant Cugat, Catalonia, Spain.

Australian Institute of Sport, <http://www.ais.org.au>

## Funding

### Government funding for recreation and sport

Total (consolidated) expenditure by the three levels of government (Commonwealth, State and Territory, and local) on recreation in 1998–99 was \$4,775m. Most expenditure was by general government (\$3,447m compared with \$1,915m by public non-financial corporations). Of general government expenditure (before consolidation between sectors), Commonwealth government expenditure was \$236m, States and Territories spent \$1,767m and local governments \$1,515m. Of all public expenditure on recreation, current expenditure was far more significant than capital expenditure (\$3,890m compared with \$885m).

The Commonwealth Government, through the Australian Sports Commission, supports the development of sport in Australia. In 2001, the Government announced funding to sport totalling \$550m to be spent over four years. Of this, \$408m is aimed at elite athlete development, most of the remainder to go to the participation programs, drug-testing research and anti-doping initiatives.

### Business sponsorship

In 1996–97 about 22,700 employing businesses (3.7%) sponsored sport to the value of \$282m.

### Sport, recreation and gambling industries

There are over 11,000 businesses in the sports, recreation and gambling industries according to surveys conducted by the ABS.

There were 5,066 businesses in the sports industries at 30 June 1995. These businesses employed 58,414 persons and generated \$2,517m in income during 1994–95. There were 112,877 unpaid volunteers, representing 66% of persons working in sports industries.

Other recreation services, which include amusement parks or arcades, sideshows, circuses and agricultural shows, comprised 666 businesses, employing 10,138 persons and 3,518 volunteers.

Results of new surveys of these industries in respect of the 2000–01 financial year will be available by mid 2002.

There were 1,776 businesses in the gambling services industries at 30 June 1998. These businesses employed 37,035 persons and received \$7,935m in income, the major source of income (91%) being the takings (net of payouts to players) and commissions from gambling (table 12.31). Total expenses for the gambling services industries were \$7,518m, of which 35% were gambling taxes and levies.

There were 3,749 businesses in the hospitality clubs industry at 30 June 1998, employing 67,272 persons and receiving total income of \$6,013m. Of these businesses, 2,408 had gambling facilities and received income from gambling of \$3,208m.

Gambling services were also provided by 2,888 pubs, taverns and bars. The total net takings from gambling during 1997–98 from all businesses involved in gambling were \$11,091m, of which 57.7% (\$6,401m) was from poker/gaming machines, 12.9% from off-course TAB and 14.4% from lotteries, lotto style games, football pools, instant money and club keno.

Net takings from poker/gaming machines were \$3,595m for clubs; \$2,106m for pubs, taverns and bars; and \$700m for casinos.

The section *Gambling services* in *Chapter 21, Service industries* contains some further details for these industries.

## Involvement and participation in sports and physical activities

### Involvement in sport

In the 12-month period to the end of March 1997, some 4.7 million people (32% of all people aged 15 years and over) were involved in playing, coaching or organising a sport on at least one occasion (table 12.32). Over 4.1 million people (29%) had played a sport and 1.7 million (12%) (many of whom were also players) were involved as coaches, referees, administrators or in some other non-playing capacity.

**12.31 GAMBLING SERVICES AND HOSPITALITY CLUBS INDUSTRIES, Key Aggregates — 1997–98**

Industry	Number of businesses(a)	Income net of payouts to players	
		no.	\$m
Lotteries	134	2 782	2 545.1
Casinos	13	20 531	2 709.7
Gambling services n.e.c.	1 629	13 722	2 680.5
Total gambling services	1 776	37 035	7 935.3
Clubs (hospitality)	3 749	67 272	6 012.5

(a) At 30 June 1998.

Source: *Gambling Industries, Australia, 1997–98* (8684.0); *Clubs, Pubs, Taverns and Bars, Australia, 1997–98* (8687.0).

**12.32 INVOLVEMENT IN SPORT — 1993 and 1997**

Age group (years)	1993		1997	
	Number	Participation	Number	Participation
	'000	%	'000	%
Players	3 963.6	29.1	4 115.2	28.5
Paid	57.0	0.4	142.6	1.0
Unpaid	3 906.5	28.7	3 972.6	27.5
Non-players(a)	1 419.7	10.4	1 655.9	11.5
Paid(b)	166.1	1.2	203.9	1.4
Unpaid	1 253.6	9.2	1 452.0	10.1
Players and non-players(c)	4 504.9	33.1	4 669.8	32.4
Paid	213.3	1.6	328.5	2.3
Unpaid	4 291.6	31.6	4 341.3	30.1

(a) Includes players with non-playing involvement. (b) Refers to those who received some payment for their non-playing involvement only. (c) Persons who are involved both as players and non-players are counted only once.

Source: ABS data available on request, 1993 Involvement in Sport Survey; *Involvement in Sport, Australia, 1997* (6285.0).

## Participation in sport and physical activities

Table 12.33 shows the results of an ABS survey on the sports and physical activities in which Australians participated in 1999–2000.

The survey found that 54.7% of the population (7,541,700 people) aged 18 years and over participated as players in one or more sports and physical activities.

Participation rates were highest for the 18–24 year age group (73.5%), and declined steadily with age. Only 33.8% of the population aged 65 years and over had participated in a sport or recreational physical activity.

Males had a higher participation rate than females in every age group. Overall, males had a participation rate of 58.5% compared with 50.9% for females.

The most popular sport or physical activity undertaken during 1999–2000 was walking, with participation by almost 2.6 million people, or 18.8% of the population aged 18 years and over.

Results from the surveys conducted in 1996–97 of participants aged 15 years and over show that over \$2,762m was spent in that year on organised sport and physical activities by participants. This represents an average expenditure of \$693 per participant. Organisation of sports is through clubs, associations and schools, and the main areas of expenditure were clothing and equipment (\$814m), followed by weekly fees (\$570m), membership (\$538m) and transport (\$527m).

The most expensive organised sport or physical activity was motor sports, which had an average expenditure of \$1,787 in 1996–97. Other expensive sports for participants were horse riding (\$1,405), waterskiing/powerboating (\$1,277) and air sports (\$1,259).

## Popular sports and physical activities

In 1999–2000, participation by adults in activities organised by clubs or associations was highest in aerobics/fitness, golf, lawn bowls, tennis and netball. However, when non-organised participation is included, the activities which attracted the most participants were walking (about 2.6 million people), swimming (1.9 million), aerobics/fitness (1.4 million), golf (1.3 million) and tennis (1.0 million).

For men, the most popular activities were golf and walking; for women, walking and swimming had the most participants (table 12.34).

The most popular sports or physical activities varied with age. In the 18–24 year age group, swimming had the most participants (350,900), followed by aerobics/fitness (345,300) and walking (231,600). For people aged 45 years and over, walking (1,170,200) had the most participants, followed by golf (575,700) and swimming (485,300).

**12.33 PARTICIPATION IN SPORT AND PHYSICAL ACTIVITIES(a), By Age Group — 1999–2000**

Age group (years)	Males		Females		Persons	
	Number '000	Participation rate %	Number '000	Participation rate %	Number '000	Participation rate %
18–24	745.8	79.7	605.4	67.0	1 351.2	73.5
25–34	960.2	68.9	910.5	64.2	1 870.7	66.6
35–44	833.5	58.5	837.8	57.7	1 671.3	58.1
45–54	657.7	51.9	565.7	45.0	1 223.4	48.5
55–64	409.1	48.8	312.3	37.6	721.5	43.2
65 and over	372.6	39.4	330.9	29.2	703.5	33.8
<b>Total persons</b>	<b>3 979.0</b>	<b>58.5</b>	<b>3 562.7</b>	<b>50.9</b>	<b>7 541.7</b>	<b>54.7</b>

(a) Relates to persons aged 18 years and over who participated in sport or physical activity during a 12-month period prior to interview during 1999–2000.

Source: *Participation in Sport and Physical Activities, 1999–2000* (4177.0).

**12.34 ADULT PARTICIPATION IN SELECTED SPORTS AND PHYSICAL ACTIVITIES(a) — 1999–2000**

Sport/activity	No. '000	Participation rate %
MALES		
Golf	1 059.2	15.6
Walking	934.0	13.7
Swimming	885.3	13.0
Fishing	579.5	8.5
Aerobic/fitness	511.8	7.5
Tennis	508.1	7.5
Cycling	446.4	6.6
Running	425.9	6.3
Surf sports	247.2	3.6
Lawn bowls	243.5	3.6
FEMALES		
Walking	1 664.7	23.8
Swimming	1 026.3	14.7
Aerobics/fitness	933.1	13.3
Tennis	512.4	7.3
Netball	319.5	4.6
Golf	265.6	3.8
Cycling	232.6	3.3
Running	229.1	3.3
Tenpin bowling	164.8	2.4
Martial arts	150.4	2.1

(a) Persons aged 18 years and over.

Source: *Participation in Sport and Physical Activities, Australia, 1999–2000* (4177.0).**State and Territory differences**

Differences in levels of participation in sport and physical activities in different parts of the country are in part affected by the age profiles of those populations, but other factors such as climate and life-style preferences of individuals may also be important. These differences can be observed between the States and Territories. In 1999–2000 residents of the Australian Capital Territory (aged 18 and over) recorded the highest participation rate (65.3%). South Australia, on the other hand, recorded the lowest participation rate (50.1%) (table 12.35).

**Masters' sports**

Older people who have enjoyed competitive sport at younger ages are often keen to maintain or renew their active involvement by competing with their peers. The Australian Masters' Games is a multi-sports festival for mature-aged people conducted biennially in various locations throughout Australia. Ownership of the Games is held in trust by Sport Industry Australia.

**12.35 PARTICIPATION IN SPORT, By State/ Territory(a) — 1999–2000**

State/Territory	Males	Females	Persons
	%	%	%
New South Wales	57.2	48.3	52.7
Victoria	59.8	49.8	54.7
Queensland	57.6	51.5	54.5
South Australia	54.4	45.9	50.1
Western Australia	64.3	64.6	64.5
Tasmania	53.3	49.5	51.3
Northern Territory(b)	56.5	54.7	55.7
Australian Capital Territory	68.9	61.9	65.3
<b>Australia</b>	<b>58.5</b>	<b>50.9</b>	<b>54.7</b>

(a) Persons aged 18 years and over. (b) Figures for the Northern Territory refer to mainly urban areas only.

Source: *Participation in Sport and Physical Activities, Australia, 1999–2000* (4177.0).

The most recent (8th) Australian Masters' Games were held in Newcastle and The Hunter from 5 to 14 October 2001; they attracted competitors in 62 sports.

### **Attendance at sporting events**

Australians enjoy watching sporting events. According to a survey conducted by the ABS in November 1997, sporting programmes were the most commonly watched on television after news and current affairs programmes, and were viewed regularly by over half of all Australians aged 18 and over (55%).

As well as watching sporting events on television, attending sports events (such as club matches and international competitions) is a popular pastime. During the 12 months ended April 1999, about 7 million people, or 47% of all people aged 15 years and over, attended a sporting event (excluding junior and school sport). Men (55%) were more likely to have attended than women (40%). For both men and women, attendance rates were highest for the 15 to 24 year age group (69% and 58% respectively) and steadily declined with age. Among men aged 65 years and over, the attendance rate was 28%, while for women in this age group it was 17%.

The most popular spectator sport was Australian Rules football, 2.5 million people having attended this sport on at least one occasion during the year (table 12.36). Horse racing (1.8 million), motor sports (1.6 million) and Rugby League (1.5 million) were also among the most popular spectator sports.

### **Children's participation in sports and leisure activities**

#### **Children's participation in organised sport**

A survey of children's activities in the 12 months to April 2000 found that 1.6 million children (50%) participated outside of school hours in sport that had been organised by a school, club or association.

For boys and girls, participation peaked at the age of 11 years. However across all ages boys were more likely to participate than girls (the total participation rate was 66% for boys and 52% for girls) (table 12.37). There was also a higher percentage of boys participating in more than one sport (32% of boys compared with 20% of girls).

Of those who played organised sport outside of school hours, boys played more often: 52% of the boys played an average of once a week or more over the year ending April 2000, compared with 45% of girls. Older children played organised sport more frequently, with 57% of those 12 to 14 year olds who had participated doing so an average of once a week or more over the year compared with 36% of their 5 to 8 year old counterparts.

Of children in all the States and Territories, those in the Northern Territory had the highest participation rate (66%) in organised sport outside of school hours, while those in Queensland had the lowest participation rate (56%). Children living in the six State capital cities had a lower participation rate in organised sport outside of school hours than those living elsewhere in Australia (57% compared with 62%).

**12.36 ATTENDANCE(a) AT SELECTED SPORTING EVENTS — 1999**

Sporting event	Persons '000	Attendance rate(b)	
			%
Australian Rules football	2 509.2		16.8
Horse racing	1 756.4		11.8
Motor sports	1 574.3		10.6
Rugby League	1 501.1		10.1
Cricket	942.5		6.3
Soccer	621.2		4.2
Harness racing	534.8		3.6
Basketball	526.0		3.5
Rugby Union	446.2		3.0
Tennis	444.0		3.0
Dog racing	276.4		1.9
Netball	248.7		1.7

(a) By persons aged 15 years and over. (b) Proportion of the civilian population aged 15 years and over.

Source: *Sports Attendance, Australia, 1999* (4174.0).

**12.37 CHILDREN'S PARTICIPATION IN ORGANISED SPORT(a) — April 2000**

Age (years)	No.			Participation rate		
	Males '000	Females '000	Persons '000	Males %	Females %	Persons %
5	46.0	37.9	83.8	35.1	29.5	32.3
6	79.5	42.8	122.2	58.9	36.2	48.3
7	90.1	62.2	152.3	65.8	48.6	57.5
8	101.5	78.9	180.4	72.2	57.2	64.8
9	99.4	80.1	179.5	72.0	59.6	65.9
10	106.8	77.2	184.0	74.1	59.2	67.0
11	108.7	77.3	186.0	76.3	60.7	69.0
12	88.9	82.1	171.0	71.8	60.6	66.0
13	90.9	72.1	163.1	69.1	56.6	63.0
14	83.5	62.5	145.9	63.8	51.8	58.0
<b>Total</b>	<b>895.2</b>	<b>673.0</b>	<b>1 568.2</b>	<b>66.1</b>	<b>52.3</b>	<b>59.4</b>

(a) Outside of school hours during the 12 months prior to interview in April 2000.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, 2000* (4901.0).**Children's sports with the most participants**

The sports that attracted most boys were outdoor soccer (with a participation rate for boys of 20%), swimming (13%), Australian Rules football (13%) and outdoor cricket (10%). For girls, the most popular sports were netball (18%), swimming (16%), tennis (8%) and basketball (6%) (table 12.38).

About an equal percentage of girls and boys participated in athletics (including track and field) and hockey (50% of those involved in athletics and 51% of hockey players were girls). However, for some sports, there is a clear difference between the sexes in preferences or opportunities. Most (97%) netball players were girls while boys made up 98% of Australian Rules footballers, 97% of Rugby League players and 95% of outdoor cricket players.

In the two school weeks prior to interview in April 2000, skateboarding and rollerblading were undertaken outside of school hours by 31% of children aged 5 to 14 years. During the same period 64% of children rode a bike outside of school hours. These activities were significantly more popular among boys than girls (36% of boys and 26% of girls skateboarded or rollerbladed, 71% of boys and 56% of girls rode a bike). Of the less active leisure activities considered, 97% of both boys and girls watched TV or videos, and 80% of boys and 59% of girls played electronic or computer games in the two-week period.

Information about children's involvement in organised cultural activities, such as dancing and singing, and in art and craft activities during their leisure time, is included in the section *Children's participation in cultural and leisure activities*.

**12.38 PARTICIPATION IN THE MOST POPULAR SPORTS(a) — April 2000**

Sports	No.			Participation rate		
	Males '000	Females '000	Persons '000	Males %	Females %	Persons %
Swimming	177.0	203.1	380.1	13.1	15.8	14.4
Soccer (outdoor)	265.0	37.3	302.3	19.6	2.9	11.4
Netball	*6.4	234.9	241.4	*0.5	18.2	9.1
Tennis	124.8	99.1	223.8	9.2	7.7	8.5
Basketball	119.6	80.7	200.3	8.8	6.3	7.6
Australian Rules football	170.3	*4.1	174.4	12.6	*0.3	6.6
Cricket (outdoor)	133.6	7.3	140.9	9.9	0.6	5.3
Martial arts	72.7	31.9	104.6	5.4	2.5	4.0
Athletics and track and field	52.2	51.9	104.1	3.9	4.0	3.9
Rugby League	92.5	*2.5	95.1	6.8	*0.2	3.6

(a) Children aged 5 to 14 years who participated in organised sport outside of school hours during the 12 months prior to interview in April 2000.

Source: *Children's Participation in Cultural and Leisure Activities, Australia, 2000* (4901.0).

## A look back at the Sydney Olympics and Paralympics

### The Sydney 2000 Olympic Games

The Sydney 2000 Olympic Games, in the words of IOC President Juan Antonio Samaranch, were “the best games ever”. Held in Sydney from 15 September until 1 October 2000, the Games were a spectacular success. Performances at the Opening and Closing Ceremonies celebrated Australia’s history and culture. The games were declared open by the Governor General of Australia, Sir William Deane; the flame was lit by Indigenous Australian athlete Cathy Freeman; the Olympic Oath was spoken by triple gold medallist and Hockeyroo Rechelle Hawkes; and the Officials’ oath was pronounced by water polo official Peter Kerr. In a symbol of the power of the Olympic Movement, South and North Korea marched together under one flag in the Opening Ceremony, and four athletes from the newly independent nation of East Timor took part under the Olympic flag.

In all some 10,651 athletes (4,069 females and 6,582 males) from 199 nations competed in 28 sports and 300 events. The 2000 Australian team was the largest to ever represent Australia in Olympic competition; 629 athletes competed in Sydney, surpassing the 424 who competed at the Atlanta Games in 1996. The participation of the Olympic athletes of all nations was supported enthusiastically by packed audiences at every event, appreciating their sportsmanship and spirited competitiveness.

### Tickets, visitors and viewers

The Sydney Organising Committee of the Olympic Games (SOCOG) sold 92.7% of the 5.7 million tickets allocated, with a value of \$780m. The efforts of the 47,000 volunteers who supported the Games were widely praised. During the games, Sydney hosted 362,000 domestic and 110,000 international visitors. The global television audience for the Games was estimated to be 4 billion people, watching over 36 billion viewer hours. Within Australia, more than 10 million watched the opening and closing ceremonies and almost 9 million saw Cathy Freeman run in the 400 metres final. Sydney hosted 17,000 media personnel from throughout the world.

### Medal tally

Australia won 16 gold medals, its highest tally in Olympic history, exceeding the 13 won at the Melbourne Olympics of 1956. Australia’s athletes won gold in Archery, Athletics, Beach

Volleyball, Cycling, Equestrian, Hockey, Sailing, Shooting, Swimming, Taekwondo and Water Polo. Table 12.39 sets out the medal tally of the top twelve nations.

**12.39 2000 OLYMPICS, Medal Tally, Top Twelve Nations**

Nation	Gold	Silver	Bronze	Total
United States of America	40	24	33	97
Russian Federation	32	28	28	88
People's Republic Of China	28	16	15	59
Australia	16	25	17	58
Germany	14	17	26	57
France	13	14	11	38
Italy	13	8	13	34
Netherlands	12	9	4	25
Cuba	11	11	7	29
Great Britain	11	10	7	28
Romania	11	6	9	26
Korea	8	10	10	28

Source: <http://www.olympics.smh.com.au/tally.html>

### Some notable performances

Athletes from several countries won multiple medals, including: Australian Ian Thorpe who won three gold medals (400m freestyle, 4x100m freestyle, 4x200m freestyle) and one silver (200m freestyle); American Marion Jones, three gold medals (100m, 200m and 4x400m relay) and two bronze medals (4x100m relay, long jump); Dutchwoman Inge De Bruijn, three gold medals (50m freestyle, 100m freestyle, 100m butterfly) and one silver (4x100m freestyle); and compatriot, Dutchman Pieter van den Hoogenband, two gold medals (100m freestyle, 200m freestyle) and a bronze (50m freestyle).

Other athletes rewrote the record books by winning at successive Olympics. These included Australian Michael Diamond who won a gold medal in the men’s trap shooting, successfully defending the gold he won in Atlanta; and Australia’s four member equestrian team, consisting of Andrew Hoy, Matt Ryan, Phillip Dutton and Stewart Tinney, who won gold for the third successive time in the team three-day event. American Michael Johnson, with two gold medals (400m, 4x400m relay) became the first man to win gold on the track in the 400m in successive Olympics.

Steven Redgrave from Great Britain became the first rower to gain gold medals in five straight Olympics. Cuban Felix Savon became Olympic heavyweight boxing champion for the third consecutive time. German Birgit Fischer, with two gold medals in kayaking (K-4, 500m and K-2 500m), became the first woman in any sport to win medals 20 years apart. Finally Czech Jan Zelezny won a gold medal in the javelin event for the third consecutive time.

Mention should also be made of Cathy Freeman — her gold medal run in the 400 metres was Australia's first gold in a track event since Debbie Flintoff-King won in Seoul — and of the Australian women's hockey team, the Hockeyroos, who have now won three gold medals in the last four Olympics (1988, 1996 and 2000) and have been unbeaten in 18 consecutive Olympic Games matches.

### Sydney 2000 Paralympic Games

The Sydney 2000 Paralympic Games were the second largest sporting event ever held in Australia after the 2000 Olympic Games. The opening ceremony at Stadium Australia, on 18 October 18 2000, marked the start of eleven days of competition.

The Paralympics brought together 4,000 of the world's elite disabled athletes, from 122 countries, together with two independent athletes from East Timor, to strive for 550 gold medals on offer in 18 sports. They were the first Paralympics ever held in the Southern Hemisphere.

Paralympic Games ticket sales almost doubled organisers' early targets, with over 1.1 million sold, a Paralympic record and more than double the sales for the Atlanta Paralympics.

### Australian achievements

The result of those eleven days, astonishing given the size of Australia's population, was that Australia headed the medal tally by eighteen medals (table 12.40). Australian athletes won a total of 149 medals (63 gold, 39 silver, 47 bronze) across ten different sports. Of the 63 gold medals, over half (35) came in athletics; in addition, swimming provided 14 gold; cycling 10; equestrian 2; and tennis and sailing 1 gold each.

The Australian performance was led by Siobhan Paton who won six individual swimming gold medals (200m SM14 individual medley; 100m freestyle S14; 50m butterfly S14; S14 50m backstroke; 200m freestyle S14; 50m S14 freestyle).

Tim Sullivan was Australia's best track and field athlete with five gold medals. He won three individual golds (T38 200m; T38 100m; T38 400m) and combined with Darren Thrupp, Adrian Grogan and Kieran Ault-Connell to win a further two relay golds (T38 4X400m relay; T38 4X100m relay). Lisa Llorens was Australia's best female performer on the track with 3 golds (F20 high jump; T20 200m; F20 long jump) and a silver (100m T20).

Other excellent performances on the track were recorded by Neil Fuller who won two individual golds (T44 200m ,T44 400m) and one individual bronze (100m T44), then combined with Tim Matthews, Stephen Wilson and Heath Francis for a further two relay golds (T45 4x100m relay; 4x400m T46 relay). Heath Francis also won an individual gold (400m T46) and silver (T46 200m) to take his total to three golds and one silver. Greg Smith won three golds (800m T52; 5,000m T52; 1,500m T52), and Amy Winters won two golds (200m T46; 100m T46) and a bronze (T46 400m).

In the velodrome, Sanya Parker and Tania Modra combined for two golds (women's tandem cycling individual pursuit open; cycling women's tandem 1km time trial). Matthew Gray also won two golds: an individual (cycling mixed 1km time trial LC1) and a team gold with Paul Lake and Greg Ball (mixed team sprint).

### 12.40 2000 PARALYMPICS, Medal Tally — Top Ten Nations

Nation	Gold	Silver	Bronze	Total
Australia	63	39	47	149
Great Britain	41	43	47	131
Spain	39	30	38	107
Canada	38	33	25	96
United States of America	36	39	34	109
People's Republic of China	34	22	16	72
France	30	28	28	86
Poland	19	22	12	53
South Korea	18	7	7	32
Germany	15	42	38	95

Source:  
<http://www.olympics.smh.com.au/paralympics/tally.html>

### An unforgettable experience

At the Closing Ceremony, International Paralympic Committee (IPC) president Robert Steadward declared that the Games had been “an absolutely outstanding event”.

“This unforgettable Australian experience must unfortunately come to a close”, Steadward told the sell-out crowd of 87,000. “I hereby announce to you and the world that the 11th Paralympic Summer Games were the best ever”, he added to warm applause.

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## Introduction

This chapter starts by sketching the evolution of Australian industry from the time of settlement. It then presents an overview of the current structure and performance of the main industrial components of the Australian economy, and their relative contributions to overall economic activity, particularly in terms of production and employment. Statistics are presented at a broad industry level, generally equating to the Division level of the *Australian and New Zealand Standard Industrial Classification (ANZSIC)*.

While the statistics presented in this chapter provide the basis for comparisons across industries, care should be taken when making comparisons with data in the industry-specific chapters. Differences in the frequency, scope, statistical units and methodologies of the various ABS collections used to compile the statistics will affect the degree to which comparisons can be made.

Table 13.1 shows each industry's contribution to production and employment in the economy. Tables 13.2 to 13.5 provide more detailed indicators of economic activity by industry over the short and longer term. Each of these tables includes data covering all businesses in the economy. Table 13.6 provides the latest in a selected series of performance indicators for each industry, but its scope excludes non-employing businesses and entities in the general government sector. Tables 13.7 and 13.8 relate to number of businesses and employment by size of business.

The chapter concludes with a brief introduction to the chapters on economic issues — on Australia's industries, on certain cross-cutting issues, and on the macroeconomic perspectives.

## The evolution of Australian industry

Australia's economic development has been one of contrast and change. In the early years of settlement, between 1788 and 1820, there was little scope for industrial or commercial enterprises. The government, as both main producer and main consumer, established workshops to produce the basic necessities of life — flour, salt, bread, candles, leather and leather articles, blacksmith's products, tools and domestic items.

Between 1820 and 1850, the pastoral industry led Australia's economic development, and by 1850 it was supplying well over 50% of the British market for imported wool. The growth in the wool industry brought great advances in the rest of the economy, with local manufacturing industries being established in response to new market opportunities. Gold surpassed wool as Australia's major export earner throughout the 1850s and 1860s, resulting in a rapid expansion of banking and commerce. Increased public works activity during the 1870s played an important role in encouraging expansion in manufacturing.

From 1901 to 1930 manufacturing expanded further, with impetus from Federation and the elimination of customs barriers between States, and from the First World War. With the onset of the Second World War, the Australian manufacturing sector was sufficiently developed and diversified to respond to the demand for war materials and equipment. Key industries expanded and new ones developed rapidly to produce munitions, ships, aircraft, new kinds of equipment and machinery, chemicals, textiles and so on. After the war, all sectors of the economy experienced growth. The onset of the oil price rises in 1973–74 led the world into recession, and 'stagflation' (inflation coupled with slower growth in Gross Domestic Product (GDP)) affected all sectors of the economy. The modest employment growth between 1968 and 1979 was dominated by the service industries.

The 1980s and 1990s have seen a decline in the relative contribution to GDP from goods-producing industries and a rise in the contribution from service industries. The falling contribution from goods-producing industries is largely the result of a decline in Manufacturing's share of GDP. The Mining, Manufacturing and Electricity, gas and water supply industries have all experienced declining employment, along with outsourcing of some activities, particularly support services.

## Output and employment by industry

Two measures of the changing importance of an industry are its contributions to GDP at basic prices and to employment; these are illustrated in table 13.1.

The table shows that, in 1999–2000, Manufacturing remained the most significant industry in terms of its contribution to GDP. Property and business services was the only other

industry to contribute over 10% of GDP; it also contributed over 10% of total employment to be the third largest employing industry. Retail trade, with 15% of total employment, was the largest employing industry, followed by Manufacturing (13%).

## Profits, wages and output

Table 13.2 presents broadly the profits of businesses (referred to as gross operating surplus and gross mixed income) and the wages income of employees (referred to as compensation of employees) for 1999–2000, the change over 1998–99, and the average annual rate of growth over the years from 1991–92.

The table shows that profits rose in 1999–2000 in all industries except Retail Trade (down 4%) and Manufacturing (down 0.2%). The average for profits across all industries increased 8% in 1999–2000 over 1998–99. From 1991–92 to 1999–2000 profits grew by an average of 6% per year.

The strongest increases in profits in 1999–2000 were recorded for Personal and other services (27%), Mining (22%) and Finance and insurance (18%). In the period from 1991–92 to 1999–2000, there was an average annual increase in profits for all industries. Over this period, Personal and other services showed an average annual increase in profits of 13%, while profits for Communication services increased on average by 9%.

The table also shows the growth in wages. Movements in wages correlate with employment in the industry and average wages per person employed. The Personal and other services and Construction industries showed the largest increase (12%) in wages in 1999–2000.

The largest annual increase over the period from 1991–92 to 1999–2000 was recorded in the Property and business services industry (up by 11%), followed by the Culture and recreation industry (up 8%).

**13.1 INDUSTRY GROSS VALUE ADDED(a) AND EMPLOYMENT(b), By Industry — 1999–2000**

Industry	Industry gross value added		Employment	
	Contribution to GDP(c)	Contribution to total employment	'000	% (d)
	\$m	% (d)	'000	% (d)
Agriculture, forestry and fishing	18 717	3.0	438	4.9
Mining	27 559	4.4	76	0.8
Manufacturing	76 698	12.1	1 174	13.0
Electricity, gas and water supply	12 049	1.9	68	0.7
Construction	37 106	5.9	708	7.8
Wholesale trade	32 863	5.2	437	4.9
Retail trade	32 736	5.2	1 321	14.6
Accommodation, cafes and restaurants	12 983	2.1	450	5.0
Transport and storage	35 267	5.6	418	4.6
Communication services	18 812	3.0	180	2.0
Finance and insurance	41 615	6.6	337	3.7
Property and business services	74 192	11.7	1 023	11.3
Government administration and defence	23 289	3.7	(e)347	3.8
Education	28 011	4.4	615	6.8
Health and community services	34 482	5.5	857	9.5
Cultural and recreational services	10 573	1.7	218	2.4
Personal and other services	15 020	2.4	349	3.9
Ownership of dwellings	55 183	8.7	n.a.	n.a.
Taxes less subsidies on products	44 986	7.1	n.a.	n.a.
Statistical discrepancy	-331	n.a.	n.a.	n.a.
<b>Total</b>	<b>631 810</b>	<b>100.0</b>	<b>9 017</b>	<b>100.0</b>

(a) Industry gross value added at basic prices. (b) Estimates relate to May 2000 and are entirely sourced from the Labour Force Survey. (c) Gross value added at current prices. (d) Percentage contributions may not sum to 100% due to rounding.

(e) Defence forces are not included in the estimates of employment.

Source: Australian System of National Accounts, 1999–00 (5204.0); Labour Force, Australia, May 2000 (6203.0).

Wages in the Accommodation, cafes and restaurants industry rose by 11% in 1999–2000, with an average annual increase of 6% over the years from 1991–92 to 1999–2000.

Wages in the Electricity, gas and water supply industry rose by 3% in 1999–2000, but recorded an average annual decrease of 4% over the years from 1991–92 to 1999–2000. In contrast, the Mining industry showed a decrease of 2% in wages for 1999–2000, but over the eight years to 1999–2000 Mining showed an average annual growth in wages of 3% per year.

Table 13.3 shows the growth in each industry's gross value added in terms of chain volume measures, in 1999–2000 and over the longer term as an annual average over the years from 1991–92 to 1999–2000. While current price estimates reflect both price and volume changes, chain volume estimates reflect only volume changes, as the direct effect of price changes has been eliminated from the estimates. For more information on chain volume measures see the section *Chain volume or 'real' GDP* in *Chapter 29, National accounts*.

The three industries showing the largest growth in gross value added in 1999–2000 were Communication services (14%), Mining (10%) and Finance and insurance (10%).

The largest annual average increase in gross value added over the years from 1991–92 to 1999–2000 was recorded in the Communication services industry (11%).

## Changes in hours worked by industry

Table 13.4 shows that, over the period 1991–92 to 1999–2000, hours worked for all industries combined increased on average by 2% per year. The most substantial average annual increase was recorded in the Property and business services industry (up 6%); the most substantial average annual fall was in the Electricity, gas and water supply industry (down 5%).

**13.2 PROFITS AND WAGES, By Industry**

Industry	Profits (GOS(a) and GMI(b))			Wages (Compensation of employees(c))		
	1999–2000	Change from 1998–99	Average annual rate of growth 1991–92 to 1999–2000	1999–2000	Change from 1998–99	Average annual rate of growth 1991–92 to 1999–2000
			%			%
Agriculture, forestry and fishing	\$m	%	%	\$m	%	%
Agriculture, forestry and fishing	13 666	4.6	6.4	4 409	1.5	5.5
Mining	20 920	22.1	5.2	5 683	-1.5	2.7
Manufacturing	32 724	-0.2	6.8	40 863	5.8	4.2
Electricity, gas and water supply	8 345	12.8	0.1	3 329	3.0	-3.9
Construction	18 928	9.0	8.3	17 219	11.6	6.6
Wholesale trade	9 115	2.9	1.5	21 539	2.1	5.1
Retail trade	7 569	-3.6	1.0	23 116	5.2	6.4
Accommodation, cafes and restaurants	4 635	7.9	7.1	7 908	11.0	5.6
Transport and storage	15 371	8.2	5.6	18 322	4.0	4.7
Communication services	10 714	12.6	9.0	7 446	6.5	4.0
Finance and insurance	17 381	17.8	7.8	18 943	6.2	5.8
Property and business services	25 519	14.1	6.0	45 275	8.1	10.9
Government administration and defence	3 210	5.6	4.1	20 109	1.8	4.6
Education	2 926	4.6	6.3	24 649	5.7	5.3
Health and community services	5 760	5.6	6.1	28 091	3.7	4.9
Cultural and recreational services	4 518	3.6	7.0	5 663	8.3	7.9
Personal and other services	4 000	27.2	13.4	10 570	11.9	5.7
Ownership of dwellings	51 613	3.4	5.1	..	..	..
<b>All industries</b>	<b>256 914</b>	<b>7.8</b>	<b>5.7</b>	<b>303 134</b>	<b>5.7</b>	<b>5.7</b>

(a) Gross operating surplus (GOS) in current prices. (b) Gross mixed income (GMI) in current prices. (c) This was formerly known as Wages, Salaries and Supplements.

Source: Australian System of National Accounts, 1999–00 (5204.0).

**13.3 INDUSTRY GROSS VALUE ADDED(a), Chain Volume Measures(b), By Industry**

Industry	\$m	%	%
	1999–2000	Change from 1998–99	Average annual rate of growth 1991–92 to 1999–2000
Agriculture, forestry and fishing	19 005	5.3	3.9
Mining	26 183	9.8	3.7
Manufacturing	75 560	1.5	2.7
Electricity, gas and water supply	11 314	2.9	2.1
Construction	34 434	2.1	5.9
Wholesale trade	33 942	5.7	5.7
Retail trade	32 737	2.8	3.8
Accommodation, cafes and restaurants	12 692	7.1	4.4
Transport and storage	34 510	3.4	4.0
Communication services	19 549	14.0	11.0
Finance and insurance	41 451	9.7	6.5
Property and business services	72 938	7.9	6.7
Government administration and defence	22 702	-0.3	1.1
Education	26 294	-1.0	2.6
Health and community services	32 771	-1.2	1.8
Cultural and recreational services	10 097	1.2	2.6
Personal and other services	13 225	1.5	2.7
Ownership of dwellings	55 603	4.2	3.8
Taxes less subsidies on products	48 303	10.3	5.6
Statistical discrepancy (production-based)	-2 347	..	..
<b>All industries (GDP)</b>	<b>620 963</b>	<b>4.3</b>	<b>4.3</b>

(a) At basic prices. (b) Reference year for chain volume measures is 1998–99.

Source: Australian System of National Accounts, 1999–00 (5204.0).

**13.4 INDEXES OF HOURS WORKED(a), By Industry**

Industry	Index number	%	%
	1999–2000	Change from 1998–99	Average annual rate of growth 1991–92 to 1999–2000
Agriculture, forestry and fishing	105.0	5.0	0.6
Mining	94.0	-6.0	-1.1
Manufacturing	100.2	0.2	—
Electricity, gas and water supply	98.7	-1.3	-4.8
Construction	110.7	10.7	4.6
Wholesale trade	104.6	4.6	1.2
Retail trade	104.1	4.1	2.0
Accommodation, cafes and restaurants	107.6	7.6	3.1
Transport and storage	100.0	—	1.4
Communication services	110.6	10.6	3.2
Finance and insurance	101.4	1.4	0.1
Property and business services	104.9	4.9	6.3
Government administration and defence	99.3	-0.7	-0.4
Education	99.2	-0.8	1.6
Health and community services	100.3	0.3	1.9
Cultural and recreational services	102.3	2.3	3.2
Personal and other services	104.0	4.0	2.9
<b>All industries</b>	<b>102.8</b>	<b>2.8</b>	<b>2.0</b>

(a) Reference year 1998–99 = 100.

Source: Australian System of National Accounts, 1999–00 (5204.0).

In 1999–2000, hours worked fell in Mining (down 6%), Electricity, gas and water supply, Education, and Government administration and defence (all down 1%). The reductions in hours worked should be considered in the context of the corresponding increases in labour productivity achieved by some industries.

Most notably Electricity, gas and water supply, which shows an average annual decrease in hours worked since 1991–92 of 5% per year, shows an average annual increase in labour productivity of 7% over this period. This issue is discussed in greater depth in the next section, *Changes in labour productivity*.

It is interesting to compare the growth in hours worked with the growth in wages over the same period. In the Manufacturing industry, hours worked hardly changed over the period 1991–92 to 1999–2000, while wages for this industry grew at an average annual rate of 4%. Across all industries, the average annual change in wages was 6% per year, compared with an average change in hours worked of 2% per year.

In evaluating changes in hours worked, it is important to recognise that industry restructuring, outsourcing of some functions and contract employment have impacted more substantially on some industries than others. More detail on employment changes over time is included in *Chapter 6, Labour*.

## Changes in labour productivity

Changes in the number of hours worked provide another indicator of the level of economic activity of an industry. A developing or buoyant industry will generally show an increase in the number of hours worked over time. However, rapid growth in labour productivity within an industry may be associated with a decline in hours worked.

A general indication of such effects is provided in table 13.5, which shows the changes in labour productivity (measured here as chain volume gross product per hour worked) experienced by each industry between 1998–99 and 1999–2000, as well as the average rate of change over the period from 1991–92 to 1999–2000.

For some industries, principally those dominated by the public sector, the growth in the volume of output is derived using indicators of labour input because of a lack of suitable output indicators. Therefore, for these industries there are no meaningful measures of labour productivity growth. The remaining industries are known collectively as the market sector, and indexes of their labour productivity are shown in the table.

The average increase in labour productivity across all industries in the market sector between 1998–99 and 1999–2000 was 1%, while over the period from 1991–92 to 1999–2000 the average annual increase was 2%. Communication services showed the largest annual increase over the period 1991–92 to 1999–2000 of 8%.

Gross product per hour worked increased most markedly for 1999–2000 in the Mining industry (17%), with an average annual increase in labour productivity of 5% over the period from 1991–92 to 1999–2000. In 1999–2000 the index of gross product per hour worked also showed significant increases in Finance and insurance (8%).

Labour productivity in the Electricity, gas and water supply industry increased on average by 7% per year over the period from 1991–92 to 1999–2000; this industry's average increase in gross value added over the same period was 2%, hours worked fell by an annual average of 5%, and wages fell an average of 4% per year over this period. The Mining industry experienced growth in labour productivity of 5% per year over the period from 1991–92 to 1999–2000; this industry's average increase in gross value added over the same period was 4%, hours worked fell by an annual average of 1%, while wages increased at an average rate of 3% per year over this period.

As indicated in the table, in 1999–2000 Construction showed the largest decrease in labour productivity of 8%. However over the period from 1991–92 to 1999–2000 labour productivity increased at an annual rate of 1%. In 1999–2000 labour productivity decreased for this industry because the growth in the chain volume estimates of gross value added (2%) was less than the growth in hours worked (11%).

In contrast, labour productivity in the Communication services industry increased by an average of 8% per year over the period 1991–92 to 1999–2000, because gross value added grew faster (11% per year) than hours worked (3% per year).

These measures of labour productivity should be treated with care. Changes in the composition of labour, which are not captured in the hours worked measure, can affect output, which can also be affected by changes in inputs other than labour (e.g. capital). Finally, the extent to which the capacity of inputs is used can affect output per hour worked; for example, there will be an apparent increase in productivity when an input that was previously not fully used becomes fully used.

**13.5 INDEXES OF GROSS PRODUCT(a) PER HOUR WORKED, By Industry(b)**

Industry	Index number	%	Average annual rate of growth 1991–92 to 1999–2000
	1999–2000	Change from 1998–99	
Agriculture, forestry and fishing	100.3	0.3	3.3
Mining	116.9	16.9	4.8
Manufacturing	101.3	1.3	2.7
Electricity, gas and water supply	104.2	4.2	7.2
Construction	92.2	-7.8	1.2
Wholesale trade	101.1	1.1	4.5
Retail trade	98.8	-1.2	1.8
Accommodation, cafes and restaurants	99.5	-0.5	1.2
Transport and storage	103.5	3.5	2.6
Communication services	103.1	3.1	7.5
Finance and insurance	108.2	8.2	6.3
Cultural and recreational services	99.0	-1.0	-0.5
<b>All industries</b>	<b>101.4</b>	<b>1.4</b>	<b>2.3</b>

(a) Reference year for chain volume measures is 1998–99 = 100. (b) Estimates presented in this table relate only to industries in the market sector.

Source: Australian System of National Accounts, 1999–00 (5204.0).

## Industry performance

The relative performance of industries, like the relative performance of businesses, can be analysed using a combination of quantitative estimates (of the kind shown in earlier tables) and performance ratios. Various ratios commonly used in financial analysis are included in table 13.6. These show, for example, that in 1999–2000:

- industries which converted the highest proportion of their sales into profit (as represented by the profit margin) were Communication services, Finance and insurance and Agriculture, forestry and fishing;
- businesses in Construction, Communication services and Retail trade reported, on average, the highest return on assets;
- the industries with the highest returns on net worth were Communication services, Retail trade and Construction; and
- the greatest ability to service debt charges from profits (as represented by the interest coverage ratio) was recorded for Communication services, Construction and Personal and other services.

The derivations of the performance ratios shown in table 13.6 are as follows:

- *Profit margin* is operating profit before tax as a percentage of sales of goods and services plus interest income plus other operating income;

- *Return on assets* is operating profit before tax as a percentage of total assets;
- *Return on net worth* is operating profit before tax as a percentage of net worth;
- *Interest coverage* is the number of times that businesses can meet their interest expenses from their earnings before interest and tax; and
- *Investment rate* is the proportion of industry value added used for capital investment.

## Number of businesses and employment by size of business

This section outlines the growth in the number of Australian businesses, and in their employment, by employment size group, in 1999–2000 and over the ten year period from 1989–90 to 1999–2000. The analysis and tables cover businesses other than government enterprises and those classified to the Agriculture, forestry and fishing industries.

Table 13.7 shows details of the change in the number of businesses by employment size group, while table 13.8 shows the change in employment across the different employment size categories.

**13.6 INDUSTRY PERFORMANCE RATIOS(a), 1999–2000**

Industry	Profit margin	Return on assets	Return on net worth	Interest coverage	Investment rate
	%	%	%	times	%
Agriculture, forestry and fishing	18.1	4.0	4.9	4.3	39.0
Mining	17.6	7.4	18.2	5.0	39.7
Manufacturing	6.3	7.1	18.3	4.6	16.9
Electricity, gas and water supply	15.2	3.9	8.0	2.4	41.9
Construction	5.7	11.7	33.3	9.1	10.9
Wholesale trade	4.4	9.8	29.2	7.5	12.5
Retail trade	3.6	12.7	33.3	3.8	12.3
Accommodation, cafes and restaurants	6.0	6.1	13.5	3.7	19.1
Transport and storage	6.3	5.5	15.7	3.0	22.6
Communication services	20.9	15.1	35.2	9.6	44.2
Finance and insurance	18.3	1.5	8.7	1.5	..
Property and business services	13.4	7.7	14.7	7.6	14.4
Private community services	8.8	7.8	13.0	7.5	14.3
Cultural and recreational services	13.6	9.0	17.6	7.6	38.3
Personal and other services	9.8	9.4	14.8	7.9	16.7
<b>All industries(b)</b>	<b>9.0</b>	<b>4.0</b>	<b>13.0</b>	<b>2.6</b>	<b>(c)21.0</b>

(a) The underlying data include private employing and public trading businesses, but exclude non-employed businesses and entities in the general government sector. (b) Long-term debt to equity and Investment rate for All industries exclude Mining, Electricity, gas and water supply and Finance and insurance businesses. Interest coverage for All industries also excludes Mining and Electricity, gas and water supply. (c) Investment rate for All industries excludes Finance and Insurance industries.

Source: *Business Operations and Industry Performance, Australia, Preliminary* (8142.0).

**13.7 NUMBER OF BUSINESSES(a), By Employment Category of Business**

Employment category	'000	%	Average annual rate of growth 1989–90 to 1999–2000
	1999–2000	Change from 1998–99	1999–2000
Non-employed businesses	542.1	4.2	2.3
1–4 employees	365.7	-0.6	4.9
5–19 employees	167.1	4.6	3.5
20–99 employees	33.2	2.7	2.2
100–199 employees	3.7	-0.8	2.5
200 or more employees	2.7	-1.1	0.1
<b>Total</b>	<b>1 114.5</b>	<b>2.5</b>	<b>3.3</b>

(a) Excludes public trading and general government entities, and businesses in the Agriculture, fishing and forestry industries.

Source: *Small Business in Australia Update 1999–2000* (1321.0.55.001); ABS data available on request.

**13.8 PERSONS EMPLOYED(a), By Employment Category of Business**

	'000	%	Average annual rate of growth 1989–90 to 1999–2000
	1999–2000	Change from 1998–99	1999–2000
Persons working in their own businesses			
Own account workers	687.4	4.4	2.3
Working proprietors and partners in employing businesses	289.2	-3.5	-0.8
Employees			
Employees in businesses employing 1–4 persons	760.2	-1.0	3.7
Employees in businesses employing 5–19 persons	1 444.2	3.6	3.0
Employees in businesses employing 20–99 persons	1 287.3	0.7	1.8
Employees in businesses employing 100–199 persons	512.6	-0.9	2.0
Employees in businesses employing 200 or more persons	1 753.9	0.6	1.0
<b>Total employees</b>	<b>5 758.2</b>	<b>1.0</b>	<b>2.0</b>
<b>Total persons working</b>	<b>6 734.8</b>	<b>1.1</b>	<b>1.9</b>

Source: *Small Business in Australia Update 1999–2000* (1321.0.55.001); ABS data available on request.

The tables show that in 1999–2000 there were 1,114,500 non-agricultural private sector businesses operating in Australia, employing around 6.7 million people. Over the period from 1989–90 to 1999–2000, the total number of businesses increased by an average of 3.3% per year, while the total number of persons working grew at 1.9% per year. By comparison, during the twelve month period 1998–99 to 1999–2000 the number of businesses grew by 2.5%, and the number of persons working increased by only 1.1%.

Over the period 1989–90 to 1999–2000 the average annual rate of growth in numbers of businesses varied across the different size categories, ranging from 0.1% for businesses with 200 or more employees to 4.9% per year for businesses with 1–4 employees. Changes over the twelve month period 1998–99 to 1999–2000 were even more variable, with decreases at either end of the size spectrum. The number of businesses with 200 or more employees fell by 1.1%, the number of businesses with 100 to 199 employees fell by 0.8% and the number of 'micro' businesses (1 to 4 employees) fell by 0.6%. In contrast, the number of businesses with 5 to 19 employees (i.e. other small businesses) grew by 4.6% over the 12 months from 1998–99 to 1999–2000.

Change in the number of persons employed across the different size categories generally reflected the change in numbers of businesses, with the size group 1–4 employees recording the strongest average annual growth rate (3.7%) over the period from 1989–90 to 1999–2000. In contrast, over the period from 1998–99 to 1999–2000 this size group recorded the largest decrease in number of employees (1%). Over the same period there was a decline in the number of working proprietors and partners of 3.5%, but there was an increase in own account workers of 4.4%.

## **The chapters on economic issues — a guide**

*Chapters 14 to 30* address economic issues — Australia's industries, some cross-cutting issues, and the macroeconomic perspectives.

### **Industries**

*Chapters 15 to 24, 26 and 27* provide a detailed discussion of individual industries, their structure, performance and activities.

*Chapter 15, Energy* presents information on the energy sector — its resources, the supply and use of energy products, conservation initiatives and environmental issues. The export of energy products, earned Australia \$13,996m in 1998–99, representing 16% of the value of all exports in that year. In comparison, \$4,529m was spent on energy imports, mainly crude oil and petroleum products. This chapter should be read in conjunction with *Chapter 14, Environment* (see below), given the close links between the production and consumption of energy products and their environmental impacts.

*Chapter 16, Agriculture* presents a detailed picture of Australia's agriculture industry, including aspects such as land use, commodity production, livestock numbers and employment. Australian agriculture is a vital industry occupying a significant place in global rural trade, with wool, beef, wheat, cotton and sugar being particularly important. Australia is also an important source of dairy produce, fruit, rice and flowers. The chapter concludes with a Special Article on understanding Australia's agricultural exports data.

The main features of two important primary industries in Australia, forestry and commercial fishing, are presented in *Chapter 17, Forestry and fishing*.

The mining industry is profiled in *Chapter 18, Mining*. Australia continues to rank as one of the world's leading mineral resource nations, and minerals exports are the nation's largest export earner.

The manufacturing industry is discussed in *Chapter 19, Manufacturing*. This chapter presents a range of data about manufacturing as a whole and its constituent industries. It is an important sector in the Australian economy, contributing about 13% of Australia's GDP and 12% of employment. However, the sector's share of Australian GDP has fallen over the past 20 years. The chapter includes an article on the importance of elaborately transformed manufactures to Australia's manufacturing production and exports.

*Chapter 20, Construction* provides an analysis of the construction industry and its activities.

The Construction industry engages in three broad areas of activity: residential building (houses, flats, etc.), non-residential building (offices, shops, hotels, etc.), and engineering construction (roads, bridges, water and sewerage, etc.). A number of other parts of the Australian economy are also closely linked to the construction industry, including parts of the manufacturing, wholesale and retail trade and finance industries, in supplying components, fittings and furnishings, and in financing construction. The chapter contains two articles, on the construction industry's linkages with the Australian economy, and on the drivers of the demand for housing.

A profile of Australia's service industries is included in *Chapter 21, Service industries*. These industries are the most significant and fastest growing component of the Australian economy. This chapter presents them in overview, and provides a range of statistical information for a selection of the service industries, with a particular focus on those surveyed in the ABS's rotating program of service industries collections. The chapter includes an article on retailing in the 1990s.

*Chapter 22, Tourism* presents statistics on Australia's tourism activities, both domestic and international. In an economic context, the effects of tourism are to generate economic activity and to transfer such activity between different parts of the economy. Tourism-related activity is now recognised as a major contributor to total economic activity. In particular, international tourism has experienced substantial growth in the past decade or so. The chapter includes an article on measures of tourism's contribution to the Australian economy.

The transport industry and transport activities are discussed in *Chapter 23, Transport*. Transport has great economic and social impact, generating substantial employment and contributing significantly to GDP, with numerous support industries ranging from automotive manufacturers to travel agencies. There are also social costs of transport — such as road accidents, traffic congestion, fuel emissions, aircraft noise pollution and shipping oil spills.

The chapter includes a short article on the history of the airline Ansett Australia.

*Chapter 24, Communications and information technology* covers the communication services industries, which encompass telecommunication services, and postal and courier services.

Communication services overall has been one of the fastest growing industries in Australia. The chapter also canvasses the use of information technology by businesses, farms and households.

*Chapter 26, Financial system* provides an analysis of Australia's financial system and its main institutions, markets and activities.

*Chapter 27, Government finance* presents statistics on the the financial operations and financial position of the Australian public sector, comprising general government entities, public financial and public non-financial corporations. The chapter includes an article on accrual-based Government Finance Statistics.

## Cross-cutting issues

Two chapters discuss cross-cutting issues affecting the Australian economy.

*Chapter 14, Environment* discusses a range of contemporary environmental issues affecting Australia. These include environmental attitudes and behaviour in Australian households; the condition of Australia's freshwater resources; Australia's land resources; protecting the marine environment; and atmosphere and climate change. The chapter includes an article on the influence of lifestyles on environmental pressures.

As indicated above, the chapter should be read in conjunction with *Chapter 15, Energy*.

*Chapter 25, Science and innovation* presents information on investment (in terms of human resources and expenditure) in research and development by broad sector, and on the incidence and impacts of innovation in Australian industry. The chapter concludes with a Special Article on research and development in the Information and Communications Technologies industries.

## The macroeconomic perspectives

The remaining three chapters focus on various macroeconomic perspectives on the Australian economy.

*Chapter 28, Prices* discusses a range of price indexes providing summary measures of the movements in various categories of prices. Price indexes are used extensively to analyse and monitor price behaviour, and to adjust government payments such as pensions. The chapter provides an outline of the major consumer and producer price indexes, their history, and their underlying concepts and methodology. It also outlines the ABS's producer price indexes in a Stage of Production framework, and output price indexes for selected services. The chapter includes an article on recent developments in producer and international trade price indexes, and concludes with a Special Article on analytical indexes measuring price impacts on the living costs of selected Australian household types.

*Chapter 29, National accounts* provides a systematic summary of national economic activity, as embodied in Australia's system of national accounts. The system includes national income, expenditure and product accounts, financial accounts, the national balance

sheet and input-output tables. At their summary level, the national income, expenditure and product accounts reflect key economic flows: production, the distribution of incomes, consumption, saving and investment. At their more detailed level, they are designed to present a statistical picture of the structure of the economy and the detailed processes that make up domestic production and its distribution. The chapter includes some summary national balance sheet measures, and two articles, on new volume estimates for health and education services, and a balance sheet for Australia in real or volume terms.

*Chapter 30, International accounts and trade* presents statistics on Australia's exports and imports of goods, international trade in services, international investment transactions, and the levels of Australia's foreign financial assets and liabilities. These statistics are used by economic analysts and policy advisers to monitor, evaluate and forecast developments in Australia's external trade and external sector accounts, to analyse patterns of trade and to assess types of transactions and financial claims and liabilities between Australian residents and non-residents. The chapter concludes with a Special Article on bilateral reconciliation studies of merchandise trade.

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## Introduction

Australia's growing economy and its increasing use of energy and other resources have brought prosperity and wellbeing to many Australians. However, our economic activities and consumption patterns also have environmental consequences. The way we manage our natural resources — and the waste products that we generate — can impact on the social, economic and environmental options of present and future generations.

The chapter begins by presenting information on the attitudes and behaviours of households in relation to the environment. Consumer choices and lifestyle influence environmental pressures. This first section analyses the recycling and waste management practices of households, and includes an article which explores the varying demand for water implicit in the water consumption patterns of Sydney households.

The following sections discuss a selection of issues related to the use and/or condition of Australia's land, water and atmosphere. Topics include: the condition of Australia's freshwater resources; protecting the marine environment; land degradation and management; nature based tourism and world heritage; and Australia's greenhouse gas emissions.

The discussion of Australia's greenhouse gas emissions also introduces the topic of energy production and consumption in Australia, which is discussed in *Chapter 15, Energy*.

The Environment and Energy chapters are linked, in that some of the environmental issues discussed in Environment chapter are among the consequences of the issues of energy production and consumption discussed in the Energy chapter.

## Environmental attitudes and behaviour in Australian households

### Environmental problems: ranking among social issues

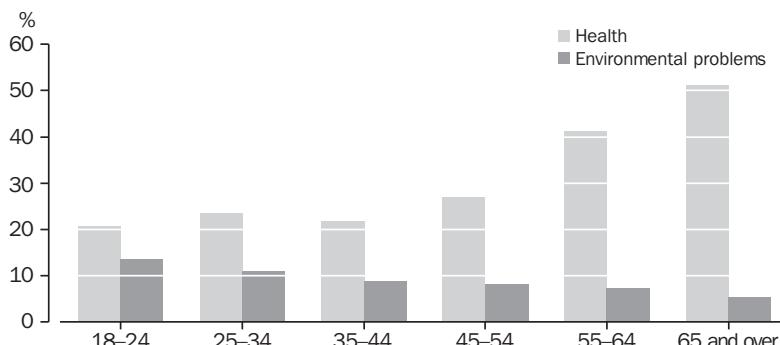
In 1999 around 9% of adult Australians ranked environmental problems as the most important social issue (table 14.1). The proportion of people choosing health as the most important social issue increased for older age groups, while progressively fewer Australians chose environmental problems as their most important social issue as their age group increased in years (graph 14.2).

**14.1 MOST IMPORTANT SOCIAL ISSUES, Adult Australians — 1999**

Issue	%
Health	29.7
Crime	25.5
Education	16.6
Unemployment	13.3
Environmental problems	9.0
Interest rates	3.1
Can't decide/don't know	2.8

Source: *Environmental Issues — People's Views and Practices* (4602.0).

**14.2 HEALTH AND ENVIRONMENTAL PROBLEMS AS MOST IMPORTANT SOCIAL ISSUE  
By Age Group — 1999**



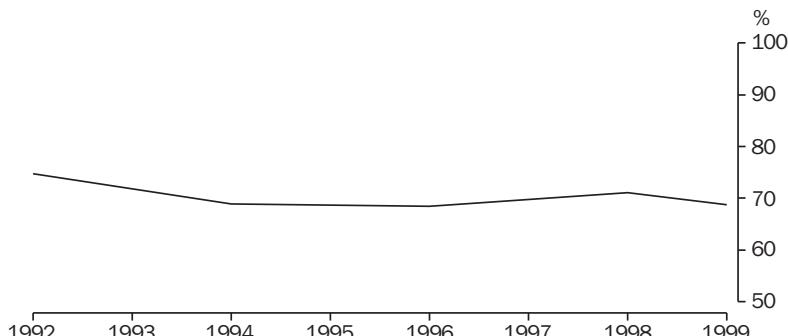
Source: *Environmental Issues: People's Views and Practices* (4602.0).

Australians who did not nominate the environment as their most important social issue were asked if they were concerned about environmental problems; in 1999 some 69% indicated that they were. The proportion of people expressing concern for the environment has declined slowly since 1992 (graph 14.3). People with higher incomes and more education are more likely to express concern for the environment (ABS 1996). However, higher household incomes can also increase environmental pressures because of the link between affluence and increased consumption of resources and waste production (Yencken and Wilkinson 2000).

### **Donating time and money to environmental protection**

A study of the proportion of households donating time or money to environmental protection between 1992 and 1998 found an overall decline in the proportion in every State and Territory (graph 14.4). States and Territories that showed the largest falls were the Northern Territory (by 16%), the Australian Capital Territory (13%), Queensland (12%), and Western Australia (11%). New South Wales showed the smallest fall (5%) (Alle, Aravena and Henty 2001).

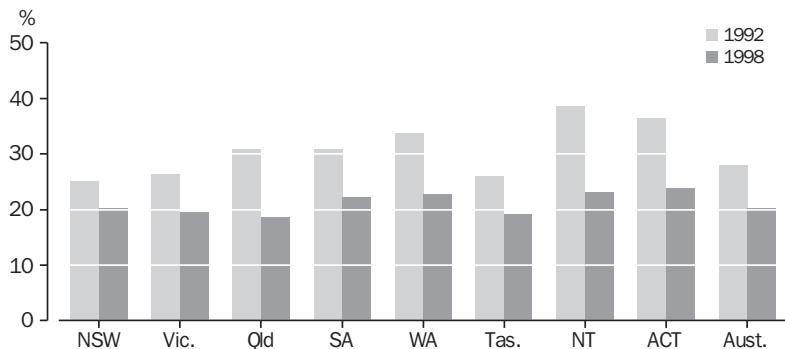
**14.3 PEOPLE CONCERNED FOR ENVIRONMENTAL PROBLEMS, Australia(a)**



(a) Households were surveyed in 1992, 1994, 1996, 1998 and 1999.

Source: *Environmental Issues: People's Views and Practices* (4602.0).

**14.4 DONATING TIME OR MONEY FOR ENVIRONMENTAL PROTECTION, Households By State and Territory**



Source: *Environmental Issues: People's Views and Practices* (4602.0).

The study also compared households located in the capital city of each State with those in the rest of the State (the comparison could not be done for households in the ACT and NT). It found that there were no large differences, in 1992 or 1998, in the proportions of households in the two categories donating time or money (graphs 14.5 and 14.6).

## Household waste management

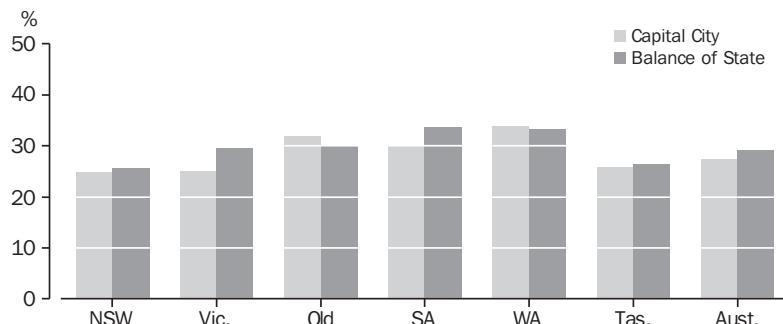
### Household recycling

Household solid waste is defined as waste from domestic premises; it includes household refuse, garden waste and other discarded materials, such as disused furniture. An important response to household waste is recycling. Household recycling has increased in Australia during the nineties: in

1992 around 85% of people recycled some items of waste; by 2000 this had risen to about 97%. Paper, old clothing, plastic bags and glass were the items most commonly recycled (graph 14.7). Only a small proportion of Australian households (just under 7% in March 2000) recycle all the waste items that can be recycled.

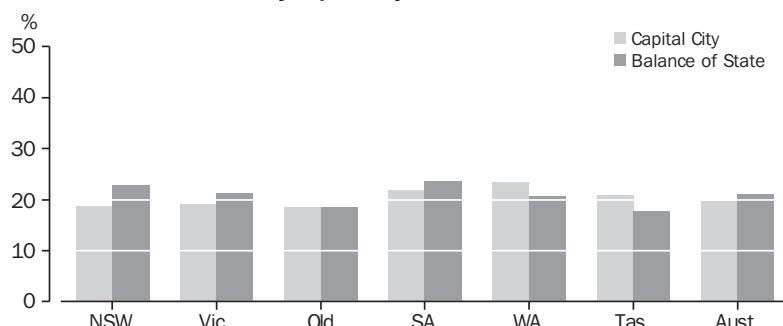
While recycling rates have improved, more household waste still goes to landfill than is recycled; an audit in 1997 found that the average Australian household produced 15.7 kg of waste for collection each week (Beverage Industry Environment Council 1997). This comprised 11.9 kg of garbage, 3.1 kg of recyclables, 0.2 kg of contaminants and 0.5 kg of green waste.

**14.5 DONATING TIME OR MONEY FOR ENVIRONMENTAL PROTECTION,  
Households by Capital City/Balance of State — 1992**

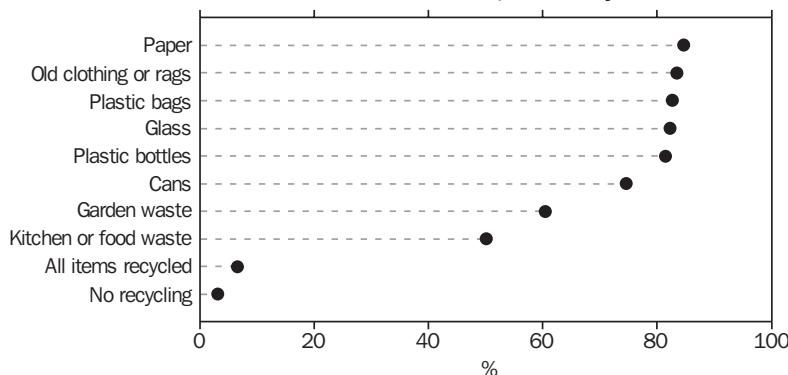


Source: ABS data available on request, household survey of people's views and practices on environmental issues.

**14.6 DONATING TIME OR MONEY FOR ENVIRONMENTAL PROTECTION,  
Households by Capital City/Balance of State — 1998**



Source: ABS data available on request, household survey of people's views and practices on environmental issues.

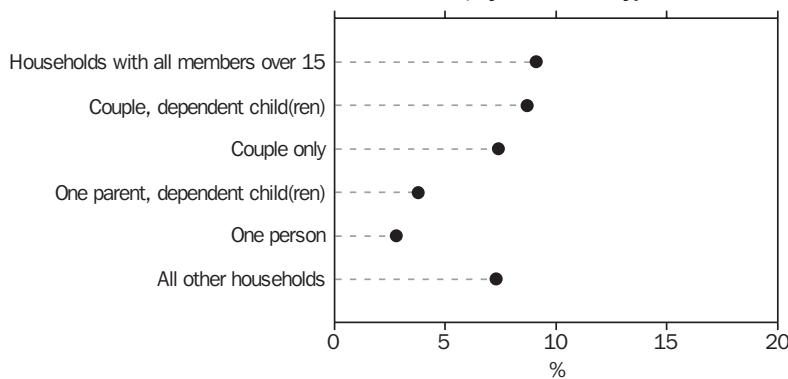
**14.7 HOUSEHOLDS INVOLVED IN RECYCLING, Items Recycled — 2000**

Source: *Environmental Issues: People's Views and Practices* (4602.0).

Recycling behaviour in Australia is different for different types of households. For example, one person households recycle less than all other types of households (graph 14.8). The most common reason provided by the 93% of Australian households that did not fully recycle in 2000 was a lack of recyclable materials in their waste (around 73% of the households not fully recycling). The next most common reason cited

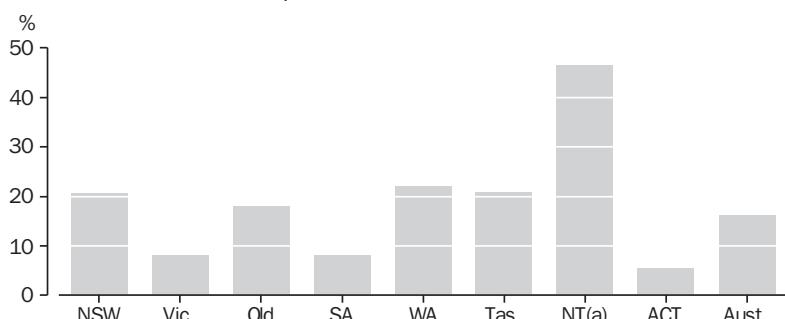
by households was the absence of recycling services or facilities; households from the Northern Territory were the most likely to select this reason for not fully recycling (graph 14.9).

Only a small proportion of households (around 3%) in Australia recycled no waste items at all in 2000; this proportion has fallen in every State and Territory since 1992 (graph 14.10).

**14.8 HOUSEHOLDS RECYCLING ALL ITEMS, By Household Type — 2000**

Source: *Environmental Issues: People's Views and Practices* (4602.0).

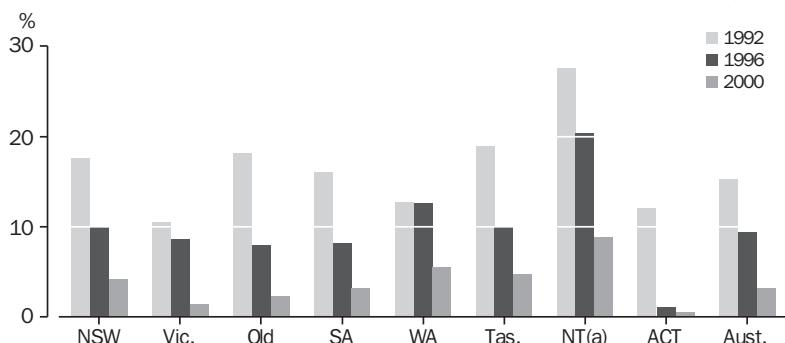
**14.9 HOUSEHOLDS NOT FULLY RECYCLING,  
No Services/Facilities Given as Reason — 2000**



(a) Northern Territory data refer mainly to urban areas.

Source: *Environmental Issues: People's Views and Practices* (4602.0).

**14.10 HOUSEHOLDS NOT RECYCLING ANY WASTE, By State and Territory**



(a) Northern Territory data refer mainly to urban areas.

Source: *Environmental Issues: People's Views and Practices* (4602.0).

### National targets for minimisation of solid waste

While recycling of solid waste by households is important, waste minimisation by all sectors has been seen by policy makers as the key to reducing the environmental pressures arising from solid waste going to landfill. In 1990 the Australian and New Zealand Environment and Conservation Council set a national target of a 50% reduction in waste going to landfill by the year 2000, based on 1990 per capita levels. This target has not been met, and it is possible that the levels of waste going to landfill have not been reduced at all (the uncertainty stems from a lack of consistent national data) (Chalkley Consulting and Global Environmental Consulting 2000). Estimates of household waste

produced in Australia in the early nineties were around 400 kg per person per year (OECD 1999). Total solid waste going to landfill in Australia in 1996–97, however, was around 1,100 kg per person per year (total solid waste includes waste associated with councils servicing residential areas as well as commercial, industrial, construction and demolition waste) (ABS 1998). As the construction and demolition industries are thought to generate up to 40% of all solid waste going to landfill in Australia, businesses in these industries, in partnership with government, have initiated and funded their own improvements to solid waste management (Environment Australia 2000). Assessing the performance of the household sector in waste minimisation remains problematic.

### Household hazardous waste

Households accumulate hazardous waste, such as garden chemicals and paint products. In 2000 a smaller proportion of households (21%) took their household hazardous waste to a dump or

central collection point than in 1996 (30% of households). This decline was despite an increase in households' awareness of the availability of facilities in their area for the safe disposal of household hazardous waste (37% awareness in 2000 compared to 31% in 1996).

## The influence of lifestyles on environmental pressure

*This article was contributed by Manfred Lenzen, School of Physics, The University of Sydney.*

Living means consuming, and consuming causes resource depletion and environmental degradation. Some of these contributions to environmental pressure arise from activities occurring directly in the household. These are, for example, the consumption of water in the house, or the emission of pollutants when driving a private car. The resources needed and pollutants emitted by households are called *direct requirements*.

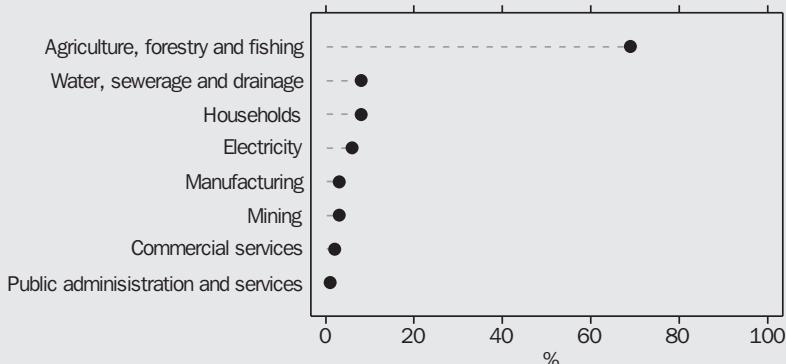
Households also cause environmental pressure indirectly through the consumption of goods and services. The corresponding resources and pollutants needed to satisfy consumer demand are called *indirect requirements*. Examples of indirect water requirements for the activity 'driving a private car' include the water used during the assembly of the car and for producing the steel sheets for the car manufacturer, the cooling water used during the generation of the electricity for the steel plant, the water used for dust suppression and washing while mining the coal for the power plant, and so on. This process of industrial interdependence proceeds infinitely in an upstream direction, through the whole life cycle of all products, like the branches of an infinite tree.

By calculating direct and indirect resource and pollutant requirements of goods and services purchased by households, the influence of lifestyles on environmental pressure can be investigated in a comprehensive way (Lenzen 1998). Lifestyle choices and changes include family size, home type, floor space and location, comfort through appliance ownership, mobility through car ownership, out-of-home leisure and holiday travel, and are in turn affected by other socioeconomic and demographic trends such as income growth,

increasing women's participation in the workforce, and the ageing of the society. These trends often influence overall environmental pressure in a much stronger way than technological improvements. In this article, the effect of lifestyles on environmental pressure are illustrated for the example of water requirements of the population of Sydney.

Apart from being one of the driest continents, Australia experiences a spatially and temporally highly variable climate that includes periodic drought, leading to a relatively unpredictable water supply. On the other hand, Australian net water demand has increased by 19% between 1994 and 1997, resulting in water being a critical resource in some Australian agricultural and urban areas. For example, in the Murray–Darling Basin, which accounts for more than 50% of Australian water use, water resources are already fully committed, and governments recently agreed on capping water diversions at 1994 levels (Murray–Darling Basin Ministerial Council 1995). Nevertheless, significant environmental damage has occurred in the form of widespread soil and water salinisation (Australian Academy of Technological Sciences and Engineering, and Institution of Engineers Australia 1999).

Graph 14.11 shows a breakdown of 1996–97 Australian water use, excluding the regulated discharge of hydro-electric power plants, aquaculture, drainage and sewerage providers, and fossil-fuelled power plants. More than two-thirds of Australian water is used for irrigating crops for animal and human consumption (38% livestock and pastures, 3% grains excluding rice, 7% sugar, 7% rice, 6% cotton, 6% fruit and vegetables). All other industry sectors use comparatively small amounts.

**14.11 AUSTRALIAN WATER USE, By Sector — 1996–97**

Source: Water Account for Australia, 1993–94 to 1996–97 (4610.0).

By combining the sectoral breakdown of industrial water usage depicted in graph 14.11 with data on industrial interdependence (Australian input-output tables; ABS 1999) it is possible to calculate *water use intensities* (Lenzen and Foran 2001). These intensities describe the amount of water needed throughout the whole economy in order to provide final consumers with one dollar's worth of various goods or services, or in other words, the amount of water *embodied* in that one dollar's worth of quantity. Table 14.12 shows that agricultural products have the highest water intensities, followed by food items and manufacturing and mining products. Services are characterised by low water intensities.

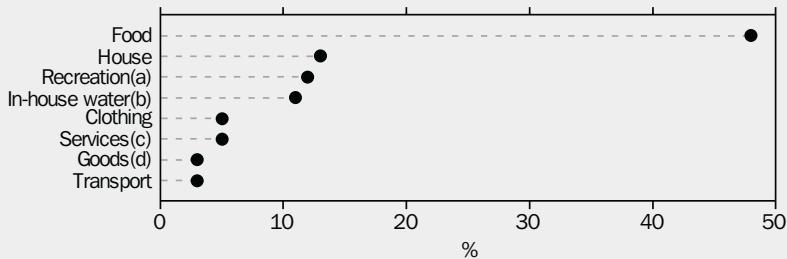
Multiplying water intensities with figures on household expenditure (from the 1998–99 Household Expenditure Survey (ABS 2000a)) yields a household budget in terms of embodied water. A breakdown of such a budget is depicted in graph 14.13 for an average Sydney household. All categories except for 'in-house water' describe embodied water. The total water budget of an average Sydney household presented in the graph is about 3 million litres of water. The breakdown demonstrates the

importance of indirect water requirements: in-house or direct water use is only 11% of the total water requirements.

**14.12 EMBODIED WATER INTENSITIES, Selected Goods and Services Produced in Australia**

Product	Water intensity Litres/\$
Rice (in the husk)	7 459
Seed cotton	1 600
Sugar cane	1 239
Dairy products	680
Wine	503
Beef products	381
Vegetables and fruit	103
Clothing	90
Paper products	30
Coal, ores and other mining products	24
Motor vehicles	15
Electronic equipment, TV, household appliances	16
Phone, FAX and mail	11
Banking and insurance	7
Education and insurance	7

Source: Lenzen and Foran 2001.

**14.13 TOTAL WATER BUDGET OF AN AVERAGE SYDNEY HOUSEHOLD**

(a) Restaurants, entertainment, sports and other uses. (b) Direct water use by households, such as showering or washing clothes. (c) Services includes communication, banking, insurance, health care, education and other services. (d) Goods include books, stationery, hardware, jewellery and various other items.

Source: Lenzen and Foran 2001; ABS 1998-99 Household Expenditure Survey –Detailed Expenditure Items (Confidentialised Unit Record File).

Household water budgets vary according to socioeconomic and demographic factors, which is shown in table 14.14 for fourteen Sydney Statistical Subdivisions. The columns in table 14.14 contain in-house water use, embodied mains and surface water, and two important household characteristics. The list is sorted in order of decreasing per capita income, which demonstrates that the total water budget is primarily determined by

income. Household size does not show a clear relationship with total water use. It is interesting to see that, although the income of Northern Beaches households is below that of households in the Lower North Shore, their water budget is higher. This is due to differences in the consumer basket of the respective households: Northern Beaches households appear to be consuming relatively more water-intensive items.

**14.14 IN-HOUSE WATER USE, EMBODIED WATER, GROSS INCOME AND HOUSEHOLD SIZE, 14 Sydney Statistical Subdivisions**

Region	In-house mains water use kL/cap.	Embodied mains water use(a) kL/cap.	Embodied self-extracted surface water(b) kL/cap.	Total water budget kL/cap.	Gross income \$/cap.	Household size
Lower Northern Sydney	151.3	623.6	631.8	<b>1 406.8</b>	30 072	2.2
Northern Beaches	172.3	696.2	734.8	<b>1 603.3</b>	28 135	2.6
Eastern Suburbs	113.4	577.4	570.6	<b>1 261.4</b>	23 976	2.2
Hornsby-Ku-ring-gai	171.1	573.1	602.0	<b>1 346.2</b>	23 230	3.2
Inner Sydney	110.2	536.1	535.5	<b>1 181.8</b>	22 509	2.1
St George-Sutherland	149.7	497.0	516.0	<b>1 162.8</b>	21 673	2.7
Inner Western Sydney	138.8	574.3	606.2	<b>1 319.3</b>	20 735	2.6
Blacktown-Baulkham Hills	146.3	428.1	451.5	<b>1 026.0</b>	19 585	2.8
Outer Western Sydney	132.9	446.2	448.2	<b>1 027.3</b>	19 198	2.8
Central Western Sydney	124.9	435.2	433.5	<b>993.5</b>	17 292	2.6
Outer South Western Sydney	115.1	433.4	435.6	<b>984.0</b>	16 504	3.3
Gosford-Wyong	127.0	410.7	421.2	<b>959.0</b>	16 076	2.7
Canterbury-Bankstown	148.1	430.4	439.0	<b>1 017.5</b>	15 284	2.8
Fairfield-Liverpool	123.4	383.4	385.1	<b>891.9</b>	13 881	3.6

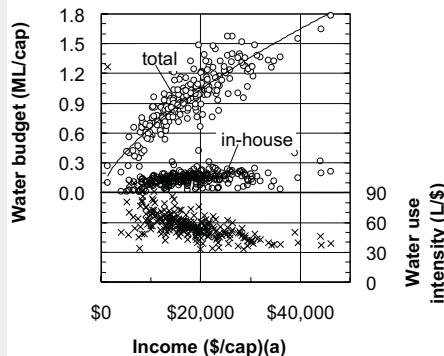
(a) Derived from limited sample data with an unknown fraction of houses and flats; high standard errors apply. (b) Non-treated water extracted from rivers.

Source: Lenzen and Foran 2001; ABS 1998-99 Household Expenditure Survey –Detailed Expenditure Items (Confidentialised Unit Record File).

Trends in water requirements and water intensities are illustrated in graph 14.15, which shows that in-house water use is relatively small compared to total water budgets, which range mostly between half a million and one million litres per capita. The water budget increases almost linearly with income, but this increase becomes smaller with increasing income. This effect can be explained by a trend in water intensities, which are obtained by dividing each water budget by the corresponding total household expenditure: on average, high-income households choose items that are less water intensive than those consumed by low-income households. Graph 14.16 shows that the water budget decreases with increasing household size. However, as the lack of a trend in the water intensity data demonstrates, this is not due to differences in choices, but simply because members of larger households share more than those of smaller households.

In summary, linking the concept of water embodied in goods and services with household expenditure and income provides some insightful correlations. Statistics on direct water use show that urban water consumers require approximately 0.2 ML per capita per year depending on location. However once the full water embodiment of their consumption mix is included, this value increases to between 0.6 and 1.1 ML per capita. Equally important is the decline in water intensity across the expenditure range: a 100% increase of household expenditure will result on average in a 70% increase in water use. This is not due to longer showers, swimming pools or green lawns, but to the water embodied in the extra goods and services a household with a higher income consumes. In Sydney, high embodied water budgets are associated with the affluent suburbs on the coast and around the harbour, where the water use is 1.5 times that of the less affluent suburbs on the western fringes of the city. The figures highlight that growth in population and income over the next twenty to thirty years may significantly increase the water requirement of Australians, posing substantial challenges to technology and governance to improve water efficiency in industrial and agricultural production, as well as final demand management.

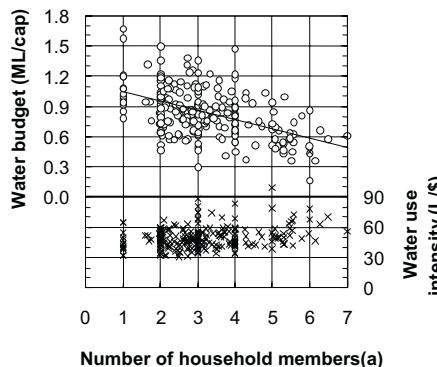
#### 14.15 TOTAL WATER BUDGETS AND IN-HOUSE WATER USE, By Gross Household Income per Capita, 14 Sydney Statistical Subdivisions



(a) In-house water use (o), total water budget (o), and water intensity (x) of Sydney households as a function of per-capita income.

Source: Lenzen and Foran 2001; ABS 1998–99 Household Expenditure Survey –Detailed Expenditure Items (Confidentialised Unit Record File).

#### 14.16 TOTAL WATER BUDGETS AND IN-HOUSE WATER USE, By Household Size, 14 Sydney Statistical Subdivisions



(a) As a function of household size.

Source: Lenzen and Foran 2001; ABS 1998–99 Household Expenditure Survey –Detailed Expenditure Items (Confidentialised Unit Record File).

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## Condition of Australia's freshwater resources

### Surface waters

Water is a critical limiting factor for much of the Australian environment and economy. Most of Australia is classified as semi-arid or arid, with 80% of the continent receiving an annual rainfall of less than 600 millimetres. Sound management of Australia's water resources is essential to maintain community wellbeing and protect biodiversity and ecological systems. One indicator of environmental pressure on Australia's rivers and streams is the proportion of surface water areas where extraction of water is within 70% of sustainable yield. Sustainable yield identifies an upper limit to water extraction assessed over a set time period which, if exceeded, will impair the social, environmental and economic values of a water resource. In 2000, around three-quarters of Australia's river basins had water diversions/extractions within 70% of sustainable yield. Most of the surface water areas that were above 70% of sustainable yield are located in the Murray–Darling Basin, an area showing clear signs of environmental stress (NLWRA 2001).

### Catchment quality

Since European settlement, the rate at which Australia's varied landscapes and freshwater ecosystems have changed has accelerated. The development of water resources has led to changes in physical and biological characteristics of inland waterways and systems and to an overall decline in river health. Changes to Australia's river systems include the removal of riparian

vegetation, degradation of river banks, sedimentation, the addition of pollutants and nutrients, the spread of exotic fish and aquatic weeds, and a loss of biodiversity. Excessive nutrient loads into waterways have contributed to severe algal bloom outbreaks, while irrigation and clearing for agriculture have worsened salinity problems on land and in our inland waters.

The release of the Australian Water Resources Assessment 2000 (NLWRA 2001) highlighted where river basins are exceeding water quality guidelines for nutrients, salinity, turbidity and pH (table 14.17). Surface water quality guidelines are determined by waters meeting ecological, social and economic requirements based on protection of aquatic systems, drinking water, agricultural water and recreation and aesthetics (NLWRA 2001). Nutrients and turbidity were identified as key water quality issues in the assessed basins. For much of Australia there is a lack of adequate water quality monitoring data.

### Surface water salinity

Salinity is a major water quality issue for 24 of the 74 assessed basins (32% of basins). Key areas are the South-West Coast, the South-East Coast and Southern Murray–Darling Drainage Divisions. Land clearing has been a key component of increasing salinity in catchments. High levels of salinity occur in catchments where a large proportion of land has been cleared. For example, 56% of the Frankland River catchment has been cleared and has a high level of salinity at 2,760 mg/L total soluble salts (TSS) (Government of Western Australia 1998). The upper limit for drinking water quality is 800 EC units (less than 1,500 mg/L TSS).

**14.17 EXCEEDANCES OF WATER QUALITY GUIDELINES, Australia(a)**

	Major exceedances(b)	Significant exceedances(c)	River basins assessed
Total nitrogen	19	19	50
Total phosphorus	40	20	75
Salinity (EC)(d)	24	18	74
Turbidity	41	10	67
Acidity (pH)	7	6	43

(a) No assessments for Tasmania or NT or for less intensive land use areas. (b) Major exceedances occupy greater than 33% of the basin area. (c) Significant exceedances occupy greater than 5% but less than 33% of the basin area.

(d) EC = Electrical conductivity unit. 1 EC = 1 micro-Siemens per centimetre, measured at 250°C. It is used as a measure of water salinity.

Source: NLWRA 2001.

Rivers supply much of Australia's water for crop irrigation. Increased salinity in our ground and surface water will worsen the irrigation salinity problem that many farmers already face. Some environmental impacts of increasing salinisation in our freshwater systems are the change in freshwater habitats and loss of diversity of aquatic life and fringing vegetation.

The Murray–Darling Basin Commission Salinity Audit has predicted that salinity levels in the rivers of the Murray–Darling basin will rise over the next 100 years, with a number of rivers predicted to have salinity levels that exceed the World Health Organization (WHO) standards for drinking water. There is considerable time lag between land use changes and mobilisation of salt loads into rivers and the landscape (MBDC 1999).

### **Effluent released into inland rivers**

The ability of inland waters to maintain environmental values is increasingly threatened by the steady growth in population, urbanisation and the use of catchments for recreational and commercial purposes (ARMCANZ and ANZECC 1997). Effluent released into inland waters contains nutrients, toxic substances, pathogens and dissolved solids. Sewage discharged into inland waters is usually treated to secondary level (removal of 85–95% of biodegradable material by biological oxidation). Some areas have additional sewage treatment by nutrient reduction (tertiary treatment).

Some of the important sources of polluting nutrients are from fertilisers for broad-acre applications; nutrient-rich run-off from rural industries; urban development and wastewater (Government of Western Australia 1998). An estimated 1.1 million tonnes of phosphate fertiliser and 880 thousand tonnes of nitrogen fertiliser were consumed in 1998–99 (ABARE 1999). Nutrients are a major water quality issue in 43 of the 70 assessed river basins in Australia (NLWRA 2001). Areas that exceeded major surface water quality nutrient guidelines are common in the more intensively developed basins of the North-East Coast, Murray–Darling, South-East Coast and South-West Coast Drainage Divisions. The wide range of soil types and vegetation influence the natural nutrient status of surface water. Water quality guidelines are tailored to reflect this variation. Victoria has more river basins that exceed their State nutrient quality guidelines than any other State or Territory (table 14.18). This largely reflects the intensive nutrient monitoring and greater coverage that occurs in Victoria compared to the other States and Territories (NLWRA 2001). The ACT did not record any major exceedances in relation to total phosphorus guidelines at any of the monitoring stations. This could be partly due to the nutrient removal process at the sewage treatment plant, which removes 98% of phosphorus before the effluent is returned to the river system (Smith 1998).

The addition of nutrients to freshwater rivers can increase the likelihood of algal blooms, although it is dependent on the nature of the receiving waters and climatic conditions. The cost of algal blooms in the late 1990s was estimated at \$180–240m per year (LWRRDC 1999).

**14.18 MAJOR EXCEEDANCES OF NUTRIENT GUIDELINES, By State(a)**

Basins assessed	Major exceedances by river basin		'Good' quality surface water guidelines(b)		
	Total nitrogen	Total phosphorus	Total nitrogen	mg/L	Total phosphorus
	no.	no.	no.		mg/L
NSW	34	1	16	(c)<0.1	<0.02
Vic.	29	17	18	<0.35	<0.025
Qld	69	5	4	<0.375	<0.05
SA	44	2	3	(d)<0.6	<0.05
WA	21	2	1	<0.1	<0.10
ACT(e)	1	5	0	(c)<0.1	<0.08

(a) No assessments for Tasmania or NT or for less intensive land use areas. (b) Surface water quality was assessed as 'Good', 'Fair' or 'Poor'. Median values unless indicated otherwise. (c) No State/Territory guideline established. ANZECC (1992) guideline was used as the basis for the exceedance assessment. (d) Modified median. (e) Results are presented for individual monitoring stations as the ACT lies within one river basin.

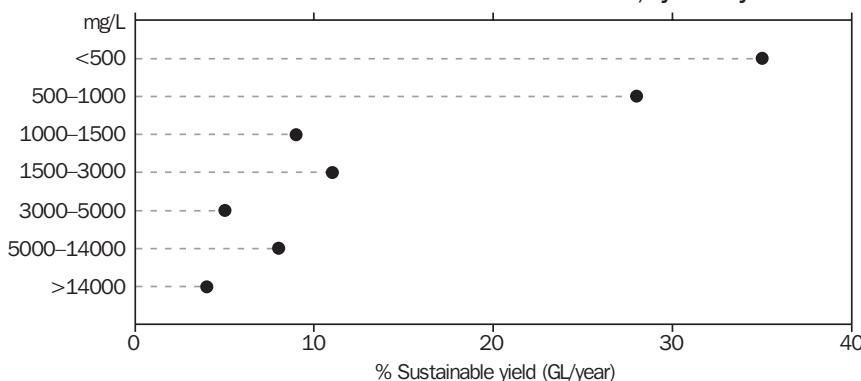
Source: NLWRA 2001.

## Ground water salinity and sustainability

Ground water is a vital water resource in Australia. Ground water underlies 60% of Australia (5,226,440 square kilometres). Around 70% of Australia's readily accessible ground water resources are suitable for human consumption and crop irrigation (less than 1,500 mg/L of total soluble salts (TSS)) (graph 14.19). Ground water flows can substantially contribute to the risk of areas developing salinity. The time it takes for agricultural development to contribute to salinity problems is also influenced by ground water flows (NLWRA 2000).

Clearing of native vegetation and prolonged irrigation have caused ground water levels to rise and naturally occurring salt loads to come to the surface. This affects plant growth and results in excess salt loads to rivers via loose top soil and direct seepage into river systems (MDBC 1999).

The largest store of salt has accumulated in the sedimentary Murray Groundwater Basin, with ground water stores often approaching sea water salinity (35,000 mg/L TSS). The Murray–Darling has a limited sub-surface outlet to the sea. This has resulted in a massive store of salt that has continued to be mobilised through agricultural and land development practices (MDBC 1999).

**14.19 PROPORTION OF GROUND WATER YIELD SUSTAINABLE, By Salinity Status**

Source: NLWRA 2001.

## Australia's land resources — an overview

### Pressures on Australia's land resources

The way in which people use the land has significantly changed Australia's natural systems and landscapes. All uses of land exert pressure on the environment. Agriculture is the most extensive land use in Australia and has led to the replacement of native vegetation with crops or pasture species, changes in water availability and salinisation, soil erosion and structural damage, chemical pollution through the use of pesticides and fertilisers, and overgrazing.

Previous editions of Year Book Australia have covered a variety of topics related to our land resources including: protection of areas of national and international significance; sustainable management of Australia's forestry and land resources; conserving and protecting biodiversity; and management of Australia's inland waters. Included in this edition is information on: land tenure; agricultural pressures such as vegetation clearance, salinity and soil degradation; tourism as a land use and associated pressures; protecting our natural heritage; and Indigenous land management.

### Land tenure

Ownership of Australian land is a key factor in determining its use. There are three main categories of land ownership in Australia: private; public; and Aboriginal and Torres Strait Islander.

In 1993, 23% of Australia's land was publicly owned (table 14.20). Over half of this public land (54%) was vacant crown land and just under 7% (524,100 square kilometres) was in a nature reserve. Approximately 63% of Australia was privately owned in 1993. Most private land is used for agricultural purposes, with around 60% of Australia's land mass used for agriculture in 1999 (ABS 2000). Aboriginal and Torres Strait Islander land is largely Aboriginal Freehold, but also comprises some Leasehold and Reserve lands. This category makes up around 14% of Australia's land mass.

### Land clearance

Australia's agricultural lands previously supported ecosystems of native vegetation, and significant changes to vegetation cover have occurred since European settlement. Clearing of native vegetation and replacement with pastures and crops continues today, and trends show a recent increase in land clearing. Estimates of annual clearing rates from the National Greenhouse Gas Inventory (table 14.21) show a decrease in total area cleared per year between 1971–1980 and 1981–1990 (average of 1.47 million and 551,000 hectares per year respectively). Annual clearing rates for Australia continued to decline in the 1991–1995 period, but rates have increased again over recent years. This has been due mainly to increased rates of clearing in Queensland.

**14.20 LAND TENURE(a)**

Tenure type	'000 km <sup>2</sup>	%
Private land	4 819.6	62.7
Aboriginal and Torres Strait Islander land	1 094.8	14.3
Public land		
Nature reserve	524.1	29.6
Aboriginal freehold-National Park	10.8	0.6
Vacant crown land	960.7	54.3
Other crown land	80.6	4.6
Forestry reserve(b)	148.2	8.4
Water reserve	11.0	0.6
Defence land	18.6	1.0
Mining reserve	5.0	0.3
Mixed category lands	8.9	0.5
Total public land	1 767.9	23.0
<b>Total</b>	<b>7 682.3</b>	<b>100.0</b>

(a) This is the latest national information available from AUSLIG (1993). (b) Some changes have occurred since, particularly in the composition of public land tenures.

Source: AUSLIG 1993.

**14.21 ANNUAL LAND CLEARING RATES, By State — 1971 to 1999**

State	Area cleared (ha./year)			
	1971 to 1980	1981 to 1990	1991 to 1995	1996 to 1999
NSW	428 151	52 232	19 120	30 000
TAS	11 817	2 413	940	940
WA	92 464	92 562	21 150	3 145
SA	4 171	28 797	1 370	2 088
VIC	21 200	10 766	2 450	2 450
QLD	886 257	350 791	289 000	382 500
NT	21 094	12 843	3 320	3 320
ACT	—	163	—	—
<b>Total Australia</b>	<b>1 465 153</b>	<b>550 567</b>	<b>337 350</b>	<b>424 444</b>

Source: AGO 2001b.

Between 1971 and 1995, the estimated annual rate of clearing in Queensland fell. Between 1996 and 1999, however, the annual rate of land clearing in Queensland increased when compared to rates estimated for 1991–1995. The rate of land clearing in New South Wales also increased in the late nineties (1996–1999). Western Australia recorded a fall in the rate of land clearing for the same period.

Associated with the loss of native vegetation are a broad range of social, economic and environmental impacts. Social impacts can include loss of heritage values and loss of recreation and tourist values. Economic impacts can include costs associated with loss of flood control, deterioration of water quality, loss of habitat for economically important species, loss of tourist and bio-medical potential, and loss of production through soil degradation.

Environmental impacts can include habitat loss or fragmentation, loss of ecosystem, species and genetic diversity, reduced water quality in inland and marine environments, reduced carbon storage, loss of heritage values and soil degradation (Higgins 2001). Socioeconomic benefits from clearing are derived from employment and income generated by the economic activity that occurs on the cleared land. These benefits provide strong incentives for landholders to clear the land.

### Land degradation

Australia is covered by old, shallow soils. Agricultural activities and vegetation clearance often result in damaged soil structure and depleted soil nutrients, which can lead to losses in agricultural productivity and declines in the health of native animal and plant populations. Three types of soil degradation — salinity, sodicity and acidity — have been estimated to cost the Australian economy \$2.4b annually (CRC for Soil and Land Management 1999).

Removal of deep rooted native perennial plant species and replacement with shallow rooted annual crops and pastures have changed the hydrological cycle (ABS 1996). Over time this has brought the water table closer to the surface, bringing with it dissolved salts that then become concentrated at the soil surface, in a process referred to as dryland salinity. Australia has an estimated 2.5 million hectares of land affected by dryland salinity (representing 0.6% of agricultural land). An estimate of the area with high potential to develop salinity is around 5.6 million hectares or 1.2% of agricultural land. By 2050 it is projected that this figure could rise to 17 million hectares (NLWRA 2001). These salt concentrations have a negative impact on a variety of social, ecological and economic processes.

Damage to buildings, roads, bridges and sewerage lines is expected from the effects of dryland salinity. An estimated 19,000 kilometres of Australia's roads were recorded as being affected by dryland salinity in 2000. Projections for WA, SA, Victoria, NSW and Queensland show that this figure is expected to increase more than three-fold by 2050 (to 67,400 kilometres). Reduction of diversity of native species is also expected, with at least 1,500 plant species expected to be harmed by dryland salinity in Western Australia; 450 of these are at risk of extinction (NLWRA 2001). It is projected that 130 important wetlands (including Ramsar wetlands) will be at high risk from shallow water tables by 2050 (table 14.22).

Salinity has negative effects on agricultural yields and slows growth rates of broadacre crops. In terms of value of production forgone, costs of dryland salinity are in the range of \$130m to \$330m per year (MDBC 1999; CRC Soil and Land Management 1999). The variation between these two estimates reflects the different valuation methods used to determine the cost of production forgone as well as the damage to public and private infrastructure.

**14.22 ASSETS IN AREAS AT HIGH RISK FROM SHALLOW WATERTABLES WITH HIGH SALINITY HAZARD**

Asset	Units	2000	2020	2050
Agricultural land(a)	ha.	4 650 000	6 371 000	13 660 000
Remnant and planted perennial vegetation(b)(e)	ha.	631 000	777 000	2 020 000
Length of streams and lake perimeter(b)	km	11 800	20 000	41 300
Rail(b)	km	1 600	2 060	5 100
Roads(b)	km	19 900	26 600	67 400
Towns(c)	no.	68	125	219
Important wetlands(a)(d)	no.	80	81	130

(a) Data from all States, Qld only for 2050. (b) Data from WA, SA, Vic and NSW, Qld only for 2050. (c) Data from WA, SA, Vic and NSW. (d) Including Ramsar wetlands. (e) Much of the remnant and perennial vegetation reported for each State occurs on agricultural lands.

Source: Source: NLWRA 2001.

Sodic soils occur naturally across one-third of Australia (CRC for Soil and Land Management 1999). A soil is classed as sodic when the level of exchangeable sodium (Na) exceeds 6% and begins to affect the soil structure. Sodicity degrades a soil's properties by making it more erodible, restricting water entry and reducing the ability of the soil to conduct water (Charman & Murphey 1991). Sodicity is often found in conjunction with other land degradation problems such as waterlogging and gully erosion. Net production loss as a result of a lack of amelioration through the addition of gypsum has been estimated to cost Australia \$1.3b per year (CRC for Soil and Land Management 1999).

Many Australian soils are also naturally acidic. The application of acidic nitrogen fertilisers or the growing of sub-clover pastures can, however, increase soil acidity. This form of degradation is exacerbated in areas where soils are sandy and rainfall is below 500 mm per year. Around 35 million hectares of Australian soils are considered highly acidic. More than 55 million hectares are moderately or slightly acidic ( $\text{pH Ca } 4.9\text{--}6.0$ ) and appear to have the potential to degrade to highly acidic conditions ( $\text{pH Ca } <4.8$ ) (LWRRDC 1995). Acidification can lead to soil infertility problems which are expensive to reverse. The 92 million hectares of

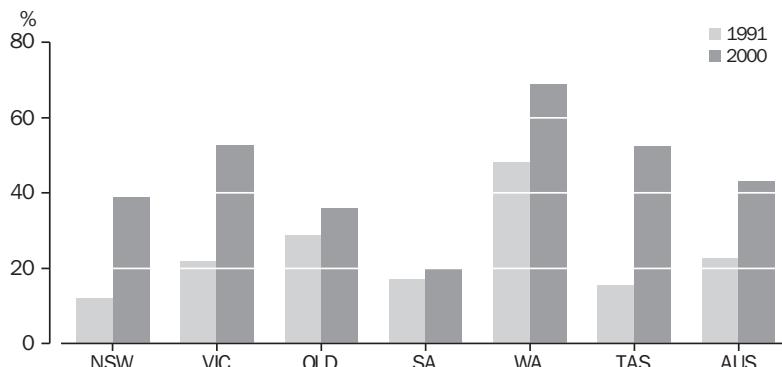
acid soils that occur in Australia's high rainfall agricultural lands are estimated to cost the economy over of \$630m per year in agricultural production (CRC for Soil and Land Management 1999).

### Response to land degradation

A variety of government initiatives have attempted to restore degraded areas. One such initiative has been the Landcare program. This began as a partnership between the National Farmers' Federation (NFF) and the Australian Conservation Foundation (ACF) in 1989. The Government declared the 1990s the 'Decade of Landcare', for which expenditure has amounted to over \$1b (Reeve 2001). A survey of members of farmer organisations and rural addressees indicates that membership in landcare has increased substantially in the last ten years (graph 14.23).

Landcare group membership increased between 1991 and 2000 for all States, the total Australian membership increasing from 23% to 43%. In 2000 Western Australia had the highest rate of membership (69%), followed by Victoria and Tasmania (53% in both States). Between 1991 and 2000 membership in Tasmania increased by 37%.

## 14.23 LANDCARE MEMBERSHIP RATES — 1991 AND 2000



Source: Reeve, I. 2001.

## 14.24 TREES PLANTED(a)

	Units	1996–97	1998–99	1999–2000
Seedlings planted for timber or pulp production				
Number	'000	10 952	*17 271	*15 020
Area sown	ha.	9 681	(b)	*14 695
Seedlings planted for all other purposes				
Number	'000	20 726	33 515	*28 341
Area sown	ha.	71 862	*72 809	*138 149

(a) For 1997–98, data were only collected for WA and are not included in this table. (b) Data not collected.

Source: Agriculture, Australia 1999–2000 (7113.0).

In 1997 the ABS asked agricultural landholders if they had changed their farming practices for conservation reasons and from whom they received the most support in implementing these changes. Responses indicated that a high proportion received support from family (17%). Relatively few farmers cited government agencies and land management groups as providing the most support (3% and 1% respectively).

Some 43 million trees were reported to have been planted on farms in 1999–2000 on around 150,000 hectares (table 14.24). (This result should be interpreted cautiously owing to high variability in responses, possibly due to difficulties in attributing tree plantings to specific purposes, and high sampling errors.) Around one-third of the number of trees planted in 1999–2000 were for wood or pulp production, but accounted for only about 10% of the area planted. Around 28 million trees were planted on around 140,000 hectares for purposes including nature conservation, protection of land and water, fodder and oil plants and enhanced agricultural production (windbreaks, shade trees, etc.).

Tree planting data were also collected in 1996–97 and 1998–99. In 1996–97 around 32 million trees were reported to have been planted, and the figure increased to around 51 million trees in 1998–99 (table 14.24). There has been some debate in recent times regarding the effectiveness of tree planting as a measure to ameliorate land degradation.

### Tourism as a land use

Tourism is a growing industry in Australia, and accounted for 4.5% of Australia's GDP in 1997–98 (compared with a 3% contribution from the agricultural sector) (ABS 2001). Tourist activity, like any land use, brings with it a variety of impacts on the environment. These impacts can be exacerbated when the activity takes place in natural areas or areas dedicated to ecosystem protection.

Australia's unique and diverse natural environments are attracting an increasing number of domestic and international visitors, with nature-based tourism, particularly eco-tourism, representing an important growth segment of Australia's tourism market.

National parks are popular nature-based attractions, with around half of all visitors to Australia in 1995 visiting at least one during their stay (1,699,500 visitors). A 1999 Bureau of Tourism Research (BTR) survey showed that of all international holiday visitors to Australia, 69% went to the beach, 58% visited a national park or went bushwalking (table 14.25), and 37% of holiday visitors were influenced to visit Australia by its nature, landscapes and wildlife (BTR 1999). International visitors from Canada and Other European Countries had the highest proportion of people visiting national parks, bushwalking or going on rainforest walks. Travellers from Germany and The United Kingdom recorded the highest rates of international visitors going to the beach (76%).

### Pressures associated with tourism

National parks and conservation reserves were established to protect scenic or popular recreational locations, geological oddities and historical sites (CSIRO 2000). As land was subjected to agricultural pressures and native species became rarer, efforts were made to protect remaining species and bushland. Increased desire for recreational opportunities in these remnants led to concentrated tourist activities. This can conflict with the original purpose of the conservation area and destroy the qualities that initially attracted tourists to the area. Like any other type of urban growth, tourist developments can impact on biodiversity as they often take place in sensitive ecosystems, on floodplains or close to beaches (SoE 1996). Some examples of environmental impacts associated with tourism are: the introduction of exotic species; barriers to wildlife migration; vandalism; soil compaction and erosion; and destruction of wildlife and wildlife habitat.

### Protecting natural heritage

Various conservation mechanisms have been developed by the Commonwealth Government and the State and Territory Governments aimed at protecting areas of significant natural heritage value from pressures such as those mentioned. Conservation reserves are a central mechanism with, as indicated earlier, around 524,100 square kilometres of Australia's land in public conservation reserves in 1993 (see table 14.20). An additional 10,800 square kilometres were in Aboriginal Freehold National Parks. Another mechanism is the Commonwealth Government's Register of the National Estate, a list of that includes 2,163 natural environments, and 9,808 historical and 911 cultural heritage places throughout Australia (AHC unpub.).

### World Heritage areas

Natural and cultural sites of 'outstanding universal value' may be entered on the list compiled by the World Heritage Committee. In addition to their intrinsic conservation value, World Heritage places are economically important because of their attraction as tourism sites. Inclusion on the list signifies that there is a legal obligation on the world community to protect, conserve and present the property for the benefit of current and future generations (SoE 1996). World Heritage listing does not prevent existing land use activities from taking place, as long as they do not threaten the natural and cultural values of the property. As at December 2000 there were 690 places listed on the World Heritage List. Australia has 14 of these (table 14.26), the last added in November 2000.

**14.25 INTERNATIONAL VISITORS(a), By Reason for Travel and Nature of Leisure Activities — 1999**

Main purpose of journey	Going to the beach	Visit national parks, bushwalking, rainforest walks	Total visitors '000
Holiday	69	58	2 295.5
Visiting friends & relatives	61	45	795.3
Business	31	18	440.8
Other	49	36	611.5
Total	60	48	4 143.1

(a) Visitors aged 15 years and over.

Source: BTR 1999.

**14.26 WORLD HERITAGE SITES, Australia — 2000**

Place	Year added to list	Values	State or Territory
Kakadu National Park	1981	natural and cultural	Northern Territory
Great Barrier Reef	1981	natural	Queensland
Willandra Lakes Region	1981	natural and cultural	New South Wales
Tasmanian Wilderness	1982	natural and cultural	Tasmania
Lord Howe Island Group	1982	natural	External Territory
Central Eastern Australia Rainforest Reserves	1987	natural	Queensland & New South Wales
Uluru–Kata Tjuta National Park	1987	natural and cultural	Northern Territory
Wet Tropics	1988	natural	Queensland
Shark Bay	1991	natural	Western Australia
Fraser Island	1992	natural	Queensland
Fossil Mammal Sites (Riversleigh and Naracoorte)	1994	natural	Queensland & South Australia
Heard and McDonald Islands	1997	natural	External Territory
Macquarie Island	1997	natural	External Territory
Blue Mountains	2000	natural	New South Wales

Source: *Environment Australia 2001a*.

### Management of Indigenous land and cultural heritage

Indigenous cultural heritage is widespread throughout the lands and waters of Australia (AHC 2001). Indigenous peoples also have strong practical and economic links with country through ongoing use of bush tucker and other forms of land use, such as mining (Vardon et al. 1997). The rights and interests of Indigenous peoples in relation to cultural heritage and links to country derive from customary law, original ownership, developing Indigenous traditions and recent history (AHC 2001). As such, Indigenous people are important land managers in Australia.

One institutional arrangement which recognises the important role Indigenous peoples play in managing land is joint management of protected areas. Joint or co-management of the World Heritage listed Kakadu National Park began in 1978. Joint management refers to a management model in which social and cultural values of parks are considered, as well as that of their ecological value, through shared decision-making between local people who use the park and formally trained managers (Cowell et al. 1998).

Jointly managed parks feature a board of management that comprises a majority of traditional owners or their Aboriginal representatives (EA 2001b). They are also Aboriginal places that are leased back to the Commonwealth for a defined period (usually 99 years) for management as a national park. The success of joint management in Kakadu led to similar management approaches being adopted in other parks such as Uluru–Kata Tjuta National Park, also in the Northern Territory, and Booderee National Park in the Jervis Bay region.

Participation of Indigenous peoples in environmental management of protected areas is an evolving process, and various models of co-management and joint management have been implemented. At March 2001 there were 13 Indigenous Protected Areas covering over 3.1 million hectares (EA 2001b). These differ greatly in size, ranging from 32 hectares (Oyster Cove in Tasmania) to 1.28 million hectares (Watarru in the Great Victorian Desert region of South Australia) (table 14.27).

**14.27 DECLARED INDIGENOUS PROTECTED AREAS — June 2001**

IPA	Size ha.	IPA declared month/year
Nantawarrina (SA)	58 000	August 1998
Preminghana (Tas)	524	June 1999
Deen Maar (Vic)	453	July 1999
Risdon Cove (Tas)	109	July 1999
Oyster Cove (Tas)	32	July 1999
Yalata (SA)	456 300	October 1999
Watarru (SA)	1 280 000	June 2000
Walalkara (SA)	700 000	June 2000
Mount Chappell Is. (Tas)	325	September 2000
Badger Is. (Tas)	1 244	September 2000
Guanaba (Qld)	100	November 2000
Dhimurru (NT)	100 000	December 2000
Warul Kawa (NT)	n.a.	February 2001

Source: EA 2001b.

## Protecting the marine environment

Australia as an island nation is dependent on the marine environment for a number of uses including commercial and recreational fishing, shipping, tourism, mining and waste disposal. This increases the pressure exerted on our estuarine and marine natural resources.

Australia has a valuable export market in fisheries, yet some are under threat from overfishing. Aquaculture development (see *Chapter 17, Forestry and fishing*) supplements wildstock fisheries, but can introduce its own environmental concerns including increased nutrient loads to coastal waters, increases in chemical and antibiotic use to control disease and possible introductions of exotic marine species.

Australia's economic dependence on shipping increases the likelihood of introduced marine species via ballast water discharges, and the potential of shipping accidents to damage coastal habitats from oil spills. Other pollution sources are introduced by nutrient run-off, stormwater and sewage disposal, and off-shore oil production.

A key response to pressures on the marine environment is the designation of marine protected areas and formulation of threat abatement programs to define and address threatening processes affecting our marine species.

A number of Australia's coastal regions have been listed as protected to reduce the potential impact of human activity. As at June 1997, 38.9 million hectares (3.5%) of Australia's Exclusive Economic Zone were listed as Marine Protected Areas (MPAs) (table 14.28). On an international scale, Australia has 24% of MPAs listed in the world (SoE 1996). Of the MPAs listed in Australia, almost 90% lie north of the Tropic of Capricorn, the majority occurring in the Great Barrier Reef (Cresswell and Thomas 1997). Of the 16 Marine Parks listed, 34,480,000 hectares are designated as the Great Barrier Reef Marine Park. Nearly all MPAs in Australia (92.7%) are designated for multiple use, with only a small number dedicated to sanctuaries and preservation (SoE 1996). In 2000 around 60 million hectares were listed as marine protected, but they are yet to be validated by the World Conservation Union which classifies the type of protection offered to a marine area.

**14.28 MARINE PROTECTED AREAS, Australia — 1997**

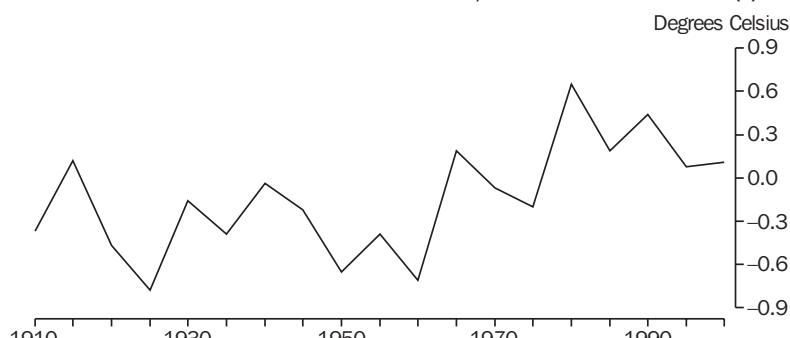
Type	no.	Area ha.	Jurisdiction
Aquatic Life Reserve	2	279	NT
Aquatic Reserve	21	16 653	NSW, SA
Fish Habitat Area	73	582 553	Qld
Fish Sanctuary	2	3 330	Qld
Historic Shipwrecks	10	973	C'wealth
Marine National Nature Reserve	5	2 029 484	C'wealth
Marine Nature Reserve	4	748 907	Tas., WA
Marine Park(a)	16	35 334 175	C'wealth, NT, Qld, WA
Marine Reserve	8	101 364	C'wealth, NSW, Vic.
Other Parks	6	46 910	Vic.
Whale Sanctuary	1	43 730	SA
<b>Total</b>	<b>148</b>	<b>38 908 358</b>	<b>..</b>

Australia's marine region has been classified according to the Interim Marine and Coastal Regionalisation for Australia (IMCRA), developed to define the major coastal regions around Australia. There are 60 regions, the largest of them in tropical waters. The Great Barrier Reef Marine Park, listed as a Marine Protected Area, has 75–100% coverage over eight different marine regions. In other marine regions, less than 0.01% of their area comprises Marine Protected Areas. The IMCRA marine regions do not necessarily conform to State boundaries (IMCRA Technical Group 1997). Classifying the main coastal regions of Australia will help to identify key environments lacking in conservation protection.

## Atmosphere and climate change

The Earth's climate has gone through many cycles that have caused significant fluctuations in the temperature of the Earth's surface. In the context of geological time, current global temperatures are in the middle range of those experienced by the Earth (ABS 2001). When viewed over a shorter period, however, a different picture can be seen (graph 14.29).

Australia's annual mean temperatures have increased since 1910, although the amount of increase has varied from place to place. In general, minimum temperatures have increased the most, particularly in the eastern half of Australia where they have increased by approximately one degree celsius (BoM 2000).

**14.29 ANNUAL MEAN TEMPERATURE TREND, Australia — 1910 to 2000(a)**

(a) Trend expressed as the departure from 1960–1991 mean, as calculated January 2000.

Source: BoM 2000.

There is widespread national and international concern that it is the activities of people which have caused temperatures to increase worldwide (Watson 1999). Carbon dioxide and other 'greenhouse gases' are released into the atmosphere from the use of fossil fuels, and stored carbon has also been released through the clearing of vegetation. It is thought that increasing the concentration of greenhouse gases in the atmosphere increases its ability to absorb heat energy (UNEP & UNFCCC 1999). This has been termed the 'greenhouse effect' or 'enhanced greenhouse effect'. Projections indicate that annual average temperatures in Australia could be 0.4 to 2.0 degrees higher by 2030 and 1.0 to 6.0 degrees higher by 2070 (CSIRO 2001a).

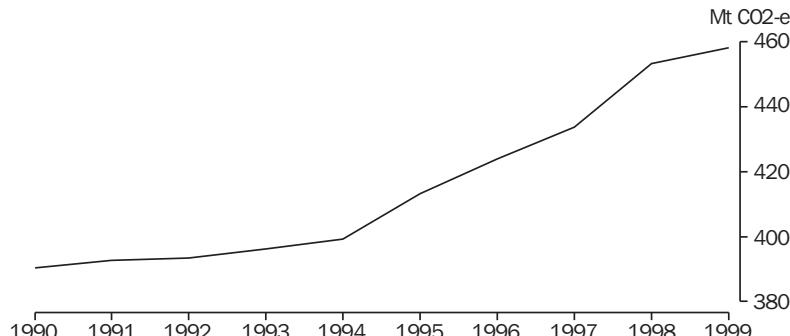
The United Nations Framework Convention on Climate Change (The Framework Convention) established the first international treaty dealing with climate change and laid the basis for global action to "protect the climate system for present and future generations" (UNEP & UNFCCC 1999). Governments recognised the need for legally binding commitments to greenhouse gas emission limitations and reductions which were subsequently reflected in policy terms in the Kyoto Protocol. Australia negotiated to restrict its emissions increases to 8% above 1990 levels in the budget period 2008 to 2012. At the recent

sixth Conference of Parties in Bonn, Germany, the international community (excluding the United States) agreed to reduce global greenhouse gas emissions by an average of around 2% by 2008–2012 (Pannell 2001).

According to the National Greenhouse Gas Inventory (NGGI), Australia's total emissions of greenhouse gases increased by 67.9 megatonnes of carbon dioxide equivalents (17.4%) between 1990 and 1999 (graph 14.30 and table 14.31). The rate of growth reached peaks of 3.6% in 1995 (mainly due to increases in emissions from the Manufacturing, Electricity generation and Transport sectors) and of 4.5% in 1998 (largely due to an increase in Electricity generation emissions) (AGO 2001a).

While total carbon dioxide equivalent emissions increased by 17.4% between 1990 and 1999, the emissions of individual greenhouse gases that make up this total varied significantly. Emissions of carbon dioxide ( $\text{CO}_2$ ) increased by 25.5%, methane ( $\text{CH}_4$ ) emissions by 1.0% and those of nitrous oxide ( $\text{N}_2\text{O}$ ) by 30.8% (table 14.31). Perfluorocarbons (PFC) and sulfur hexafluoride ( $\text{SF}_6$ ) were the only greenhouse gases to record a decrease in emissions over the period (79.2% lower in 1999 than in 1990). As a result of these changes, carbon dioxide increased its share of total emissions from about 64% to 68%.

#### 14.30 GREENHOUSE EMISSIONS(a)(b), Australia — 1990 to 1999



(a) Excluding forest and grassland conversion. (b) In terms of carbon dioxide equivalents ( $\text{CO}_2\text{-e}$ ).

Source: AGO 2001a.

**14.31 GREENHOUSE GAS EMISSIONS, By Gas — 1990 and 1999**

Greenhouse gases	1990 Mt CO <sub>2</sub> -e	1999 Mt CO <sub>2</sub> -e	Change Mt	% Change in emissions
CO <sub>2</sub>	249.8	313.5	63.7	25.5
CH <sub>4</sub>	113.3	114.4	1.1	1.0
N <sub>2</sub> O	22.4	29.3	6.9	30.8
PFCs and SF <sub>6</sub>	4.8	1.0	-3.8	-79.2
<b>Total CO<sub>2</sub>-e</b>	<b>390.3</b>	<b>458.2</b>	<b>67.9</b>	<b>17.4</b>

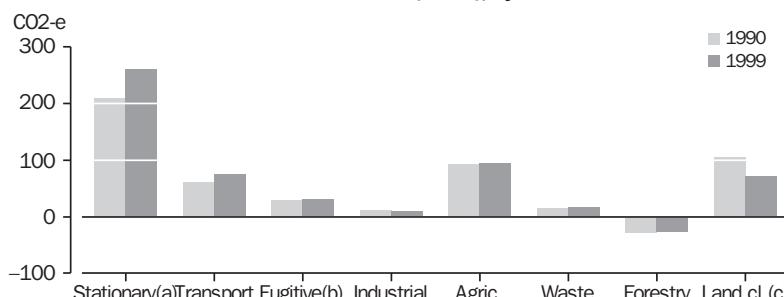
Source: AGO 2001a.

The Australian economy is highly dependent on energy consumption. The combustion of fossil fuels is the major contributor to Australia's greenhouse gas emissions (around 73% of net emissions from stationary and transport energy combustion in 1999) (AGO 2001a). Fossil fuels provide around 90% of Australia's energy needs, a higher proportion than for most other countries or regions. The Stationary Energy sector (emissions from fuel combustion in energy industries such as the Electricity industry) is the biggest contributor of greenhouse gases (graph 14.32), accounting for 56.7% of net emissions in 1999, with electricity generation accounting for the majority of this sector's contributions (259.8 Megatonnes of CO<sub>2</sub> equivalents). Energy use and resulting greenhouse gas emissions from the Stationary Energy and Transport sectors are described in further detail in *Chapter 15, Energy*.

The Industrial Processes sector (emissions resulting from production processes) recorded a decrease in emissions in this period, from 12 Mt of CO<sub>2</sub>-e in 1990 to 9.7 in 1999 (almost entirely a result of reduction in PFC emissions from aluminium production).

Vegetation plays an important role in reducing the level of greenhouse gases in the atmosphere, as trees and other plants absorb CO<sub>2</sub> from the air and store it as carbon. Under ideal conditions, 1 million hectares of new forest could absorb about 25 megatonnes of CO<sub>2</sub> a year, which would lower Australia's present CO<sub>2</sub> production by about 9% (CSIRO 2001b). The Forestry sector (including commercial forestry) is an emitter (source) and an absorber (sink) for CO<sub>2</sub>. Emissions from the Forestry sector are affected by both timber harvest and forest regrowth rates. Regrowth exceeded harvesting in each year of the period, but by a declining margin, so the net carbon uptake in 1999 was calculated as lower than in 1990. In 1999, carbon removals through the growth of forests were 75.8 Mt and forest harvesting gave rise to 52.8 Mt of emissions. This resulted in an uptake of greenhouse gases by the Forestry sector of 23.1 Mt, equivalent to 5.0% of total greenhouse gas emissions for 1999.

Current best estimates of land clearing model the emissions from burning cleared vegetation, decay of slash and below ground decay of roots, and loss of soil carbon. These estimates are highly uncertain and likely to change in the future.

**14.32 GREENHOUSE GAS EMISSIONS (CO<sub>2</sub>-E), By Sector — 1990 and 1999**

(a) Stationary energy. (b) Fugitive emissions from the distribution of coal and gas.

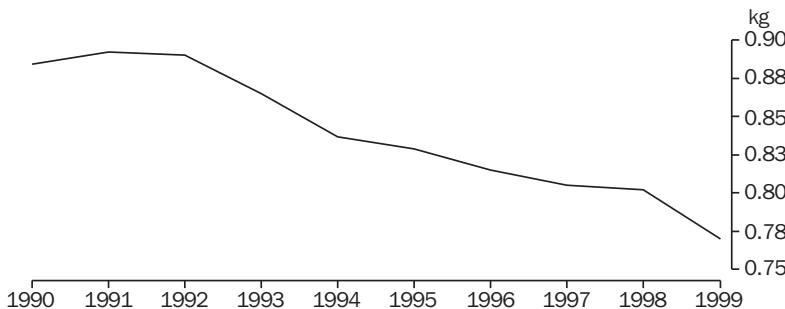
(c) Estimated emissions from land clearing. These assessments should be treated as indicative only due to high uncertainties in emissions estimates.

Source: AGO 2001a.

Although our emissions are increasing, greenhouse gas emissions per dollar of GDP were 13.0% lower in 1999 than in 1990 (graph 14.33). This is because emissions grew at an average rate of 1.8% while economic activity grew at a significantly greater rate of 3.4% (AGO 2001a). Thus the emissions intensity of the economy

declined over the period. Structural changes in the economy towards service industries have been important in the decreasing trend of greenhouse gas intensities.

#### 14.33 GREENHOUSE GAS EMISSIONS (CO<sub>2</sub>-E), Per \$ GDP(a) — 1990 to 1999



(a) Chain volume measures of GDP. Reference year 1998–99.

Note: Excluding forest and grassland conversion.

Source: AGO 2001a.

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## Introduction

**E**nergy is a vital input to all sectors of the economy. As well as supplying the power on which industry and households depend, the production and supply of energy provide employment and investment opportunities, and energy is a major source of export earnings, all of which contribute substantially to the welfare and standard of living of Australians.

Australia has an abundance of fossil fuel and mineral energy resources, and our trends of energy production and use are a reflection of this abundance. In addition to being one of the world's largest exporters of coal, Australia's per capita energy consumption is one of the highest in the world, with a heavy reliance on fossil fuels. This reliance is also a major source of human-generated greenhouse gases. There is widespread national and international concern that these have caused temperatures to increase worldwide. *Chapter 14, Environment* looked at atmosphere and climate change in a broad context, and provided an analysis of Australia's production of greenhouse gases from all sources (including sinks). Of these sources, the

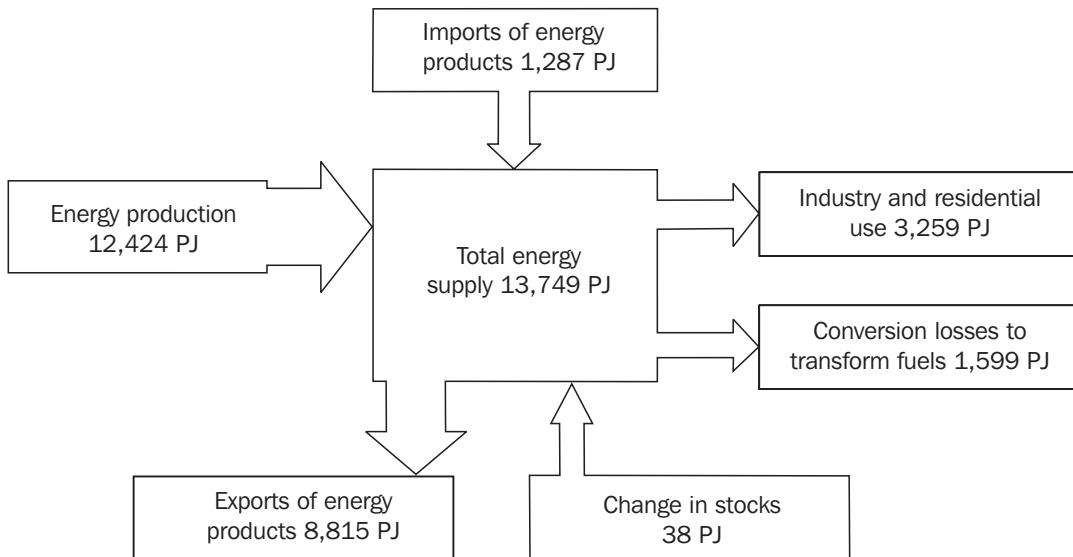
combustion of fossil fuels is responsible for about three-quarters of man-made emissions of carbon dioxide (the main greenhouse gas).

These emissions associated with energy production and use are addressed in this chapter in the section *Greenhouse gas emissions*.

The fuels produced in Australia are either consumed here, stockpiled for future consumption or export, or exported to other countries. In some cases, consumption takes place in Australia to produce another kind of fuel for consumption or export. In the case of electricity generation from fossil fuels (mainly coal), a large amount of energy is lost in this conversion process. Some fuels are imported into Australia, mainly crude oil. Figure 15.1 illustrates the quantities of energy used for each of these purposes in 1998–99.

Over two-thirds of energy production in Australia is exported, and the mix of fuels in production and consumption are distinctly different. Black coal and uranium are expected to continue to dominate the pattern of both energy production and trade. Final consumption of energy by industry and households (excluding conversion losses) amounted to 3,259 PJ in 1998–99, about a quarter of the energy produced in Australia in that year.

**15.1 ENERGY MODEL, Australia — 1998–99**



Source: ABARE, electronic datasets.

The following sections describe Australia's energy resources, the production of these resources, and Australia's trade in energy products. Then follows an analysis of Australian energy consumption, together with an article comparing various aspects of Australia's consumption with that in a number of other OECD countries. The final section, on greenhouse gas emissions, includes an analysis of the impact, on those emissions, of household consumption and the production of goods and services for export.

## Energy resources

Australia has large identified resources of fossil fuels and uranium. It is ranked in the top six countries in the world for economic demonstrated resources (EDR) of black and brown coal, and has the world's largest EDR of uranium. Australia also has significant reserves of natural gas and crude oil.

Australia has substantial resources of high quality black coal. Most of these resources are located in New South Wales and Queensland. However, small but locally important coal resources occur in Western Australia, South Australia and Tasmania (map 15.2). Brown coal occurs mainly in Victoria with other known resources in Western Australia, South Australia and Tasmania (AGSO 2000a).

In 1999, Australia accounted for 6% of the world's recoverable EDR of black coal and ranked sixth after USA (28%), Russia (19%), China (12%), India (9%) and South Africa (7%). Australia has about 20% of the world's recoverable EDR of brown coal, and ranks second behind Germany (22%) (AGSO 2000a).

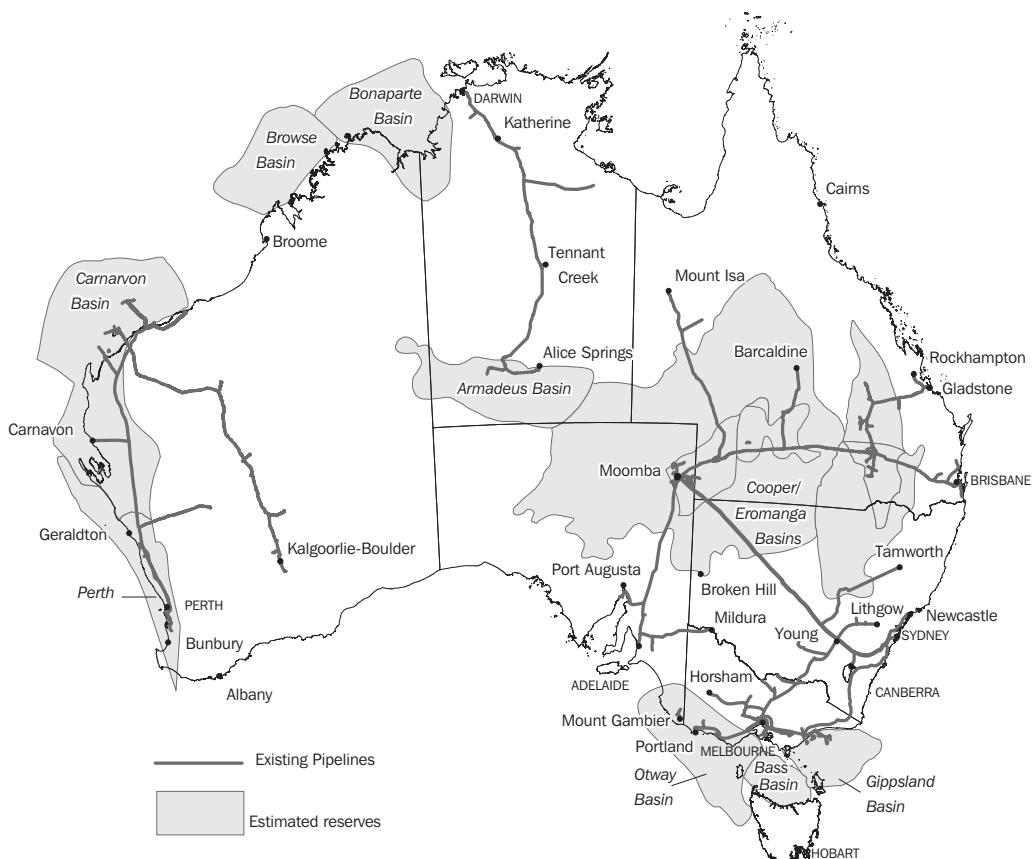
### 15.2 AUSTRALIAN COAL RESOURCES



Produced by LANDINFO the Spatial Division  
of Sinclair Knight Merz  
NL10506.5

Source: LANDINFO 2000.

### 15.3 AUSTRALIAN GAS RESOURCES



Source: The Australian Gas Association 2000.

Map 15.3 shows the extent of access to gas resources in Australia. Known natural gas reserves in Australia are less extensive than coal reserves, although it is expected that natural gas will increase its share of the domestic energy market in the short to medium term. The total length of Australia's transmission pipeline system has increased from 7,670 km a decade ago to over 15,600 km today (ANZMEC 2001). Since 1960, remaining gas reserves have increased more than eight times, mainly due to discoveries of major gas resources on the North West Shelf.

Economic demonstrated resources of non-renewable energy assets were estimated at 1.9 million PJ in 1998-99 (table 15.4). Black coal accounted for 63%, followed by brown coal (19%) and uranium (14%). As well as coal resources,

Australia has the world's largest resources of uranium in the low cost (EDR) category, with 26% of total EDR. Other countries with significant EDR of uranium include: Kazakhstan (20%), Canada (15%), South Africa (10%), Namibia (7%), Brazil (7%), the Russian Federation (6%) and USA (5%).

Changes in economic demonstrated resources can be due to various factors, one of which is production activity. Others include discoveries and reclassification of resources due to reassessments (such as with black and brown coal in 1999, where some resources previously considered economic were reclassified as subeconomic).

**15.4 ECONOMIC DEMONSTRATED RESOURCES(a), Australia**

Fuel	1990–91 '000 PJ	1994–95 '000 PJ	1998–99 '000 PJ	% change since 1990–91 %
Black coal	1 390.9	1 335.4	1 201.5	-13.6
Brown coal	404.5	399.8	365.7	-9.6
Crude oil and LNG	9.5	10.2	9.8	3.2
LPG	3.4	3.8	4.8	41.2
Natural gas	26.9	49.3	58.3	116.7
Uranium	222.8	295.6	268.4	20.5
<b>Total energy assets</b>	<b>2 058.0</b>	<b>2 094.1</b>	<b>1 908.5</b>	<b>-7.3</b>

(a) Non-renewable resources only.

Source: Australian National Accounts: National Balance Sheet (5241.0.40.001).

**15.5 NET PRESENT VALUE OF ENERGY AND SUB-SOIL ASSETS, Australia**

Fuel	1990–91 \$m	1994–95 \$m	1998–99 \$m	% change since 1990–91 %
Black coal	5 408	12 824	31 676	485.7
Brown coal	168	488	663	294.6
Crude oil and LNG	12 888	18 031	13 863	7.6
LPG	1 713	1 682	2 123	23.9
Natural gas	14 036	25 476	27 889	98.7
Uranium	2 531	1 535	2 128	-15.9
Total energy assets	36 744	60 036	78 342	113.2
<b>Total subsoil assets</b>	<b>56 388</b>	<b>87 543</b>	<b>117 271</b>	<b>108.0</b>

Source: Australian National Accounts: National Balance Sheet (5241.0.40.001).

Table 15.5 shows the net present value (NPV) of demonstrated energy assets within Australia. The NPV is the expected value of the resource based on current market value, with some modifications based on depletion and economic forces. In 1999 total subsoil assets had an NPV of over \$117b, of which 67% was attributed to the NPV of energy assets (over \$78b). The two most significant energy assets were black coal and natural gas which accounted for 40% and 36%, respectively. The increase in the value of energy resources between 1990–91 and 1998–99 was primarily due to increases in the NPV of black coal and natural gas over this period.

## Energy production

The production of primary fuels in Australia has continued to grow since 1990–91, with an overall increase of about 34% (table 15.6). Significant increases in production have occurred in uranium, black coal and, to a lesser extent, natural gas over recent years. Black coal continues to dominate the pattern of energy production (as it has done for at least the last twenty years), accounting for nearly half of total

energy production in 1998–99. Uranium accounted for 24% of total production, followed by natural gas at 11%, and then crude oil at 8%.

Over two-thirds of energy production in Australia is exported (mainly black coal and uranium — see *Chapter 30, International accounts and trade*), and these two products are expected to continue to dominate the pattern of both energy production and trade. Domestically, most coal production is used to generate electricity. Other uses include coke-making for the iron and steel industry, and as a source of heat in the manufacture of cement.

Australia's total production of uranium reached a record high in 1999, 22% higher than for 1998. This is due to a significant increase in uranium production from the Ranger and Olympic Dam mines (AGSO 2000a).

Production depletes crude oil resources (including undiscovered resources) at about 3.7% a year, condensate at 1.7% a year and natural gas at 0.9% a year. In the longer term, increases in the real price of oil and advances in technology are likely to lead to exploration which could contain large amounts of petroleum not presently classified as resources (AGSO 2000b).

### 15.6 AUSTRALIAN PRODUCTION OF PRIMARY FUELS

Fuel	1990–91 PJ	1994–95 PJ	1998–99 PJ	% change since 1990–91 %
Black coal	4 396.0	5 173.2	6 051.1	37.7
Brown coal	484.1	492.0	647.3	33.7
Crude oil and LNG	1 182.3	1 154.0	1 032.2	-12.7
LPG	94.0	95.6	103.5	10.1
Natural gas	840.4	1 174.9	1 306.1	55.4
Uranium	2 062.8	1 236.6	3 001.4	45.5
Wood	100.1	108.9	108.3	8.2
Bagasse	78.2	91.4	109.6	40.2
Hydro-electricity	58.0	58.5	60.5	4.3
Solar	2.4	3.4	3.8	58.3
<b>Total</b>	<b>9 298.3</b>	<b>9 588.5</b>	<b>12 423.8</b>	<b>33.6</b>

Source: ABARE, electronic datasets.

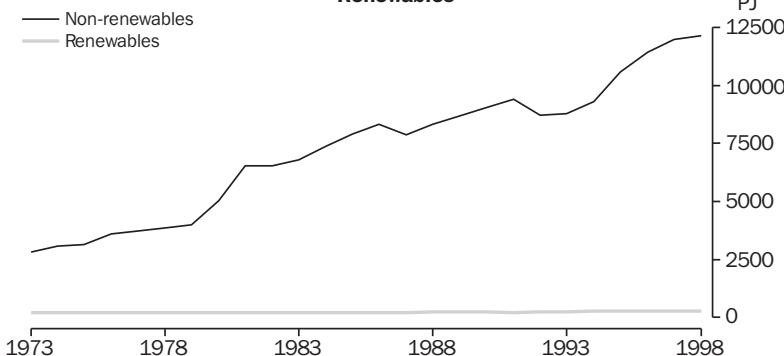
Graph 15.7 shows the production of non-renewable and renewable energy sources since 1973. Over this period, the production of non-renewable fuels has continued on an upward trend. In contrast, production of renewable energy sources (wood, bagasse, hydro-electricity and solar) has remained relatively stable, reducing its share of total production over the period.

Although production of renewable fuels increased by 18% between 1990–91 and 1998–99, their share of total energy production fell from 2.6% to 2.3% over this period. The production of renewable fuels is shown by type of fuel in graph 15.8. (It should be noted that there is a limit to the possible increase in bagasse's share of renewable energy, which is related to the production of sugar canes.)

### Australia's international trade in energy products

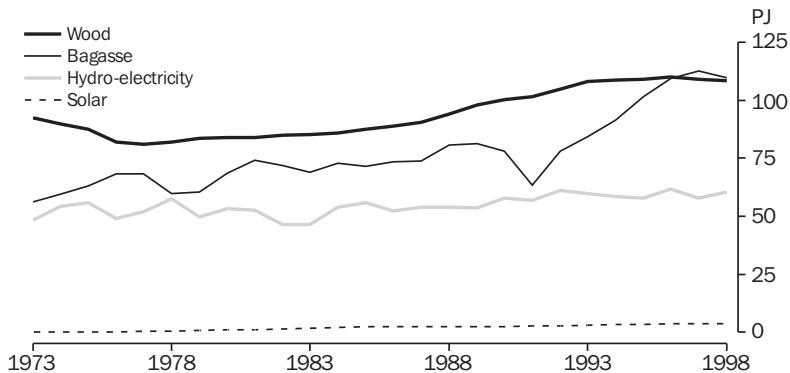
In 1998–99, about 71% of total energy production in Australia was exported (8,815 PJ) (table 15.9). The largest contributors were black coal (55% of total energy exports) and uranium (32%). Crude oil and natural gas contributed 6% and 5%, respectively. Total energy exports (primary plus secondary) increased by 30% between 1990–91 and 1998–99. Among primary exports, those of black coal increased by 50% over this period, while uranium exports showed a slight overall decrease (by about 2%). Exports of uranium had dropped sharply in 1992–93, but showed strong growth in subsequent years. Natural gas exports showed a large increase (130%) over this period.

### 15.7 AUSTRALIAN PRODUCTION OF PRIMARY FUELS, Non-renewables and Renewables



Source: ABARE, electronic datasets.

## 15.8 AUSTRALIAN PRODUCTION OF RENEWABLE FUELS



Source: ABARE, electronic datasets.

## 15.9 ENERGY PRODUCTS, Exports and Imports by Volume (Peta Joules)

Fuel	Exports			Imports		
	1990–91	1994–95	1998–99	1990–91	1994–95	1998–99
	PJ	PJ	PJ	PJ	PJ	PJ
<b>Primary energy products</b>						
Black coal	3 217.0	3 882.8	4 821.8	—	—	—
Crude oil and ORF	326.4	423.5	528.5	518.2	798.7	1 150.6
LPG	40.0	31.5	65.9	0.9	6.7	12.6
Natural gas	185.0	381.8	425.4	—	—	—
Uranium	2 879.7	1 912.4	2 814.8	—	—	—
<b>Total</b>	<b>6 648.1</b>	<b>6 632.0</b>	<b>8 656.4</b>	<b>519.1</b>	<b>805.4</b>	<b>1 163.2</b>
<b>Secondary energy products</b>						
Automotive gasoline	10.8	22.2	52.3	20.0	20.7	30.5
Aviation gasoline	2.1	1.4	2.5	—	—	1.4
Aviation turbine fuel	11.8	10.4	20.1	3.8	8.5	5.2
Kerosene	2.5	5.3	1.1	1.3	0.0	0.2
Gas oil or fuel oil	69.8	59.8	57.9	58.6	68.3	79.7
Other petroleum products(a)	17.3	27.4	21.6	22.3	22.4	6.5
Coke	22.6	8.0	1.9	—	—	—
<b>Total</b>	<b>136.9</b>	<b>134.5</b>	<b>157.4</b>	<b>106.0</b>	<b>119.9</b>	<b>123.5</b>
<b>Total</b>	<b>6 785.0</b>	<b>6 766.5</b>	<b>8 813.8</b>	<b>625.1</b>	<b>925.3</b>	<b>1 286.7</b>

(a) Also includes lubes and greases, bitumen.

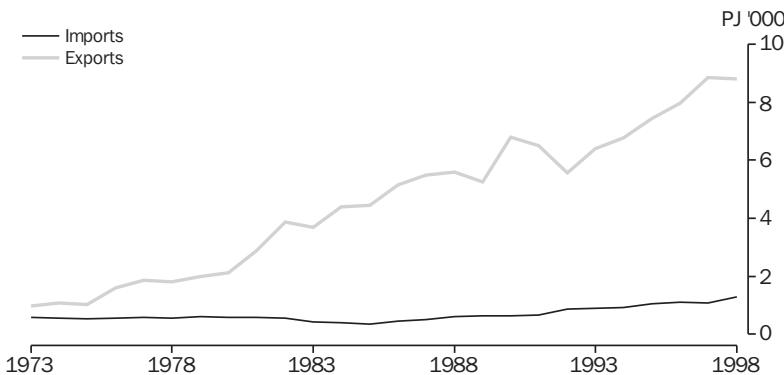
Source: ABARE, electronic datasets.

Imports of energy products are relatively small by comparison (1,287 PJ in 1998–99) and are dominated by crude oil. Imports of this product almost doubled between 1990–91 and 1998–99. Graph 15.10 shows the sharp contrast between exports of energy products from and imports of these products into Australia over more than 25 years.

The large volumes of exported energy products also contribute significantly to Australia's export earnings. Table 15.11 shows that the export of

energy products contributed about 16% towards Australia's total export earnings in 1998–99, down from 20% in 1990–91. Black coal accounts for by far the largest share of the total value of energy exports (66%), followed by crude oil (13%) and liquid natural gas (10%). Uranium contributes only 2% of the total value of energy exports.

Imports of energy products (mainly crude oil) made up only 5% of the total value of imports in 1998–99.

**15.10 EXPORTS AND IMPORTS OF ENERGY PRODUCTS (PJ), Australia**

Source: ABARE, electronic datasets.

**15.11 ENERGY PRODUCTS, Exports and Imports by Value**

Fuel	Exports			Imports		
	1990–91	1994–95	1998–99	1990–91	1994–95	1998–99
Fuel	\$m	\$m	\$m	\$m	\$m	\$m
Black coal(a)	6 358	6 873	9 239	—	—	—
Crude oil and ORF(b)	1 795	1 726	1 881	2 407	3 002	3 794
LPG	175	154	297	6	36	64
Liquid natural gas (LNG)	830	1 201	1 425	—	—	—
Uranium	332	188	288	—	—	—
Automotive gasoline	(c)	(c)	(c)	156	112	134
Diesel fuel(d)	(c)	(c)	(c)	125	141	225
Other refinery products	787	719	866	441	381	312
<b>Total energy products</b>	<b>10 277</b>	<b>10 861</b>	<b>13 996</b>	<b>3 135</b>	<b>3 672</b>	<b>4 529</b>
<b>Total trade in goods and services</b>	<b>52 399</b>	<b>67 052</b>	<b>85 992</b>	<b>48 912</b>	<b>74 619</b>	<b>97 611</b>

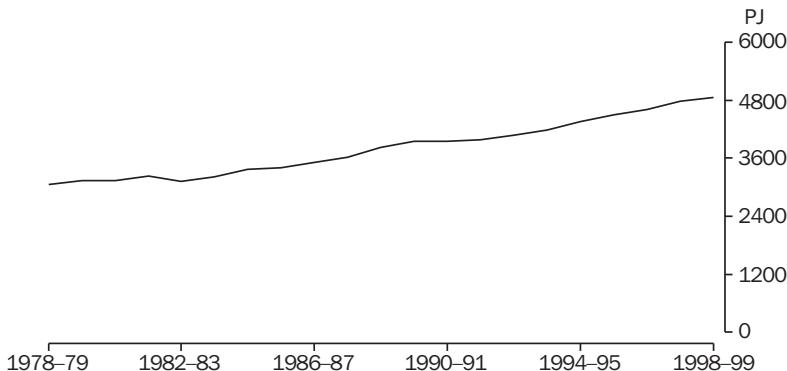
(a) Coking plus steaming. (b) Other refinery stock. (c) Included in Other refinery products. (d) Includes automotive diesel oil and industrial and marine diesel fuel for 1994–95 and 1998–99. Includes only automotive diesel oil for 1990–91.

Source: ABARE 1997, 1998, 2000.

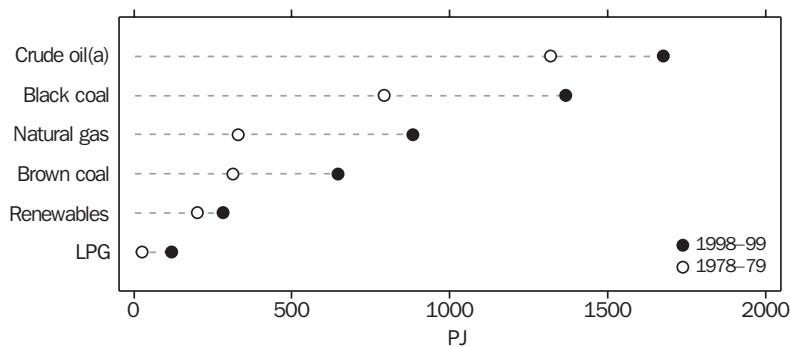
## Energy use

Total energy consumption in 1998–99 was 4,858 PJ, of which about two-thirds was delivered to final consumers and one-third lost in conversion, transmission and distribution. Graph 15.12 shows Australian energy consumption over the 25 years 1977–78 to 1998–99. Growth rates in total energy consumption over recent years (after a slowdown in the early 1990s) have been above the long term average for the 25 year period. Annual fluctuations are, to a significant extent, attributable to changes in Australia's rate of economic growth.

Natural gas has been the fastest growing primary energy over the twenty years 1978–79 to 1998–99 (graph 15.13). The growth rate for coal (black and brown) has also been above the overall trend, due primarily to the strong growth in electricity generation over the period (graph 15.14). The consumption of crude oil has also grown significantly, reflecting the heavy use of petroleum products in the transport sector. The annual growth in consumption of renewables has declined over the years (ANZMEC 2001).

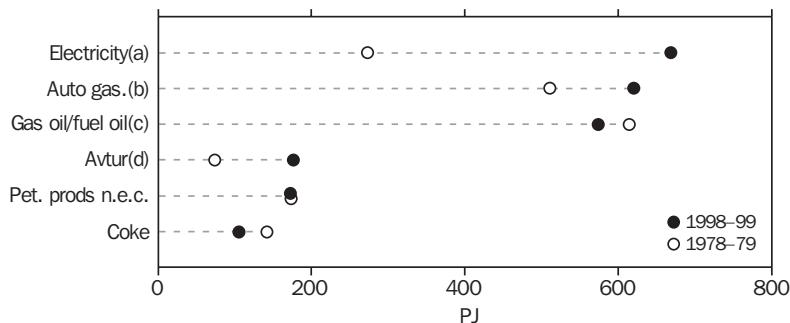
**15.12 AUSTRALIAN ENERGY CONSUMPTION (PJ) — 1978–79 to 1998–99**

Source: ABARE, electronic datasets.

**15.13 PRIMARY ENERGY PRODUCTS USED (PJ) — 1978–79 and 1998–99**

(a) Refinery feedstock.

Source: ABARE, electronic datasets.

**15.14 SECONDARY ENERGY PRODUCTS USED (PJ) — 1978–79 to 1998–99**

(a) Excludes hydro-electricity. (b) Automotive gasoline. (c) Includes: heating oil; automotive diesel oil; fuel oil; and industrial diesel fuel. (d) Aviation turbine fuel.

Source: ABARE, electronic datasets.

## Direct energy use by sector

In 1998–99, 78% of total energy consumption was accounted for by three major sectors: electricity generation; transport; and manufacturing (table 15.15). Electricity generation is the largest energy consuming sector. The strong growth in energy consumption in that sector is attributed to increased electrification in all end use sectors; rapid growth in a number of industries in which electricity is the prime fuel source, such as the commercial and non-ferrous metal sectors; and technological innovation encouraging the use of new electrical appliances in all sectors (ANZMEC 2001).

The transport sector accounted for 25% of total energy consumption in 1998–99, and is the second largest energy user. Within the transport sector, road transport accounted for about 78% of energy consumed, of which two-thirds is attributed to passenger vehicles and the remainder to light commercial vehicles, trucks, and buses. Air transport grew rapidly in the late 1980s and much of the 1990s, resulting from the rapid growth of tourism and increased use of air travel in response to the improved competitiveness of air fares compared with other transport modes.

Strong growth in the mining sector reflects the rise in energy consumption in oil and gas mining, and in particular the development of a Liquid

Natural Gas (LNG) industry in the late 1980s; the expanding demand for natural gas and for increased production of crude oil, condensate and Liquid Petroleum Gas (LPG); and strong energy demand in other mining activities.

The strong growth in the commercial sector is attributed to the relatively fast growth of the sector. The effect on consumption of increased energy efficiency of individual appliances, applications and processes is being offset by the increased use of electrical equipment (ANZMEC 2001).

## Australian energy consumption allocated to final use

While the previous section showed the direct use of energy by industries and households, this section looks at the amount of energy used, both directly and indirectly, by the final users of the goods and services. These final users may not necessarily use energy directly, but they are considered to be using energy indirectly through the consumption of products (goods and services) the production of which entailed the direct use of energy.

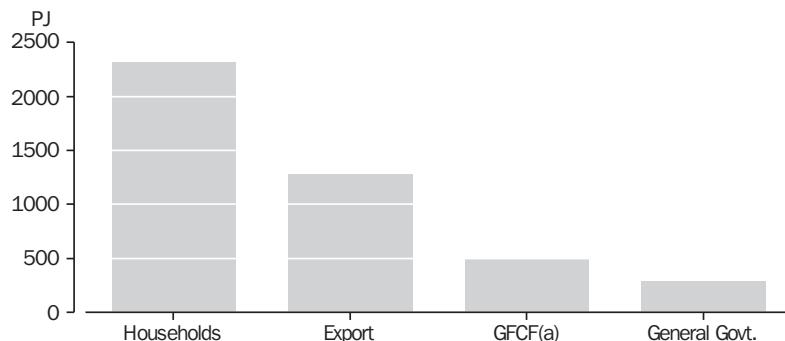
**15.15 AUSTRALIAN ENERGY CONSUMPTION(a), By Sector**

Sector	1990–91 PJ	1994–95 PJ	1998–99 PJ	% change since 1990–91 %
Agriculture	57.7	64.4	70.1	21.5
Mining	164.6	213.1	264.5	60.7
Manufacturing	1 073.9	1 132.4	1 177.0	9.6
Electricity generation	1 065.0	1 162.6	1 398.3	31.3
Construction	37.2	44.3	50.3	35.2
Transport(b)	1 003.0	1 139.3	1 231.2	22.8
Commercial(c)	156.8	179.2	210.5	34.2
Residential(d)	327.8	359.5	386.0	17.8
Other(e)	64.1	70.6	70.3	9.7
<b>Total</b>	<b>3 949.9</b>	<b>4 365.3</b>	<b>4 858.3</b>	<b>23.0</b>

(a) Fuels consumed less derived fuels produced. (b) Includes all transport use, including household motor vehicle use. (c) Includes wholesale and retail trade, communications, finance and insurance, property and business services, government administration and defence, education, health and community services, cultural and recreational services and personal and other services, along with water, sewerage and drainage. (d) Transport use by households is included in transport. (e) Includes lubricants and greases, bitumen and solvents, as well as energy consumption in the gas production and distribution industries.

Source: ABARE, electronic datasets.

## 15.16 AUSTRALIAN ENERGY CONSUMPTION, By Final Use — 1994–95



(a) Gross fixed capital formation.

Source: *Energy and Greenhouse Gas Emissions Accounts, 1992–93 to 1997–98* (4604.0).

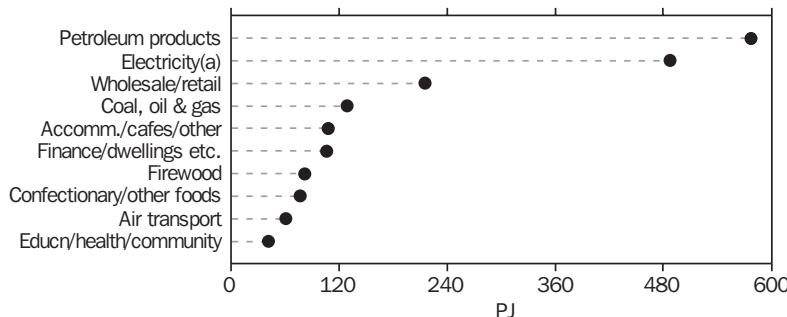
Over half of Australian energy consumption (53%) was by households, either directly or indirectly through the consumption of products (graph 15.16). Goods and services produced for export made up further 29%; gross capital formation was responsible for 11% (e.g. energy embodied in buildings, road, rail, and pipeline infrastructure); and the remaining 7% was attributed to government final consumption (mainly government administration and the provision of services such as education, health and community services).

### Households as direct and indirect consumers of energy

The use of petroleum products — mainly motor vehicle fuels — was the biggest contributor to household consumption of energy (25% of total

household consumption of energy), followed by household electricity use (21%), and various other sources of direct energy consumption by households (11%). Approximately two-thirds of household electricity use is attributed to conversion losses in the production of this electricity (mainly from coal). Indirect consumption of energy through the consumption of (non-energy) goods and services made up about 43% of total household energy use. The largest of these indirect sources was household consumption of wholesale and retail goods and services and of repairs (9%). Main products contributing to final household consumption of energy are shown in graph 15.17.

## 15.17 DIRECT AND INDIRECT HOUSEHOLD CONSUMPTION OF ENERGY, By Product Type — 1994–95



(a) Includes conversion loss from primary fuel to derived product.

Source: *Energy and Greenhouse Gas Emissions Accounts, 1992–93 to 1997–98* (4604.0).

Relative to its GDP Australia has a very high level of motorisation, and a high level of total personal travel. Other than the North Americans, only Italians are more motorised than Australians (OECD/IEA 2001). Per capita road transport use in Australia has increased 10% since 1990–91 (see table 15.21). Table 15.18 shows that the number of persons driving to work or study in Australia increased by 9% between 1996 and 2000. Some 76% of adults aged 18 years and above drove to work or study in 2000.

Household electricity use was the other major contributor to energy consumption attributed to households. The 1970s and 1980s saw significant

increase in the level of indoor comfort and amenities in Australian homes for space comfort, water heating and electric appliances. Natural gas and electricity are the key sources of space heating (table 15.19). In 1999 natural gas was the main heating source for 41% of residences that had space heating (up from 38% in 1994); electricity provided 35% and wood most of the remainder. Over the period, electricity lost share to gas. As comfort standards have increased, whole house heating rather than 'spot' heating increased and pipeline gas became more widely available (OECD/IEA 2001). Electricity is the major source of energy for both water (about 60% in 1999) and cooking (about 59%).

#### 15.18 TYPE OF TRANSPORT TAKEN TO WORK/STUDY, Number of persons travelling

Mode of transport	1996 '000	2000 '000	Change %
Train	654.5	623.6	-4.7
Bus	545.7	359.7	-34.1
Tram/light rail	(a)	50.1	..
Ferry/boat	(a)	15.7	..
Taxi	(a)	9.1	..
Car/truck/van as driver	5 991.9	6 539.8	9.1
Car/truck/van as passenger	552.8	457.9	-17.2
Motorbike or motor scooter	99.4	66.0	-33.6
Bicycle	215.2	98.4	-54.3
Walk	487.4	378.7	-22.3
Other	153.1	24.2	..
<b>Total</b>	<b>7 723.1</b>	<b>8 623.1</b>	<b>11.7</b>

(a) Included in Other.

Source: *Environmental Issues: People's Views and Practices* (4602.0)

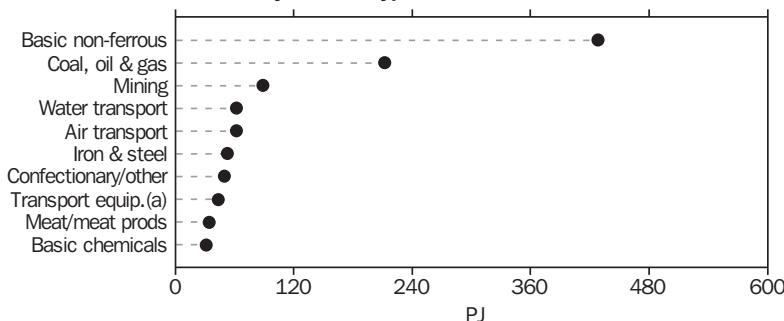
#### 15.19 PRINCIPAL FUEL TYPES USED IN DWELLINGS, Number of Dwellings by Purpose

Fuel type	Room heating			Water heating			Cooking(a) '000
	1994 '000	1999 '000	Change %	1994 '000	1999 '000	Change %	
Electricity	1 906.4	1 997.3	4.8	3 999.3	4 253.8	6.4	4 181.1
Gas	2 044.3	2 349.6	14.9	2 153.8	2 526.7	17.3	2 887.0
Wood	1 130.4	1 118.3	-1.1	(b)	73.9	..	51.4
Solar	3.8	*0.8	-78.9	317.1	344.7	8.7	—
Oil	200.0	156.3	-21.9	(b)	2.2	..	0.9
Coal/coke	(b)	*2.7	..	(b)	—	..	—
Other	90.6	44.5	..	141.9	12.4	..	14.8
Don't know	(b)	*7.5	..	(b)	36.9	..	—
None	1 039.1	1 458.1	40.3	—	—	..	—
<b>Total</b>	<b>6 414.5</b>	<b>7 135.2</b>	<b>11.2</b>	<b>6 414.5</b>	<b>7 135.2</b>	<b>11.2</b>	<b>7 135.2</b>

(a) Not collected in 1994. (b) Included in Other.

Source: *Environmental Issues: People's Views and Practices* (4602.0).

**15.20 ENERGY CONSUMED IN THE PRODUCTION OF EXPORTS,  
By Product Type — 1994–95**



(a) And other machinery.

Source: *Energy and Greenhouse Gas Emissions Accounts, 1992–93 to 1997–98*.

### Energy consumed in exports

Of the 29% of total energy consumed in the production of goods and services for export, a third is attributed to basic non-ferrous metals and metal products. Basic non-ferrous metals and products include products from alumina production, aluminium smelting and aluminium product manufacturing. These activities consume large amounts of electricity in their production. Energy consumed in the production of export products is shown in graph 15.20.

### Indicators of energy use in Australia

Between 1990–91 and 1998–99 Australia's total energy consumption increased by 23%. Over the same period, population increased by just under

10%, and GDP by over 34% (in chain volume terms). Aggregate energy intensity (energy consumed per unit of output) of the economy has declined by around 9% since 1990–91. Despite the high growth in electricity generation, total energy consumption grew at a slower rate than GDP, particularly over the past few years (table 15.21).

An indicator of aggregate energy intensity, such as the ratio of energy use to GDP, does not account for the effects of changes in the structure of energy use over time. Aggregate energy intensity is a very basic indicator and does not provide an adequate picture of the underlying trends in energy intensity within the economy. The article *International comparisons of energy performance* which follows provides more detail on the composition of this aggregate indicator.

**15.21 SELECTED ENERGY INDICATORS, Australia — 1990–91 to 1998–99**

Year	Energy consumption PJ	Electricity generation PJ	Energy use by road transport PJ	Population '000	GDP(a) \$m	Per capita energy use GJ/capita	Per capita electricity generation GJ/capita	Energy use/GDP(a) GJ/\$m	Road transport use per capita GJ/capita
1990–91	3 949.9	1 065.0	796.6	17 284.0	439 783.0	228.5	61.6	8 981.5	46.1
1991–92	3 982.7	1 092.9	809.7	17 494.7	441 458.0	227.7	62.5	9 021.7	46.3
1992–93	4 081.8	1 096.5	829.1	17 667.1	457 735.0	231.0	62.1	8 917.4	46.9
1993–94	4 181.9	1 109.6	853.5	17 854.7	476 556.0	234.2	62.1	8 775.3	47.8
1994–95	4 365.3	1 162.6	878.0	18 071.8	498 113.0	241.6	64.3	8 763.7	48.6
1995–96	4 505.5	1 211.8	904.3	18 310.7	520 669.0	246.1	66.2	8 653.3	49.4
1996–97	4 611.0	1 244.1	921.3	18 524.2	540 379.0	248.9	67.2	8 532.9	49.7
1997–98	4 777.6	1 347.3	936.4	18 730.4	565 881.0	255.1	71.9	8 442.8	50.0
1998–99	4 858.3	1 398.3	960.7	18 937.2	591 546.0	256.5	73.8	8 212.9	50.7
% change since 1990–91	23.0	31.3	20.6	9.6	34.5	12.3	19.8	-8.6	10.0

(a) Chain volume measure. Reference year is 1997–98.

Source: ABARE, electronic datasets; Australian System of National Accounts (5204.0); Australian Demographic Statistics (3101.0).

## International comparisons of energy performance

This article outlines the main concepts underlying measures of energy performance, and the difficulties they present for measurement. It provides some international comparisons of energy performance and discusses Australia's performance against various indicators relative to that of other OECD countries.

Given that countries exhibit a range of climate, industrial structures, geographical features and economic development, changes in the aggregate energy intensity ratio (energy consumed per unit of output) are an inadequate basis for measuring and comparing energy efficiency among countries. Using only the ratio of energy use to GDP as an energy performance indicator for international or cross-country comparison would be misleading. However, aggregate energy intensity can be broken down to identify the factors which have contributed to the net aggregate effect. These factors may be due to the level of economic activity (the production effect); the sectoral composition of the economy (the structural effect); and energy intensities of activity within the various energy-using sectors (the real intensity effect).

Overall, Australia's ratio of energy use to GDP and its energy use per capita are higher than the OECD average (table 15.22). Although the ratio

of energy use to GDP for Australia has declined between 1988 and 1998, this is less of a decline than that experienced in most other OECD countries. This is partly due to a natural evolution of the Australian economy towards more energy use, particularly in the transport, commercial, and residential sectors. In addition, structural changes in the economy towards certain energy-intensive manufacturing industries contributed to increased energy use. Energy savings offset some of this growth, but the overall impact was a growth in energy use (OECD/IEA 2001).

Australian manufacturing's use of energy per unit of GDP is high compared to most of the countries included in table 15.23. Australian manufacturing production involves a high share of energy intensive raw materials. Particularly important is the production of ferrous and non-ferrous metals. Energy use for non-ferrous metals (alumina refining and aluminium smelting) has increased dramatically as Australia has captured an increased share of the global market. Expansion of these industries has pushed up manufacturing energy use. Australia is one of the few countries described where structural changes have had an upward effect on energy use over the past two decades.

**15.22 ENERGY INDICATORS FOR SELECTED OECD COUNTRIES — 1998**

Country	Energy production Mtoe(c)	% change 1988 to 1998	TPES(a) Mtoe	% TPES/ GDP(b)	% change 1988 to 1998	TPES/ Pop'n toe/\$USm	% TPES/ Pop'n toe/capita	% change 1988 to 1998
<b>Australia</b>	<b>212.0</b>	<b>53.8</b>	<b>105.0</b>	<b>31.8</b>	<b>289.4</b>	<b>-3.4</b>	<b>5.6</b>	<b>16.2</b>
Canada	365.7	34.1	234.3	10.6	383.9	-7.5	7.7	-1.9
Denmark	20.2	146.7	20.8	8.2	176.9	-14.0	3.9	4.7
Finland	13.6	21.4	33.5	17.9	361.1	-0.2	6.5	13.2
France	125.5	28.6	255.7	22.5	224.5	2.0	4.3	16.8
Germany	131.5	-35.1	344.5	-6.0	232.3	-23.4	4.2	-10.4
Italy	29.1	15.9	167.9	14.9	161.9	-0.2	2.9	14.3
Netherlands	62.5	13.1	74.4	14.8	243.8	-14.5	4.7	7.9
New Zealand	13.8	30.7	17.2	36.6	306.4	12.9	4.5	19.5
Norway	206.7	119.3	25.4	23.6	243.0	-10.0	5.8	17.8
United Kingdom	274.2	17.2	232.9	10.2	216.1	-6.7	3.9	6.3
United States	1 695.4	4.8	2 181.8	12.9	309.8	-14.8	8.1	2.8
<b>OECD total</b>	<b>3 790.3</b>	<b>12.5</b>	<b>5 097.0</b>	<b>15.2</b>	<b>258.0</b>	<b>-9.9</b>	<b>4.6</b>	<b>6.8</b>

(a) Total Primary Energy Supply (TPES) is made up of production plus imports less exports less international marine bunkers, net of stock changes. (b) Gross Domestic Product (GDP) in Purchasing Price Parity terms, expressed in 1990 US\$.

(c) Million tonnes of oil equivalent.

Source: OECD/IEA 2000.

**15.23 ENERGY END-USE BY SECTOR, Selected OECD Countries — 1998**

	Industry(a)				Transport				Other(b)							
	1988		1998		Change 78-88		Change 88-98		1988		1998		Change 78-88		Change 88-98	
	Mtoe	Mtoe	%	%	Mtoe	Mtoe	%	%	Mtoe	Mtoe	%	%	Mtoe	Mtoe	%	%
<b>Australia</b>	<b>18.9</b>	<b>24.0</b>	<b>9.8</b>	<b>26.7</b>	<b>21.4</b>	<b>27.0</b>	<b>27.3</b>	<b>25.8</b>	<b>11.3</b>	<b>15.1</b>	<b>22.7</b>	<b>34.6</b>				
Canada	59.7	66.9	12.0	12.1	44.5	52.9	10.1	18.8	52.0	56.5	3.5	8.8				
Denmark	2.7	3.1	-19.1	14.7	4.4	4.9	15.1	10.6	6.1	7.4	-29.9	21.4				
Finland	9.4	11.5	45.5	21.6	4.0	4.4	43.2	10.0	7.3	8.5	-22.6	16.7				
France	41.9	46.8	-11.5	11.7	39.9	49.8	24.2	24.6	52.0	65.5	-6.8	26.1				
Germany	88.6	71.1	-7.3	-19.7	55.4	66.2	20.7	19.5	105.1	99.2	-1.1	-5.6				
Italy	39.2	40.9	-4.0	4.2	33.1	41.8	40.2	26.2	36.4	41.8	7.1	14.9				
Netherlands	18.6	19.0	-11.1	2.1	9.9	14.0	15.7	40.5	19.1	22.5	-9.8	15.8				
New Zealand	3.6	4.9	61.0	36.2	3.2	4.6	30.9	43.8	19.5	2.5	4.0	18.8				
Norway	7.5	7.6	9.0	1.1	4.1	4.8	29.7	19.2	5.9	6.9	22.4	16.8				
United Kingdom	40.9	41.0	-19.7	0.2	43.3	51.1	31.2	18.1	57.9	62.8	7.8	8.4				
United States	401.4	348.7	-3.0	-13.1	499.3	582.1	7.7	16.6	424.9	437.4	-1.6	2.9				

(a) Manufacturing and mining. (b) Includes agriculture, commerce, public services, residential and non-specified other sectors.

Source: OECD/IEA 2000.

Passenger transport rose strongly all through the 1970s and 1980s, driven by increased car ownership and air travel. In the early 1970s Australia had a relatively low level of per capita motorisation by US or Canadian standards. However, Australia experienced a higher rate of growth in ownership, relative to GDP, than most other countries, and significantly closed the gap with the US. Factors that combined to give Australia high energy use for transport include: high volume of passenger transport; above-average fuel intensity of cars; and high car ownership (OECD/IEA 2001).

The 1970s and 1980s saw an expansion of the area of built space in the commercial sector in Australia that closely followed the rise in commercial sector gross product. Electricity intensity in this sector rose, indicative of greater

electrification (e.g. increased electricity use for air conditioning, lighting and computing). This trend appears to be slowing, however, even with the rising commercial sector gross product. Significant growth in residential energy use over the past two decades can be attributed to rapid development of equipment ownership in Australia. Canada, the United States and Nordic countries, by contrast, showed little growth in residential energy use for equipment because consumption was already so well developed in the early 1970s.

The dependence of the electricity sector in Australia on coal for primary inputs (table 15.24) points to the importance of improving the efficiency of electricity use as a priority for research and policy initiatives.

**15.24 FUEL SHARES IN ELECTRICITY GENERATION, Selected OECD Countries — 1998**

Country	Coal	Petroleum	Natural gas	Fossil fuels	Nuclear	Hydro-electricity	%
<b>Australia</b>	<b>80.0</b>	<b>1.2</b>	<b>9.0</b>	<b>90.2</b>	—	—	<b>8.1</b>
Canada	19.1	3.3	4.6	27.0	12.7	—	59.1
Denmark	57.6	12.1	19.9	89.6	—	—	0.1
France	7.4	2.3	1.0	10.7	76.5	—	12.2
Germany	54.2	1.2	9.8	65.2	29.3	—	3.1
Italy	11.0	42.3	28.8	81.1	—	—	16.3
Netherlands	29.9	3.9	57.0	90.8	4.2	—	0.1
New Zealand	3.9	—	23.2	27.1	—	—	64.9
Norway	0.2	—	0.2	0.4	—	—	99.4
United Kingdom	34.5	1.6	32.5	68.6	28.1	—	1.5
United States	52.8	3.9	14.7	71.4	18.8	—	7.7

Source: OECD/IEA 2000.

## Energy and the environment

### Greenhouse gas emissions

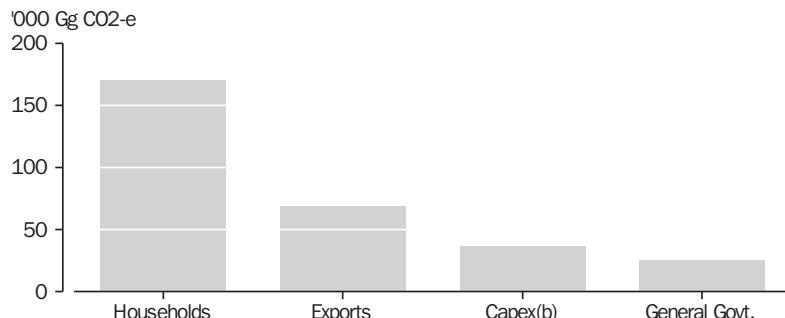
As mentioned in the *Chapter 14, Environment*, fossil fuel combustion is the major contributor to Australia's greenhouse gas emissions. Table 15.26 shows that the electricity supply industry accounts for nearly half of total energy-related emissions, and that emissions in this industry grew by 25% between 1992–93 and 1997–98. Direct emissions by households contributed around 13% in 1997–98, most of these emissions due to motor vehicle use. Other significant direct emitters of greenhouse gases included manufacturing of iron and steel; mining; manufacturing of basic non-ferrous metals and products; air and space transport; and road transport (excluding household motor vehicle use). Combined emissions from this group of industries accounted for nearly 20% of energy-related emissions in 1997–98.

While table 15.26 presents the direct generation of greenhouse gases by the energy-using industry group or sector, graph 15.25 shows that the bulk of Australia's energy-related greenhouse gases were emitted in the production and consumption of goods and services for the purpose of

household final consumption (about 56%). A further 23% of energy-related emissions were generated in the production of goods and services for export. Other final use categories (general government final consumption and gross fixed capital formation) were responsible for the remaining emissions.

The consumption of electricity by households indirectly produced the greatest amount of energy-related greenhouse gas emissions (17%). This was followed by direct emissions by households (15%), most of which is due to the consumption of motor vehicle fuels. The most significant contributor to energy-related greenhouse gas emissions resulting from production of goods and services for export is basic non-ferrous metals and products (6% of total energy-related greenhouse gases). A significant proportion of emissions is also attributed to buildings and other construction, such as roads, irrigation systems, oil refineries, and water and gas supply systems, that contain high levels of embodied energy (about 7% of total greenhouse gas emissions). Graphs 15.27 to 15.29 show the contributions that the production or consumption of various goods and services make towards Australia's greenhouse gas emissions.

**15.25 GREENHOUSE GAS EMISSIONS(a), By Final Use — 1994–95**



(a) Energy-related emissions produced either directly or indirectly, by category of final use.  
 (b) Gross fixed capital formation.

Source: *Energy and Greenhouse Gas Emissions Accounts, 1992-93 to 1997-98* (4604.0).

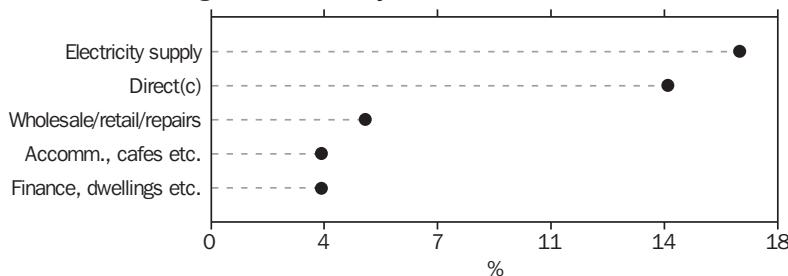
## 15.26 PRODUCTION OF ENERGY-RELATED GREENHOUSE GASES(a), By Industry — 1992–93 to 1997–98

Industry							Change 1992–93 to 1997–98
	1992–93 Gg CO <sub>2</sub> -e(b)	1993–94 Gg CO <sub>2</sub> -e	1994–95 Gg CO <sub>2</sub> -e	1995–96 Gg CO <sub>2</sub> -e	1996–97 Gg CO <sub>2</sub> -e	1997–98 Gg CO <sub>2</sub> -e	
Agriculture; hunting and trapping; forestry and fishing	6 053	6 252	6 518	6 737	6 988	7 188	18.8
Mining	10 986	11 237	12 295	13 271	14 596	15 136	37.8
Manufacturing							
Meat/meat products	719	740	744	719	658	643	-10.6
Dairy products	717	715	747	756	727	737	2.8
Fruit and vegetable products	303	320	325	353	339	337	11.2
Oils and fats	157	156	159	149	152	157	—
Flour/cereal products	296	302	310	334	331	334	12.8
Bakery products	202	188	221	233	224	224	10.9
Confectionary/other foods	731	819	902	1 080	1 030	1 016	39.0
Beverages	326	341	338	325	318	307	-5.8
Tobacco products	48	45	47	48	49	48	—
Textiles, clothing, footwear	522	513	617	606	599	574	10.0
Wood/wood products; paper, printing and publishing	2 372	2 321	2 494	2 477	2 728	2 644	11.5
Petroleum/coal products	6 747	6 717	7 390	7 674	7 024	7 276	7.8
Basic chemicals	4 175	4 100	4 620	5 527	4 317	4 712	12.9
Other chemicals, rubber & plastic products	213	214	323	373	387	376	76.5
Glass and glass products	596	587	541	503	503	494	-17.1
Ceramic products	1 191	1 167	1 285	1 163	1 101	1 135	-4.7
Cement; lime and concrete; plaster and other concrete	2 374	2 625	2 852	2 643	2 721	2 891	21.8
Other non-metallic mineral products	782	772	676	663	699	656	-16.1
Iron and steel	15 163	15 122	15 836	15 713	16 141	17 572	15.9
Basic non-ferrous metal and products	13 354	13 675	13 832	13 821	13 920	13 542	1.4
Fabricated metal products	444	457	489	494	498	501	12.8
Transport equipment; other machinery and equipment	757	792	819	847	866	884	16.8
Miscellaneous manufacturing	242	246	98	102	105	107	-55.8
Total	52 431	52 934	55 665	56 603	55 437	57 166	9.0
Electricity and gas							
Electricity supply	135 256	136 424	141 773	147 531	152 899	168 845	24.8
Gas supply	731	740	639	724	712	717	-1.9
Total	135 987	137 164	142 412	148 256	153 611	169 562	24.7
Construction							
Transport							
Road transport	7 795	8 070	8 475	8 860	9 279	9 556	22.6
Rail, pipeline, other transport; services to transport; storage	4 265	4 378	4 520	4 710	4 864	5 532	29.7
Water transport	3 625	3 761	4 754	4 858	4 536	4 078	12.5
Air and space transport	9 758	10 123	11 361	12 280	12 736	11 772	20.6
Total	25 443	26 332	29 111	30 708	31 415	30 939	21.6
Services							
Wholesale trade; retail trade; repairs	3 211	3 299	3 482	3 606	3 700	3 806	18.5
Communication services	180	180	189	196	202	206	14.4
Finance & insurance; ownership of dwellings; property & business services	1 077	1 106	1 145	1 187	1 229	1 254	16.4
Government administration	621	636	664	681	712	727	17.1
Education; health and community services	1 708	1 755	1 717	1 750	1 764	1 811	6.0
Accommodation, cafes and restaurants; cultural and recreational services; personal and other services	871	903	1 006	1 063	1 081	1 118	28.4
Water supply, sewerage & drainage services	113	117	121	128	135	140	23.9
Total	7 781	7 997	8 325	8 610	8 823	9 063	16.5
Household production	42 194	42 990	44 051	44 361	45 286	45 587	8.0
Total	285 168	289 325	302 959	313 355	320 975	339 597	19.1

(a) Excludes fugitive emissions. (b) Giga grams of carbon dioxide equivalents (CO<sub>2</sub>-e). Note: Due to varying classification systems, definitional differences, and various states of revision of data sources, figures will not necessarily reconcile with other data sources. Statistics of greenhouse gas emissions are also available for 1999 from the Australian Greenhouse Office (AGO 2000).

Source: Energy and Greenhouse Gas Emissions Accounts, Australia, 1992–93 to 1997–98 (4604.0).

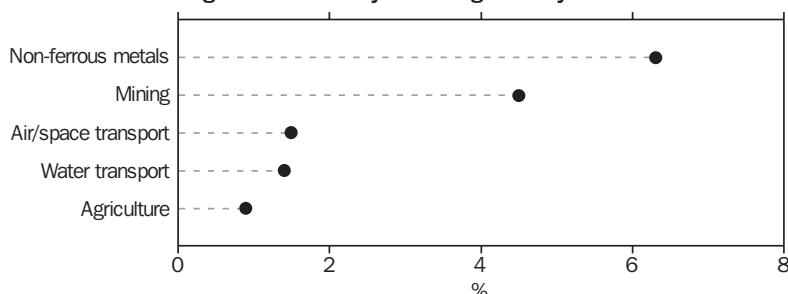
**15.27 GREENHOUSE GASES(a) INDUCED(b) BY HOUSEHOLDS , Percentage Contributions by Product Consumed — 1994–95**



(a) Energy-related greenhouse gases only. (b) Produced either directly or indirectly through the consumption of products. (c) Direct production by households, mainly through motor vehicle use.

Source: *Energy and Greenhouse Gas Emissions Accounts, 1992–93 to 1997–98* (4604.0).

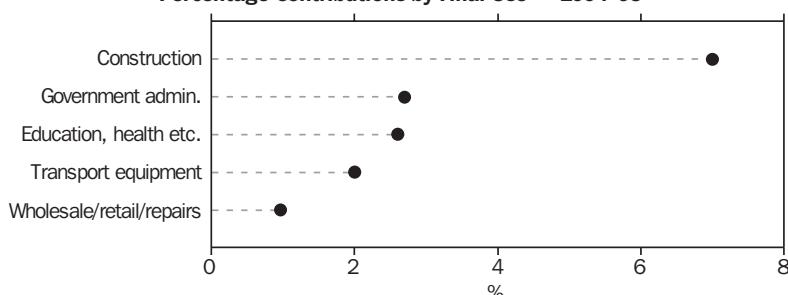
**15.28 GREENHOUSE GASES(a) INDUCED(b) BY EXPORTS, Percentage Contribution by Producing Industry — 1994–95**



(a) Energy-related greenhouse gases only. (b) Produced indirectly through the production of goods and services for export.

Source: *Energy and Greenhouse Gas Emissions Accounts, 1992–93 to 1997–98* (4604.0).

**15.29 EMISSIONS(a) INDUCED BY OTHER FINAL USES(b), Percentage Contributions by Final Use — 1994–95**



(a) Energy-related greenhouse gases only. (b) Produced indirectly by government final consumption of products or gross capital formation.

Source: *Energy and Greenhouse Gas Emissions Accounts, 1992–93 to 1997–98* (4604.0).

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Australian and New Zealand Minerals and Energy Council (ANZMEC), *Energy Trends: An Analysis of Energy Supply and Use in the National Energy Market — 2000*.

OECD/International Energy Agency:

- 2000, *Energy Balances of OECD Countries 1997–1998*, Paris.
- 2001, *Energy Use in Australia in an International Perspective: Comparison of Trends through the mid 1990s*, Paris.

### Other sources

The following organisations also produce energy and greenhouse gas statistics:

- Australian Institute of Petroleum;
- Commonwealth Department of Industry, Science and Resources;
- Electricity Supply Association of Australia;
- Joint Coal Board; and
- Australian Greenhouse Office.

State government departments and instrumentalities are also important sources of energy data, particularly at the regional level. A number of private corporations and other entities operating within the energy field also publish or make available a significant amount of information.

### Internet sites

Australian Greenhouse Office, <http://www.greenhouse.gov.au>

Australian Renewable Energy Website (Australian Greenhouse Office),  
<http://renewable.greenhouse.gov.au>

Commonwealth Department of Industry, Science and Resources, <http://www.isr.gov.au>

Energy Australia, <http://www.energy.com.au>

International Energy Agency, <http://www.iea.org>

Organisation for Economic Co-operation and Development, <http://www.oecd.org>

Sustainable Energy Development Authority (NSW), <http://www.seda.nsw.gov.au>



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## Introduction

Interacting factors such as the opening up of new land, the development of transport facilities and profitable markets, and technical and scientific achievements, have shaped the evolution of Australian agriculture.

Until the late 1950s, agricultural products accounted for more than 80% of the value of Australia's exports. Since then, that proportion has declined markedly as the Australian economy has become increasingly diverse. The quantity and value of production have expanded in the mining, manufacturing and, in recent years, the service industries. This decline in importance has not been due to a decline in agricultural activity, as agricultural output has increased over this period. The direct contribution of agriculture to Gross Domestic Product (GDP) has remained steady at around 3% throughout the last decade. Australian agriculture is a vital sector occupying a significant place in global rural trade, with wool, beef, wheat, cotton and sugar being particularly important. Australia is also an important source of dairy produce, fruit, rice and flowers.

The major source of statistics on land use, commodity production and livestock numbers in this chapter is the ABS Agricultural Census, conducted each year until 1996–97. Since 1997–98 these data have been collected in the Agricultural Commodity Survey, a large sample survey conducted Australia-wide. The Agricultural Commodity Survey is expected to replace the census in four years out of five. The last census was conducted in 2001, coinciding with the Census of Population and Housing.

## The agricultural environment

Australia is a relatively flat continent, with mean elevation just exceeding 200 metres. The dominant feature of the continent is the Great Dividing Range which spans the length of the Eastern Seaboard. There are very few naturally good soils for agriculture. Most are infertile and shallow, with deficiencies in phosphorus or nitrogen. To offset these deficiencies, superphosphate and nitrogenous fertilisers are widely used, particularly on pasture and cereal crops. Fragile soil structure and a susceptibility to waterlogging are other common features of Australian soils, while large

areas are naturally affected by salt or acidity. These soil characteristics restrict particular agricultural activities or rule out agricultural activity altogether.

With the exception of Antarctica, Australia is the world's driest continent. The wet northern summer is suited to beef cattle grazing inland and the growing of sugar and tropical fruits in coastal areas. The drier summer conditions of southern Australia favour wheat and other dryland cereal farming, sheep grazing and dairy cattle (in the higher rainfall areas) as well as beef cattle. Within regions there is also a high degree of rainfall variability from year to year, which is most pronounced in the arid and semi-arid regions. Rainfall variability often results in lengthy periods without rain. The seasonality and variability of rainfall in Australia require that water be stored, and 70% of stored water use (including ground water) is accounted for by the agricultural sector. Storage ensures that there are adequate supplies all year round for those agricultural activities requiring a continuous supply. Irrigation has opened up areas of Australia to agricultural activities which otherwise would not have been suitable.

Evaporation is another important element of Australia's environment affecting agricultural production. Hot summers are accompanied by an abundance of sunlight. This combination of climatic variables leads to high rates of evaporation. Areas that have been cleared for crop and pasture production tend to coincide with five to nine months effective rainfall (where rainfall exceeds evaporation) per year. In areas of effective rainfall of more than nine months, generally only higher value crops or tropical crops and fruits are grown, while in areas with effective rainfall of less than five months, cropping is usually restricted to areas that are irrigated.

Since European settlement the vegetation of Australia has altered significantly. In particular, large areas of Australia's forest and woodland vegetation systems have been cleared, predominantly for agricultural activity. The areas that have been altered most are those which have been opened up to cultivation or intensive grazing. Other areas, particularly in the semi-arid regions where extensive grazing of native grasses occurs, now show signs of returning to timber and scrub.

For more detail see *Chapter 1, Geography and climate*.

## Land used for agriculture

In spite of Australia's harsh environment, agriculture is the most extensive form of land use. At 30 June 2000, the estimated total area of establishments with agricultural activity in Australia was 455.5 million hectares, representing about 59% of the total land area (tables 16.1 and 16.2). The rest of the Australian land area consists of unoccupied land (mainly desert in western and central Australia), Aboriginal land reserves (mainly located in the Northern Territory), forests, mining leases, national parks and urban areas.

Livestock grazing accounts for the largest area of land use in Australian agriculture. This activity has led to the replacement of large areas of native vegetation by introduced pastures and grasses in the higher rainfall and irrigated areas.

At 30 June 2000, 5% of Australia's agricultural land was under crops, with a further 5% under sown pastures and grasses. This maintains the trend which has seen about 10% of Australia's agricultural land under cultivation each year since the 1980s. Until this time, the area of land

cropped or sown to pastures and grasses had been expanding rapidly. This expansion was facilitated by factors including increased use of fertilisers, improved water supply and reduction in the rabbit population due to myxomatosis.

### Irrigation

The high variability in river flow and annual rainfall, which are features of the Australian environment, means that successful ongoing production of crops and pastures is dependent on irrigation.

Vegetables, fruit (including grapes) and sugar cane are the most intensively irrigated crops, with 78%, 70% and 47% respectively of their total growing areas sown being irrigated. However the total area of land irrigated, about 2.4 million hectares in 2000 (table 16.3), represents less than 1% of the total land used for agriculture.

Most irrigated land is located within the confines of the Murray–Darling Basin, which covers parts of New South Wales, Victoria, Queensland and South Australia.

#### 16.1 AGRICULTURAL LAND USE IN AUSTRALIA

	Area of		Balance(b) mill. ha.	Area of establishments with agricultural activity mill. ha.	mill. ha.	Proportion of Australian land area(c) %
	Crops(a) mill. ha.	Sown pastures and grasses mill. ha.				
1995	17.0	(d)	410.2	463.3		60.2
1996	19.4	17.1	428.7	465.2		60.5
1997	21.1	19.0	422.0	462.2		60.1
1998	21.5	22.8	419.5	463.8		60.3
1999	23.3	22.5	407.9	453.7		59.0
2000	23.8	23.8	407.9	455.5		59.2

(a) Pastures and grasses harvested for hay and seed are included in 'Sown pastures and grasses'. (b) Includes areas of arid or rugged land held under grazing licences but not always used for grazing, and also variable amounts of fallow land.

(c) About 769,203,000 ha. (d) Collected in the Northern Territory only.

Source: *Agriculture, Australia* (7113.0).

#### 16.2 AREA OF ESTABLISHMENTS WITH AGRICULTURAL ACTIVITY

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Aust.(a)
	mill. ha.							
1995	60.3	12.7	149.7	56.1	114.0	1.9	68.6	463.3
1996	61.0	12.8	149.7	56.9	114.5	1.9	68.3	465.2
1997	60.9	12.7	149.6	56.2	112.5	1.9	68.3	462.2
1998	60.3	12.7	148.2	57.5	115.8	1.9	67.3	463.8
1999	59.3	12.8	140.3	59.4	113.1	1.9	66.9	453.7
2000	62.1	13.3	145.4	59.9	105.6	1.8	67.5	455.5

(a) Including ACT.

Source: *Agriculture, Australia* (7113.0).

**16.3 AREA OF CROPS AND PASTURES IRRIGATED — 1999–2000**

	NSW '000 ha.	Vic. '000 ha.	Qld '000 ha.	SA '000 ha.	WA '000 ha.	Tas. '000 ha.	NT '000 ha.	ACT '000 ha.	Aust. '000 ha.
Pastures (native or sown)	265.2	504.9	53.9	57.9	10.5	28.2	4.1	—	924.7
Cereals									
Rice	127.2	—	—	—	—	—	—	—	127.2
Other cereals	164.8	—	—	—	2.2	—	—	—	167.0
Total cereals	293.9	23.6	53.9	4.4	2.2	1.7	—	—	379.7
Cotton	267.5	—	148.8	—	*1.0	—	—	—	417.0
Sugar cane cut for crushing	—	—	200.2	—	1.7	—	—	—	201.9
Vegetables for human consumption	13.9	21.4	27.7	11.0	7.9	17.2	—	—	99.2
Fruit (including nuts)	23.1	23.0	22.7	17.4	6.0	3.0	1.5	—	96.6
Grapevines	25.4	31.0	1.8	49.6	5.1	—	—	—	113.6
All other crops	35.9	8.8	17.6	8.1	1.3	11.9	—	—	83.7
<b>Total area irrigated</b>	<b>944.1</b>	<b>625.8</b>	<b>547.8</b>	<b>159.1</b>	<b>39.2</b>	<b>62.1</b>	<b>6.0</b>	—	<b>2 384.3</b>

Source: *Agriculture, Australia, 1999–2000* (7113.0).

## Characteristics of Australian farms

In 1999–2000 there were 146,371 establishments undertaking agricultural activity with an estimated value of agricultural operations (EVAO) greater than \$5,000. For the majority of these establishments (144,560) their primary activity was agriculture. While the remainder were undertaking some form of agricultural activity, their main activity was not in agriculture. The majority of agricultural establishments were engaged in either beef cattle farming (35,236), mixed grain/sheep/beef farming (18,232), grain growing (16,463), sheep farming (14,302) or dairy cattle farming (13,820).

Table 16.4 provides information on the numbers and types of establishments undertaking agricultural activity at 30 June 2000.

## Employment in agriculture

The number of people employed in agriculture increased slightly in 2000 to 409,000 persons. The majority of persons employed in agriculture were male (68%). Slightly less than 78% of women employed in agriculture were married, compared with 68% of men.

Table 16.5 shows the average employment in agriculture and services to agriculture for each of the years 1995 to 2000.

## Gross value of agricultural commodities produced

The contribution of agriculture to the Australian economy can be measured in a number of ways. The most direct measurement available is the gross value of agricultural production for the year ending 30 June. In 1999–2000, the gross value of agricultural production in current prices was \$30.2b.

Table 16.6 shows the gross value of agricultural commodities produced for the years 1994–95 to 1999–2000. The values shown are the values of recorded production at the wholesale prices realised in the principal market place. Also shown are chain volume indexes of the value of production, which provide an indication of the change in value after the direct effects of price change are eliminated. Chain volume measures are discussed in the section *Chain volume or 'real' GDP* in Chapter 29, *National accounts*.

**16.4 ESTABLISHMENTS UNDERTAKING AGRICULTURAL ACTIVITY — At 30 June 2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Establishments mainly engaged in agriculture, forestry and fishing industries									
Agriculture									
Plant nurseries	974	395	754	131	163	56	16	6	2 496
Cut flower and flower seed growing	295	260	206	131	177	59	6	—	1 134
Vegetable growing	986	1 099	1 455	573	584	602	13	2	5 313
Grape growing	1 175	2 233	*143	2 406	474	85	3	3	6 522
Apple and pear growing	233	374	117	118	246	140	—	1	1 229
Stone fruit growing	465	250	104	252	165	*20	—	—	1 257
Kiwi fruit growing	1	**	*3	—	**	—	—	—	*20
Fruit growing n.e.c.	2 001	498	2 267	571	309	57	90	—	5 794
Grain growing	4 206	3 181	2 112	3 653	3 282	24	3	1	16 463
Grain-sheep/beef cattle farming	7 205	3 380	1 730	2 757	3 113	46	—	1	18 232
Sheep-beef cattle farming	4 036	2 471	804	939	618	363	—	22	9 253
Sheep farming	5 457	4 521	576	1 567	1 438	719	—	24	14 302
Beef cattle farming	10 806	8 528	11 458	990	2 131	1 088	211	24	35 236
Dairy cattle farming	1 943	8 133	1 842	770	386	743	1	2	13 820
Poultry farming (meat)	351	197	145	78	64	10	1	—	845
Poultry farming (eggs)	131	108	128	47	73	13	5	2	508
Pig farming	328	193	340	147	111	24	1	—	1 145
Horse farming	770	452	499	109	126	59	2	4	2 021
Deer farming	*56	*75	**	*29	**	*16	—	—	196
Livestock farming n.e.c.	415	*262	*202	*118	107	*54	1	—	1 158
Sugar cane growing	489	—	4 534	—	*5	—	—	—	5 029
Cotton growing	490	—	484	—	1	—	—	—	974
Crop and plant growing n.e.c.	248	369	455	326	61	146	8	1	1 614
Total agriculture	43 063	36 988	30 367	15 712	13 653	4 324	361	93	144 560
Establishments mainly engaged in other industries, but also with some agricultural activity									
	591	316	331	193	265	106	6	3	1 811
<b>Total establishments undertaking agricultural activity</b>	<b>43 654</b>	<b>37 304</b>	<b>30 698</b>	<b>15 905</b>	<b>13 917</b>	<b>4 430</b>	<b>367</b>	<b>96</b>	<b>146 371</b>

Source: Agricultural Commodities, Australia, 1999-2000 (7121.0).

**16.5 EMPLOYED PERSONS(a) IN AGRICULTURE AND RELATED SERVICES TO AGRICULTURE, Annual Averages**

	Married males '000	All males '000	Married females '000	All females '000	Persons '000
1995	180.3	257.9	101.2	123.3	<b>381.2</b>
1996	184.2	269.5	98.7	120.9	<b>390.5</b>
1997	191.1	278.2	102.8	126.2	<b>404.4</b>
1998	181.7	268.0	97.0	124.5	<b>392.5</b>
1999	186.1	278.7	101.6	129.1	<b>407.7</b>
2000	190.0	279.7	100.4	129.5	<b>409.2</b>

(a) The estimates of employed persons include persons who worked without pay for at least one hour per week in a family business or on a farm (i.e. unpaid family helpers). Persons who worked in another industry and in agriculture are classified to the industry of predominant activity.

Source: ABS data available on request, Labour Force Survey.

**16.6 AGRICULTURAL COMMODITIES PRODUCED, Gross Value and Chain Volume Index(a)**

Commodity	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m	\$m	\$m	\$m	\$m	\$m
GROSS VALUE OF COMMODITIES PRODUCED (CURRENT PRICES)						
<b>Crops</b>						
Barley for grain	622.2	1 276.4	1 308.0	1 032.0	835.5	864.8
Oats for grain	165.8	289.4	226.6	223.3	156.6	118.4
Wheat for grain	2 127.2	4 304.7	4 877.9	3 801.5	4 011.0	4 831.2
Other cereal grains	580.2	733.0	764.9	702.1	810.9	750.4
Sugar cane cut for crushing	1 207.7	1 168.7	1 186.4	1 247.7	1 044.1	881.9
Fruit and nuts	1 426.4	1 498.8	1 667.8	1 586.8	1 763.0	1 761.1
Grapes	511.0	714.4	721.4	998.2	1 200.1	1 118.2
Vegetables	1 491.6	1 616.1	1 662.3	1 812.3	1 864.4	1 861.9
All other crops(b)	2 999.6	3 729.0	3 580.5	3 904.3	4 540.7	4 735.1
<i>Total crops</i>	<i>11 131.7</i>	<i>15 330.5</i>	<i>15 995.8</i>	<i>15 308.2</i>	<i>16 226.3</i>	<i>16 923.0</i>
<b>Livestock slaughterings and other disposals</b>						
Cattle and calves	4 213.5	3 575.9	3 597.0	4 138.2	4 476.6	5 050.9
Sheep and lambs	836.8	1 035.7	1 042.6	1 066.2	1 053.5	1 053.9
Pigs(c)	630.6	597.8	764.8	709.8	689.7	791.7
Poultry(c)	902.0	948.1	932.0	1 053.6	1 018.5	1 031.0
<i>Total livestock slaughterings and other disposals(d)</i>	<i>6 618.8</i>	<i>6 192.7</i>	<i>6 376.3</i>	<i>6 991.9</i>	<i>7 255.8</i>	<i>7 946.9</i>
<b>Livestock products</b>						
Wool	3 319.3	2 559.7	2 621.2	2 753.9	2 141.0	2 149.2
Milk(e)	2 419.1	2 848.3	2 808.9	2 817.0	2 899.6	2 845.2
Eggs(e)	230.6	256.9	274.9	347.5	337.1	321.4
<i>Total livestock products(e)(f)</i>	<i>5 995.0</i>	<i>5 707.3</i>	<i>5 758.7</i>	<i>5 957.8</i>	<i>5 411.8</i>	<i>5 353.7</i>
<b>Total value of agricultural commodities produced(g)</b>	<b>23 754.8</b>	<b>27 242.0</b>	<b>28 130.8</b>	<b>28 258.0</b>	<b>28 893.9</b>	<b>30 223.6</b>
CHAIN VOLUME INDEX OF GROSS VALUE OF COMMODITIES PRODUCED						
<b>Crops</b>						
Barley for grain	57.9	115.7	133.1	127.8	119.0	100.0
Oats for grain	82.6	167.7	147.9	145.8	160.8	100.0
Wheat for grain	37.3	68.6	95.3	76.1	89.2	100.0
Other cereal grains	63.2	81.4	93.0	81.7	103.5	100.0
Legumes for grain	59.6	102.5	102.8	93.1	100.4	100.0
Oilseeds	15.8	25.8	33.0	36.4	75.7	100.0
Sugar cane cut for crushing	85.1	86.2	93.2	98.5	92.6	100.0
Cotton	51.1	59.0	92.6	100.0	96.7	100.0
Nursery production	88.8	96.7	81.8	72.2	94.2	100.0
Fruit and nuts	84.3	84.6	91.1	87.9	86.0	100.0
Grapes	65.5	92.6	80.1	79.1	97.4	100.0
Vegetables	80.3	89.0	88.6	91.6	96.3	100.0
All other crops(b)	68.8	102.0	76.7	86.3	97.5	100.0
<i>Total crops</i>	<i>56.9</i>	<i>77.8</i>	<i>89.6</i>	<i>84.1</i>	<i>93.6</i>	<i>100.0</i>
<b>Livestock slaughterings and other disposals(d)</b>						
Cattle and calves	85.3	86.4	92.9	96.8	99.5	100.0
Sheep and lambs	89.3	87.9	88.3	91.5	92.8	100.0
Pigs(c)	96.0	97.0	95.2	94.4	99.5	100.0
Poultry(c)	76.7	80.1	82.8	91.7	95.5	100.0
<i>Total livestock slaughterings and other disposals(d)</i>	<i>85.7</i>	<i>86.8</i>	<i>90.7</i>	<i>94.9</i>	<i>97.8</i>	<i>100.0</i>
<b>Livestock products</b>						
Wool	104.6	98.7	104.6	98.4	98.1	100.0
Milk(e)	75.7	80.4	83.2	87.0	93.8	100.0
Eggs(e)	97.2	95.6	97.3	98.8	103.9	100.0
<i>Total livestock products(e)(f)</i>	<i>89.5</i>	<i>89.0</i>	<i>93.1</i>	<i>92.7</i>	<i>96.0</i>	<i>100.0</i>
<b>Total agricultural commodities produced(g)</b>	<b>69.9</b>	<b>82.0</b>	<b>90.6</b>	<b>88.3</b>	<b>95.1</b>	<b>100.0</b>

(a) Chain volume indexes are compiled by linking together (compounding) movements in volumes, calculated using the average prices of the previous financial year, and applying the compounded movements to the current price estimates of the reference year, which for these estimates is 1999–2000. (b) Includes pastures and grasses. Excludes crops for green feed or silage. (c) Excludes pigs and poultry in Tasmania and the Northern Territory, prior to 1997–98. (d) Excludes pigs and poultry in the Northern Territory, prior to 1997–98. (e) Includes honey and beeswax. (f) Excludes the Northern Territory prior to 1997–98. (g) Includes pigs and poultry slaughterings in Tasmania and the Northern Territory, and livestock products in the Northern Territory.

Source: Agriculture, Australia (7113.0); ABS data available upon request, Australian National Accounts.

**16.7 FARM BUSINESSES, Selected Financial Aggregates**

	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m	\$m	\$m	\$m	\$m	\$m
Sales from crops	9 804.2	13 159.6	13 581.2	13 493.1	13 564.3	13 110.9
Sales from livestock	6 279.1	6 339.7	5 964.7	5 922.0	6 373.4	7 300.9
Sales from livestock products	5 596.3	4 975.1	5 403.3	5 556.5	4 986.5	5 143.7
Turnover	23 516.3	26 724.9	27 122.3	27 300.1	27 606.6	28 525.6
Purchases and selected expenses	13 517.0	14 948.6	15 692.3	15 472.4	15 908.7	15 313.7
Value added(a)	9 768.1	11 185.3	10 797.4	12 034.4	12 181.4	14 145.8
Adjusted value added(b)	8 234.3	9 552.5	9 103.2	10 145.0	10 191.0	12 059.8
Gross operating surplus(a)	6 006.0	7 176.6	6 588.3	7 608.1	7 359.1	9 290.1
Interest paid	1 508.9	1 666.7	1 719.9	1 595.1	1 645.3	1 866.3
Cash operating surplus(c)	4 835.7	6 429.3	5 906.3	6 091.7	5 529.1	6 915.8
Net capital expenditure	2 090.8	2 307.9	2 480.7	2 624.7	2 573.1	2 197.1
Gross indebtedness	18 267.7	19 592.7	20 464.2	21 630.8	24 295.4	26 195.4

(a) Includes an estimate for the increase (or decrease) in the value of livestock. (b) The estimate of value added less the estimates of rates and taxes, insurance payments and other expenses. (c) Excludes an estimate for the increase (or decrease) in the value of livestock.

Source: *Agriculture, Australia* (7113.0).

**16.8 FARM BUSINESSES, Selected Financial Aggregates by State — 1999–2000**

	NSW(a)	Vic.	Qld	SA	WA	Tas.	Aust.(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Sales from crops	4 041.2	2 149.8	3 270.5	1 432.4	1 960.8	191.7	<b>13 110.9</b>
Sales from livestock	2 171.9	1 131.0	2 449.6	595.0	627.8	180.6	<b>7 300.9</b>
Sales from livestock products	1 441.5	1 975.7	517.0	386.3	619.9	201.7	<b>5 143.7</b>
Turnover	8 460.7	5 929.7	6 899.8	2 765.2	3 557.4	675.1	<b>28 525.6</b>
Purchases and selected expenses	4 577.2	3 113.6	3 709.9	1 407.7	2 027.9	356.5	<b>15 313.7</b>
Value added(c)	4 285.8	2 955.9	3 367.8	1 502.1	1 586.6	348.9	<b>14 145.8</b>
Adjusted value added(d)	3 607.8	2 554.7	2 934.4	1 269.7	1 307.4	302.7	<b>12 059.8</b>
Gross operating surplus(c)	2 820.5	1 901.9	2 211.1	1 019.3	1 063.8	219.0	<b>9 290.1</b>
Interest paid	553.0	336.4	431.1	225.0	274.1	39.3	<b>1 866.3</b>
Cash operating surplus(e)	1 985.1	1 474.0	1 766.5	684.3	783.4	155.7	<b>6 915.8</b>
Net capital expenditure	582.7	396.5	539.9	255.6	353.2	52.0	<b>2 197.1</b>
Gross indebtedness	7 499.7	4 341.8	6 422.9	3 093.2	4 029.0	610.0	<b>26 195.4</b>

(a) Includes the Australian Capital Territory. (b) Includes the Northern Territory. (c) Includes an estimate for the increase (or decrease) in the value of livestock. (d) The estimate of value added less the estimates of rates and taxes, insurance payments and other expenses. (e) Excludes an estimate for the increase (or decrease) in the value of livestock.

Source: *Agriculture, Australia*, 1999–2000 (7113.0).

## Financial statistics of farm businesses

Estimates of selected financial aggregates of farm businesses are shown in tables and graphs 16.7 to 16.13. The estimates have been derived from the Agricultural Finance Survey, conducted annually since 1986–87.

### Turnover

Turnover is the sum of gross proceeds from the sales of crops, livestock, livestock products and other miscellaneous revenue, and is a good guide to the level of farm business activity. The average turnover per farm business increased by 2% to \$275,000 during 1999–2000 and was due to an increase in total turnover, since the estimated number of farm businesses had increased for the first time in several years (table 16.9).

In 1999–2000, 24,000 or 23% of Australian farm businesses had a turnover of \$300,000 or more, and contributed 66% of the total turnover of all Australian farms. Their average turnover was \$778,000 and the average cash operating surplus (a measure of profitability) was \$138,000.

The farm business profit margin (the ratio of cash operating surplus to turnover) for these businesses was 18%.

At the other end of the scale, 19,000 farms (18%) had a turnover of less than \$50,000. These farm businesses contributed only 2% of the total turnover, at an average of \$33,000. These farms had an average cash operating surplus of \$1,000 per farm, which equated to a farm business profit margin of 3%.

**16.9 FARM BUSINESSES, By Size of Turnover**

Size of turnover	Number of farm businesses				Total turnover			
	1996–97	1997–98	1998–99	1999–2000	1996–97	1997–98	1998–99	1999–2000
'000	'000	'000	'000	\$m	\$m	\$m	\$m	
Less than \$50,000	20.4	22.5	20.0	19.2	618.6	620.9	607.2	625.1
\$50,000 to \$99,999	21.4	20.2	18.7	18.7	1 609.0	1 562.6	1 440.5	1 488.4
\$100,000 to \$149,999	13.8	13.3	15.0	16.1	1 787.3	1 666.2	1 887.2	1 944.4
\$150,000 to \$199,999	12.0	11.6	11.2	11.7	2 170.9	2 064.9	1 993.9	2 138.9
\$200,000 to \$249,999	9.7	6.7	8.0	8.3	2 184.8	1 514.8	1 830.6	1 886.5
\$250,000 to \$299,999	6.0	5.0	5.3	5.5	1 699.8	1 398.2	1 470.9	1 528.5
\$300,000 and over	22.9	25.0	24.2	24.3	17 051.9	18 472.5	18 376.4	18 913.8
<b>Total</b>	<b>106.1</b>	<b>104.3</b>	<b>102.5</b>	<b>103.8</b>	<b>27 122.3</b>	<b>27 300.1</b>	<b>27 606.6</b>	<b>28 525.6</b>

Source: *Agriculture, Australia* (7113.0).

**16.10 AUSTRALIAN FARM BUSINESSES, Profit margins(a)**

(a) Profit margin is derived before allowing for any drawings taken by directors of unincorporated businesses.

Source: *Agriculture, Australia* (7113.0).

In 1999–2000, the overall farm business profit margin was 24%, up from 20% in 1998–99 (graph 16.10).

**Gross indebtedness**

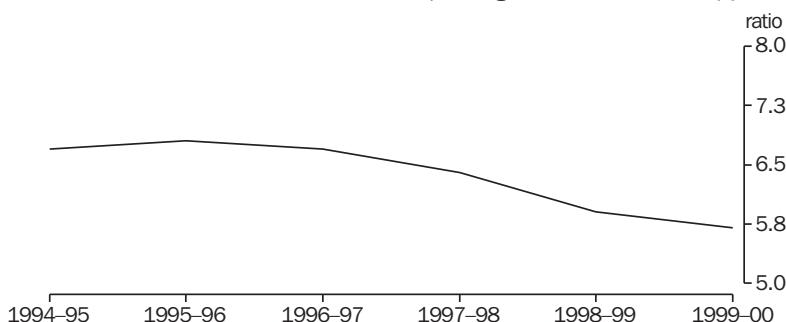
Australian farm businesses owed a total of \$26.2b at 30 June 2000 (table 16.11), an 8% increase on 1998–99. The aggregate debt has risen steadily from \$11.5b in 1986–87 when the current series of agricultural finance surveys began. There was, however, a wide range of debt levels among individual farm businesses, with a third of all farm businesses having a debt of less than \$22,000 (with 20% reporting no debt), a third having between \$22,000 and \$200,000 and a third having more than \$200,000. Overall, the median debt per farm business was \$87,000 at 30 June 2000. The total interest bill for Australian farm businesses, at \$1.9b, was 13% higher than in 1998–99.

Graph 16.12 shows that the average debt to asset ratio for agricultural businesses has been trending down slowly. Graph 16.13 shows an increase in the average interest coverage of agricultural businesses, from 4.4 times in 1998–99 to 4.7 times in 1999–2000, reflecting the impact of a 25% increase in cash operating surplus and a 13% rise in interest paid.

**16.11 AUSTRALIAN FARM BUSINESSES, Aggregate and Mean Gross Indebtedness**

30 June	Gross indebtedness	
	Aggregate	Average per farm business
1995	\$18 267.7	\$170 266
1996	\$19 592.7	\$180 723
1997	\$20 464.2	\$192 815
1998	\$21 630.8	\$207 456
1999	\$24 295.4	\$237 012
2000	\$26 195.4	\$252 327

Source: *Agriculture, Australia* (7113.0).

**16.12 AUSTRALIAN FARM BUSINESSES, Average Debt to Asset Ratio(a)**

(a) The debt to asset ratio is the total value of assets at 30 June divided by gross indebtedness at 30 June.

Source: *Agriculture, Australia* (7113.0).

**16.13 AUSTRALIAN FARM BUSINESSES, Average Interest Coverage(a)**

(a) The interest coverage is the total of cash operating surplus and interest paid divided by interest paid at 30 June.

Source: *Agriculture, Australia* (7113.0).

## Crops

Table 16.14 shows the area of crops in the States and Territories of Australia since 1870–71, and table 16.15 is a summary of the area, production and gross value of the principal crops in Australia over recent years.

### Cereal grains

In Australia, cereals are divided into autumn-winter-spring growing (winter cereals) and spring-summer-autumn growing (summer cereals). Winter cereals such as wheat, oats, barley and rye are usually grown in rotation with some form of pasture such as subterranean clover, medics or lucerne. In recent years, alternative winter crops such as canola, field peas and lupins have been introduced to crop rotation in areas where they had not previously been grown. Rice, maize and sorghum are summer cereals, the latter being grown in association with winter cereals in some areas. In northern Australia there are two rice growing seasons.

### Wheat

Wheat is Australia's largest crop. It is produced in all States but primarily on the mainland in a narrow crescent known as the wheat belt. Inland of the Great Dividing Range, the wheat belt stretches in a curve from central Queensland through New South Wales, Victoria and southern South Australia. In Western Australia, the wheat belt continues around the south-west of the State and some way north, along the western side of the continent (see map 16.17).

Final estimates for the 1999–2000 season show that wheat production increased by 15% over the 1998–99 season to a record 24.8 million tonnes (table 16.16). New South Wales recorded the biggest increase in production, up by 31% to 8.6 million tonnes, followed by Victoria which was up by 81% to 2.6 million tonnes. Western Australia remained the biggest producer of wheat with a record State harvest of 9.0 million tonnes.

**16.14 AREA OF CROPS**

Year	NSW '000 ha.	Vic. '000 ha.	Qld '000 ha.	SA '000 ha.	WA '000 ha.	Tas. '000 ha.	NT '000 ha.	ACT '000 ha.	Aust. '000 ha.
1870–71	156	280	21	235	22	64	—	—	868
1880–81	245	627	46	846	26	57	—	—	1 846
1890–91	345	822	91	847	28	64	—	—	2 197
1900–01	990	1 260	185	959	81	91	—	—	3 567
1910–11	1 370	1 599	270	1 112	346	116	—	—	4 813
1920–21	1 807	1 817	316	1 308	730	120	—	1	6 099
1930–31	2 756	2 718	463	2 196	1 939	108	1	2	10 184
1940–41	2 580	1 808	702	1 722	1 630	103	—	2	8 546
1949–50	2 295	1 881	832	1 518	1 780	114	—	4	8 424
1959–60	2 888	1 949	1 184	1 780	2 628	130	1	3	10 564
1969–70	4 999	2 212	2 208	2 290	3 912	98	6	2	15 728
1979–80	5 243	2 243	2 334	2 771	5 281	79	2	1	17 954
1990–91	4 073	2 063	2 872	2 933	5 359	75	6	—	17 382
1991–92	3 846	2 039	2 302	2 920	5 216	76	5	—	16 404
1992–93	3 906	2 258	2 316	3 073	5 668	73	4	1	17 297
1993–94	4 209	2 317	2 394	2 940	6 100	78	5	—	18 043
1994–95	3 432	2 296	2 056	2 991	6 182	77	4	—	17 040
1995–96	4 757	2 439	2 495	3 219	6 419	75	4	—	19 409
1996–97	5 589	2 552	2 685	3 279	6 950	73	5	—	21 133
1997–98	5 648	2 565	2 682	3 290	7 328	78	4	—	21 595
1998–99	6 173	2 749	3 014	3 648	7 597	76	7	—	23 264
1999–2000	6 114	3 081	3 130	3 670	7 691	77	6	—	23 769

Source: *Agriculture, Australia* (7113.0).

**16.15 SELECTED CROPS, Area, Production and Gross Value**

Crop	Area(a)			Production			Gross value		
	1997-98 '000 ha.	1998-99 '000 ha.	1999-2000 '000 ha.	1997-98 '000 t	1998-99 '000 t	1999-2000 '000 t	\$m	\$m	\$m
Cereals for grain									
Barley	3 521	3 167	2 596	6 482	5 987	5 032	1 032	835	865
Grain sorghum	507	587	622	1 081	1 891	2 116	183	282	260
Maize	57	64	82	272	338	406	55	60	62
Oats	937	909	584	1 634	1 798	1 118	223	157	118
Rice	147	148	131	1 324	1 362	1 084	341	360	289
Wheat	10 441	11 543	12 168	19 227	21 465	24 757	3 802	4 011	4 831
Lupins for grain	1 425	1 406	1 347	1 561	1 696	1 968	306	242	286
Crops cut for hay									
Cereal crops for hay	401	425	357	1 567	1 827	1 429	194	196	146
Non-cereal crops for hay	59	45	47	170	126	159	20	14	25
Other crops									
Sugar cane cut for crushing	415	402	428	39 531	38 534	38 165	1 248	1 044	882
Tobacco	3	3	3	8	7	8	46	40	49
Cotton lint(b)	381	446	435	564	634	698	1 228	1 353	1 416
Peanuts (in shell)	19	21	20	32	47	40	22	31	27
Soybean	32	55	56	54	107	104	22	44	36
Canola	698	1 247	1 911	855	1 690	2 460	330	643	760
Sunflower	90	195	162	84	220	170	34	81	64
Orchard fruit									
Oranges	n.a.	n.a.	n.a.	500	446	510	258	296	276
Apples	n.a.	n.a.	n.a.	309	334	320	273	321	274
Pears (excluding Nashi)	n.a.	n.a.	n.a.	153	157	156	108	112	72
Peaches	n.a.	n.a.	n.a.	65	66	86	53	65	74
Other fruit									
Bananas	10	11	12	223	225	257	230	266	284
Pineapples	3	3	3	123	131	139	37	39	44
Grapes	78	95	111	1 112	1 266	1 311	998	1 200	1 118
Vegetables									
Carrots	7	7	7	267	257	283	151	167	154
Potatoes	43	41	37	1 372	1 327	1 200	493	438	382
Tomatoes	8	9	8	380	394	414	167	192	190
<b>Total all crops (excluding pastures and grasses)</b>	<b>21 595</b>	<b>23 264</b>	<b>23 769</b>	..	..	..	<b>14 695</b>	<b>15 520</b>	<b>16 316</b>

(a) Area is productive area. (b) Value of cotton includes value of cotton seed.

Source: Agriculture, Australia (7113.0); ABS data available on request, Agricultural Commodities Survey, Agricultural Census, Value of Agricultural Commodities Produced.

**16.16 WHEAT FOR GRAIN, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha.)							
1994–95	1 424	822	401	1 395	3 848	1	<b>7 891</b>
1995–96	2 328	853	627	1 519	3 892	1	<b>9 221</b>
1996–97	3 192	963	980	1 535	4 264	2	<b>10 936</b>
1997–98	2 936	857	1 001	1 438	4 205	3	<b>10 441</b>
1998–99	3 174	949	1 139	1 762	4 515	4	<b>11 543</b>
1999–2000	3 425	1 235	1 096	1 850	4 556	6	<b>12 168</b>
PRODUCTION ('000 t)							
1994–95	875	934	225	1 487	5 438	3	<b>8 961</b>
1995–96	4 508	1 921	519	2 724	6 827	4	<b>16 504</b>
1996–97	8 363	2 262	1 980	2 795	7 516	8	<b>22 925</b>
1997–98	5 906	1 503	1 392	2 689	7 725	12	<b>19 227</b>
1998–99	6 563	1 462	1 941	3 310	8 170	18	<b>21 465</b>
1999–2000	8 602	2 642	1 904	2 586	9 004	20	<b>24 757</b>

Source: *Agricultural Commodities, Australia* (7121.0).

## Oats

Oats are traditionally grown in moist, temperate regions. However, improved varieties and management practices have enabled oats to be grown over a wider range of soil and climatic conditions. They have a high feed value and produce a greater bulk of growth than other winter cereals; they need less cultivation and respond well to superphosphate and nitrogen. Oats have two main uses: as a grain crop, and as a fodder crop (following sowing, fallow or rough sowing into stubble or clover pastures). Fodder crops can either be grazed and then harvested for grain after removal of livestock, or else mown and baled or cut for chaff.

Map 16.18 shows the production of oats for grain in Australia in 1996–97.

Production of oats fell by 38% to 1.1 million tonnes in 1999–2000, with falls recorded in all States. The largest falls in production were recorded in New South Wales (down by 58% to 284,000 tonnes) and Victoria (down by 35% to 296,000 tonnes), leaving Western Australia as the main producing State with a harvest of 439,000 tonnes (table 16.19).

## Barley

This cereal contains two main groups of varieties, 2-row and 6-row. The former is generally, but not exclusively, preferred for malting purposes. Barley is grown principally as a grain crop, although in some areas it is used as a fodder crop for grazing, with grain being subsequently

harvested if conditions are suitable. It is often grown as a rotation crop with wheat, oats and pasture. When sown for fodder, sowing may take place either early or late in the season, as barley has a short growing period. It may therefore provide grazing or fodder supplies when other sources are not available. Barley grain may be crushed to meal for stock or sold for malting. Map 16.20 shows the production of barley for grain in Australia in 1996–97.

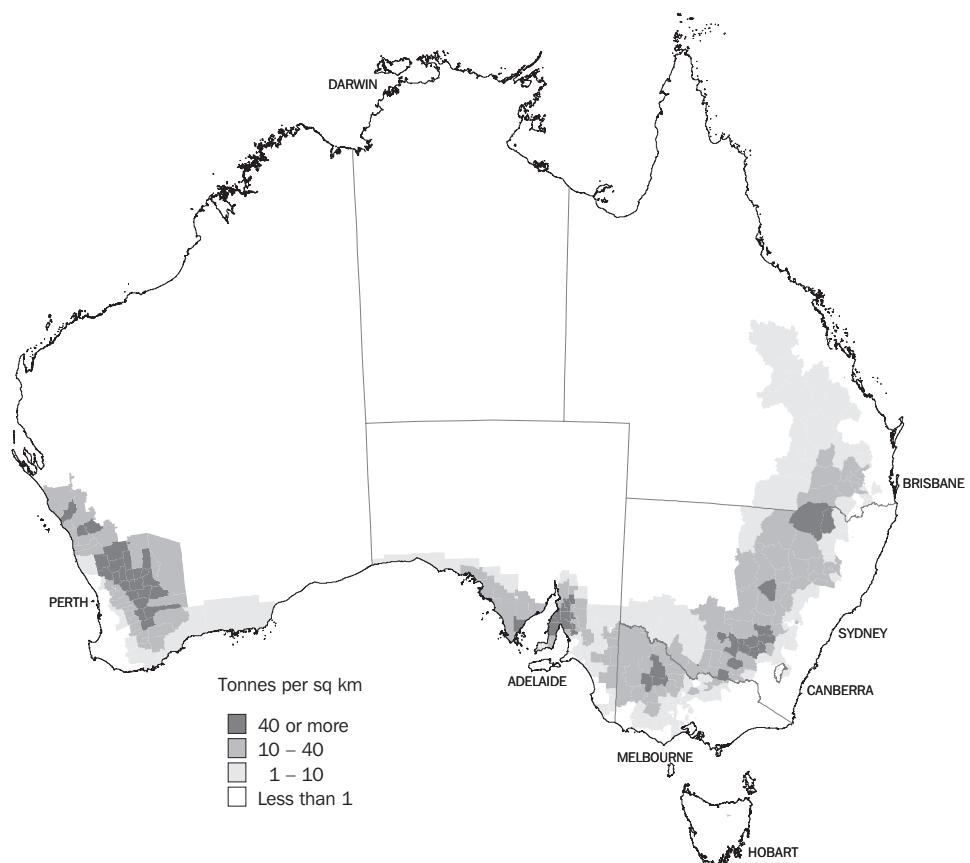
Barley production fell by 16% to 5.0 million tonnes in 1999–2000 (table 16.21). Falls in barley production were recorded in all States except Victoria, where production increased by 37% to 1.2 million tonnes after a poor season in 1998–99.

## Grain sorghum

The sorghums are summer growing crops which are used in a number of ways: grain sorghum for grain; sweet or fodder sorghum, Sudan grass and, more recently, Columbus grass for silage, green feed and grazing; and broom millet for brooms and brushware. However, the grain is used primarily as stockfeed and is an important source for supplementing other coarse grains for this purpose.

Grain sorghum has been grown extensively only in the last two decades, with Queensland producing around 62% of the harvest (table 16.22). Grain sorghum is the third biggest cereal crop (in terms of production) in Australia despite it only being grown in significant quantities in Queensland and New South Wales.

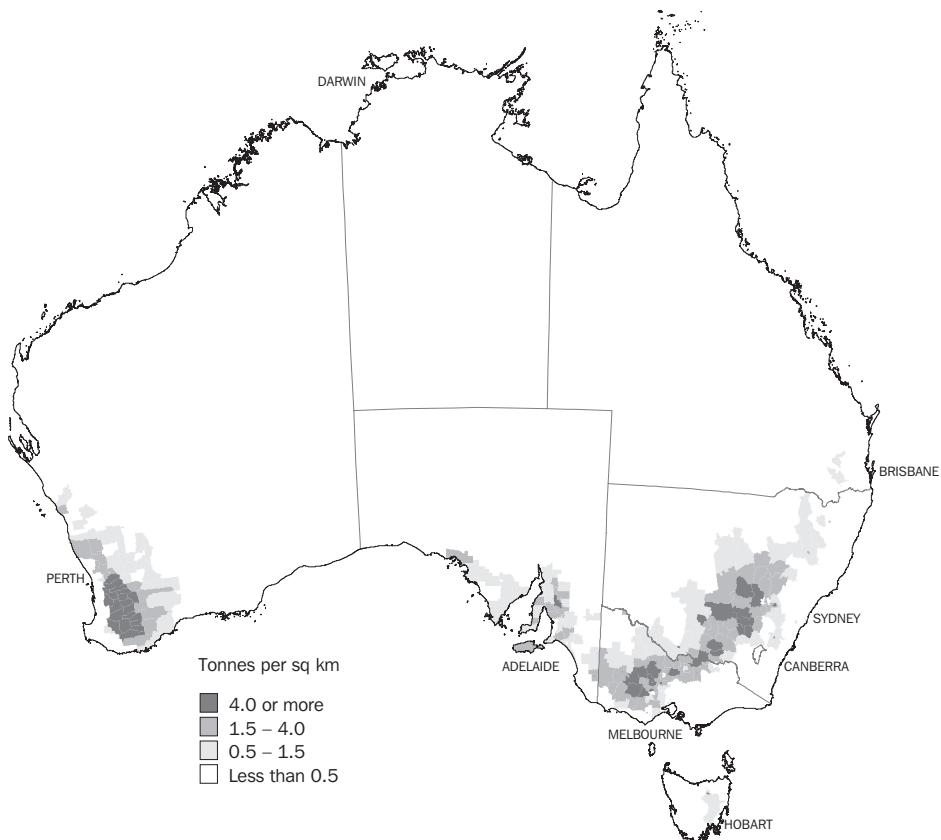
16.17 WHEAT FOR GRAIN, Production — 1996–97(a)



(a) This map has been generated using small area Agricultural Census data for 1996–97.

Source: Agstats (7117.0).

## 16.18 OATS FOR GRAIN, Production — 1996–97(a)



(a) This map has been generated using small area Agricultural Census data for 1996–97.

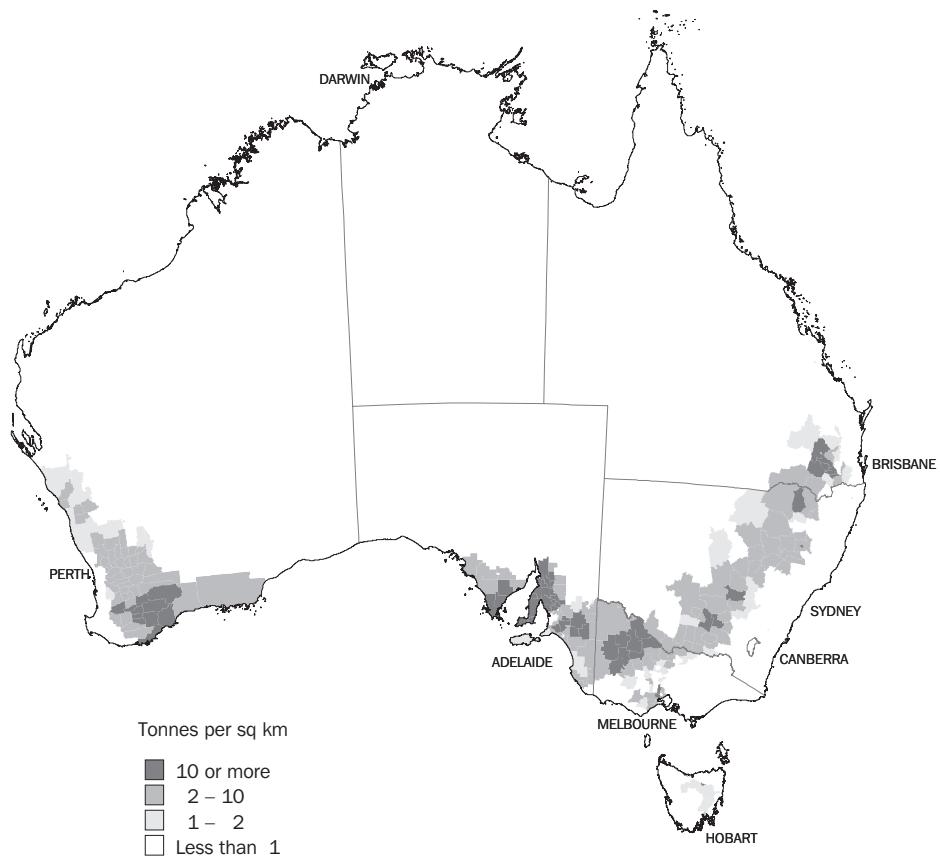
Source: AgStats (7117.0).

## 16.19 OATS FOR GRAIN, Area and Production

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha.)							
1994–95	375	148	14	95	256	8	<b>897</b>
1995–96	505	187	14	120	300	10	<b>1 136</b>
1996–97	393	175	39	121	316	8	<b>1 052</b>
1997–98	325	172	16	111	305	8	<b>937</b>
1998–99	354	188	18	112	228	8	<b>909</b>
1999–2000	160	138	10	70	199	6	<b>584</b>
PRODUCTION ('000 t)							
1994–95	197	201	3	87	425	11	<b>924</b>
1995–96	711	392	7	162	585	18	<b>1 875</b>
1996–97	607	304	26	156	546	14	<b>1 653</b>
1997–98	488	369	13	153	596	15	<b>1 634</b>
1998–99	669	458	15	178	463	14	<b>1 798</b>
1999–2000	284	296	12	78	439	10	<b>1 118</b>

Source: Agricultural Commodities, Australia (7121.0).

## 16.20 BARLEY FOR GRAIN, Production — 1996–97(a)



(a) This map has been generated using small area Agricultural Census data for 1996–97.

Source: AgStats (7117.0).

## 16.21 BARLEY FOR GRAIN, Area and Production

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha.)							
1994–95	410	492	93	882	579	14	2 470
1995–96	593	628	168	964	745	14	3 111
1996–97	668	585	180	1 009	909	15	3 366
1997–98	701	618	135	1 017	1 036	13	3 521
1998–99	638	568	163	975	811	11	3 167
1999–2000	476	585	130	845	550	9	2 596
PRODUCTION ('000 t)							
1994–95	291	448	73	1 159	915	27	2 913
1995–96	1 074	1 342	195	1 851	1 323	38	5 823
1996–97	1 483	1 189	429	1 923	1 635	35	6 696
1997–98	1 365	928	205	2 027	1 926	31	6 482
1998–99	1 247	870	320	2 051	1 469	30	5 987
1999–2000	1 040	1 189	254	1 409	1 117	22	5 032

Source: Agricultural Commodities, Australia (7121.0).

**16.22 GRAIN SORGHUM, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha.)							
1994–95	161	6	519	(b)	—	(b)	<b>687</b>
1995–96	171	2	597	(b)	—	(b)	<b>770</b>
1996–97	117	1	424	—	1	(b)	<b>544</b>
1997–98	123	3	379	—	1	(b)	<b>507</b>
1998–99	216	**	367	—	*2	(b)	<b>587</b>
1999–2000	200	*1	419	(b)	*2	(b)	<b>622</b>
PRODUCTION ('000 t)							
1994–95	347	8	916	(b)	2	(b)	<b>1 273</b>
1995–96	472	4	1 116	(b)	0	(b)	<b>1 592</b>
1996–97	417	3	1 003	—	2	(b)	<b>1 425</b>
1997–98	382	6	691	—	2	(b)	<b>1 081</b>
1998–99	822	**	1 059	—	*6	(b)	<b>1 891</b>
1999–2000	804	**	1 308	(b)	*2	(b)	<b>2 116</b>

(a) Includes the Northern Territory. (b) Not collected.

Source: *Agricultural Commodities, Australia* (7121.0).**Maize**

Maize is a summer cereal demanding specific soil and climatic conditions. Maize for grain is almost entirely confined to the south-east regions and the Atherton Tablelands of Queensland, and the north coast, northern slopes and tablelands and the Murrumbidgee Irrigation Area in New South Wales. Small amounts are grown for green feed and silage in association with the dairy industry.

In 1999–2000, maize for grain production increased by 20% to 406,000 tonnes (table 16.23).

**Rice**

Nearly all of Australia's rice is grown in New South Wales, with production centered in the Murrumbidgee and Murray Irrigation areas. It was

first grown commercially in 1924–25 in the Murrumbidgee Irrigation Area, which remains the largest individual producing region to this day.

Rice production fell in 1999–2000 by 20% to 1.1 million tonnes (table 16.24).

**Vegetables**

The area sown to vegetables reached a peak of over 200,000 hectares in 1945. After this high, it fell to around 100,000 hectares from the mid-1970s to the mid-1980s, then increased towards the end of the 1990s, peaking at 131,000 hectares in 1995–96 (table 16.25). In 1999–2000 the area sown to vegetables was 127,000 hectares, a slight decrease from the previous year.

In 1999–2000, potatoes were by far the largest vegetable crop in terms of both area and production (tables 16.25 and 16.26).

**16.23 MAIZE FOR GRAIN, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha.)							
1994–95	21	1	27	(b)	2	(b)	<b>50</b>
1995–96	24	1	31	(b)	—	(b)	<b>56</b>
1996–97	31	1	34	—	1	—	<b>67</b>
1997–98	22	1	34	—	—	—	<b>57</b>
1998–99	27	1	37	**	*—	—	<b>64</b>
1999–2000	22	1	59	(b)	*—	(b)	<b>82</b>
PRODUCTION ('000 t)							
1994–95	145	5	80	(b)	11	(b)	<b>242</b>
1995–96	190	7	114	(b)	1	(b)	<b>311</b>
1996–97	256	7	130	—	5	—	<b>398</b>
1997–98	161	10	97	—	3	—	<b>272</b>
1998–99	186	3	145	**	*4	—	<b>338</b>
1999–2000	178	4	224	(b)	*—	(b)	<b>406</b>

(a) Includes the Northern Territory. (b) Not collected.

Source: *Agricultural Commodities, Australia* (7121.0).

**16.24 RICE FOR GRAIN, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha.)							
1994–95	119	(b)	(b)	(b)	(b)	(b)	<b>119</b>
1995–96	136	(b)	(b)	(b)	(b)	(b)	<b>137</b>
1996–97	151	1	(b)	(b)	(b)	(b)	<b>152</b>
1997–98	146	1	(b)	(b)	(b)	(b)	<b>147</b>
1998–99	148	1	(b)	(b)	(b)	(b)	<b>148</b>
1999–2000	131	(b)	(b)	(b)	**	(b)	<b>131</b>
PRODUCTION ('000 t)							
1994–95	1 016	(b)	(b)	(b)	(b)	(b)	<b>1 016</b>
1995–96	965	(b)	(b)	(b)	(b)	(b)	<b>966</b>
1996–97	1 248	6	(b)	(b)	(b)	(b)	<b>1 255</b>
1997–98	1 320	4	(b)	(b)	(b)	(b)	<b>1 324</b>
1998–99	1 357	5	(b)	(b)	(b)	(b)	<b>1 362</b>
1999–2000	1 084	(b)	(b)	(b)	**	(b)	<b>1 084</b>

(a) Includes the Northern Territory. (b) Not collected.

Source: *Agricultural Commodities, Australia* (7121.0).**16.25 SELECTED VEGETABLES FOR HUMAN CONSUMPTION, Area**

Year	French and runner beans	Carrots	Onions	Green peas	Lettuces	Potatoes(a)	Pumpkins	Tomatoes	Total vegetables
Year	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.
1994–95	6.1	6.9	5.2	9.8	4.0	37.6	5.4	8.7	<b>129.1</b>
1995–96	7.1	7.6	5.5	8.2	4.7	41.8	6.6	8.6	<b>131.4</b>
1996–97	7.9	7.0	4.8	9.3	4.7	41.1	6.3	8.8	<b>129.7</b>
1997–98	6.6	7.1	5.6	7.0	5.7	42.6	5.9	8.0	<b>130.6</b>
1998–99	5.9	6.5	5.4	6.2	6.2	41.3	7.5	8.5	<b>130.2</b>
1999–2000	6.6	7.0	5.3	5.5	5.2	36.8	9.0	8.3	<b>127.4</b>

(a) Excludes potatoes for seed.

Source: *Agricultural Commodities, Australia* (7121.0).**16.26 SELECTED VEGETABLES FOR HUMAN CONSUMPTION, Production**

Year	French and runner beans	Carrots	Onions	Green peas (pod weight)	Lettuces	Potatoes(a)	Pumpkins	Tomatoes
Year	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t
1994–95	29.4	238.5	200.4	97.9	92.5	1 122.4	76.7	340.0
1995–96	32.0	249.9	244.5	80.8	107.2	1 308.1	96.5	370.9
1996–97	37.6	257.4	196.5	94.2	110.8	1 286.1	87.1	393.1
1997–98	35.6	266.5	218.9	76.0	129.1	1 371.6	84.8	380.1
1998–99	30.4	256.6	224.0	65.7	131.1	1 326.8	87.6	394.4
1999–2000	34.5	283.3	247.1	66.9	151.9	1 199.6	108.8	413.6

(a) Excludes potatoes for seed.

Source: *Agricultural Commodities, Australia* (7121.0); ABS data available on request, *Agricultural Commodities Survey, Agricultural Census*.**Fruit (excluding grapes)**

A wide variety of fruit is grown in Australia, ranging from pineapples, mangoes and pawpaws in the tropics to pome, stone and berry fruits in temperate regions. Table 16.27 shows the number of trees for the main types of orchard fruit, and the area under cultivation for bananas and pineapples.

The most significant crops in terms of gross value of production are bananas, oranges and apples. In 1999–2000 the value of the banana crop increased by 7%, while the value of the orange crop decreased by 7% and the value of the apple crop decreased by 15% (table 16.28). While bananas, oranges and apples remain the principal fruit crops in Australia, some other fruit types have experienced considerable growth in recent years, for example mandarins and strawberries.

**16.27 SELECTED FRUIT, Number of Trees(a), Area**

Year	Orchard fruit					Area of selected tropical fruits(b)			<b>Total area of fruit (excluding grapes)</b>
	Apples '000 trees	Apricots '000 trees	Oranges '000 trees	Peaches '000 trees	Pears(c) '000 trees	Plums and prunes '000 trees	Bananas(b) ha.	Pineapples ha.	
1994–95	5 101	642	6 297	1 245	1 317	905	8 281	3 209	<b>128 258</b>
1995–96	5 302	634	6 477	1 296	1 384	902	8 893	2 824	<b>133 461</b>
1996–97	5 656	629	6 736	1 475	1 416	931	9 589	2 668	<b>137 086</b>
1997–98	5 845	569	6 667	1 498	1 381	1 015	10 478	2 762	<b>144 082</b>
1998–99	5 969	565	6 400	1 509	1 401	1 024	11 405	2 821	<b>145 265</b>
1999–2000	6 115	520	6 945	1 972	1 401	1 420	11 730	2 817	<b>154 049</b>

(a) Number of trees six years and over. (b) Bearing area. (c) Excludes Nashi.

Source: Agricultural Commodities, Australia (7121.0); ABS data available on request, Agricultural Commodities Survey, Agricultural Census.

**16.28 SELECTED FRUIT, Quantity and Value of Production**

Year	Apples	Apricots	Oranges	Peaches	Pears(a)	Plums and prunes		Bananas	Pineapples
						QUANTITY OF PRODUCTION ('000 t)			
1994–95	316.6	29.8	517.2	58.7	151.7	21.3	208.1	138.5	
1995–96	280.0	21.6	442.1	60.4	156.0	21.4	220.0	127.9	
1996–97	353.1	25.9	522.6	72.1	167.6	25.2	199.6	123.0	
1997–98	308.9	19.9	499.8	64.8	152.9	26.4	223.0	123.0	
1998–99	334.4	21.5	445.8	66.0	156.7	22.7	225.2	131.4	
1999–2000	319.7	19.9	510.0	86.0	156.4	24.2	256.9	139.3	
GROSS VALUE OF PRODUCTION (\$m)									
1994–95	269.8	28.8	214.8	50.0	73.4	31.9	254.7	43.3	
1995–96	305.3	30.7	219.5	50.3	90.7	33.4	224.9	36.4	
1996–97	378.4	39.1	256.3	60.1	106.2	38.6	216.6	39.3	
1997–98	272.7	31.0	257.9	53.4	107.8	44.1	230.3	37.3	
1998–99	321.1	27.9	296.2	65.5	112.4	42.4	266.3	39.4	
1999–2000	273.7	31.8	276.4	74.3	72.1	43.4	283.8	43.7	

(a) Excludes Nashi.

Source: Agriculture, Australia (7113.0).

**Grapes**

Grapes are a temperate crop requiring predominantly winter rainfall and warm to hot summer conditions for ripening. Freedom from late spring frosts is essential to prevent the loss of the developing fruit. Grapes are grown for winemaking, drying and, to a lesser extent, for table use. Some of the better known grape producing areas are the Adelaide Hills, Barossa Valley, Clare Valley, Riverland, McLaren Vale and

Coonawarra in South Australia; Sunraysia and the Yarra Valley in Victoria; the Hunter and Riverina in New South Wales; the Swan Valley and Margaret River in Western Australia; and the Tamar Valley and Coal River Valley in Tasmania.

The gross value of grape production for 1999–2000 decreased by 7% to \$1.1b (table 16.29). Table 16.30 shows the area of vines and the grapes produced by grape variety.

**16.29 VITICULTURE, Area, Production and Value**

Year	Area(a)		Production of grapes(b) used for			Total production(c)	
	Bearing	Total	Winemaking '000 t fresh weight	Drying '000 t fresh weight	Quantity '000 t fresh weight	Gross value \$m	
'000 ha	'000 ha						
1994–95	63	73	578	147	769	511.0	
1995–96	65	81	782	248	1 087	714.4	
1996–97	72	90	743	136	943	721.4	
1997–98	78	99	871	177	1 112	998.2	
1998–99	95	123	1 076	119	1 266	1 200.1	
1999–2000	111	140	1 111	133	1 311	1 118.2	

(a) At harvest. (b) Excludes the Northern Territory and the Australian Capital Territory. (c) Includes grapes used for table and other purposes.

Source: *Agriculture, Australia* (7113.0).

**16.30 VITICULTURE, Area and Production — 1999–2000(a)**

Variety	Area of vines at harvest			Production of grapes used for			
	Bearing	Not yet bearing	All vines	Winemaking	Drying	Other	Total
	ha.	ha.	ha.	tonnes fresh weight	tonnes fresh weight	tonnes fresh weight	tonnes fresh weight
<b>Red grapes</b>							
Cabernet Sauvignon	18 711	7 175	25 886	156 527	64	17	<b>156 609</b>
Currant (including Carina)	816	82	898	3 553	8 858	26	<b>12 437</b>
Grenache	2 012	376	2 388	22 855	9	37	<b>22 901</b>
Mataro	731	292	1 024	8 812	5	143	<b>8 960</b>
Pinot Noir	2 686	1 005	3 690	19 202	—	4	<b>19 205</b>
Shiraz	22 872	8 337	31 209	221 015	46	185	<b>221 246</b>
Other red grapes	12 057	6 218	18 275	102 161	454	18 957	<b>121 573</b>
<b>Total red grapes</b>	<b>59 885</b>	<b>23 485</b>	<b>83 370</b>	<b>534 125</b>	<b>9 436</b>	<b>19 369</b>	<b>562 930</b>
<b>White grapes</b>							
Chardonnay	16 588	1 320	17 908	200 945	148	—	<b>201 094</b>
Doradillo	285	4	288	6 088	5	1	<b>6 094</b>
Muscat Gordo Blanco	2 645	155	2 800	55 466	3 219	320	<b>59 005</b>
Palomino and Pedro Ximenes	255	21	276	3 527	9	7	<b>3 543</b>
Riesling	3 057	448	3 505	26 725	47	—	<b>26 772</b>
Semillon	5 677	605	6 281	75 055	201	75	<b>75 331</b>
Sultana	11 554	1 141	12 695	92 323	117 089	27 898	<b>237 310</b>
Waltham Cross	373	18	391	1 366	2 227	1 071	<b>4 664</b>
Other white grapes	10 304	2 041	12 347	115 525	1 073	18 050	<b>134 646</b>
<b>Total white grapes</b>	<b>50 738</b>	<b>5 753</b>	<b>56 491</b>	<b>577 020</b>	<b>124 018</b>	<b>47 422</b>	<b>748 459</b>
<b>Total grapes</b>	<b>110 623</b>	<b>29 238</b>	<b>139 861</b>	<b>1 111 145</b>	<b>133 454</b>	<b>66 791</b>	<b>1 311 389</b>

(a) Excludes the Northern Territory and the Australian Capital Territory, where varietal data are not collected.

Source: *Australian Wine and Grape Industry, 2000* (1329.0); ABS data available on request, *Vineyards Collection*.

**Selected other crops****Oilseeds**

The oilseeds industry is a relatively young industry by Australian agricultural standards. The specialist oilseed crops grown in Australia include sunflower, soybeans, canola, safflower and linseed. Sunflower and soybeans are summer grown while the others are winter crops. In Australia, oilseeds are crushed for their oil, which is used for edible and industrial purposes, and as protein meals for livestock feeds.

The 1990s saw the emergence of canola as the main oilseed crop, with production increasing from around 70,000 tonnes in 1990–91 to 2.5 million tonnes in 1999–2000 (see table 16.15). Canola production accounted for nearly 90% of the total Australian oilseed crop of 2.8 million tonnes in 1999–2000 (table 16.31). Before the emergence of canola, the main specialist oilseed crop was sunflower seed. Peanuts and cotton are also major sources of oilseed, but as a by-product of their primary uses.

**16.31 OILSEEDS, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha.)							
1994–95(a)	217	95	92	33	104	—	<b>540</b>
1995–96(a)	227	105	57	35	99	—	<b>522</b>
1996–97(b)	247	115	112	42	107	—	<b>622</b>
1997–98(b)	310	125	89	67	248	—	<b>839</b>
1998–99(b)	496	222	145	136	537	1	<b>1 538</b>
1999–2000(b)	613	319	143	216	879	*1	<b>2 172</b>
PRODUCTION ('000 t)							
1994–95(a)	147	69	64	30	108	—	<b>417</b>
1995–96(a)	339	143	46	51	117	—	<b>697</b>
1996–97(b)	432	147	120	57	108	—	<b>864</b>
1997–98(b)	419	142	82	92	270	—	<b>1 005</b>
1998–99(b)	793	268	166	196	615	1	<b>2 039</b>
1999–2000(b)	968	438	151	249	963	*2	<b>2 770</b>

(a) Excludes linseed. (b) Excludes peanuts and cotton seed.

Source: *Agricultural Commodities, Australia (7121.0)*.

**Cotton**

Cotton is grown mainly in New South Wales and Queensland, primarily for its fibre (lint). When the cotton is mature, seed cotton is taken to a gin where it is separated (ginned) into cotton lint and cotton seed. The lint is used for yarn while the cotton seed is further processed at an oil mill, where the short fibres (linters) remaining on the cotton seed after ginning are removed. These fibres are too short to make into cloth, but are used for wadding, upholstery and paper. The seeds are then separated into kernels and hulls. The hulls are used for stock feed and as fertiliser, while the kernels are crushed to extract oil. The oilcake residue (crushed kernels) is ground into meal, which is a protein roughage, and is also used as a stock feed.

The quantity and value of seed cotton production have risen significantly over the past five years (table 16.32). The gross value of seed cotton in 1999–2000 was \$1.4b, a 5% increase over the previous year.

**Sugar**

Sugar cane is grown commercially in Australia along the east coast over a distance of some 2,100 kilometres in a number of areas from Maclean in northern New South Wales to Mossman in Queensland. More recently, it has also been grown in Western Australia.

About 93% of production occurs in Queensland (table 16.33), with 75% of the crop grown north of the Tropic of Capricorn in areas where rainfall is reliable and the warm, moist and sunny conditions are ideal for growing sugar cane.

**16.32 COTTON, Area and Production**

Year	Area '000 ha.	Seed cotton(a)		
		Quantity '000 t	Gross value \$m	Cotton Lint '000 t
1994–95	245	796	851	317
1995–96	315	923	1 003	381
1996–97	378	1 485	1 156	560
1997–98	381	1 519	1 228	564
1998–99	446	1 547	1 353	634
1999–2000	435	1 950	1 416	698

(a) Before ginning.

Source: *Agriculture, Australia (7113.0)*; ABS data available on request, Agricultural Commodities Survey, Agricultural Census.

**16.33 SUGAR CANE CUT FOR CRUSHING, Area, Production and Yield**

Year	New South Wales			Queensland			Western Australia		
	Area harvested	Production	Yield	Area harvested	Production	Yield	Area harvested	Production	Yield
1994–95	16	1 825	111.2	347	31 146	89.8	(a)	(a)	(a)
1995–96	18	1 923	107.8	359	33 898	94.6	1	69	69.0
1996–97	18	2 231	124.0	371	36 232	97.6	1	170	164.7
1997–98	19	2 416	127.0	394	36 790	93.4	3	326	126.7
1998–99	20	2 555	126.0	379	35 587	93.9	3	392	135.5
1999–2000	20	2 493	123.8	405	35 316	87.2	3	355	123.2

(a) Data not collected.

Source: *Agricultural Commodities, Australia* (7121.0).**16.34 CROPS AND PASTURES CUT FOR HAY OR SILAGE, Area and Production**

Year	Area '000 ha.	Hay		Silage made
		Production		Production '000 t
1994–95	915	3 352		n.a.
1995–96	1 152	4 496		n.a.
1996–97	922	3 358		1 686
1997–98	967	3 358		2 129
1998–99	1 098	4 292		2 770
1999–2000	969	3 743		2 981

Source: *Agricultural Commodities, Australia* (7121.0).**Crops and pastures cut for hay or silage**

To counter Australia's seasonal conditions and unreliable rainfall, many farmers use hay and silage as methods of fodder conservation to supplement pasture and natural sources of stockfeed.

Considerable areas of Australia are devoted to fodder crops and pastures, which are either used for grazing (as green feed) or harvested and conserved as hay and silage (table 16.34).

**Livestock**

The numbers of each of the principal categories of livestock in Australia are shown in table 16.35 at 10-yearly intervals from 1861 to 1991, and then yearly.

**Cattle**

Cattle farming is carried out in all States and Territories. While dairy cattle are restricted mainly to southern and coastal districts, beef cattle are concentrated in Queensland and New South Wales. Table 16.36 shows the number of cattle by age, sex and purpose.

**16.35 LIVESTOCK NUMBERS(a)**

	Cattle '000	Sheep and lambs '000	Pigs '000
1861	3 958	20 135	351
1871	4 276	41 594	543
1881	7 527	62 184	816
1891	10 300	97 881	891
1901	8 640	70 603	950
1911	11 745	98 066	1 026
1921	13 500	81 796	674
1931	11 721	110 568	1 072
1941	13 256	122 694	1 797
1951	15 229	115 596	1 134
1961	17 332	152 579	1 615
1971	24 373	177 792	2 590
1981	25 168	134 407	2 430
1991	(a)(b)23 662	163 238	2 531
1992	(a)(b)23 880	148 203	2 570
1993	(a)(b)24 062	138 099	2 646
1994	(a)(b)25 758	132 569	2 775
1995	(a)(b)25 731	120 862	2 653
1996	(b)26 377	121 116	2 526
1997	(b)26 695	120 228	2 555
1998	(b)26 851	117 491	2 768
1999	(b)26 578	115 456	2 626
2000	(b)27 588	118 552	2 511

(a) Prior to 1943, livestock numbers were recorded at different times of the year in different States. In 2000, the collection period was changed from 31 March to 30 June to better align with other ABS surveys. (b) Excludes house cows.

Source: *Agricultural Commodities, Australia* (7121.0).

Cattle numbers in Australia increased slowly during the 1960s and 1970s, despite seasonal changes and heavy slaughtering, to a peak of 33.4 million in 1976. Beef cattle production is often combined with cropping, dairying and sheep. In the northern half of Australia, cattle properties and herd sizes are very large, pastures are generally unimproved, fodder crops are rare and beef is usually the only product. The industry is more intensive in the south because of the more favourable environment, including improved pasture (see map 16.38).

Drought conditions in the early 1980s led to a decline in the beef herd until 1984. For the next five years the size of the herd remained relatively stable. Between 1989 and 1998, cattle numbers gradually increased despite unfavourable weather conditions continuing in many parts of Australia. After a slight decline in 1999, cattle numbers again increased in 2000 to 27.6 million.

Table 16.37 shows the number of cattle by State and Territory.

### Dairying

Dairying is a major Australian agricultural industry. The estimate of the gross value of dairy production at farm gate prices in 1999–2000 was \$2.8b (table 16.39). This represented 9% of the gross value of agricultural production in Australia and placed dairy production third behind beef and wheat. Table 16.36 shows that the number of milk cattle in 2000, at 3.1 million, was 2% less than in 1999.

The entry of the United Kingdom, Australia's then largest market, into the European Union in 1973 forced the Australian dairy industry to become more internationally competitive and to develop new export trade links.

**16.36 CATTLE(a), By Age, Sex and Purpose**

	1995 '000	1996 '000	1997 '000	1998 '000	1999 '000	2000 '000
<b>Milk cattle</b>						
Cows (in milk and dry)	1 821	1 884	1 977	2 060	2 155	2 171
Other milk cattle	919	923	982	1 015	1 065	969
<i>Total</i>	2 740	2 808	2 958	3 076	3 220	3 140
<b>Meat cattle</b>						
Bulls used or intended for service	555	553	551	547	528	518
Cows and heifers (1 year and over)	11 213	11 667	11 879	11 783	11 621	12 282
Calves under 1 year	5 806	5 768	6 029	6 026	5 740	5 872
Other cattle (1 year and over)	5 418	5 581	5 278	5 420	5 469	5 774
<i>Total</i>	22 991	23 569	23 736	23 776	23 358	24 448
<b>Total all cattle(a)</b>	<b>25 731</b>	<b>26 377</b>	<b>26 695</b>	<b>26 851</b>	<b>26 578</b>	<b>27 588</b>

(a) Excludes house cows.

Source: *Agricultural Commodities, Australia* (7121.0).

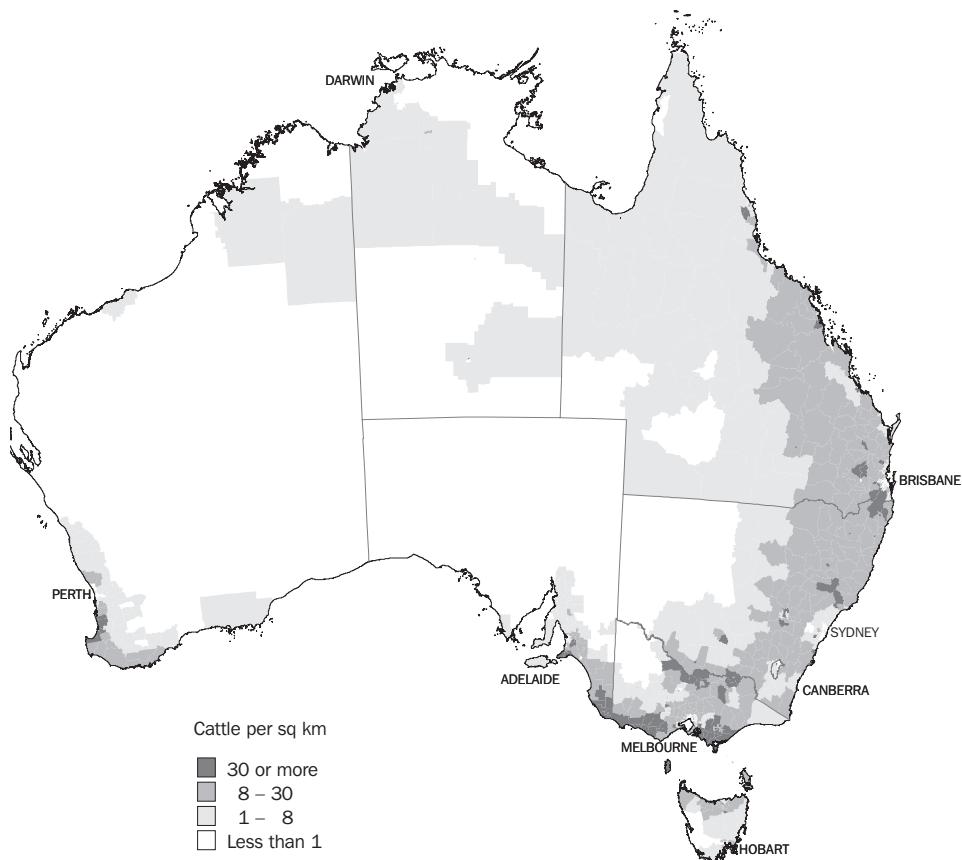
**16.37 CATTLE(a), By State/Territory**

	NSW '000	Vic. '000	Qld '000	SA '000	WA '000	Tas. '000	NT '000	Aust.(b) '000
1995	6 236	4 280	9 974	1 216	1 899	693	1 421	<b>25 731</b>
1996	6 390	4 396	10 214	1 219	1 924	718	1 503	<b>26 377</b>
1997	6 511	4 411	10 415	1 181	1 909	725	1 530	<b>26 695</b>
1998	6 351	4 142	10 867	1 214	1 973	728	1 567	<b>26 851</b>
1999	6 291	4 125	10 748	1 183	1 931	724	1 567	<b>26 578</b>
2000	5 970	4 264	11 808	1 184	2 165	617	1 571	<b>27 588</b>

(a) Excludes house cows. (b) Includes the Australian Capital Territory.

Source: *Agricultural Commodities, Australia* (7121.0).

## 16.38 CATTLE FOR ALL PURPOSES, Excluding House Cows — 31 March 1997



(a) This map has been generated using small area data from the 1996–97 Agricultural Census.

Source: AgStats (7117.0).

### Dairy production

Most dairy production occurs in high rainfall coastal fringe areas where climate and natural resources allow production to be based on year-round pasture grazing. This encourages efficient, low cost milk production. With the exception of several inland river schemes, pasture growth generally depends on natural rainfall. Feedlot-based dairying is expanding although it remains uncommon in Australia. However, the use of supplementary feed, such as grains, has become more common throughout the industry in recent years.

While seasonal conditions continue to have some influence on yearly output, Australian milk production has risen steadily over recent years

and in 1999–2000 was 10.8 billion litres (table 16.39), an increase of 7% over the previous year.

### Domestic dairy market

Average annual per capita milk consumption by Australians has stabilised at around 100 litres since the mid-1980s. However, there have been substantial changes in the types of fresh milk consumed, with fat-reduced and modified milks taking an increasing share of overall market milk sales. In 1998–99, Australians consumed 10.7kg of cheese per person, the same as in 1997–98. Per capita milk consumption showed a slight decrease from 103.0 litres in 1997–98 to 102.4 litres in 1998–99 (see table 16.52).

**16.39 WHOLE MILK, Production, Use and Gross Value**

Year	Market milk sales by factories mill. litres	Milk used in the manufacture of dairy products mill. litres	Whole milk intake by factories	
			Total intake mill. litres	Gross value \$m
1994–95	1 893	6 313	8 206	2 419
1995–96	1 905	6 810	8 715	2 848
1996–97	1 920	7 116	9 036	2 809
1997–98	1 918	7 521	9 439	2 817
1998–99	1 930	8 248	10 178	2 900
1999–2000	1 934	8 913	10 847	2 845

Source: Australian Dairy Corporation; *Agriculture, Australia* (7113.0).

**Sheep**

Sheep numbers reached a peak of 180 million in Australia in 1970. In general, numbers have fallen since then. Poor market prospects for wool after 1990 had a marked impact on the flock size with sheep numbers falling rapidly until 1995, after which there was a gradual decline until 1999. Improvements in wool prices and better returns for fat lambs saw an increase in confidence in the industry, with sheep and lamb numbers up 3% in 2000 to 118.6 million (tables 16.40 and 16.41).

Map 16.42 shows the distribution of sheep and lambs in Australia at 31 March 1997.

**Pigs**

Pig farming is a highly intensive industry. The majority of pigs are grown in specially designed sheds which provide a controlled environment conducive to the efficient production of large numbers of animals. The numbers of pigs decreased by 4% to 2.5 million in 1999–2000, while the number of establishments classified to pig farming fell slightly to 3,400. Recent adjustments in the Australian pig industry have seen many smaller producers leave the industry and existing producers increase their size of operations in an attempt to remain viable.

As table 16.43 shows, New South Wales is the largest producer of pigs, followed by Queensland and Victoria.

**16.40 SHEEP AND LAMBS, By State**

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
	mill.						
1995	40.5	21.4	11.6	13.2	30.2	3.9	<b>120.9</b>
1996	41.1	22.0	10.7	13.6	29.8	3.9	<b>121.1</b>
1997	42.4	22.3	10.5	13.1	27.8	4.0	<b>120.2</b>
1998	40.8	21.1	11.0	13.1	27.5	3.9	<b>117.5</b>
1999	40.6	21.0	10.6	13.1	26.4	3.8	<b>115.5</b>
2000	43.4	22.7	9.2	13.8	26.1	3.3	<b>118.6</b>

Source: *Agricultural Commodities, Australia* (7121.0).

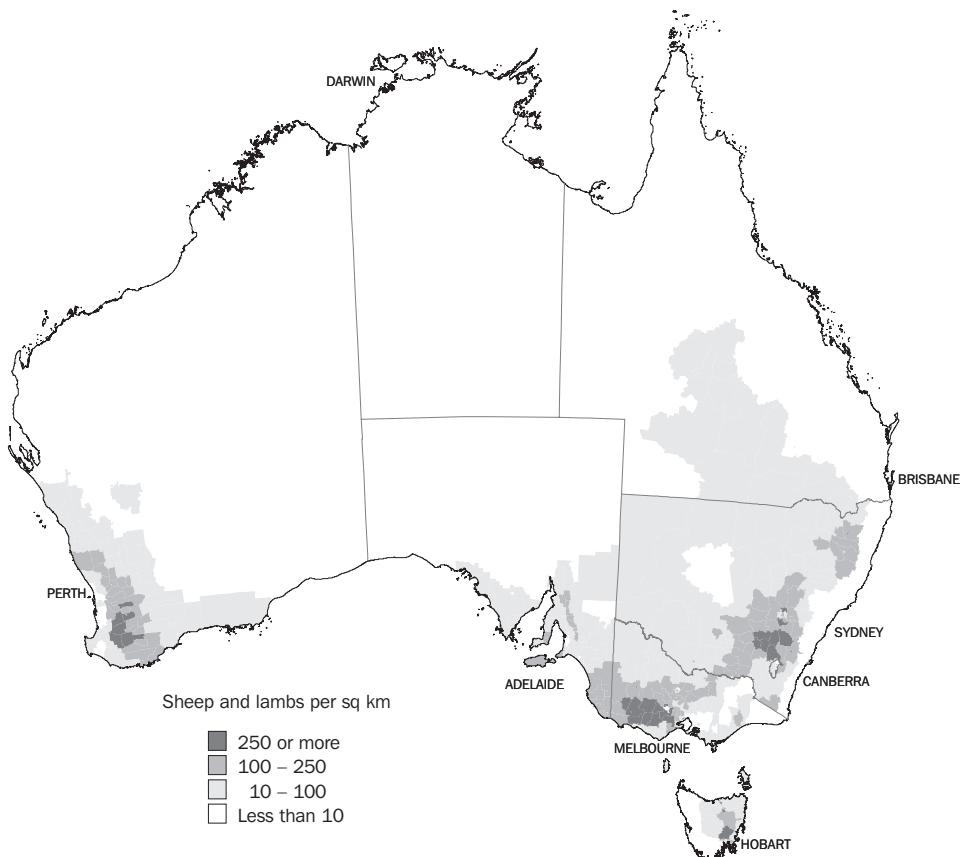
**16.41 SHEEP AND LAMBS — 1995 to 2000**

	1995	1996	1997	1998	1999	2000
At 31 March	mill.	mill.	mill.	mill.	mill.	mill.
Sheep (1 year and over)						
Breeding ewes	(a)	57.2	57.4	55.7	55.6	54.8
Other sheep (b)	94.0	34.5	32.4	31.8	30.4	33.1
Lambs (under 1 year)	26.8	29.4	30.5	30.0	29.5	30.7
<b>Total sheep and lambs</b>	<b>120.9</b>	<b>121.1</b>	<b>120.2</b>	<b>117.5</b>	<b>115.5</b>	<b>118.6</b>

(a) Not separately collected. (b) Includes rams, wethers and non-breeding ewes.

Source: *Agricultural Commodities, Australia* (7121.0).

## 16.42 SHEEP AND LAMBS, Total Number — 31 March 1997



(a) This map has been generated using small area data from the 1996–97 Agricultural Census.

Source: AgStats (7117.0).

## 16.43 PIGS

	NSW '000	Vic. '000	Qld '000	SA '000	WA '000	Tas. '000	Aust. '000
1995	791	439	644	423	316	38	<b>2 653</b>
1996	710	458	603	412	314	26	<b>2 526</b>
1997	729	485	600	417	297	24	<b>2 555</b>
1998	849	518	648	424	303	24	<b>2 768</b>
1999	778	521	621	406	277	22	<b>2 626</b>
2000	710	523	544	438	276	18	<b>2 511</b>

(a) Includes the Northern Territory and the Australian Capital Territory.

Source: Agricultural Commodities, Australia (7121.0).

#### 16.44 POULTRY

	Chickens(a)			Other poultry(c)			<b>Total all poultry</b> '000
	Chickens for egg production '000	Meat chickens (broilers)(b) '000	Total chickens '000	Ducks '000	Turkeys '000	Other poultry '000	
1995(d)	11 148	54 445	65 593	(e)	(e)	2 088	<b>67 682</b>
1996	13 413	62 331	75 744	411	1 222	1 040	<b>78 417</b>
1997	14 059	67 373	81 432	390	1 211	909	<b>83 942</b>
1998	14 036	75 504	89 540	456	1 268	673	<b>91 937</b>
1999	13 912	77 863	91 775	370	1 331	448	<b>93 924</b>
2000	12 016	72 912	84 928	517	1 360	224	<b>87 029</b>

(a) Includes breeding stock. (b) Excludes meat strain chickens in Tasmania. (c) Excludes turkeys in South Australia. (d) Excludes other poultry in South Australia. (e) Not collected.

Source: *Livestock Products, Australia* (7215.0); ABS data available on request, *Poultry and Game Birds Slaughtered Collection*.

### Poultry

Poultry farming is a highly intensive industry, with the majority of poultry raised in large sheds which provide the birds with a stable environment protected from the elements. The poultry farming industry consists of two streams, meat production and egg production, both being major users of feed grains. Although the industry has grown over recent years, there was a decline in 2000 with poultry numbers falling by 7% (table 16.44).

### Meat production and slaughterings

Tables 16.45 and 16.46 show details of slaughtering and meat production from abattoirs, and from commercial poultry and other slaughtering establishments. They include estimates of animals slaughtered on farms and by country butchers. The data relate only to slaughtering for human consumption and do not include animals condemned or those killed for boiling down.

Production of beef for 1999–2000 remained steady at around 2.0 million tonnes. Production of beef has reached record levels in recent years, with a weakening in the Australian dollar and a slower world supply leading to strong export demand and higher market prices.

Changing patterns of both consumer demand and sheep and lamb supply have seen production of lamb meat exceed that of mutton for the first time. In 1999–2000 lamb production increased by 11% to 347,000 tonnes, while mutton production increased by 5% to 333,000 tonnes.

Significant changes have taken place in the pig meat producing industry in recent years. Capital investment and corporate takeovers have seen the emergence of a few large companies producing a significant proportion of all pig meat sold in Australia. These moves, on top of the trend to more intensive and efficient production techniques, have seen pig meat production rise steadily since the mid 1970s when production dipped to a low of 174,000 tonnes. In 1999–2000 pig meat production was 363,000 tonnes, over double its low point in 1976.

Table 16.47 shows the gross value of livestock slaughtering over recent years. The value of slaughtering and other disposals dropped sharply in 1995–96, primarily due to a drop in the value of cattle and calves slaughtered. The value has increased in each of the last four years, with 1999–2000 showing a 10% increase over 1998–99.

The biggest customers for Australian beef in recent years have been Japan, the United States and the Republic of Korea. In 1999–2000 Japan continued to be the main customer for Australian beef with 338,000 tonnes purchased, slightly up from the previous year's shipment. The United States was Australia's second biggest customer with 324,000 tonnes purchased, up 7% from the previous year. The Republic of Korea was the third largest importer of Australian beef, purchasing 75,000 tonnes.

Table 16.48 shows the volume of exports of fresh, chilled or frozen meat. Beef is the major meat export. Bone-out beef was the major commodity exported, although it decreased slightly to 819,000 tonnes in 1999–2000. Pork exports more than doubled to 39,200 tonnes, but pork is still one of the smaller export items.

**16.45 PRODUCTION OF MEAT(a)**

Year	Carcass weight						Dressed weight(b)(c)	
	Beef	Veal	Mutton	Lamb	Pig meat	Total red meat	Chicken meat	Total poultry(d)
Year	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t
1994-95	1 766	38	354	268	365	2 791	467	499
1995-96	1 711	34	310	265	347	2 667	481	516
1996-97	1 772	38	296	270	336	2 712	488	524
1997-98	1 911	44	333	284	358	2 930	544	587
1998-99	1 973	38	316	312	370	3 009	564	607
1999-2000	1 952	36	333	347	363	3 031	593	646

(a) Excludes offal. (b) Excludes Tasmania, the Northern Territory and the Australian Capital Territory. (c) Dressed weight of whole birds, pieces and giblets. (d) Includes other fowls, turkeys, ducks and drakes.

Source: *Livestock Products, Australia* (7215.0).

**16.46 LIVESTOCK AND POULTRY SLAUGHTERED FOR HUMAN CONSUMPTION**

Year	Cattle	Calves	Sheep	Lambs	Pigs	Chickens(a)(b)	Other fowls(c) and turkeys(b)	Ducks and drakes(b)
	mill. head	mill. head	mill. head					
1994-95	7.2	1.0	17.5	15.3	5.1	330.5	8.7	2.3
1995-96	6.9	1.0	14.6	14.2	4.8	336.4	9.6	2.6
1996-97	7.3	1.1	14.4	14.6	4.8	340.9	10.0	3.1
1997-98	8.1	1.3	16.3	15.0	5.1	364.2	10.7	2.9
1998-99	7.9	1.2	15.1	16.1	5.2	375.0	10.2	3.5
1999-2000	7.5	1.1	15.9	17.6	5.0	391.8	9.5	4.1

(a) Comprises broilers, fryers and roasters. (b) Excludes South Australia, Tasmania, the Northern Territory and the Australian Capital Territory. (c) Comprises hens, roosters, etc.

Source: *Livestock Products, Australia* (7215.0); ABS data available on request, *Poultry and Game Birds Slaughtered Collection*.

**16.47 GROSS VALUE OF LIVESTOCK SLAUGHTERINGS AND OTHER DISPOSALS(a)**

Year	Cattle and calves	Sheep and lambs	Pigs	Poultry	Total(b)
	\$m	\$m	\$m	\$m	\$m
1994-95	4 213.5	836.8	630.6	902.0	6 618.8
1995-96	3 575.9	1 035.7	597.8	948.1	6 192.7
1996-97	3 597.0	1 042.6	(c)764.8	(c)932.0	6 376.3
1997-98	4 138.2	1 066.2	709.8	1 053.6	6 991.9
1998-99	4 476.6	1 053.5	689.7	1 018.5	7 255.8
1999-2000	5 050.9	1 053.9	791.7	1 031.0	7 946.9

(a) Includes adjustment for net exports of live animals. (b) Includes value of other livestock. (c) Excludes Tasmania and Northern Territory.

Source: *Agriculture, Australia*, 1999-2000 (7113.0).

**16.48 EXPORTS OF FRESH, CHILLED OR FROZEN MEAT(a)**

Year	Beef(b)(c)		Veal(b)		Mutton(b)		Lamb(b)		Pork
	Bone-in	Bone-out	Bone-in	Bone-out	Bone-in	Bone-out	Bone-in	Bone-out	Meat
Year	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t
1994-95	59.8	717.4	2.0	6.9	103.4	65.4	48.6	4.6	5.5
1995-96	50.7	702.6	1.7	5.3	81.0	64.3	46.3	7.8	5.7
1996-97	48.6	692.1	1.2	3.8	92.7	50.8	53.5	8.4	6.7
1997-98	46.9	795.9	1.8	5.5	107.8	59.1	62.2	8.8	12.3
1998-99	61.0	836.6	1.6	6.1	114.8	51.4	71.6	9.3	16.5
1999-2000	45.5	818.7	1.6	7.4	120.9	55.5	86.6	11.1	39.2

(a) Excludes offal. (b) Factors can be applied to beef, veal, mutton and lamb bone-out figures to derive bone-in carcass weight estimates which, when added to bone-in figures, show total exports in carcass weight. The factor for beef and veal is 1.5 and that for mutton and lamb is 2.0 (source: Australian Meat and Livestock Corporation). (c) Includes buffalo meat.

Source: *Livestock Products, Australia* (7215.0).

**16.49 LIVE SHEEP AND CATTLE EXPORTS(a)**

Year	Live sheep exports				Live cattle exports			
	No.	Gross weight '000 t	Gross value \$'000	Unit value(b) \$	No.	Gross weight '000 t	Gross value \$'000	Unit value(b) \$
1994–95	5 697.0	290.2	184 291	32.35	385.7	136.5	201 948	523.52
1995–96	5 879.9	296.9	226 913	38.59	615.9	219.0	343 699	558.07
1996–97	5 237.2	269.8	189 944	36.27	863.8	313.9	427 721	495.19
1997–98	4 961.1	256.0	193 266	38.96	694.0	255.4	334 058	481.34
1998–99	4 958.7	254.9	181 671	36.64	713.0	264.7	342 667	480.57
1999–2000	4 858.6	243.3	180 345	37.12	845.7	317.1	432 645	511.60

(a) Excludes live sheep and cattle for breeding. (b) Obtained by dividing the gross value by the number of sheep, or cattle.

Source: *Livestock Products, Australia* (7215.0).

Table 16.49 shows the number, gross weight, gross value and unit value of live sheep and cattle exports. While the number of live sheep exports fell marginally in 1999–2000, average unit value increased slightly to \$37.12. The number of live cattle exported in 1999–2000 increased by 19% to 846,000. Increased unit value, combined with the increased numbers, raised the total export value of live cattle by 26% to \$432.6m.

## Wool

### The wool industry

Australia is the world's largest wool producing country, accounting for about 30% of world production. Wool production has been declining in Australia and the world for the last 10 years, but the latest data on sheep numbers suggest that the decline may have bottomed out. Since 1990 Australian shorn wool production has fallen by about 35%, to around 640,000 tonnes in 1999–2000. Almost all of Australia's wool is exported, the major markets being China (accounting for around 30% of Australia's wool exports), followed by Italy, Chinese Taipei (Taiwan), Republic of Korea and France.

Wool producers have had to face significant changes over the last decade, including a decline in the underlying demand for wool, changes to wool marketing arrangements, disruption of traditional international markets, and strong competition from other fibres, all of which have had a major impact on the profitability of all sectors of the wool industry.

The decline in the underlying demand for wool reflects changes in lifestyle (such as the trend to more informal, easy-care clothing) and the increasing competition from other fibres, particularly high quality synthetic fibres. On top of this, economic upheaval in many countries traditionally considered to be large purchasers of wool resulted in fluctuating demand for wool.

These factors, together with a very large supply of wool left over from the high production of the late 1980s and early 1990s, resulted in a dramatic fall in the price of wool in recent years. However, this fall appears to have halted, with wool prices generally improving over the last 12 months, particularly for finer micron wool, and more recently the broader types. Reasons for this include a reduction in the quality and quantity of stored wool and strong demand due to a historically low value of the Australian dollar against the US dollar.

Demand for wool has traditionally been a cyclical phenomenon, determined largely by economic cycles and world-wide trends in clothing fashion. Attempts to minimise the damaging effect of these short term cycles on the income of woolgrowers have been in place for many years. In 1970 a wool deficiency payments scheme was introduced, the original intention of which was to protect wool growers from severe short term price reductions caused by fluctuations in the demand for wool. A minimum reserve price was introduced in 1974 to provide growers with a guaranteed minimum price for their wool. The scheme was funded by a proportion of the tax paid by growers on the value of shorn wool, and was administered by the Australian Wool Corporation (AWC), which purchased all wool not meeting the minimum reserve price at auction. This wool was later sold during periods of higher prices.

The reserve price scheme worked well for about 20 years. However a combination of a sharp fall in demand and a high reserve price (set during a period of high demand in the late 1980s), resulted in the scheme being suspended in February 1991, when the size of the AWC stockpile had reached 4.7 million bales. The Government, with the agreement of the industry, decided that the scheme could no longer be maintained.

The Australian Wool Realisation Commission (AWRC) was initially responsible for the disposal of the wool stockpile. In December 1993 the disposal of the stockpile became the responsibility of Wool International (WI), a statutory corporation of the Commonwealth Government. WI was required to sell the stockpile in accordance with a statutorily imposed disposal schedule, the last bale of stockpile wool to be disposed of by 31 December 2000. At 30 June 1998, under the management of WI, the stockpile had been reduced to 1.2 million bales. By October 1998, equity in the wool stockpile had reached a level significantly higher than the wool debt and, therefore, ongoing Government involvement in stockpile management was no longer justified.

On 15 October 1998, the Commonwealth Government announced a freeze on sales of wool from the stockpile, and an intention to privatise WI by 1 July 1999. On this date WI became WoolStock Australia Limited, a public company limited by shares allocated to previous holders of units of equity in WI. WoolStock Australia took over the assets and liabilities from WI and is fully accountable to its shareholders for the efficient management and sale of the stockpile. The principal activities of WoolStock are selling the stockpile, and making distributions to unit/share holders. By 9 August 2001 the stockpile was completely sold.

A second reform process was undertaken to replace the Australian Wool Research and Promotion Organisation (AWRAP) with private sector arrangements by 1 January 2001. Following the continuing low demand and prices for wool and a successful 'no confidence' motion in the Board of AWRAP (in November 1998), the wool industry Future Directions Taskforce was established to undertake a major inquiry into the future of the Australian wool industry.

The Taskforce presented its findings in June 1999. While most of the recommendations of the Taskforce report were focused on individual farm businesses and what they could do to improve their profitability, there were recommendations for Government to consider, including the future of AWRAP and wool tax arrangements.

On 23 September 1999, the Minister for Agriculture, Fisheries and Forestry announced an Eight Point Plan for progressing those recommendations of the Taskforce report that related to industry services and levy arrangements. A key element of the Plan was to

conduct a grower ballot (WoolPoll 2000) to give woolgrowers the opportunity to vote on their preferences for future industry services and associated wool tax arrangements. The final result of WoolPoll 2000 was released on 6 April 2000 and showed 61% of votes, based on an optional preferential voting system, supporting the service model involving a 2% levy rate. On 1 May 2000, the Minister announced the next stage in the wool reform process and the reduction of the wool tax rate from 4% to 3% from 1 July 2000 to cover the costs of transition. The 1 May announcement included the establishment of a Woolgrowers' Advisory Group (WAG) and the Interim Advisory Board (IAB) to drive the next stages in the reform process. The IAB and WAG worked in conjunction with the Government's Office of Asset Sales and Information Technology Outsourcing (OASITO) throughout the process.

A scoping study phase considered a number of possible options, with the agreed new arrangements taking the form of a company established under Corporations Law, Australian Wool Services Ltd (AWS), with a number of subsidiaries, including Australian Wool Innovation Pty Ltd (AWI) and TWC Holdings Pty Ltd. AWI manages the wool levy and funds R&D and innovation, and TWC Holdings has taken over the work of The Woolmark Company, concentrating on the commercial development of the Woolmark brand and its sub-brands, and the commercialisation of intellectual property matters. AWS and its subsidiaries commenced operation on 1 January 2001, meeting the target date set by the Minister. Woolgrower reaction to the new arrangements was positive, with over 36,000 woolgrowers applying for shares, representing over 70% of wool tax received at the time of conversion. As of June 2001, share applications represented about 80% of wool levy receipts.

From 1 July 2001, the wool levy rate was reduced to 2%, in line with the WoolPoll 2000 ballot result. The new privatised arrangements provide for:

- increased contestability and competition in the application of wool levy expenditure;
- woolgrowers to have a more direct say in levy expenditure and shareholding in the commercial activities of the company; and
- accountability to the Commonwealth in the expenditure of wool levy funds, and the Commonwealth matching R&D contributions.

## Wool production

Shorn wool (greasy wool) contains an appreciable amount of grease, dirt, vegetable matter and other material. The exact quantities of these impurities in the fleece vary with climatic and pastoral conditions, seasonal fluctuations and the breed and condition of the sheep. It is, however, the clean wool fibre that is ultimately consumed by the textile industry, and the term 'clean yield' is used to express the net wool fibre content present in greasy wool.

The gross value of wool produced in 1999–2000 remained static at \$2.1b (table 16.50), less than half the value recorded in 1988–89 (\$5.9b), the peak year in the wool boom of the 1980s.

## Wool receivals

The total amounts of taxable wool received by brokers and purchased by dealers in recent years are shown in table 16.51. They exclude wool received by brokers on which tax had already been paid by other dealers (private buyers) or brokers.

## Apparent consumption of foodstuffs

Estimates of the consumption of foodstuffs in Australia are compiled by taking the production of a commodity, adding to it any imports, deducting from it any exports, and taking account of changes in the levels of stocks. Because consumption of foodstuffs is measured, in general, at producer level, no allowance is made for consumer wastage, which results in overstating consumption to some extent.

The estimates of consumption per capita have been obtained by using the mean resident population for the period.

Table 16.52 shows the changes in trends in the consumption of various foodstuffs since 1938–39.

**16.50 SHEARING, WOOL PRODUCTION AND VALUE**

Year	Sheep and lambs shorn mill.	Average fleece weight kg	Wool production			Gross value(b) \$m
			Shorn wool '000 t	Other wool(a) '000 t	Total wool '000 t	
1994–95	155.3	4.37	679.4	50.1	729.5	3 319.3
1995–96	146.7	4.40	646.1	43.6	689.7	2 559.7
1996–97	156.4	4.37	685.0	46.1	731.1	2 621.2
1997–98	155.5	4.12	640.7	48.9	689.6	2 753.9
1998–99	147.9	4.32	638.8	48.8	687.6	2 141.0
1999–2000	142.7	4.50	642.3	52.5	694.8	2 149.2

(a) Comprises dead and fellmongered wool, and wool exported on skins. (b) Gross value for shorn wool is based on the average price realised for greasy wool sold at auction; for skin wools the gross value is based on prices recorded by fellmongers and skin exporters.

Source: *Livestock Products, Australia* (7215.0); *Agriculture, Australia* (7113.0); ABARE, *Australian Commodities*, March Quarter 2000.

**16.51 TAXABLE WOOL RECEIVALS**

Year	Brokers '000 t	Dealers '000	Receipts		Brokers as % of total receipts %
			Brokers and dealers '000 t		
1994–95	567.0	112.5	679.4		83.5
1995–96	552.9	93.1	646.1		85.6
1996–97	565.2	119.9	685.0		82.5
1997–98	524.0	116.7	640.7		81.8
1998–99	526.9	111.8	638.8		82.5
1999–2000	517.5	124.8	642.3		80.6

Source: *Livestock Products, Australia* (7215.0).

## 16.52 APPARENT PER CAPITA CONSUMPTION OF FOODSTUFFS

Commodity	Units	Average three years ended								
		1938-39	1948-49	1958-59	1968-69	1978-79	1988-89	1996-97	1997-98	1998-99
Meat (carcass equivalent weight)										
Beef	kg	n.a.	n.a.	n.a.	n.a.	38.3	37.8	36.2	34.9	
Veal	kg	n.a.	n.a.	n.a.	n.a.	1.7	1.8	1.9	1.5	
Beef and veal	kg	63.6	49.5	56.2	40.0	64.8	40.0	39.6	38.1	36.4
Lamb	kg	6.8	11.4	13.3	20.5	14.4	14.9	11.1	11.0	11.8
Mutton	kg	27.2	20.5	23.1	18.8	3.6	7.3	6.0	5.7	4.5
Pigmeat	kg	3.9	3.2	4.6	6.7	13.3	17.5	17.6	18.5	19.0
Total meat	kg	101.5	84.6	97.2	85.9	96.1	79.8	74.2	73.3	71.6
Offal and meat n.e.i.	kg	3.8	4.0	5.2	5.1	5.9	3.1	0.9	n.a.	n.a.
<i>Total meat and meat products (carcass equivalent weight)</i>	kg	118.5	103.0	112.4	98.8	102.0	82.8	75.1	n.a.	n.a.
Canned meat (canned weight)	kg	1.0	1.2	1.9	2.2	1.6	n.a.	n.a.	n.a.	n.a.
Bacon and ham (cured carcass weight)	kg	4.6	5.3	3.2	3.6	6.0	6.9	8.5	8.7	8.7
Poultry (dressed weight)(a)	kg	n.a.	n.a.	n.a.	8.3	17.1	24.1	27.8	29.6	30.8
Milk and milk products										
Market milk (fluid whole litres)	L	106.4	138.7	128.7	128.2	100.5	101.7	104.2	103.0	102.4
Cheese (natural equivalent weight)	kg	2.0	2.5	2.6	3.5	5.3	8.8	10.6	10.7	10.7
Oils and fats										
Butter	kg	14.9	11.2	12.3	9.8	5.1	3.2	2.8	2.8	2.9
Margarine	kg	2.2	2.8	n.a.	4.9	8.5	9.0	6.6	6.7	6.4
Table margarine	kg	0.4	0.4	n.a.	1.5	5.4	6.8	4.7	4.4	4.5
Other margarine	kg	1.8	2.4	2.2	3.4	3.1	2.2	1.9	2.3	1.9
Beverages										
Tea	kg	3.1	2.9	2.7	2.3	1.7	1.2	0.8	0.8	0.9
Coffee	kg	0.3	0.5	0.6	1.2	1.6	2.0	2.0	2.3	2.4
Aerated and carbonated waters	L	n.a.	n.a.	n.a.	47.3	67.4	87.4	114.4	109.0	113.0
Beer	L	53.2	76.8	99.7	113.5	133.2	113.1	95.5	94.5	93.2
Wine	L	2.7	5.9	5.0	8.2	14.7	20.2	19.0	19.7	19.8
Spirits (litres alcohol)	L	0.5	0.8	0.7	0.9	1.2	1.2	1.2	1.3	1.2

(a) Excludes Tasmania, the Northern Territory and the Australian Capital Territory.

Source: Apparent Consumption of Foodstuffs, Australia (4306.0); the Australian Dairy Corporation.

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# Understanding agricultural exports data

## Introduction

The Australian Bureau of Statistics has had a long history of producing international trade statistics. These are used by economic analysts and policy advisers to monitor, evaluate and forecast developments in Australia's external trade and the general level of economic wellbeing. However, measuring the importance of this trade has, for the agricultural industry, become increasingly difficult and complex as the economy develops.

In relation to agricultural production and exports this article illustrates how different classifications, methodologies and assumptions can be used with the same body of data to provide quite different outcomes, depending on the perspective from which users wish to view the data, and the purpose of the analysis. Like most economic statistics, agricultural export and production data are based on underlying assumptions relating to industry and commodity classification, as well as market and business functions. In addition, the methodology used in collecting export data from customs records introduces its own set of limitations.

The article seeks to provide an understanding of the most appropriate methods available for comparing agricultural production with exports. The year selected for the comparison is 1997–98; however, due to fluctuations in agricultural production, overseas market access, availability of stocks etc., any comparison undertaken on the basis of a single year needs to be treated with caution.

## Background

Since settlement a proportion of Australia's agricultural output has been exported. Initially, measuring the importance of agricultural exports was relatively straightforward as most of the exports were in raw form, and could be easily identified and compared with agricultural production. However, as the Australian economy developed, proportionally more agricultural

output was exported in a processed or manufactured form, such as processed meat products, wine and woollen products.

In situations where agricultural production is directly exported as a raw or unprocessed product one can compare production quantities or values with export quantities or values for individual commodities, although in comparing values one needs to take account of the differences between the valuation basis for production ('farm gate') and that for exports ('free on board' (f.o.b.)). Difficulties arise, however, for those agricultural commodities which have undergone some manufacturing process and are indirectly exported as part of the manufactured product. For example, how might analysts compare the value of grape production with the value of a transformed agricultural product such as wine?

Making legitimate comparisons between production and trade is further complicated by the variety of trade data available. ABS merchandise trade data can be manipulated and grouped in a number of ways by both the ABS and external clients, depending on the use being made of the data.

## Agricultural statistics

The ways in which agricultural export data can be presented include:

- a commodity based approach
- an industry based approach
- a balance of payments approach
- an input-output approach
- an embedded commodities approach

These approaches are discussed below.

## Commodity based data

For exports, the ABS uses the *Australian Harmonised Export Commodity Classification (AHECC)*. The details and descriptions of the statistical codes of the AHECC are identified in the *Australian Harmonised Export Commodity Classification* (1233.0).

Commodity-based trade data are useful for monitoring changes in levels of trade over time. For example, for a particular commodity, or group of commodities, monthly or yearly data can be compared to provide an accurate picture of changes in the levels of those commodities exported. However, commodity based trade data alone should not be used to measure the complete proportion of agricultural output which is exported. This measure offers no method of calculating the agricultural component in exported processed goods.

In analysing table S4.1, the following points should be noted:

- Many commodities (e.g. wool) can draw on stocks accumulated in previous years, which can distort yearly comparisons of exports and production.

- Unprocessed commodities only are shown. Any embedded agricultural output contained in processed goods, such as meat, sugar, canned fruit, processed wool, woollen products, wine etc. are not included. In other words, the table shows only direct exports of agricultural commodities.
- Different valuation bases are used for measuring production and exports. Value of production is the gross value received by the farmer at the market place, which in general is the metropolitan market in each State and Territory. Exports are valued at the point of export (f.o.b.), and therefore include any distributional and marketing costs incurred up until the point of export.

## Industry based data

Export data are also available on an 'Industry of origin' basis. The *Australian and New Zealand Standard Industrial Classification (ANZSIC)* is the standard classification used by the ABS for the presentation and analysis of industry statistics. It provides a framework for classifying businesses to industries according to the predominant activities undertaken by a business.

### S4.1 VALUE OF SELECTED AGRICULTURAL COMMODITIES PRODUCED AND EXPORTED — 1997–98

Commodity	Agricultural production(a)	Unprocessed exports(b)
	\$'000	\$'000
Wool	2 753 936	(c)2 276 797
Cattle	(d)4 138 239	(e)352 348
Sheep	(d)1 066 217	(e)200 159
Pigs	(d)709 806	(e)1 065
Grapes	998 197	(f)82 438
Apples	272 720	37 961
Wheat	3 801 497	3 629 554
Canola	329 847	256 216
Potatoes	493 149	9 984
Oats	223 269	30 305
Sugar cane	1 247 744	(g)3
Milk	2 816 977	(h)67 451

(a) Agricultural production is Gross Value of Agricultural Commodities Produced (GVACP), and is the value measured at the metropolitan market in each State or Territory. It is not the 'farm gate' value of production. (b) Exports are valued on a free on board (f.o.b.) basis which includes the value of distribution and other costs incurred between the farm and the point of export. (c) Exports of greasy wool, not carded or combed. (d) The value of livestock at slaughtering and other disposals (including net exports of live animals). (e) Exports of live animals. Does not include the export of carcasses and cuts of beef (\$2,700m), mutton/lamb (\$653m) and pig meat (\$51.7m), because these commodities are considered to be manufactured products. (f) Does not include the export of wine (\$874m) because wine is considered to be a manufactured product. (g) Contains \$3,000 of exported sugar cane. Does not include the export of raw sugar (\$1,159m) because raw sugar is considered to be a manufactured product. (h) Milk contains some non-agricultural value added as a result of the pasteurisation process undertaken prior to the sale of milk.

Source: *Agriculture, Australia* (7113.0).

**S4.2 VALUE OF AGRICULTURAL COMMODITIES PRODUCED AND EXPORTED, by Industry —  
1997–98(a)**

ANZSIC Industry Class	Description	Agricultural production(b) \$'000	Exports(c) \$'000
0111	Plant nurseries	506 866	5 624
0112	Cut flower and flower seed growing	150 830	24 325
0113	Vegetable growing	1 803 250	244 149
0114	Grape growing	917 041	82 438
0115	Apple and pear growing	448 910	62 267
0116	Stone fruit growing	154 176	24 479
0117	Kiwifruit growing	5 135	2 892
0119	Fruit growing n.e.c.	1 030 860	203 301
0121	Grain growing	4 845 010	4 556 510
0122	Grain-sheep and grain-beef cattle farming	4 069 771	—
0123	Sheep-beef cattle farming	1 168 076	—
0124	Sheep farming	1 663 012	2 476 956
0125	Beef cattle farming	2 576 120	352 348
0130	Dairy cattle	3 472 001	—
0141	Poultry farming (Meat)	1 045 567	1 156
0142	Poultry farming (Eggs)	386 942	2 524
0151	Pig farming	662 170	1 065
0152	Horse farming(d)	19 646	63 813
0153	Deer farming(d)	810	—
0159	Livestock farming n.e.c.	61 204	34 215
0161	Sugar cane growing	1 273 127	3
0162	Cotton growing	1 420 464	(e) —
0169	Crop and plant growing n.e.c.	330 960	93 770
<b>Total</b>		<b>28 011 946</b>	<b>8 231 835</b>

(a) The value of production of a business is classified to an industry based on the predominant activity of that business. Export data are classified to the most likely industry to have produced the commodity. (b) Agricultural production is the Gross Value of Agricultural Commodities Produced (GVACP), and is the value measured at the metropolitan market in each State or Territory. (c) Exports are valued on a free on board (f.o.b.) basis which includes the value of distribution and other costs incurred between the farm and the point of export. (d) The sale of horses and deer is out of scope for VACP. The values of Class 0152 and Class 0153 come from valuing crops and other livestock sales for holdings allocated to the respective industries. (e) The export of cotton lint is not classified to subdivision 01 Agriculture, but to subdivision 02 Services to Agriculture, Hunting and Trapping, Class 0211 'Cotton Ginning'.

Source: ABS data available on request, *Value of Agricultural Production, 1997–98; International Merchandise Trade, 1997–98*.

The classification is used in international merchandise trade statistics to provide an indication only of the industry which is determined to have produced the goods which are exported or imported. This is undertaken by allocating AHECC items to the ANZSIC industry which is considered to have ultimately produced the commodity. Any agricultural commodity that has undergone any form of processing is, under the ANZSIC classification system, coded to the manufacturing industry.

Therefore while raw cows' milk production is classified to the Agricultural ANZSIC Class 0130 'Dairy cattle farming', the sale of pasteurised liquid whole milk would be classified to the Manufacturing ANZSIC Class 2121 'Milk and cream processing'.

In addition, any exported items that have confidentiality restrictions on the publication of value details are not classified to their industry of origin, but are instead included in the category 'Other industries'. In 1997–98, no exported commodity items that would be allocated to agriculture under the 'Industry of origin' classification had confidentiality restrictions, but this is not always the case.

Table S4.2 shows data for exports emanating from agriculture on an 'Industry of origin' basis, and data for production from agricultural holdings classified to those ANZSIC industries. The production data shown for each Agricultural class relate to the total value of agricultural production from holdings that are primarily involved in the activity to which the class relates.

For example a holding that is primarily involved in vegetable farming would be classified to the ANZSIC Class 0113, 'Vegetable growing'. The *value of production data* for that holding which is attributed to Class 0113 includes the value of all agricultural commodities produced by that holding, which may include commodities such as livestock, fruit and other non-vegetable crops. However, the *export data* for that holding would be classified on an 'Industry of origin' basis and any non-vegetable commodities exported from that holding would be classified to a different ANZSIC class.

Table S4.2 suffers from the same limitations as the data in table S4.1, in that a run-down of stocks can influence export levels and only direct agricultural exports are included. It is important to realise that the production and export data in tables S4.1 and S4.2 are derived from the same source, but that table S4.2 is classified on the basis of industry rather than commodity.

### **Balance of payments exports data**

The balance of payments (BOP) exports data are based on international trade statistics, adjusted where necessary for timing, coverage, classification and valuation in order to meet the change of ownership conventions and classification requirements contained in the international statistical standards for BOP statistics. For example, wool exported to stockpile abroad before being sold will be excluded from the BOP when shipped, but included when sold. The ABS publication *Balance of Payments and International Investment Position, Australia, Concepts, Sources and Methods 1998* (5331.0) provides a detailed description of balance of payments methods.

The broadest level commodity breakdown for general merchandise goods credits (exports) shown in BOP is 'Rural' and 'Non-rural', followed by more detailed commodity dissections within those groupings. Allocation to these groupings is largely in terms of Section(s) or Division(s) of the *Standard International Trade Classification (SITC)*. This commodity breakdown was adopted by the ABS in the early 1960s in response to user demand.

The category 'rural goods' is broad, and attempts to provide an indication of those exports most closely associated with the agriculture, forestry and fishing industries. For example, while meat and meat preparations, cereal preparations,

canned fruit salad and timber boards are all classified as 'rural goods', beverages (including wine) are excluded. Non-rural exports, therefore, can include agricultural production embedded in other products. Because of this, and because of different valuation bases, BOP and production data cannot be directly compared.

### **S4.3 RURAL MERCHANDISE EXPORTS, Balance of Payments Basis(a) — 1997–98**

Description	\$m
Rural goods(b)	
Meat and meat preparations	3 731
Cereal grains and cereal preparations	5 094
Wool and sheepskins	4 020
Other rural	9 285
Total	22 130

(a) Exports are valued on a free on board (f.o.b.) basis which includes the value of distribution and other costs incurred between the farm and the point of export.

(b) For confidentiality reasons, excludes sugar, sugar preparations and honey.

Source: *International Trade in Goods and Services, Australia* (5368.0).

### **Input-output based data**

Input-output tables show the flows of inputs into and outputs from each industry for a country's entire production system for a given period. In doing this, input-output tables identify which goods and services are produced by each industry and how they are used (for example goods and services used in the production of more goods and services, or goods and services consumed by final consumers). The tables are based on the principle that the value of the output of each industry can be expressed as the sum of the values of all inputs to that industry, including any profits made. All exports data used in input-output analysis undergo some transformation, including conversion from an f.o.b. basis to a basis of 'basic prices' (for agriculture, basic prices are those received at the 'farm gate'). This has the effect of removing transport and distribution margins, and product taxes, from the export values so that the values are consistent with those received by producers. Similarly, agricultural output is also valued at basic prices in input-output tables.

Input-output tables are produced using the *Input-Output Industry Classification (IOIC)* and the *Input-Output Product Classification (IOPC)*. These classifications have been specifically developed for the compilation and the application of Australian Input-Output tables. Additional information on input-output tables can be found in *Australian National Accounts: Input-Output Tables* (5209.0).

### Value of exports from an industry

Input-output tables provide a means of tracing flows of goods and services step by step through the production process, and this information can be used to calculate the contribution made by various industries to the final value of a commodity. It is therefore possible to derive the value of the output from the agricultural industry which is embedded in products produced by other industries, and therefore to derive the value of agricultural output contained in exports of these products. This is illustrated in table S4.4.

Table S4.4 shows that \$7.9b of agricultural output is exported indirectly through the export of processed products. For example, much food,

which is a basic output of agriculture, requires some processing before being exported. From table S4.4 it can be seen that indirect exports from the beef cattle industry (\$1.9b) are more than direct exports (\$312b). On the other hand, direct exports of grains (\$4.0b) are more than indirect exports from the grains industry (\$1.3b).

From table S4.4 it can be established, using the input-output approach, that the total value of agricultural production exported directly or indirectly in 1997–98 was \$14.5b. It is important to realise that a number of factors, such as run-down of stocks, weather conditions and changes in the availability of export markets, mean that this is a short period on which to make long term judgements on the overall level of agricultural output exported.

**S4.4 INPUT-OUTPUT APPROACH: VALUE(a) OF AGRICULTURAL OUTPUT PRODUCED AND EXPORTED, By Industry — 1997–98**

IOIC Industry Class	Australian production(b)	Direct exports from the agricultural industry	Share of production	Agricultural output embedded in indirect exports(c)	Share of production	Total exports of agricultural output	Share of production
0101 Sheep	3 708	1 395	37.6	888	23.9	2 283	61.6
0102 Grains	6 267	4 043	64.5	1 305	20.8	5 348	85.3
0103 Beef Cattle	3 783	312	8.3	1 906	50.4	2 218	58.6
0104 Dairy cattle	3 002	0	0.0	1 025	34.1	1 025	34.1
0105 Pigs	601	1	0.1	267	44.4	268	44.6
0106 Poultry	1 484	2	0.1	428	28.8	430	29.0
0107 Other agriculture	9 738	857	8.8	2 051	21.1	2 908	29.9
<b>01 Total agriculture</b>	<b>(d)28 583</b>	<b>6 610</b>	<b>23.1</b>	<b>7 871</b>	<b>27.5</b>	<b>(d)14 481</b>	<b>50.7</b>

(a) All values are at basic prices (i.e. farm gate) which remove distribution costs, including commodity taxes, associated with sale or export of the product. (b) Includes the value of livestock used for breeding purposes. Also includes an estimate of the value of production by private households for own consumption. (c) Estimated using total requirements coefficients contained in 1994–95 input-output tables. (d) Derived by summing the components.

Source: ABS data available on request, Input-Output Section.

In addition, certain basic assumptions apply when analysing both direct and indirect exports estimates calculated using the input-output approach. These are:

- Commodities exported from a particular industry consist of the same quality and content as those sold on the domestic market. It follows that, if the proportion of agricultural output embedded in an exported processed food product is significantly different to the average for that product, any estimate of the value of agricultural output exported will be deficient to that extent.
- Export prices are similar to domestic prices for the output of a particular industry. It follows that, if prices paid for output which is indirectly exported are significantly higher than domestic prices, the value of output exported indirectly would be underestimated.

### **Proportion of industry output exported**

Estimating the proportion of total agricultural output which is exported adds further complexities.

The simplest approach would be to use the value of production shown in table S4.4 as the denominator. Doing so provides an estimate of approximately 51% for 1997–98. This estimate has been calculated without making any adjustments for agricultural output that is subsequently consumed within the agricultural industry. If such adjustments are made, a similar estimate is derived because, using the input-output approach, the reduction in the value of agricultural output is almost exactly offset by a proportional reduction in the value of indirect exports. However, for certain analyses it may be appropriate to deduct from the estimate of value of production the value of livestock produced for breeding purposes (on the basis that this production is not available for sale until the livestock is slaughtered) and the value of commodities produced for own account consumption (on the basis that this production is not available to the market). If both of these adjustments are made, the proportion of agricultural output that is exported under the input-output approach rises to about 56%.

### **Embedded commodities approach**

This approach estimates the volumes of agricultural commodities contained in indirect exports using factors which calculate the percentage of raw product contained in various processed goods. These volumes are then added to the volumes of direct exports of agricultural commodities. The value of exports for any commodity is derived by multiplying the gross unit value received by farmers for that commodity by the volume of product exported.

When this method is used, production estimates need to be adjusted to remove production used within the agriculture industry, in order to derive the denominator necessary to calculate the proportion of agricultural output that is exported. The denominator can also be adjusted to take account of the value of livestock produced for breeding purposes and commodities produced for own-account consumption. Using this approach, the Australian Bureau of Agricultural and Resource Economics (ABARE), has estimated that the proportion of agricultural output exported in 1997–98 was approximately 65%.

### **Conclusion**

Analysis of data about the exports of agricultural commodities requires an understanding of the concepts, classifications and methodology.

This article illustrates that the value of agricultural output finally exported is very much influenced by the value of agricultural output included in processed exports. For example, table S4.4 shows that, using the input-output approach, the percentage of output exported from the beef cattle industry increases from 8% (direct exports), to 58% (direct and indirect). Equally importantly, this article shows that the assumptions used in defining agricultural output and exports, and the methodologies used to derive these estimates, can also affect results, and users need a basic understanding of these methodologies in order to interpret the data effectively.

Given the variety of methodologies used to estimate exports and production, and the assumptions required to use these methodologies, any estimate of the proportion of agricultural output which is exported will only be an approximation, and should not be interpreted as an exact result. Finally, while this article

presents some illustrative estimates in respect of 1997–98, agricultural production and exports of agricultural commodities can vary from year to year, and users are cautioned about making firm conclusions based on only one year's data.

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## Introduction

This chapter outlines the main features of two important primary industries in Australia, forestry and commercial fishing.

The forests and wood products industries, based on native and plantation forests, account for about 1% of Gross Domestic Product (GDP) and employment of nearly 75,000 people. While the value of exports and imports of forest products is substantial (about \$1.6b and \$3.8b respectively in 1999–2000), Australia is a net importer of forest products.

Australia's fisheries resources are diverse. Over 3,000 species of marine and freshwater fish, and at least an equal number of crustacean and mollusc species, occur in and around Australia. Less than 600 of these are commercially exploited. However, almost all the major known fish, crustacean and mollusc resources are fully exploited. Aquaculture, or 'fish farming', is an alternative to harvesting the naturally occurring fish stocks and has considerable potential as a way to ensure the sustainability of harvesting yields.

The gross value of Australian fisheries production was about \$2.3b in 1999–2000, of which aquaculture accounted for 29%, the same as in the previous year. Exports and imports of fisheries products were valued at \$2.0b and \$1.1b respectively in 1999–2000, making Australia a net exporter of these products.

## Forestry

Australia's native and plantation forests are an important natural resource providing a wide range of products and benefits to the community.

Forests are a reservoir of biological diversity and functioning ecosystems. They provide protection for soils and water resources, and are increasingly being recognised for their potential as carbon sinks. They are the foundation for a broad range of cultural and spiritual experiences for diverse groups of people and a major tourist attraction for Australian and overseas visitors, providing for a vast array of recreational and educational activities.

Our forests and plantations also provide the basis for Australia's forest industries. Employment and wealth flow directly from the wood products derived from the forests, such as sawn timber,

fibreboard, plywood and paper, and support a variety of other forest products and services, such as honey, wildflowers, natural oils, gums, resins, medicines, firewood, craft wood, fodder, water and mineral production.

The Commonwealth Government and the State and Territory Governments share a vision of ecologically sustainable management of the forest estate that integrates environmental, commercial and community values and uses. These values are embodied in regional forest agreements negotiated in New South Wales, Victoria, Western Australia and Tasmania.

## Forest estate

### Native forest

A forest is defined by Australia's National Forest Inventory (NFI) as "an area, incorporating all living and non-living components, dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding two metres, and with an existing or potential crown cover of overstorey strata about equal to or greater than 20%". This definition includes Australia's diverse native forests, regardless of age. It is also sufficiently broad to encompass areas of trees that are sometimes described as woodlands.

Based on this definition, the total area of native forest as at 30 June 2001 is estimated at 164.4 million hectares (ha.), which is about 21% of Australia's land area. Of this area, 124.4 million ha. (76%) were on public land and 37.3 million ha. (23%) were on private land (National Forest Inventory, 2001 (in publ.)).

Of the publicly owned forests, 20.4 million ha. (16%) were in Nature Conservation Reserves, 11.9 million ha. (10%) were managed by State forest authorities for multiple uses including wood production, recreation and informal reserves, 17.7 million ha. (14%) were on other Crown land and 74.5 million ha. (60%) were on leasehold tenure. Taking forested leasehold land together with private freehold forest, some 111.8 million ha., or 68% of Australia's forests, were under private management. Differences between these figures and previously published area statements are largely due to recent improvements in forest mapping which have generated more accurate figures. This is particularly the case in South Australia.

**17.1 NATIVE FOREST AREAS, By Dominant Canopy and Tenure — 30 June 2001**

	NSW '000 ha.	Vic. '000 ha.	Qld '000 ha.	SA '000 ha.	WA '000 ha.	Tas. '000 ha.	NT '000 ha.	ACT '000 ha.	Aust. '000 ha.
CLASSIFIED BY DOMINANT CANOPY SPECIES									
Eucalypt									
Tall	3 853	2 396	1 073	1	171	1 115	—	29	8 638
Medium	17 423	3 483	28 790	625	20 815	1 266	22 117	84	94 602
Low	186	434	1 789	1 206	3 431	62	6 724	8	13 840
Mallee	23	1 045	127	6 110	4 973	—	—	—	12 277
Total eucalypt	21 485	7 358	31 778	7 942	29 390	2 443	28 841	121	129 357
Acacia	1 235	63	7 127	1 826	3 986	73	3 513	—	17 823
Melaleuca	45	90	2 094	1	155	1	1 708	—	4 092
Rainforest	489	16	2 926	—	7	597	318	—	4 353
Casuarina	734	4	140	728	40	1	—	—	1 648
Mangrove	3	3	154	20	173	—	445	—	798
Callitris	1 206	50	387	248	—	1	—	—	1 893
Other	413	132	1 622	23	1 048	19	55	—	3 313
<b>Total(a)</b>	<b>25 610</b>	<b>7 716</b>	<b>46 228</b>	<b>10 789</b>	<b>34 800</b>	<b>3 135</b>	<b>34 879</b>	<b>121</b>	<b>163 277</b>
CLASSIFIED BY TENURE									
Public									
Multiple Use Forest(b)	1 797	3 308	3 884	22	1 612	1 295	—	2	11 920
Nature Conservation Reserve(c)	4 899	3 006	3 225	3 933	4 364	770	46	108	20 350
Other Crown Land(d)	1 801	175	1 682	356	13 206	168	332	—	17 721
Leasehold(e)	9 144	43	28 199	5 227	14 025	—	17 804	11	74 454
Total public	17 641	6 532	36 990	9 538	33 207	2 233	18 182	121	124 445
Private	6 985	1 183	9 182	852	1 502	901	16 694	—	37 300
Unresolved tenure	2 117	1	54	399	90	—	3	—	2 664
<b>Total(a)</b>	<b>26 742</b>	<b>7 716</b>	<b>46 228</b>	<b>10 789</b>	<b>34 800</b>	<b>3 135</b>	<b>34 879</b>	<b>121</b>	<b>164 409</b>

(a) June 1997 tenure figures are the most recently available for NSW. This accounts for differences in tenure and forest type totals for NSW and hence for Australia. (b) Publicly owned land managed for multiple use including wood production. (c) Public land on which wood production is excluded (National Parks, etc.). (d) Reserved areas of educational, scientific and other public institutional land, including easements, defence land, and other minor tenure classifications. (e) Crown land where the right to harvest or clear land must be approved by State/Territory Governments. Often known as pastoral leases.

Source: Bureau of Rural Sciences, National Forest Inventory 2001.

**17.2 PLANTATION AREAS, Classified by Species Type — 30 September 2000**

	NSW '000 ha.	Vic. '000 ha.	Qld '000 ha.	SA '000 ha.	WA '000 ha.	Tas. '000 ha.	NT '000 ha.	ACT '000 ha.	Aust. '000 ha.
Hardwood	45	101	9	21	215	110	2	—	503
Softwood	271	215	179	114	98	76	5	15	972
Mixed(a)	3	2	3	1	—	—	—	—	9
Unknown	1	—	—	—	—	—	—	—	1
<b>Total</b>	<b>319</b>	<b>319</b>	<b>191</b>	<b>136</b>	<b>314</b>	<b>185</b>	<b>7</b>	<b>15</b>	<b>1 485</b>

(a) Includes 4% of mixed hardwood and softwood plantings and 96% of mixed hardwood species in either block or integrated plantings.

Source: Bureau of Rural Sciences, National Plantation Inventory 2001.

**Plantations**

The combined standing planted forest resource in Australia was 1.5 million hectares planted to September 2000 (table 17.2). Of this total, farm forestry contributed 5% or 67,000 ha., and the remaining 1.4 million ha. were owned or

managed by larger commercial growers who contributed to the National Plantation Inventory (NPI). Farm Forestry data are provided, through a separate process, to the National Farm Forest Inventory (NFFI).

Of the 1.4 million ha. of industrial plantations planted to September 2000, softwood plantations, which are dominated by the exotic species *Pinus radiata*, contributed 67% (948,000 ha.). Hardwood plantations, which are almost all native Eucalyptus species, mainly the *Eucalyptus globulus* variety, contributed 33% (469,000 ha.). Since 1995 there has been an overall increase in the standing estate of almost 40% (375,000 ha.).

Since 1990 the plantation sector has undergone a shift from predominantly planting softwood to now predominantly planting hardwood. Hardwood establishment of nearly 144,000 ha. for the year 2000 alone was more than one and a half times higher than in 1999. In total, 87% of the 469,000 ha. of standing hardwood plantation has been planted since 1990.

A diverse range of ownership arrangements existed in the Australian plantation industry, including a variety of joint venture and annuity schemes between public and private parties. Of the standing estate in 2000, 48% was on public land and 37% was on private land. While the area of plantations in public ownership has lessened over time, the proportion in private ownership has increased. Just over half (53%) of the resource planted since 1990 had private land and tree ownership, while only a quarter of the resource planted during this period had public land and tree ownership.

### Farm forestry

Farm forestry generally refers to the incorporation of commercial tree growing into farming systems. This may take the form of smaller scale plantations on farms, timberbelts, wind-breaks, alleys and wide-spaced plantings, and may also include management of native forest for commercial returns on farms.

Farm forestry is increasingly becoming adopted as part of farm management planning and integrated into existing land uses, not only to supply wood but to provide a range of benefits such as environmental protection and increased agricultural production.

To date, plantation farm forestry has mostly occurred in higher rainfall regions (greater than 600mm) where good growth rates can be achieved and there is an existing timber

processing industry. Many farmers have also entered into farm forestry by leasing their land or forming joint venture agreements with large scale forest management companies. Fostering farm forestry uptake, and revegetation in general, in lower rainfall regions, will become an increasing priority in government programs designed to improve land management and ameliorate environmental degradation, especially salinity and water quality.

The baseline area for plantations owned outright by individuals having total estates less than 1,000 ha. (i.e. the small-grower sector) was just on 67,000 ha., or nearly 5% of Australia's total plantation estate. In contrast to the wider plantation estate, which mainly comprised softwoods, the farm forest resource comprised over 60% hardwoods.

The management of private native forests is recognised as an important component of farm forestry, as 27% of Australia's total native forest area is in private ownership and a further 42% is on privately managed leasehold land.

### Wood and paper products

Australia's wood and paper products industries are important components of Australia's primary and secondary industries. They are particularly important in providing economic development and employment in many regions of rural Australia. The industries include hardwood and softwood sawmilling, plywood and panels manufacturing, woodchip production and export, and the pulp and paper industries. In 1999–2000, the value of turnover in the wood and paper products industries was \$13.7b, of which wood processing establishments (log sawmilling, timber dressing and other wood product manufacturing) contributed turnover of \$8.0b (table 17.3).

Preliminary estimates for 1999–2000 show that total roundwood removed from forests increased by 17% from the 1998–99 level, to 24.0 million cubic metres (table 17.4). The removal of broadleaved wood (primarily from native forests) increased by 21.2% in 1999–2000 to 11.5 million cubic metres, while 13.8% more coniferous wood (mainly from plantations) was removed.

**17.3 FOREST AND FOREST PRODUCT INDUSTRIES, Summary of Operations — 1999–2000**

Industry	Employment at 30 June(a) '000	Wages and salaries(b) \$m	Turnover
			\$m
Forestry and logging	10.8	335.0	1 474.2
Wood and paper manufacturing(c)			
Log sawmilling and timber dressing			
Log sawmilling	6.4	170.3	886.4
Wood chipping	0.8	38.8	513.2
Timber resawing and dressing	6.2	210.7	1 289.6
Total	13.5	419.9	2 689.2
Other wood product manufacturing			
Plywood and veneer manufacturing	1.5	53.1	272.1
Fabricated wood manufacturing	3.5	140.4	980.9
Wooden structural component manufacturing	22.2	653.2	3 281.5
Wood product manufacturing n.e.c.	6.2	146.1	744.1
Total	33.4	992.9	5 278.6
Paper and paper product manufacturing			
Pulp, paper and paperboard manufacturing	4.3	267.6	2 276.8
Solid paperboard container manufacturing	2.5	119.3	566.5
Corrugated paperboard container manufacturing	4.8	n.p.	n.p.
Paper bag and sack manufacturing	1.4	n.p.	n.p.
Paper product manufacturing n.e.c.	3.7	141.3	1 058.3
Total	16.8	857.0	5 777.0
Total wood and paper product manufacturing	63.7	2 269.8	13 744.8
<b>Total forest and wood and paper products</b>	<b>74.5</b>	<b>2 604.8</b>	<b>15 219.0</b>

(a) Includes working proprietors. (b) Excludes the drawings of working proprietors. (c) Part of manufacturing industry.

Source: *Manufacturing Industry, Australia (8221.0); ABS data available on request, Economic Activity Survey.***17.4 PRODUCTION OF WOOD AND SELECTED WOOD PRODUCTS**

Commodity	Quantity	1996–97	1997–98	1998–99	1999–2000
Sawn Australian grown timber					
Coniferous	'000 m <sup>3</sup>	2 063	2 327	2 338	2 593
Broadleaved	'000 m <sup>3</sup>	1 418	1 322	1 267	1 344
Total	'000 m <sup>3</sup>	3 481	3 649	3 606	3 937
Hardwood woodchips(a)	'000 t	4 779	5 665	4 856	6 164
Railway sleepers	'000 m <sup>3</sup>	72	62	67	40
Plywood	'000 m <sup>3</sup>	151	170	169	192
Unlaminated particle board(a)	'000 m <sup>3</sup>	790	882	902	978
Medium density fibreboard	'000 m <sup>3</sup>	434	501	495	621
Wood pulp(a)	'000 t	949	958	871	861
Paper and paperboard					
Newsprint(a)	'000 t	421	444	405	464
Printing and writing	'000 t	364	424	497	535
Household and sanitary	'000 t	181	191	187	232
Packaging and industrial	'000 t	1 452	1 483	1 475	1 605

(a) Excludes production of small single establishment management units with fewer than four persons employed, and establishments engaged in non-manufacturing activities but which may carry on, in a minor way, some manufacturing.

Source: *Data available on request, Australian Bureau of Statistics and Australian Bureau of Agricultural and Resource Economics.*

In 1999–2000 the value of exports of forest products totalled \$1,576m, of which 41% were woodchips and 31% paper and paperboard products. In that year the value of imports of forest products was \$3,797m, of which 53% were paper and paperboard products and 14% sawnwood. This indicates a trade deficit in forest products of

\$2,221m in 1999–2000. Australia produces 82% of its sawn timber needs, of which native forests provide about 34%, with the balance coming from softwood plantations. Imported sawn timber is mostly Douglas Fir from North America, and Radiata Pine from New Zealand.

The hardwood and softwood sawmilling industries comprise mills of various sizes which process wood into sawn timber and other products such as veneers, mouldings and floorings. The hardwood mills are generally small scale and scattered. The softwood mills are generally larger and more highly integrated with other wood processing facilities. Australia's production of sawn timber increased by 9% in 1999–2000 to 3,937,000 cubic metres (table 17.4), of which 66% was softwood.

Other value added timber products include plywood, wood-based panels and reconstituted wood products. Australian wood-based panels include particleboard, medium density fibreboard, and hardboard made from softwood or hardwood pulp logs, sawmill residues or thinnings.

Pulp and paper mills use roundwood thinnings, low quality logs, harvesting residues and sawmill waste, recycled paper and paperboard to produce a broad range of pulp and paper products. Around a third of domestically consumed paper is imported. The majority of paper products produced domestically are packaging and industrial papers, newsprint, printing and writing papers, and tissue paper. Each requires different inputs and technologies. Recycled paper now contributes about half the fibre used in the production of paper and paperboard.

Woodchips are mainly used in the production of paper and paper products, and the woodchip export industry uses sawmill residues and timber which is unsuitable for sawmilling and not required by the Australian pulp, paper and reconstituted wood products industries. Before the advent of the woodchip export industry, much of this material was left in the forest after logging. Considerable quantities of sawmill waste material, which would otherwise be burnt, are also chipped for local pulpwood-using industries and for export. Up until 1990–91, at least 95% of woodchips exported from Australia had been eucalypt, but since then greater quantities of softwood woodchips have become available from pine plantations. In 1999–2000, 22% of the total value of woodchips exported was from softwood woodchips.

## Management of forests

Land and forest management is the constitutional responsibility of State and Territory Governments. Each State has a forest authority responsible for the management and control of publicly owned forests, in accordance with the relevant Forestry Acts and Regulations.

The Department of Agriculture, Fisheries and Forestry—Australia (AFFA) and the Department of the Environment and Heritage (E&H) are the two key agencies which have responsibilities relating to forests at the national level.

Close liaison is maintained between them on relevant issues. AFFA's main responsibilities are the development of a national approach to forest management; providing advice to Government on forest matters; administration of export licensing responsibilities in relation to unprocessed timber; liaison with State, national and international organisations concerned with forestry; and management of policy and program initiatives.

E&H has responsibilities for environmental matters relating to forests, and provides policy advice to the Government on conservation and environmental matters pertaining to Australia's forests, including biological diversity and climate change. The Australian Heritage Commission and Environment Australia within the Environment and Heritage Portfolio have assessment, management and monitoring roles in respect of the national estate, endangered species and environmental impacts in Australia's forests.

AFFA and E&H, in close cooperation with the States, Territories and other bodies, were extensively involved in the development of the National Forest Policy Statement and continue to actively participate in ongoing development of Australia's National Forest Inventory.

## Commonwealth Government initiatives

### National Forest Policy Statement (NFPS)

The NFPS was signed by the Commonwealth and all mainland State and Territory Governments at the Council of Australian Governments meeting in Perth in December 1992. Tasmania became a signatory in 1995. The Statement provides a policy framework for the future management of Australia's public and private forests, and outlines a vision for the ecologically sustainable management of Australia's forests. The vision has 11 broad national goals: conservation; wood production and industry development; integrated and coordinated decision-making and management; private native forests; plantations; water supply and catchment management; tourism and other economic and social opportunities; employment; labour force

education and training; public awareness, education and involvement; research and development; and international responsibilities.

### **Plantation initiatives under the NFPS**

Under the NFPS, Australia is committed to expanding its plantation estate to provide additional resources for the forestry sector. The Commonwealth Government has supported the expansion of Australia's plantation resource base for many years. 'Plantations for Australia: the 2020 Vision' was released in October 1997. Vision 2020 is a partnership between the Commonwealth Government, the State Governments and the forest industry. This initiative, which aims to treble Australia's forest plantations estate by the year 2020, will enhance growth in Australia's forest industry and the contribution made by plantations to the Australian economy, rural communities and regional development.

### **Farm Forestry Program (FFP)**

The FFP aims to:

- promote commercial wood production on agricultural land;
- diversify farm incomes;
- promote tree planting and native forest management for the production of non-wood products (with an emphasis on developing commercial uses for native species); and
- use of commercially planted trees and native forests to address land degradation.

### **Regional Forest Agreements (RFA)**

The Commonwealth signed 10 RFAs with four State Governments between 1997 and 2001. The 20-year agreements in New South Wales, Victoria, Tasmania and Western Australia cover regions where commercial timber production is a major forest use. They seek to provide a balance of the full suite of environmental, social, economic and heritage values that forests can provide for current and future generations.

The agreements set out to establish a world-class forest conservation reserve system of nearly 10.4 million ha. that is comprehensive, adequate and representative. The RFAs also provide certainty for forest industries and for continuous improvement in ecologically sustainable management of the entire forest estate. More than 8.5 million ha. are within formal dedicated conservation reserves.

The RFAs provide for Commonwealth Government and the State Governments to report against milestones each year and to conduct a major performance review every five years. The reviews, which begin in 2002, will be undertaken with reference to the 'Montreal Process Indicators', nationally and internationally agreed criteria and indicators for measuring the sustainability of forest management, and other relevant criteria and indicators.

### **Forestry Industry Structural Adjustment Program (FISAP)**

FISAP was established in 1996–97 to assist businesses and workers involved in native forest industries to adjust to changes associated with Regional Forest Agreements. Under matching funding arrangements with the States, \$60m were committed to NSW, \$18.8m to Victoria, \$5m to Queensland and \$15m to Western Australia. With the RFAs now in place, the focus of funding is primarily towards leveraging private sector investment and employment generation in the native hardwood industry.

### **National Forest Inventory (NFI)**

Australia's NFI collects and communicates information on Australia's forests. It is a partnership between the Commonwealth and all State and Territory Governments, and is based in Canberra at the Bureau of Rural Sciences, a research bureau of AFFA. The NFI databases contain information on native and plantation forests and a wide range of forest characteristics, including extent, type, age and tenure of Australia's forests. A State of the Forests Report (SOFR) produced by the NFI was released in late 1998. This comprehensive publication includes a description of the public, private, native and plantation forest estate, including use and management, and examination of the social attitudes framing public opinion on forest issues. Preparation is underway for the next SOFR, to be produced in 2003. Information from the NFI is used to meet Australia's national and international forest-related reporting requirements.

### **National Plantation Inventory (NPI)**

The NPI is a component of the National Forest Inventory, established in 1993 to provide up-to-date quantitative reporting of Australia's plantation resource. The NPI reports annually and includes information on plantation areas, the year of establishment, and species planted. Every five years the NPI produces a comprehensive report that also includes plantation locations and aggregated regional woodflow estimates.

### National Farm Forest Inventory (NFFI)

The NFFI is a three-year project funded by the Farm Forestry Program and managed under the National Forest Inventory to facilitate the collection of farm forest resource data. The NFFI works with an extensive network of regional and State farm forestry groups in order to facilitate and encourage data collection on farm forest plantations. The NFFI has facilitated data collection by establishing a consistent framework and standards for data collection across Australia. The NFFI reports on basic resource information such as species, area, location and age of small grower plantations. This work is undertaken in full coordination with the NPI, which focuses data collection on larger scale, industrial plantations.

### Forest and Wood Products Research and Development Corporation

The Forest and Wood Products Research and Development Corporation was established in 1994 as a key initiative under the National Forest Policy Statement, to assist the forest industries to improve their international competitiveness and to realise their growth potential. The Corporation is jointly funded by industry and the Commonwealth.

### Sustainable Forest Management (SFM)

Australia is promoting its SFM interests in a number of international forums and mechanisms. They include the United Nations Forum on Forests, the International Tropical Timber Organisation and the Montreal Process. Australia's initiatives, including the publication of a summary of internationally agreed forest actions, are regarded as providing practical solutions for advancing SFM.

Australia's Montreal Process Implementation Group began drafting a progress report on implementing criteria and indicators of SFM in 2000–01, using as the basis Australia's Framework of regional criteria and indicators for assessing progress towards SFM. The Framework is based on the internationally agreed Montreal Process criteria and indicators. Joint projects with the States and Territories have also improved the Commonwealth's SFM reporting capacity. This will lead to the preparation of Australia's country report to the Montreal Process, and Australia's 2nd State of the Forest Report, both of which will be published in 2003.

Another key activity is the development of an Australian Forestry Standard as an objective benchmark for forest management. The standard will enable Australia to compete in the international market place.

### Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Research for the Forestry, Wood and Paper Industries Sector addresses the sustainable management of eucalypt and softwood plantations and of native forests, tree breeding and genetics, wood properties and quality, forest assessment, and wood and fibre processing and products.

Most of the work for the sector is conducted by CSIRO Forestry and Forest Products which operates from five sites strategically located across Australia. Other CSIRO Divisions that contribute to the sector include Entomology, Plant Industry and Sustainable Ecosystems. Close links with other CSIRO Sectors, such as Biodiversity, Land and Water, Energy, Climate and Atmosphere, and Built Environment, facilitate coordinated action on broad community and economic issues including landscape degradation, conservation of biodiversity, water quality, renewable energy, greenhouse gas emissions and carbon sequestration, and new product options such as novel composites and environmentally benign preservation methods.

CSIRO also contributes to the forestry and forest products industries through its active participation in four Cooperative Research Centres (CRCs): Sustainable Production Forestry, Greenhouse Accounting, Functional Communication Surfaces, and Plant-based Management of Dryland Salinity.

CSIRO research has delivered significant benefits to Australia's forestry, wood and paper industries. Recent examples include the SilviScan technology for rapid, low-cost assessment of wood properties, guidelines for effluent irrigation of forest plantations, the domestication and improvement of Australian native tree species by the Australian Tree Seed Centre, contributions to national policy and program development including the Regional Forest Agreements, and support to industry for the growing, management and processing of young eucalypts.

## Fishing

### Production, processing, and exports and imports of fisheries products

#### Value of fisheries production

Australia's major commercially accessed species are prawns, rock lobster, abalone, tuna, other fin fish, scallops, and edible and pearl oysters.

Australian fishing operators concentrate their efforts on estuarine, coastal, pelagic (surface) species and demersal (bottom living) species that occur on the continental shelf.

Table 17.5 shows the quantity and table 17.6 the gross value of the production of the Australian commercial fishing industry. Australian fisheries production covers total production from both Commonwealth and State managed fisheries and from aquaculture. Gross value of production is the value placed on recorded production at the wholesale price realised in the principal markets. In general, the principal markets are the metropolitan markets in each State. However, in cases where commodities are consumed locally or where they become raw material for a secondary industry, these points are treated as the principal markets.

The gross value of Australian fisheries production (including aquaculture) rose by 13% (\$261m) in 1999–2000, to \$2.3b (table 17.7) following on from a 9% increase the previous year.

Contributing to this latest rise was a 39% increase in the value of abalone production and a 30% increase in the value of rock lobster catches (table 17.8). Other significant increases in the value of production occurred in tuna (16%) and oysters (16%). In quantity terms there was a 7% fall over the year in Australian fisheries production to 221,000 tonnes, with the falls in prawn production (17%) and other fin fish (10%), more than cancelling the increases in oysters (21%) and rock lobster (5%) (table 17.9).

Commonwealth fisheries accounted for 18% of the total value of Australian fisheries production in 1999–2000 (table 17.6). Commonwealth fisheries are those managed for the Commonwealth Government by the Australian Fisheries Management Authority. State Governments manage inland fisheries and aquaculture, in addition to those salt water fisheries not managed by the Commonwealth. The distribution of the management of fisheries between the Commonwealth and the States is determined following consultations held under the Offshore Constitutional Settlement Agreement.

**17.5 AUSTRALIAN FISHERIES PRODUCTION, By State(a) — 1999–2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	C'wealth(b)	Aust.
	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
<b>Fish</b>									
Tuna	31	—	—	7 803	33	—	8	(c)13 473	(d)16 218
Other	9 734	4 207	10 920	8 406	16 164	15 742	3 606	(e)44 521	113 302
<i>Total</i>	<i>9 765</i>	<i>4 207</i>	<i>10 920</i>	<i>16 209</i>	<i>16 197</i>	<i>15 742</i>	<i>3 614</i>	<i>57 994</i>	<i>129 520</i>
<b>Crustaceans</b>									
Prawns	2 353	104	8 687	2 416	4 474	—	—	(f)7 830	25 864
Rock lobster	113	543	463	2 721	14 599	1 466	—	359	20 264
Other	594	76	3 568	644	1 054	78	998	262	7 274
<i>Total</i>	<i>3 060</i>	<i>723</i>	<i>12 718</i>	<i>5 781</i>	<i>20 127</i>	<i>1 544</i>	<i>999</i>	<i>8 452</i>	<i>53 403</i>
<b>Molluscs</b>									
Abalone	305	1 418	na	889	331	2 565	—	—	5 508
Scallops	—	346	7 398	—	2 756	423	2	22	10 947
Oysters	5 584	—	143	2 494	—	4 748	—	—	12 969
Other	1 146	1 145	209	1 938	985	807	1 043	(g)1 447	8 720
<i>Total</i>	<i>7 035</i>	<i>2 909</i>	<i>7 750</i>	<i>5 321</i>	<i>4 072</i>	<i>8 543</i>	<i>1 045</i>	<i>1 469</i>	<i>38 144</i>
<b>Total quantity</b>	<b>19 860</b>	<b>7 839</b>	<b>31 388</b>	<b>27 648</b>	<b>40 396</b>	<b>25 829</b>	<b>5 657</b>	<b>67 915</b>	<b>221 405</b>

(a) Includes estimates of aquaculture production (except Northern Territory); excludes production of pearl oysters, and hatchery and inland commercial fishery production. (b) Total includes all fisheries under federal jurisdiction. (c) Includes the southern bluefin, eastern tuna and billfish, southern and western tuna fisheries. (d) Total has been adjusted to allow for southern bluefin tuna caught in the Commonwealth southern bluefin tuna fishery, as an input to farms in South Australia. (e) Includes the fish component of Commonwealth fisheries, plus catch from Commonwealth fisheries that cannot be disaggregated due to confidentiality reasons. (f) Includes the northern prawn, Torres Strait, south east and other fisheries. (g) Includes squid, octopus and cuttlefish from the south east and Great Australian Bight fisheries, and pearl oyster from the Torres Strait fishery.

Source: 'Australian Fisheries Statistics, 2000', Australian Bureau of Agricultural and Resource Economics.

**17.6 GROSS VALUE OF AUSTRALIAN FISHERIES PRODUCTION, By State(a) — 1999–2000**

	NSW \$'000	Vic. \$'000	Qld \$'000	SA \$'000	WA \$'000	Tas. \$'000	NT \$'000	C'wealth(b) \$'000	Aust. \$'000
<b>Fish</b>									
Tuna	83	—	—	202 295	200	—	38	(c)106 095	(d)254 840
Other	31 897	20 742	65 385	20 617	41 895	90 222	16 226	(e)160 935	447 929
<b>Total</b>	<b>31 980</b>	<b>20 742</b>	<b>65 385</b>	<b>222 912</b>	<b>42 095</b>	<b>90 222</b>	<b>16 264</b>	<b>267 030</b>	<b>702 769</b>
<b>Crustaceans</b>									
Prawns	30 305	1 306	119 929	43 771	76 735	—	—	(f)135 684	407 730
Rock lobster	4 151	17 326	5 519	81 038	385 441	45 680	—	5 390	544 545
Other	4 679	983	20 353	3 827	8 406	1 954	12 062	2 457	54 721
<b>Total</b>	<b>39 135</b>	<b>19 615</b>	<b>145 801</b>	<b>128 636</b>	<b>470 582</b>	<b>47 634</b>	<b>12 062</b>	<b>143 530</b>	<b>1 006 995</b>
<b>Molluscs</b>									
Abalone	10 668	57 743	n.a.	32 394	35 310	99 513	—	—	235 628
Scallops	—	642	18 068	—	14 471	5 280	5	91	38 557
Oysters	28 813	—	650	9 309	—	13 176	—	—	51 948
Other	4 438	3 019	1 853	5 466	205 032	3 137	3 353	(g)2 095	228 393
<b>Total</b>	<b>43 919</b>	<b>61 404</b>	<b>20 571</b>	<b>47 169</b>	<b>254 813</b>	<b>121 106</b>	<b>3 358</b>	<b>2 186</b>	<b>554 526</b>
<b>Total value</b>	<b>115 034</b>	<b>101 761</b>	<b>231 757</b>	<b>401 638</b>	<b>767 590</b>	<b>258 962</b>	<b>(h)86 684</b>	<b>412 749</b>	<b>2 322 305</b>

(a) Includes estimates of the value of aquaculture production, but excludes the value of hatchery and inland commercial fishery production. (b) Total includes all fisheries under federal jurisdiction. (c) Includes the southern bluefin, eastern tuna and billfish, southern and western tuna fisheries. (d) Total has been adjusted to allow for southern bluefin tuna caught in the Commonwealth southern bluefin tuna fishery, as an input to farms in South Australia. (e) Includes the fish component of the Commonwealth fisheries. (f) Includes the northern prawn, Torres Strait, south east and other fisheries. (g) Includes squid, octopus and cuttlefish from the south east and Great Australian Bight fisheries, and pearl oyster from the Torres Strait fishery. (h) Northern Territory aquaculture has been aggregated for reasons of confidentiality. Total only sums across.

Source: 'Australian Fisheries Statistics, 2000', Australian Bureau of Agricultural and Resource Economics.

**17.7 GROSS VALUE OF FISHERIES PRODUCTION(a)**

	Value \$m
1980–81	330
1981–82	344
1982–83	423
1983–84	449
1984–85	522
1985–86	635
1986–87	702
1987–88	828
1988–89	1 022
1989–90	1 092
1990–91	1 223
1991–92	1 376
1992–93	1 493
1993–94	1 679
1994–95	1 813
1995–96	1 690
1996–97	1 776
1997–98	1 883
1998–99	2 061
<b>1999–2000</b>	<b>2 322</b>

(a) Includes estimates of the value of aquaculture production, but excludes the value of hatchery and inland commercial fishery production.

Source: 'Australian Fisheries Statistics, 2000', Australian Bureau of Agricultural and Resource Economics.

**17.8 GROSS VALUE OF SELECTED FISHERY PRODUCTS(a)**

	1997–98 \$m	1998–99 \$m	1999–2000 \$m
Prawns	385	417	408
Rock lobster	377	418	545
Tuna	131	220	255
Other fin fish	396	428	448
Abalone	182	170	236
Scallops	39	37	39
Oysters	47	45	52
Pearls(b)	189	183	191
Other n.e.i.(c)	137	143	148
<b>Total</b>	<b>1 883</b>	<b>2 061</b>	<b>2 322</b>

(a) Includes estimates of the value of aquaculture production, but excludes the value of hatchery and inland commercial fishery production. (b) Excludes Northern Territory. (c) Includes pearl oysters and aquaculture for the Northern Territory.

Source: 'Australian Fisheries Statistics, 2000', Australian Bureau of Agricultural and Resource Economics.

**17.9 AUSTRALIAN FISHERIES PRODUCTION, By Category(a)**

	1997–98	1998–99	1999–2000
	tonnes	tonnes	tonnes
Fish			
Tuna	11 890	16 728	16 218
Other	134 287	125 270	113 302
Total	146 177	141 998	129 520
Crustaceans			
Prawns	29 603	31 182	25 864
Rock lobster	16 616	19 224	20 264
Other	7 498	6 537	7 274
Total	53 717	56 943	53 403
Molluscs			
Abalone	5 226	5 614	5 508
Scallops	5 759	11 621	10 947
Oysters	10 499	10 731	12 969
Other	7 594	9 481	8 720
Total	29 078	37 447	38 144
<b>Total</b>	<b>229 351</b>	<b>236 800</b>	<b>221 405</b>

(a) Includes estimates of aquaculture production (except Northern Territory); excludes production of pearl oysters, and hatchery and inland commercial fishery production.

Source: 'Australian Fisheries Statistics, 2000', Australian Bureau of Agricultural and Resource Economics.

Aquaculture, or 'fish farming', is an alternative to harvesting the naturally occurring fish stocks, and has considerable potential as a means of ensuring sustainability of harvesting yields. Aquaculture industries are established in all States, with species involved ranging from pearl oysters to freshwater trout. Aquaculture has experienced rapid growth over recent years, with the value of production rising from \$188m in 1989–90 to \$678m in 1999–2000, a 260% increase.

In 1999–2000 the value of Australian aquaculture production increased by \$74.1m (12%) (table 17.10). Aquaculture accounted for 29% of the total value of Australian fisheries production in 1999–2000, the same as the previous year. The increase in the value of aquaculture production was mainly due to a \$36m (21%) rise in the value of tuna production, with salmon and prawn increasing \$13.3m (19%) and \$9.5m (23%) respectively.

Table 17.11 shows the volume of Australian aquaculture production for the three years 1997–98 to 1999–2000, with the latest year showing a 19% increase in total. Edible oysters accounted for the most aquaculture production in 1999–2000 with 12,969 tonnes, a 21% increase on the previous year. Salmon and tuna production in 1999–2000 increased by 19% and 23% to 10,907 tonnes and 7,803 tonnes respectively.

**17.10 GROSS VALUE OF AQUACULTURE PRODUCTION(a)**

	1997–98	1998–99	1999–2000
	\$m	\$m	\$m
Fish			
Salmon	63.6	71.5	84.8
Tuna	87.2	166.7	202.3
Trout	11.2	11.8	12.4
Other(b)	11.4	13.7	14.5
Total	173.4	263.8	314.1
Crustaceans			
Prawn	38.0	42.2	51.7
Other(c)	5.0	4.5	5.8
Total	43.0	46.7	57.5
Molluscs			
Pearl oysters	189.4	182.6	190.5
Edible oysters	47.0	45.2	51.9
Other(d)	4.8	7.6	6.3
Total	241.2	235.4	248.7
<b>Total(e)(f)</b>	<b>506.0</b>	<b>604.2</b>	<b>678.3</b>

(a) Excludes aquarium fish, hatcheries production, crocodiles, microalgae and aquarium worms. (b) Includes eels and other native fish. (c) Includes crabs and brine shrimp. (d) Includes mussels, scallops and giant clams. (e) Includes Northern Territory aquaculture production which has been aggregated due to confidentiality reasons. (f) Includes production of species in South Australia unable to be assigned to a specific category.

Source: Data available on request, Australian Bureau of Agricultural and Resource Economics.

**17.11 AUSTRALIAN AQUACULTURE PRODUCTION(a)**

	1997–98	1998–99	1999–2000
	tonnes	tonnes	tonnes
Fish			
Salmon	7 069	9 195	10 907
Trout	1 438	1 646	1 942
Tuna	5 140	6 365	7 803
Other(b)	1 023	1 164	1 295
Total(a)	14 670	18 370	21 947
Crustaceans			
Prawn	2 059	2 319	2 950
Yabbies	306	245	290
Marron	48	49	52
Other(c)	60	78	77
Total(b)	2 473	2 691	3 369
Molluscs			
Edible oysters	10 499	10 731	12 969
Other(d)	1 456	2 024	2 010
Total(c)	11 955	12 755	14 979
<b>Total</b>	<b>29 477</b>	<b>34 228</b>	<b>40 632</b>

(a) Excludes Northern Territory. (b) Includes eels and other native fish. (c) Includes crabs and brine shrimp. (d) Includes mussels, scallops and giant clams.

Source: 'Australian Fisheries Statistics, 2000', Australian Bureau of Agricultural and Resource Economics.

## Processing of fish, crustaceans and molluscs

In Australia very little processing of fish products is undertaken which adds value to the product. Processing establishments vary in size, scope of operations and sophistication of technologies employed. The majority of establishments undertake only the most basic cleaning, filleting, chilling, freezing and packaging processes, but some have the capacity for significant product transformation. Much of the value that is added to the catch is due to correct handling and quick delivery by air to local or overseas markets.

Fish, crustaceans and molluscs intended for export are processed in establishments registered under the Export (Fish) Regulations. Edible fish for local consumption are mainly sent fresh-chilled to markets.

## Exports and imports

Exports of fisheries products come under Commonwealth jurisdiction, while domestic market activity is the responsibility of the States and Territories.

A significant proportion of Australian fisheries production (edible and non-edible) is exported. In 1999–2000, the value of exports rose by 31% to almost \$2.0b (table 17.12). About one-third of the increase is due to a \$164m increase in pearl exports, most of which can be attributed to all

pearls exported on consignment being classified as merchandise trade. Similarly, all imports including those previously exported and not sold are now also classified as merchandise trade, resulting in an increase of similar proportions in total imports of fisheries products. The value of rock lobster exports increased by 28% to \$578m, making rock lobster Australia's highest value edible fisheries export in 1999–2000, accounting for 29% of total fisheries products exported. Prawns and abalone were the next largest fisheries exports, worth \$244m and \$223m respectively. For some fisheries categories the value of exports exceeds the value of production, because exports are valued on a free on board (f.o.b.) basis which includes the value of packaging and distribution services to the point of export.

Japan continued to be the major destination for Australian exports of fisheries products, accounting for 35% of the total value in 1999–2000. Hong Kong and Taiwan accounted for the next largest shares of exported Australian fisheries products, with 19% and 11% respectively of total export value. The value of exports to the United States continued to rise in 1999–2000, a 30% increase following on from a 31% increase the previous year. On the other hand, exports of fisheries products to China fell \$62m and are now only one-third of the 1997–98 level.

**17.12 DESTINATION OF EXPORTS OF AUSTRALIAN FISHERIES PRODUCTS(a)**

Country	1997–98		1998–99		1999–2000	
	\$m	%	\$m	%	\$m	%
Japan	483	32.8	462	30.8	680	34.6
Hong Kong, (SAR of China)	245	16.6	248	16.6	368	18.7
Taiwan	179	12.2	170	11.4	211	10.7
United States of America	110	7.5	144	9.6	187	9.5
Singapore	41	2.8	43	2.9	60	3.1
China	120	8.2	104	6.9	42	2.1
Switzerland	9	0.6	31	2.1	26	1.3
France	6	0.4	14	0.9	21	1.1
Spain	13	0.9	23	1.5	19	1.0
New Zealand	14	1.0	14	0.9	16	0.8
United Kingdom	5	0.3	7	0.5	13	0.7
Thailand	14	1.0	11	0.7	8	0.4
Other	235	16.0	227	15.2	314	16.0
<b>Total</b>	<b>1 473</b>	<b>100.0</b>	<b>1 498</b>	<b>100.0</b>	<b>1 964</b>	<b>100.0</b>

(a) Includes non-edible products (e.g. marine fats and oils, fish meal, pearls and ornamental fish). Excludes sea products landed abroad directly from the high seas.

Source: ABS data available on request, International Trade database.

Western Australia continued to have the highest value of seafood (i.e. edible fisheries products) exports with \$526m, or 34% of Australian seafood exports, due mainly to its domination of rock lobster exports (73%). South Australia, the next largest exporter of seafood by value, moved shipments worth \$394m, and was the State earning the most from fish exports (\$211m). Queensland was the State earning the most from prawn exports.

The total value of Australian imports of fisheries products increased by 24% in 1999–2000, to an estimated \$1,092m (table 17.13), although Australia remained a net exporter of fisheries products. Easily the biggest contributor to this rise was the value of imports of pearls, which trebled to \$225m; as already indicated, this is mainly due to a revision in the treatment of trade data. Imports of frozen fillets (worth \$175m) increased by 11% to remain in value terms the largest edible fisheries product imported, accounting for 16% of the total value of imported fisheries products. The next most valuable imported items were canned fish and

prawns, worth \$158m and \$148m respectively. The main countries of origin of imported fisheries products were Thailand (22% of total import value), New Zealand (14%) and the United States of America (7%).

### Fisheries resources

This section covers Australia's fisheries resources and activities relating to their protection and use.

The Australian Fishing Zone (AFZ) covers an area 16% larger than the Australian land mass and is the third largest fishing zone in the world. However, the 181,000 tonnes of produce harvested from the AFZ are insignificant by world standards, reflecting low productivity of the oceans rather than underuse of the resource. While some species are considered to be over-harvested, some fish resources such as albacore and southern whiting are not being used optimally. Over 3,000 species of marine and freshwater fish, and at least an equal number of crustacean and mollusc species, occur in and around Australia. Less than 600 of these are accessed commercially.

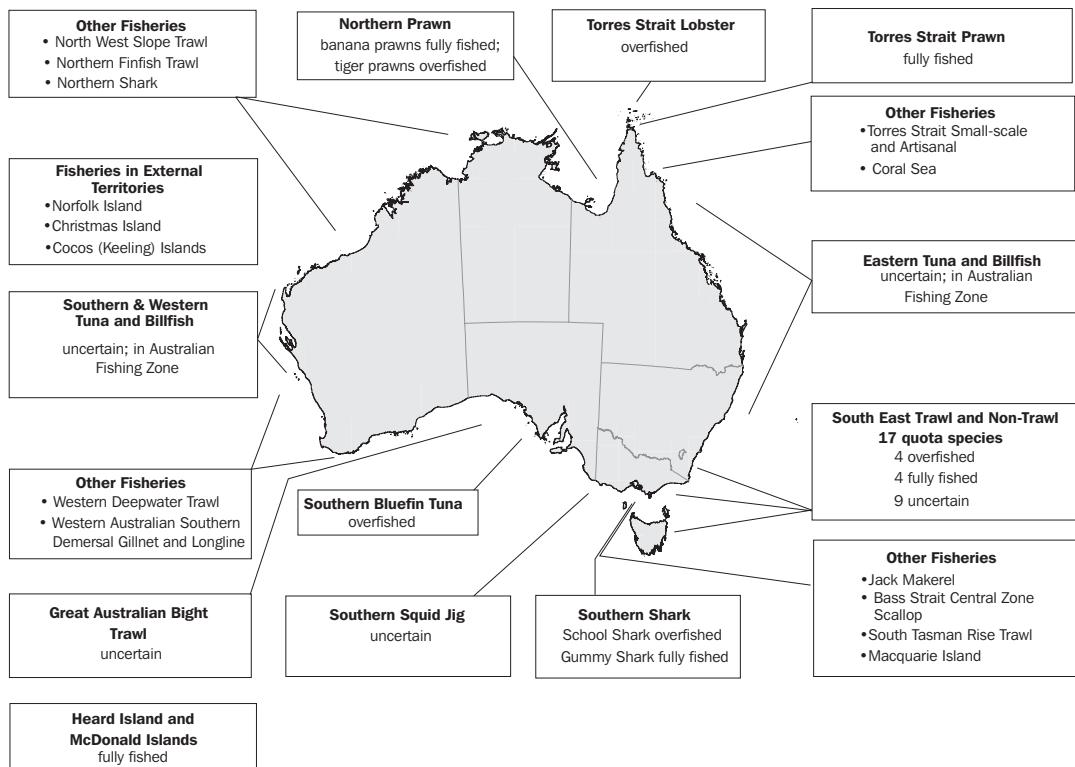
**17.13 SOURCE OF AUSTRALIAN IMPORTS OF FISHERIES PRODUCTS(a)**

Country	1997–98		1998–99		1999–2000	
	\$m	%	\$m	%	\$m	%
Thailand	218	26.6	237	26.9	241	22.0
New Zealand	128	15.6	143	16.3	156	14.3
United States of America	59	7.2	61	6.9	75	6.9
Japan	33	4.0	26	3.0	34	3.1
South Africa	26	3.2	33	3.8	34	3.1
Malaysia	28	3.4	25	2.8	32	2.9
Viet Nam	22	2.7	32	3.6	32	2.9
Indonesia	18	2.2	19	2.2	25	2.3
Canada	21	2.5	27	3.1	24	2.2
Chile	23	2.8	21	2.4	23	2.1
Taiwan	20	2.4	22	2.5	21	1.9
Peru	7	0.9	10	1.1	16	1.5
India	11	1.3	15	1.7	15	1.4
China	13	1.6	13	1.5	14	1.3
Hong Kong, China	6	0.7	11	1.3	13	1.2
Singapore	16	2.0	11	1.3	12	1.1
Other	172	20.9	175	19.8	325	29.8
<b>Total</b>	<b>820</b>	<b>100.0</b>	<b>880</b>	<b>100.0</b>	<b>1 092</b>	<b>100.0</b>

(a) Includes non-edible products (e.g. marine fats and oils, fish meal, pearls and ornamental fish).

Source: ABS data available on request, International Trade data base.

### 17.14 STATUS OF COMMONWEALTH MANAGED OR JOINTLY MANAGED FISHERIES RESOURCES



Source: Bureau of Rural Sciences.

The level of fishing activity has increased over the last decade to the point where almost all the major known fish, crustacean and mollusc resources are fully used. Some major species such as southern bluefin tuna, gemfish and shark have suffered serious biological depletion.

The status of Australia's Commonwealth managed or jointly managed fisheries resources is summarised in map 17.14.

### Fisheries legislation and territorial arrangements

The Commonwealth has jurisdiction over waters between three and two hundred nautical miles seaward of the territorial sea baseline of Australia and its external territories. This area, referred to as the AFZ, covers a total of 8.9 million square kilometres. Conversely, the States and the Northern Territory have jurisdiction over inland fisheries and marine waters up to three nautical miles seaward of the territorial sea baseline.

To aid the management of Australian fisheries, arrangements known as Offshore Constitutional Settlements (OCS) have been entered into, which transfer jurisdiction from the Commonwealth to the State or Territory.

### Fisheries Management Act 1991 and the AFZ

The *Commonwealth Fisheries Management Act 1991* is the main fisheries legislation, and applies to commercial fishing for swimming and sedentary species in the AFZ. The establishment of the AFZ in 1979 brought portions of oceanic tuna stocks, and demersal and pelagic fish stocks previously accessed by foreign fishing vessels, under Australian control.

Fishery management plans are central to the Act and contain all essential rules applying to the management of a fishery. A management plan normally operates through a system of statutory fishing rights, which allows long term access to

the fishery. The Act also provides for limited term fishing permits, which are primarily designed for the management of fish resources that are not yet under a management plan. Individual transferable quotas (ITQs) are commonly used to achieve a reduction in fishing levels. A particular fishery is assigned a total allowable catch, and the market for ITQs will determine the most efficient allocation of resources.

Australia has an international obligation, under the United Nations Convention on the Law of the Sea, to allow foreign nations access to surplus domestic fish stocks within the AFZ where such access does not conflict with Australian management and development objectives. To facilitate the process, the Act allows Australia to make bilateral agreements or joint venture arrangements with the government or commercial interests of other countries, under which foreign fishing licences will be granted.

In 1995, Australia signed the UN Fish Stocks Agreement to further our national interest in combating the problems of unsustainable fishing practices on the high seas. At present all countries have the right to fish the high seas. However, some fish species spend part of their lives within national fishing boundaries and part in adjacent high seas. The agreement aims for sustainable fishing of these stocks by means of a cooperative treaty. This is important for Australia because some of its significant fish species, such as orange roughy, tuna and billfish, are distributed beyond the limits of the AFZ or migrate through it.

Australia, Japan and New Zealand are parties to the Convention for the Conservation of Southern Bluefin Tuna (CCSBT), which came into force in 1994. As part of its conservation management responsibilities for the global southern bluefin tuna industry, the CCSBT Commission annually determines a total allowable catch for the fishery and allocates this between the three CCSBT parties in the form of national quotas.

The total allowable catch of southern bluefin tuna has been set at 11,750 tonnes since 1989, with national allocations for Australia, Japan and New Zealand of 5,265 tonnes, 6,065 tonnes and 420 tonnes respectively. These quotas have remained fixed as the parties have been unable to reach agreement on changes. Japan's attempts to raise its quota through a unilateral experimental fishing program resulted in Japan catching around 1,460 tonnes and 2,200 tonnes above its

quota in 1998 and 1999 respectively. As a result Australia has implemented bans on Japan's access to the AFZ and Australian ports.

The Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States (USA) forms the Schedule to the Act. The effect of this is that US tuna boats are given treaty licences in accordance with the provisions of the Treaty.

The *Environment Protection and Biodiversity Conservation Act 1999* replaces the *Whale Protection Act 1980* and the *Endangered Species Protection Act 1992* in providing protection for all cetaceans (whales, dolphins and porpoises) in Commonwealth waters. The States and Territories have similar legislation. Australia supports a ban on whaling in international waters and is progressing this through the International Whaling Commission processes.

### **Australian Fisheries Management Authority**

The *Fisheries Administration Act 1991* establishes the Australian Fisheries Management Authority (AFMA) and prescribes its objectives. These are:

- implementing efficient and cost-effective fisheries management on behalf of the Commonwealth;
- ensuring that the use of fisheries resources and any related activities are conducted in a manner consistent with the principles of ecologically sustainable development, in particular the need to have regard to the impact of fishing activities on non-target species and the marine environment;
- maximising economic efficiency in the utilisation of fisheries resources;
- ensuring accountability to the fishing industry and to the Australian community in AFMA's management of fisheries resources; and
- achieving government targets in relation to the recovery of the cost of AFMA.

The Act specifies AFMA's functions, which include a duty to engage in appropriate consultation and to devise and implement management plans, adjustment programs and exploratory/feasibility fishing programs. AFMA is also to establish priorities for management-related research and arrange for such research to be undertaken. AFMA's management responsibilities include arrangements with States and Territories. Under the Fisheries Management Act, AFMA is given additional functions in areas such as

keeping a register of statutory fishing rights, surveillance and enforcement.

### **Other legislation**

The *Fishing Levy Act 1991*, *Foreign Fishing Licences Levy Act 1991* and *Fisheries Agreements (Payments) Act 1991* enable the imposition of management levies and access fees payable by Australian and foreign fishermen, foreign governments and foreign commercial interests. The *Statutory Fishing Rights Charge Act 1991* enables a charge to be levied on the grant of new fishing rights.

The *Torres Strait Fisheries Act 1984* gives effect in Australian law to the fisheries elements of the Torres Strait Treaty. The Act applies in the area of Australian jurisdiction in the Torres Strait Protected Zone, and in areas outside but near that zone that have been proclaimed in respect of particular fisheries which Australia and Papua New Guinea have agreed to manage jointly under the treaty or which are referred to in the treaty.

### **Fisheries research**

The main aim of fisheries research in Australia is to provide a background of biological, technical and economic information which will provide guidance for the efficient and sustainable use of fisheries resources. Much of the research already undertaken has been directed at formulating recommendations for management of various fisheries.

The Fisheries Research and Development Corporation (FRDC) was established in July 1991 by Regulation under the *Primary Industries and Energy Research and Development Act 1989*. Its objectives include:

- increasing the economic, environmental or social benefits to members of the Australian fishing and aquaculture industry and to the community generally by improving the production, processing, storage, transport or marketing of fish and fish products; and
- achieving the sustainable use and management of fisheries resources.

FRDC investigates and evaluates the requirements for research and development in relation to the fishing industry; coordinates and funds such research and development activities; and facilitates the dissemination, adoption and commercialisation of results.

FRDC is funded by an annual unmatched grant equal to 0.5% of GVP (the average gross value of fisheries production over the three immediately preceding financial years) and by research levies collected from the fishing industry which the Government matches to a maximum of 0.25% of GVP. In 1999–2000 the FRDC planned, funded and managed 671 projects worth \$47m, compared with 592 projects worth \$37.3m in 1998–99.

### **Aquaculture**

Aquaculture is one of Australia's fastest growing primary industries. As indicated in the section *Value of fisheries production*, the 1999–2000 farmgate value of production was \$678m, compared with \$188m in 1989–90. The major sectors contributing to this growth were pearl and edible oysters, Atlantic salmon and southern bluefin tuna.

Australia has enjoyed a relatively long history of success in farming the Sydney rock oyster. Pearl culture operations, prawn, barramundi, freshwater crayfish and ornamental fish farming operations are also now well established. The production of juveniles of several species of fin fish, molluscs and crustaceans has been undertaken for some years, initially for restocking wild populations and more recently as stock for grow-out operations providing mature fish to restaurants and export markets.

Australian aquaculture is expected to continue to show strong growth for the next 10 years and, on current estimates, the value of production will be in excess of \$1b by the end of this period. The industry provides regional development and employment opportunities in rural Australia, as well as contributing to export growth.

An Aquaculture Action Agenda was jointly announced by the Federal Ministers for Agriculture, Fisheries and Forestry, and Industry, Science and Resources, on 24 May 2000. The boost provided by the Action Agenda program will assist government and industry to develop strategies which maximise industry growth opportunities, increase export opportunities, improve innovation and expand the skills base of people working in the industry.

Developmental work is taking place in a number of areas including in a range of fin fish, freshwater crayfish (marron), mussels and algae. Research is continuing into the hatchery rearing of species such as abalone, scallops, giant clams, and flat and pearl oysters. Over half by value of the established aquaculture output goes to markets other than for direct consumption. However, the output of the newer industries goes mainly to markets for direct consumption.

The operational responsibility for the development of aquaculture in Australia rests with State and Territory Governments. A number of States have aquaculture and coastal development plans in place. These plans take into account the needs of the various user groups and provide a focus for aquaculture as an industry and as a legitimate user of water and land resources.

Aquaculture provides a basis for improved biological understanding of Australia's native marine and freshwater species and can be used to re-establish populations of endangered aquatic species. Aquaculture also improves the catch in both recreational and commercial fisheries through restocking programs.

### **Recreational fishing**

It is estimated that over five million Australians take part in recreational fishing in Australia as a leisure activity, with some 120,000 people identified as members of fishing clubs in 1996–97. Recreational fishing also supports about 90,000 Australian jobs. Two main industries are involved, the Australian fishing tackle and bait industry (with an annual turnover in excess of \$170m), and the recreational boating industry, (with an annual turnover of around \$500m of which 60% is related to fishing in one way or another). It is estimated that international tourists spend over \$200m on fishing in Australia each year. Current statistics on the quantity of seafood caught by recreational fishers are difficult to find. However a survey undertaken by the ABS in the early 1990s showed that recreational fishing

accounted for around 23,000 tonnes of fish, 2,800 tonnes of crabs and approximately 1,400 tonnes of freshwater crayfish.

Recreational fishing is particularly important from a regional perspective, with significant flow-on benefits, such as providing employment opportunities in the tackle, boating, tourism, fishing charter and associated industries in many coastal and rural areas. Most of Australia's recreational fishing is undertaken along the coast and estuaries of New South Wales, Queensland and Victoria, reflecting both the excellent fishing areas and the geographic spread of Australia's population.

Saltwater species are the main focus of recreational fishers, with Tailor, Bream, Whiting and Flathead being some of the more common and widespread species of saltwater fish caught. Freshwater fishing is a significant activity away from the coastal areas, and Australia has some of the best trout streams in the world, thanks to the introduction of these species in most suitable streams during the nineteenth century. In addition to introduced fish, Australia has a range of excellent tasting native inland fish such as Barramundi, Silver Perch and Golden Perch.

Many fish are subject to daily bag limits, which restrict the number of fish legally able to be caught and retained in one day. In addition, some fishing areas are subject to seasonal closures, which are imposed by State fishing authorities to protect certain fish species during their breeding period. Many State fishing authorities have introduced a requirement for all fishers to purchase fishing licences for both freshwater and saltwater fishing. Income received through the licensing system will be used by State Governments to undertake important research aimed at ensuring a healthy and sustainable fish population in Australia's recreational fishing areas.

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*Business Operations and Industry Performance* (8140.0).

*Manufacturing Industry, Australia* (8221.0).

### Other publications

Australian Bureau of Agricultural and Resource Economics

- *Agriculture and Resources Quarterly* (various issues).
- *Australian Fisheries Statistics, 2000*.
- *Australian Forest Products Statistics (March Quarter 2001)*.

Bureau of Rural Sciences

- *National Forest Inventory, 2001*.
- *National Plantation Inventory, 2001*.
- *Fishery Status Reports*.

### Internet sites

Bureau of Rural Sciences, <http://www.affa.gov.au/outputs/ruralscience/btml>

Commonwealth Department of Agriculture, Fisheries and Forestry—Australia, <http://www.affa.gov.au>

Commonwealth Scientific and Industrial Research Organisation, Forestry and Forest Products,  
<http://www.fff.csiro.au>

Environment Australia, <http://www.ea.gov.au>

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## Introduction

**M**ining, as defined in the 1993 edition of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC), broadly relates to the extraction of minerals occurring naturally as solids such as coal and ores, liquids such as crude petroleum, or gases such as natural gas. First stage processing of minerals and mineral extracts, while closely related to the mining industry, is included as part of the manufacturing industry.

Australia continues to rank highly as one of the world's leading mineral resource nations, and the minerals industry is the nation's largest export earner.

The mining industry contributed \$27.6b (5%) to Australia's Gross Value Added in 1999–2000, an increase from \$23.8b or 4% in 1998–99.

## Summary of mining operations

In this chapter, the term 'mining industry' is used to refer to the group of industries engaged in mining for coal, oil and gas and metallic minerals. It does not cover other mining activities such as sand and gravel quarrying, mining for clay and other construction materials or mining for gemstones.

Table 18.1 shows that in 1998–99 mining industry turnover was \$37.5b, virtually unchanged from the previous year; value added at \$24.1b was almost 1% higher. Employment fell by 7% (3,750 persons) to 47,300 persons between June 1998 and June 1999.

The coal mining industry remained the largest contributor to total turnover, accounting for 34%, slightly higher than recorded for 1997–98 (33%). The oil and gas extraction industry accounted for 23%. The other main contributors were the gold and iron ore mining industries which each accounted for 13% of total mining industry turnover in 1998–99.

Turnover in the coal mining industry increased by \$404m (3%) to \$12.9b in 1998–99. The oil and gas extraction industry recorded the largest decrease in turnover in 1998–99, dropping \$946m (10%) to \$8.6b. A fall of over \$1.0b in revenue from sales of goods and services brought about by low world prices for oil, as well as reduced production resulting from maintenance work and the Longford refinery explosion, were the main reasons for the decrease. Consistently low world gold prices, a number of mine closures and scaling down of operations at several mines resulted in a decrease in turnover in the gold ore mining industry of \$287m (5%) to \$4.9b during 1998–99.

**18.1 MINING, Summary of Operations by Industry — 1998–99**

	Employment at 30 June(a)	Wages and salaries(b)	Turnover	Inventories		Purchases and selected expenses	Value added	Net capital expenditure
				Open	Close			
				no.	\$m	\$m	\$m	\$m
Coal mining	19 704	1 931	12 871	1 123	969	5 499	7 218	1 097
Oil and gas extraction	4 492	386	8 596	293	300	1 130	7 472	2 543
Metal ore mining								
Iron ore mining	4 793	437	4 696	369	427	1 215	3 539	773
Bauxite mining	1 564	82	1 104	75	88	289	829	322
Copper ore mining	2 257	155	1 459	269	213	760	643	277
Gold ore mining	7 135	424	4 939	579	531	2 543	2 348	581
Mineral sand mining	1 913	121	892	259	268	405	497	234
Silver-lead-zinc ore mining	3 029	214	1 678	157	128	553	1 096	849
Other(c)	2 413	161	1 289	347	372	837	477	1 371
Total metal ore mining	23 104	1 593	16 057	2 055	2 027	6 601	9 428	4 407
<b>Total mining 1998–99</b>	<b>47 300</b>	<b>3 910</b>	<b>37 524</b>	<b>3 471</b>	<b>3 296</b>	<b>13 230</b>	<b>24 119</b>	<b>8 047</b>
Total mining 1997–98	51 048	4 157	37 558	3 380	3 333	13 593	23 918	7 161

(a) Includes working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes ANZSIC Classes 1316 (Nickel ore mining) and 1319 (Metal ore mining n.e.c.).

Source: *Mining Operations, Australia* (8414.0).

**18.2 MINING, Summary of Operations by State/Territory — 1998–99**

	Employment at 30 June(a)	Wages and salaries(b)	Turnover	Stocks		Purchases and selected expenses	Value added	Net capital expenditure
				Opening	Closing			
				\$m	\$m			
NSW	11 720	1 063	6 442	591	454	2 724	3 581	448
Vic.	2 281	170	2 493	60	68	450	2 050	696
Qld	12 672	1 118	9 343	1 055	917	4 016	5 189	1 794
SA	1 750	114	1 129	93	86	329	793	261
WA	16 332	1 253	16 284	1 352	1 473	4 903	11 503	4 346
Tas.	905	61	478	47	51	296	187	43
NT	1 640	130	1 355	273	247	512	817	457
<b>Aust.</b>	<b>47 300</b>	<b>3 910</b>	<b>37 524</b>	<b>3 471</b>	<b>3 296</b>	<b>13 230</b>	<b>24 120</b>	<b>8 046</b>

(a) Includes working proprietors. (b) Excludes amounts drawn by working proprietors.

Source: *Mining Operations, Australia* (8414.0).

The iron ore mining industry reported a \$439m (10%) increase in turnover to \$4.7b in 1998–99. Production of iron ore fell during the year, as did the price in US dollars. However, as a result of favourable exchange rates, the price being obtained in Australian dollars actually increased, leading to a \$335m increase in the value of sales of goods and services for the industry. Copper production increased in 1998–99, as did the value of turnover for the copper mining industry, which rose \$74m (5%) to \$1.5b, due to expansion of the Olympic Dam mine (SA) and the Ernest Henry mine (Qld) coming into production.

Table 18.2 shows that Western Australia continues to be the State with the largest mining industry. At \$11.5b, Western Australia contributes almost half of the national value added by the mining industry. Queensland is next largest with over 20% of the national value added. The State with the highest value added per person employed in the mining industry was Victoria (\$899,000), while Tasmania had the lowest (\$207,000).

## Exports

Export earnings from Australian mineral resources rose to a record \$43.8b in 1999–2000, an increase of \$5.0b or 13%. This stronger performance in 1999–2000 reflected significantly higher export prices and volumes for the majority of minerals and energy commodities. In particular, average unit prices for oil and gas exports increased by between 34 and 91%. Reflecting the general rise in prices, the index of unit returns from mineral resource exports (prices received in \$A terms) increased by 10% in 1999–2000.

Coal remained the biggest export earning mining commodity, with a value of \$8.3b in 1999–2000, representing 9% of total merchandise exports.

Other major exports were gold (\$5.0b, 5%), crude petroleum oils (\$4.9b, 5%), iron ore (\$3.8b, 4%) and alumina (\$3.4b, 3%).

Some of the commodities for which export earnings increased in 1999–2000 included: crude oil, up \$3,382m (180%); nickel, up \$1,018m (120%); alumina, up \$560m (19%); Liquified Natural Gas (LNG), up \$542m (37%); aluminium, up \$460m (16%); refinery petroleum products, up \$350m (40%); Liquified Petroleum Gas (LPG) up \$340m (114%); and copper, up \$238m (17%).

Commodities for which export earnings fell in 1999–2000 included gold, down \$1,455m (23%); steaming coal, down \$652m (17%); and coking coal, down \$279m (5%). Lower export prices, and in some cases lower export volumes, contributed to these falls in export earnings.

Compared with 1998–99, Australian exports of crude oil in 1999–2000 rose by 55% to 19,200 megalitres (ML) and LPG exports rose by 14% to 1.56 megatonnes (MT), while automotive gasoline exports fell by 11% to 1,371 ML. Export earnings from crude oil and condensate rose by 205% to \$4.9b, those from LNG rose by 37% to \$1.9b, and those from LPG rose by 118% to \$648m.

## Imports

Mineral resource imports were valued at \$12,123m in 1999–2000, an increase of \$3,157m (35%) on 1998–99. The main contributors to the rise in imports in 1999–2000 were: crude oil, up \$2,545m (67%) to \$6,339m; and refinery petroleum products, up \$508m (59%) to \$1,376m. Smaller increases were also recorded for diamonds, gold, iron ore and steel.

In 1999–2000 Australian imports of crude oil and other refinery feedstock decreased by 9% to 27,014 ML and imports of petroleum products increased by 14%. Major petroleum products recording significant increases were fuel oil by 34% to 798 ML, automotive gasoline by 20% to 1,065 ML and aviation turbine fuel by 22% to 171 ML, while diesel fuel decreased by 3% to 1,400 ML.

The major sources for Australian imports of crude oil and other refinery feedstocks were Viet Nam (6,034 ML), Saudi Arabia (541 ML), Indonesia (301 ML), and Papua New Guinea (292 ML). The major sources of automotive gasoline imports were Singapore (93 ML) and Saudi Arabia (18 ML). The majority of diesel fuel imports originated in Singapore (85 ML).

## Mineral production

The total value of minerals produced in the coal mining, oil and gas extraction and metal ore mining industries was \$34.6b in 1998–99, an

increase of \$354m (1%) compared with 1997–98 (table 18.3). The metallic minerals group was the major contributor to the total value of production with 45%, followed by the coal industry and the oil and gas extraction industry.

The value of metallic minerals produced increased by \$978m (7%) to \$15.7b. Although US dollar prices for commodities remained depressed, an increase in production for a number of commodities coupled with a weak Australian dollar meant that revenues for commodities such as copper concentrate and lead concentrate increased. The value of production for iron ore increased by \$388m (10%) to \$4.3b as a result of favourable exchange rates. The value of gold production decreased by \$450m (9%) to \$4.5b due to decreased production and a low market price for gold associated with uncertainty within the gold market.

**18.3 MINERAL PRODUCTION, Selected Minerals, Australia**

	Units	1994–95	1995–96	1996–97(a)	1997–98	1998–99
<b>Metallic minerals</b>						
Bauxite	'000 t	45 384	50 724	46 874	50 418	58 005
Copper concentrate(b)	'000 t	(c)9 423	(c)1 316	1 769	1 662	1 835
Gold bullion (dore)(d)	kg	298 697	291 965	296 398	333 673	310 378
Iron ore(e)	'000 t	137 525	137 267	162 480	168 104	162 224
Lead concentrate	'000 t	766	774	782	768	927
Mineral sands(f)	'000 t	2 375	2 491	3 044	3 198	3 195
Uranium oxide (U3O8)(g)	t	2 631	5 105	5 996	5 797	6 386
Zinc concentrate(h)	'000 t	1 699	1 295	2 070	1 921	2 143
Total value of metallic minerals	\$m	(i)11 715	12 708	13 617	14 696	15 674
<b>Coal</b>						
Black coal	'000 t	191 903	194 492	206 169	226 818	232 584
Brown coal	'000 t	50 679	54 281	58 886	68 638	65 880
Total value of coal(k)	\$m	(j)7,340	8 006	9 089	9 994	10 516
<b>Oil and gas</b>						
Crude oil(l)	ML	31 301	30 763	29 556	33 931	30 306
Natural gas(m)	GL	(m)17 486	(m)19 169	n.a.	(n)27 774	(n)30 352
Ethane	GL	208	199	n.a.	n.a.	n.a.
Propane(n)	ML	1 999	2 092	2 142	2 421	1 509
Butane(n)	ML	1 480	1 544	1 584	1 883	1 993
Liquefied natural gas	'000 t	6 888	7 346	n.a.	n.a.	n.a.
Total value of oil and gas	\$m	7 683	8 070	8 823	9 523	8 376
<b>Total value of metallic minerals, coal, oil and gas</b>	\$m	<b>26 738</b>	<b>28 784</b>	<b>31 529</b>	<b>34 213</b>	<b>34 567</b>

(a) Break in series — data for 1996–97 derived solely from information supplied through the ABS mining collection. Data for prior years derived from information supplied by State mines departments or directly to the ABS, supplemented in some cases by data from other sources. (b) Includes copper precipitate. (c) Excludes South Australia. (d) Includes alluvial gold. (e) Includes iron ore pellets. (f) Includes ilmenite, beneficiated ilmenite, leucoxene, monazite, rutile, synthetic rutile and zircon. (g) Uranium figures supplied from Australian Commodity Statistics, 2000 (ABARE). (h) Includes zinc-lead concentrate and lead-zinc concentrate. (i) Includes Tasmanian coal production. (j) Excludes Tasmania. (k) Excludes briquettes. (l) Stabilised. Includes condensate. (m) Includes field and plant usage. (n) Includes ethane and liquefied natural gas.

Source: *Mining Operations, Australia* (8414.0); *Australian Commodity Statistics, 2000* (ABARE).

The value of coal produced increased by \$522m (5%) to \$10.5b in 1998–99 mainly due to an increase in production. Decreases in the value of crude oil and natural gas were attributable to record low prices for crude oil during the reference period and reduced output from the Bass Strait field following the Longford refinery explosion. The value of oil and gas production fell by \$1.1b (12%) to \$8.4b in 1998–99.

## Major commodities

The information in this section has been largely drawn from the publication *Australia's Identified Mineral Resources, 2000* published by the Australian Geological Survey Organisation (AGSO).

### Summary

In 1999, Australia's economic demonstrated resources (EDR) of bauxite, diamonds, gold, iron ore, manganese ore, magnesite, mineral sands (ilmenite, rutile and zircon), nickel, phosphate rock and tantalum rose, while those of copper, coal (black and brown), lead, lithium, silver, uranium and zinc fell. The reductions in EDR were due mainly to ongoing high levels of production; commodity prices were a subsidiary factor. EDR of all other commodities remained effectively unchanged.

### Bauxite and alumina

Australia is the world's largest producer and exporter of bauxite and alumina and the third largest producer and exporter of aluminium.

When exports of bauxite, alumina and aluminium (ingot metal) are taken into account, aluminium is Australia's third largest merchandise export behind coal and gold. The Australian aluminium industry consists on five bauxite mines, six alumina refineries, six primary aluminium smelters, twelve extrusion mills and four rolled product mills.

In 1998–99 Australia produced 46.4 million tonnes (Mt) of bauxite, 14.2 Mt of alumina and 1.7 Mt of primary aluminium.

In 1999–2000 some of the major commodity exports were aluminium with 1.6 Mt, valued at \$3.9b and representing 4% of total merchandise exports, and alumina with 11 Mt, valued at \$3.4b or 3% of total merchandise exports. Japan was the major market for aluminium, taking 35% of exports.

Bauxite mining employed 1,564 people nationally at the end of June 1999.

### Coal

In 1999, Australia produced 294 Mt of raw black coal (compared with 285 Mt in 1998), which yielded 231 Mt of saleable coal (225 Mt in 1998). Exports of black coal totalled 92 Mt of metallurgical coal and 79 Mt of steaming coal. Over 70% of Australia's raw coal production came from open-cut mines. In 1999, Australia accounted for 6% of the world's recoverable EDR of black coal and produced about 6% of the world's saleable black coal output.

Australia has substantial resources of high quality black coal. Most of these resources are located in New South Wales and Queensland; however, small but locally important coal resources occur in Western Australia, South Australia and Tasmania. Domestically, most coal produced is used to generate electricity. Other uses include coke-making for the iron and steel industry, and as a source of heat in the manufacture of cement.

The coal industry was the single largest employer in the mining sector at the end of June 1999, with 19,704 employees, or 42% of the total. This represented a drop of 2,818 (13%) over the level at end June 1998. Black coal was Australia's biggest export earning commodity in 1999–2000, accounting for \$8.3b or 9% of the total value of merchandise exports. The main market for Australian coal was Japan, which purchased 83 Mt of Australian coal at a cost of \$3.8b (46% of total sales).

Brown coal occurs mainly in Victoria, with other known resources in Western Australia, South Australia and Tasmania. Victoria is the only State that mines brown coal, where extensive resources are used mainly for electricity generation. Another important use is for the production of briquettes used for industrial and domestic heating in Australia and overseas.

In 1999, brown coal production was about 66.6 Mt, up by about 3% from 1998. The La Trobe Valley produced 98.5% of Australia's brown coal. Australia has about 20% of the world's recoverable brown coal EDR, and ranks second behind Germany (22%). It produced 8% of the world's brown coal in 1999 and ranked third after Germany (24%) and USA (10%).

### Copper

In a global context, Australia is an important producer of copper with major mining and smelting operations at Olympic Dam and Mt Isa.

Australia has the world's third largest EDR of copper (6%), and ranks fourth in the world as a copper producer. In 1999 Australia's mine production was 735,000 tonnes (t) of contained copper, 21.7% higher than in 1998. This rise is attributable mainly to increased production from the Olympic Dam mine.

A major expansion of the Olympic Dam copper/uranium/gold/silver operation was completed in the first quarter of 1999 and at a cost of \$1.94b. The expansion increased copper production.

Exports of copper ores and concentrates totalled \$776m in 1999–2000, while exports of copper metal and copper articles totalled \$1,211m. Copper mining employed 2,257 persons at the end of June 1999, representing 9.8% of total employees in the metal ore mining sector.

## Diamonds

Australia's diamond production is the largest in the world for both gem/near gem and natural industrial diamond categories. Production is mostly from the Argyle open-pit, with a lesser contribution from the nearby Argyle alluvials operation.

Production of diamonds (gem/near gem, industrial) in 1999 was 30.8 million carats (Mc), a fall of 10 Mc from the 1998 level. Most of the decrease resulted from an increased waste-to-ore ratio associated with expansion of the open-pit operation at Argyle.

Exports of diamonds (sorted and unsorted) in 1999–2000 totalled \$795m. This represents a 28% increase over the 1998–99 value. The two main destinations were Belgium–Luxembourg and the United Kingdom.

## Gold

Much attention in the Australian gold mining industry during 1999 was focused on the low US dollar price for gold. An improvement in that price late in the year provided the industry with a degree of optimism.

Australia's gold resources occur in and are mined in all States and the Northern Territory. Based on figures published by the United States Geological Survey (USGS) and modified to incorporate the Australian resources reported here, Australia has now the fourth largest EDR after South Africa, USA and Uzbekistan. The USGS reports total world gold production in 1999 at an estimated 2,330 t. Production rankings remained

unchanged, South Africa being the largest producer with 19.3% of world output — about the same as in 1998. It was followed by the USA, with its share unchanged at 14.6% and Australia with an unchanged 13%.

Preliminary production data from the Australian Bureau of Agricultural and Resource Economics (ABARE) indicate that Australia's gold production in 1999 fell by just under 4% to 301 t. Western Australia remained the dominant producer with an output of 213 t (9% lower than in 1998), which was almost 71% of total Australian output. Queensland remained the second largest producer with just under 33 t, which was a little more than in 1998. Other production (in rounded amounts) was: Northern Territory 22 t, New South Wales 21 t, Tasmania 5.5 t, Victoria 4.5 t and South Australia 2 t.

In 1999–2000 gold was Australia's second biggest export earning commodity after black coal, accounting for 5% of total merchandise exports at a value of \$5.0b. The main markets were Singapore (\$2.1b) and United Kingdom (\$0.8b).

The gold mining industry employed 7,135 people at the end of June 1999, making it the second largest employer in the mining sector behind the coal industry.

## Iron ore

Iron ore is the raw material for the production of iron that is mostly further processed to produce steel. Although the production of iron and steel accounts for most of the iron ore consumed in Australia and the rest of the world, small tonnages are used in a variety of applications — including pigment manufacture, coal washeries and cement manufacture.

Resources of iron ore occur in all Australian States and the Northern Territory. Over 90% of Australia's iron ore resources occur in Western Australia, mostly in the Hamersley Basin in the Pilbara region. Small but locally significant resources occur in South Australia, Tasmania and New South Wales. Australia's large iron ore resources are the basis of a major export industry, which is based mainly in the Pilbara. Exploration expenditure for iron ore in 1998–99 totalled \$41.5m, up from \$30m in 1997–98.

Australian iron ore production in 1999 was 155.0 Mt (155.7 Mt in 1998). Of the total production, 148.8 Mt (96%) was from Western Australia. Australia has 11% of world EDR of iron ore and is ranked fourth after China (18%), Ukraine (16%) and Russia (15%).

In terms of contained ore, Australia has 13% of the world's EDR and is ranked third behind the Ukraine (17%) and Russia (15%). Australia produces some 15% of the world's iron ore output and is ranked third behind China (21%) and Brazil (19%).

Iron ore accounted for \$3.8b or 4% of total merchandise exports in 1999–2000. Japan was Australia's largest market, taking 45% of exports in dollar terms. Iron ore mining employed 4,793 people at the end of June 1999.

### Manganese ore

Manganese ore occurs in all States and the Northern Territory. Most resources are located on Groote Eylandt in the Northern Territory. Small but locally significant resources occur at Woodie Woodie and Ant Hill in Western Australia.

Australia's manganese resources are the basis of an important export industry as well as a domestic ferromanganese, silicomanganese and manganese dioxide industry.

In 1999, Australia produced 1.9 Mt of manganese ore, with a manganese content of 0.9 Mt. Exports totalled 1.4 Mt, valued at \$195m. Australia has 7% of world's EDR of manganese ore and is ranked fourth behind South Africa (46%), Ukraine (24%) and China (11%). In terms of contained manganese, Australia has 9% of the world's EDR and is third behind South Africa (52%) and Ukraine (19%). Australia is the fifth largest producer at 9% behind China (30%), South Africa (15%), Gabon (11%) and Ukraine (10%).

EDR rose by over 22% to 134.3 Mt in 1999 due to new data about available resources becoming available for Groote Eylandt and the recommencement of the Woodie Woodie project in Western Australia.

### Mineral sands

The principal components of mineral sands are zircon and the titanium minerals rutile and ilmenite. Rutile and ilmenite are minerals used mainly in the production of titanium dioxide pigment; a small portion, less than 4% of total titanium mineral production, typically rutile, is used in making titanium sponge metal. Zircon is consumed as an opacifier for glazes on ceramic tiles, in refractories and the foundry industry.

In 1999, Australia produced 2.0 Mt of ilmenite, 190,000 t of rutile and 375,000 t of zircon. The bulk of Australia's rutile and zircon production is exported, compared to about 55% of ilmenite production. Remaining ilmenite is upgraded to synthetic rutile, which contains 92–93% titanium dioxide ( $TiO_2$ ).

EDR of ilmenite increased substantially during 1999, up from 164.3 Mt in 1998 to 180.9 Mt, an increase of just over 10%. Most of the increase (86%) occurred in Western Australia, which has the largest EDR, and resulted from infill drilling along the northern section of the Swan Coastal Plain.

Australia has the world's largest EDR of ilmenite, rutile and zircon with 29%, 42% and 39% respectively. In 1999, world production of ilmenite decreased by 6% to 6.3 Mt, of rutile by 12% to 381,000 t, and of zircon by 1% to 790,000 t. Australia produced about 31%, 50% and 47% each of world production of ilmenite, rutile and zircon respectively, and is the world's leading producer of all three minerals as well as the largest exporter.

Expenditure on exploration for mineral sands in 1999 was estimated at \$18.2m, an increase of about 5% over the previous year. It is likely that most of the expenditure was in the Murray Basin, which has an extensive coverage of exploration leases.

The mineral sand mining industry employed 1,913 persons at the end of June 1999.

### Nickel

Total identified resources of nickel rose by 7.7 Mt (29%) in 1999. EDR increased by over 17%, from 9.0 Mt to a record 10.6 Mt, which constitutes about 30% of total identified resources.

In Western Australia, Queensland and New South Wales increases in EDR resulted mainly from company reassessments at either existing mines or new deposits nearing production. Western Australia remains the largest holder of nickel resources with 88% of total EDR.

In 1999, about 700 kilotonnes (kt) of nickel concentrates (approximately 126 kt of contained nickel) were produced from Western Australia.

According to AGSO and USGS data, world EDR of nickel increased by 4.8% from 45.3 Mt in 1998 to 47.5 Mt in 1999. Australia's share of world EDR rose to 22.3% from 19.8% in 1998, making it the largest holder of EDR, followed by Russia (14%), Canada (13%), and Cuba (12%).

Australia produced about 11% of estimated world nickel output of 1.14 Mt. Russia was again the largest producer with 250 kt (22.7%), followed by Canada with 203 kt (19%) and Australia. Australian exports of nickel in 1999–2000 totalled \$1.4b.

## Tantalum

Increased use of portable electronic devices such as mobile phones, computers and video cameras has maintained strong growth in demand for tantalum capacitors in recent years. Australia, through the operations of Sons of Gwalia Limited, is the world's largest producer of tantalum in the form of tantalum concentrates.

Despite increased production of tantalum pentoxide ( $Ta_2O_5$ ), EDR increased by 37% in 1999 to just over 24 kt tantalum (Ta). This was largely due to reassessment of resources in the Greenbushes and Wodgina deposits. Sons of Gwalia Limited reported that the resource base at Greenbushes increased from 38.7 to 75.2 million pounds (Mlbs)  $Ta_2O_5$ , while at Wodgina it increased almost six fold to 31 Mlbs  $Ta_2O_5$ .

Small levels of resources in the EDR category occur elsewhere in Western Australia and the Northern Territory. Minor resources in this category occur in New South Wales.

The increase in resources at Greenbushes and Mt Cassiterite East consolidated Australia's position as the world's largest holder of tantalum resources. Based on world estimates published by the USGS and modified by AGSO to take account of recent discoveries, Australia has over 80% of the world's EDR of tantalum. Canada has the second largest resource base, followed by the Congo.

Exports of tantalum and niobium ores and concentrates in 1999–2000 were 3,923 t, an increase of 1,376 t over 1998–99. The total value of tantalum exports in 1999–2000 was \$81m, an increase of 34% over 1998–99.

## Uranium

Australia has the world's largest resources of uranium in the low cost Reasonably Assured Resources (RAR) category, with 26% of world resources in this category.

During 1999, Australia's low cost RAR (equates to EDR) decreased by 36,000 t uranium (U) to 571,000 t U. This represents a decrease of 6% and was due to the following factors: re-calculation of the resources of the Olympic Dam deposit by WMC Ltd, resulting in a decrease in the total measured and indicated mineral resources, together with a small decrease in total proved and probable reserves and mine production.

Approximately 95% of Australia's total uranium resources in the low cost RAR category are within the following six deposits: Olympic Dam,

South Australia, which is the world's largest uranium deposit; Ranger, Jabiluka, Koongarra in the Alligator Rivers Region, Northern Territory; and Kintyre and Yeelirrie, Western Australia. The Olympic Dam copper-uranium-gold-silver deposit is the world's largest deposit of low-cost uranium. Uranium oxide was produced at the Ranger and Olympic Dam operations. Australia's total production in 1999 reached a record high of 7,055 tonnes of uranium oxide (t  $U_3O_8$ ), 22% higher than for 1998, with Ranger producing 3,857 t and Olympic Dam 3,198 t  $U_3O_8$ .

Total expenditure on uranium exploration in Australia for 1999 was \$9.25m, a reduction of over 50% compared to 1998. This significant decline was due to a number of factors including: several companies ceasing to explore for uranium in Australia; expenditure on the Beverley in situ leach operation no longer attributable to exploration, following commitment in 1999 to develop this project; and exploration ceasing at the Kintyre project (WA).

Exports of uranium ores and concentrates in 1999–2000 totalled 8,023 t and earned \$367m. All exports of Australian uranium are subject to stringent safeguards which provide assurance that none of the material is diverted from peaceful uses.

## Zinc, lead, silver

Australia has the world's largest EDR of lead (23%), second largest of zinc (17%) after China, and fourth largest of silver (11%) after Mexico, Canada and the United States. As a producer, Australia ranks first in the world for lead, second for zinc (after Canada) and fourth for silver after Mexico, USA and Peru.

Australia's total identified resources of zinc (81.5 Mt), lead (51 Mt) and silver (85.4 kt) decreased by 2%, 4% and 6% respectively in 1999. In the same period, EDR of zinc (32 Mt), lead (14.6 Mt) and silver (31.2 kt) decreased by 6%, 15% and 23% respectively as a result of production and reassessment of resources at major mines.

Mine production in 1999 for zinc, lead and silver was 1.06 Mt, 0.68 Mt and 1.7 kt, respectively. Production was mainly from mines at Cannington, Century, George Fisher, Hilton and Mount Isa in Queensland; McArthur River in the Northern Territory; Broken Hill and Elura in New South Wales; Hellyer and Rosebery in Tasmania; and Scuddles, Gossan Hill and the Lennard Shelf deposits in Western Australia. Australia's gold mines continue to be significant contributors to silver production.

The silver-lead-zinc ore mining industry had employment of 3,029 people at the end of June 1999.

### **Crude oil and condensate**

Australian production of crude oil and condensate in 1999–2000 was 37,465 (ML), an increase of 34% over 1998–99. Production of total crude oil and condensate from the Gippsland Basin accounted for 31% (or 11,639 ML) of total Australian crude oil and condensate production, the North West Shelf also for 31% (or 11,533 ML). The North West Shelf was the major producer of condensate during 1999–2000 with 77% (6,038 ML) of total Australian production sourced in that region.

In 1999–2000 exports of crude petroleum oils totalled 19,173 ML, valued at \$4.9b; they were substantially up on 1998–99 (12,383 ML, \$1.6b). The main markets were Republic of Korea, USA and Singapore.

### **Liquefied petroleum gas**

LPG is a valuable co-product of oil and gas production and petroleum refining. The major constituents of LPG are propane and iso- and normal-butane, which are gaseous at normal temperatures and pressures, and are easily liquefied at moderate pressures or reduced temperatures. Operations involving LPG are expensive in relation to other liquid fuels because LPG has to be refrigerated or pressurised when transported and stored. LPG is an alternative transport fuel for high mileage vehicles in urban areas, as well as a petrochemical feedstock and domestic fuel.

Production of naturally occurring LPG in Australia in 1999–2000 was 4,368 ML, an increase of 12% over 1998–99. The major contributors were the Gippsland Basin (1,889 ML or 43% of total production) and the North West Shelf (1,564 ML or 36% of total production).

In 1999–2000 Australian exports of liquefied propane and butane totalled 1.6 Mt, an increase of 14% over 1998–99. Export earnings from liquefied propane and butane in 1999–2000 were \$648m, up \$351m (118%) on the previous year.

### **Liquefied natural gas**

During 1999–2000, some 31,180 million cubic metres (Mm<sup>3</sup>) of LNG were produced for domestic consumption and export, an increase of 2% over 1998–99 production. Production was dominated by the North West Shelf, which accounted for 16,357 Mm<sup>3</sup> of natural gas, or 52% of the total.

Export earnings from LNG increased by 37% to \$1.9b in 1999–2000.

### **Minerals processing and treatment**

As few minerals can be directly used in the form in which they are mined, most minerals undergo processing and treatment before use.

Table 18.4 shows the production of the main manufactured products of mineral origin.

### **Mineral resources and geology**

Australia has the world's largest EDR (economic demonstrated resources) of lead, mineral sands (ilmenite, rutile and zircon), nickel, tantalum, uranium and zinc. In addition, its EDR is in the top six worldwide for bauxite, black and brown coal, cobalt, copper, diamond (gem/near gem), gold, iron ore, manganese ore and rare earth oxides.

The diversity of Australian geology provides the basis for its wide range of economically important minerals and variety of deposit types. Its classified geological settings range from major Precambrian Shields composed of Archaean (older than 2.5 billion years) granite greenstone terrains, through to extensive Proterozoic (2.5 to 0.5 billion years) basins and metamorphic belts, to the younger Palaeozoic fold belts (0.5 to 0.25 billion years). Most significant mineral deposits discovered in the past two decades were hidden beneath cover and this is likely to be the pattern in the future, because prospective rocks in some 80% of the continent are concealed by a veneer of deeply weathered rocks or sedimentary strata. The weathering occurred particularly during the Mesozoic and Cainozoic periods (0.25 billion years to the present) and weathered rocks also host important mineral deposits.

**18.4 PRODUCTION OF PRINCIPAL MANUFACTURED PRODUCTS OF MINERAL ORIGIN**

	Units	1995–96	1996–97	1997–98	1998–99	1999–2000
<b>METALS</b>						
Non-ferrous						
Alumina	'000 t	13 293	13 252	13 581	14 207	15 037
Refined aluminium	'000 t	1 331	1 395	1 589	1 686	1 742
Refined copper	'000 t	300	305	284	306	477
Lead bullion(a)	'000 t	181	191	171	157	165
Refined lead	'000 t	224	202	185	199	233
Refined zinc	'000 t	330	319	304	323	405
Refined tin	t	550	570	650	595	600
Ferrous						
Pig iron	'000 t	7 554	7 545	7 928	7 513	n.a.
Iron and steel	Mt	n.a.	n.a.	n.a.	8 549	8 053
Precious						
Refined gold	t	318	326	348	419	383
Refined silver	t	350	339	227	410	543
<b>FUELS</b>						
Petroleum products						
Diesel automotive oil	ML	12 202	12 968	13 183	12 968	12 737
Industrial and marine fuel	ML	78	45	48	32	60
Fuel oil	ML	1 998	1 795	1 662	1 634	1 839
Petrol	ML	18 358	18 084	18 589	18 705	18 652
<b>BUILDING MATERIALS</b>						
Clay bricks	m	1 455	1 467	1 532	1 594	1 735
Portland cement	'000 t	6 397	6 701	7 235	7 704	7 937
<b>CHEMICALS</b>						
Superphosphate	'000 t	1 697	1 511	1 819	1 464	1 429

(a) Metallic content.

Source: Australian Mineral Statistics (ABARE); Manufacturing Production (8301.0).

The Archaean and Proterozoic basement rocks, underlying most of the western two-thirds of Australia, have been the source of much of the country's mineral wealth to date. Large deposits such as the gold and nickel mines of the Kalgoorlie region and iron ore deposits of the Pilbara region (Western Australia); base metal deposits at Broken Hill (New South Wales), Mount Isa (Queensland), McArthur River (Northern Territory); copper-uranium-gold deposit at Olympic Dam (South Australia); Argyle diamond deposit (Western Australia), and the uranium deposits of the Alligator Rivers area of the Northern Territory all occur in the Precambrian rocks. In eastern Australia, the major deposits are of Palaeozoic age and include the base metal deposits at Elura, Cobar (New South Wales); Hellyer and Rosebery, the Mount Lyell copper-gold deposit, and the Renison tin deposit (Tasmania); and Kidston, Mount Leyshon (Queensland) and most other gold deposits. The large black coal deposits of New South Wales and Queensland are of upper Palaeozoic and Mesozoic age. Deposits formed in Tertiary times include the brown coal of Victoria; the oil shales of eastern Queensland; the bauxite of Weipa (Queensland), Gove (Northern Territory) and the

Darling Ranges (Western Australia); the lateritic nickel deposits of Queensland and Western Australia; and the mineral sands deposits of the Murray Basin (Victoria and New South Wales) and Eneabba (Western Australia).

The continuing discovery of world class deposits in both the established and new mineral provinces confirms Australia's high mineral potential. Major discoveries since 1990 include the Century (zinc), Cannington (lead, zinc, silver) and Ernest Henry (copper-gold) deposits in the major Carpentaria-Mount Isa base metal province; the Cadia and Ridgeway (gold-copper) deposit in central western New South Wales; and the Bronzewing (gold), Wallaby (gold) and Silver Swan (nickel) deposits in the Eastern Goldfields of Western Australia. Exploration in the Murray Basin is continuing to increase the level of heavy mineral resources and underline the world-class significance of this heavy mineral province.

It is important to note that although the resources for many of Australia's mineral commodities have more than kept pace with production, the number of discoveries of large mineral deposits has been declining over the past

decade. This is partly a reflection of the fact that mineral deposits are becoming harder to find because of the surficial cover. Future discoveries will depend increasingly upon the application of advanced and predictive geoscientific exploration concepts and upon the development of new exploration technologies designed to explore the extensive prospective areas under the shallow cover. The continuing global trend for mineral production to be consolidated and increasingly confined to large tonnage, high grade deposits means that there is an additional challenge for Australia to come up with discoveries of large world class deposits, if it is to maintain its status as a major supplier of mineral commodities.

Australia's most important petroleum basins are off north-western Australia and under Bass Strait. These sedimentary basins, located around the margin of Australia, were formed as the super-continent of Gondwana broke apart in the Mesozoic age, mostly between 150 and 60 million years ago. The oil, condensate and gas are contained in sandstone reservoirs, while organic matter from both land plants and marine organisms sourced the hydrocarbons.

Currently most of the production is from the Carnarvon Basin, offshore from Onslow and Dampier in Western Australia. Oil, condensate and gas are produced, including from the giant North West Shelf LNG project, which exports liquefied gas primarily to Japan. Further to the north, large reserves of gas and condensate have been identified in the Browse Basin, offshore from Derby in Western Australia. Oil is produced from the Timor Sea area and plans are well advanced for the production of gas and condensate from the Joint Petroleum Development Area with East Timor.

The Gippsland Basin, underlying eastern Bass Strait, has been in the past Australia's major hydrocarbon producing area, but is now in decline. However, recent discoveries of gas and condensate have been made in the offshore Otway Basin, at the western end of Bass Strait.

Some of Australia's onshore basins also contain hydrocarbons, and again sandstone reservoirs predominate. The main onshore petroleum accumulations are in sedimentary strata of middle Palaeozoic and Mesozoic age and include the Bowen/Surat Basin straddling Queensland and New South Wales, the Copper/Eromanga Basin of South Australia and Queensland, the Otway Basin of South Australia and Victoria, the Adavale Basin in Queensland and the Perth Basin.

## Mineral exploration

Exploration involves the search for new ore occurrences or undiscovered oil or gas, and/or appraisal intended to delineate or greatly extend the limits of known deposits of minerals or oil or gas reservoirs by geological, geophysical, geochemical, drilling or other methods. This includes construction of shafts and adits primarily for exploration purposes, but excludes activity of a developmental or production nature. Exploration for water is excluded.

## Mineral exploration expenditure

Expenditure in Australia during the last five years on private mineral exploration other than for petroleum is summarised in table 18.5.

Mineral exploration expenditure in 1999–2000 was \$676m, \$284m (30%) lower than in 1995–96, and \$162m (19%) lower than in 1998–99. Western Australia and Queensland, with expenditure lower by \$105m (20%) and \$98m (54%) respectively, were the main contributors to the fall between 1995–96 and 1999–2000. Western Australia continued to account for the majority of the exploration expenditure over this period and in 1999–2000.

## Drilling methods used in Australia

The drilling method with the highest reported expenditure in 1999–2000 was diamond drilling. This method accounted for 40% of the total \$257m expenditure reported, although it contributed only 16% of the 6.5 million metres drilled.

The most used method in terms of metres drilled for 1999–2000 was reverse circulation, contributing 34% (2.2 million metres) of the total 6.5 million metres drilled. This method accounted for 33% (\$84m) of total drilling expenditure.

Rotary air blast was the second most used drilling method in terms of metres drilled, contributing 24% (1.6 million metres) of the total metres drilled. However, this method accounted for only 10% of the total exploration expenditure for drilling.

Tables 18.6 and 18.7 show metres drilled and expenditure by drilling methods for all areas (including exploration on production leases and all other areas) by State and Territory.

**18.5 PRIVATE MINERAL EXPLORATION EXPENDITURE, By State/Territory**

State/Territory	1995–96 \$m	1996–97 \$m	1997–98 \$m	1998–99 \$m	1999–2000 \$m
New South Wales	80.4	94.1	88.2	65.6	56.1
Victoria	42.6	51.8	43.1	37.0	33.8
Queensland	181.0	160.7	133.2	93.8	82.6
South Australia	24.1	35.1	45.0	41.9	22.6
Western Australia	519.5	691.7	660.4	523.1	415.0
Tasmania	18.8	26.0	20.7	11.9	8.8
Northern Territory	93.9	88.9	75.9	64.5	57.5
<b>Australia</b>	<b>960.3</b>	<b>1 148.6</b>	<b>1 066.8</b>	<b>837.8</b>	<b>676.3</b>

Source: Mineral and Petroleum Exploration, Australia (8412.0).

**18.6 TOTAL METRES DRILLED, By State/Territory — 1999–2000**

	NSW '000 metres	Vic. '000 metres	Qld '000 metres	SA '000 metres	WA '000 metres	Tas. '000 metres	NT '000 metres	Aust. '000 metres
Drilling method								
Diamond	117.0	n.p.	140.0	18.0	686.0	n.p.	15.0	1 061.0
Reverse circulation	116.0	n.p.	108.0	38.0	1 789.0	n.p.	157.0	2 232.0
Percussion	n.p.	—	58.0	n.p.	32.0	—	—	139.0
Rotary air blast	47.0	n.p.	353.0	142.0	935.0	—	n.p.	1 560.0
Aircore/Vacuum	178.0	263.0	n.p.	11.0	863.0	—	n.p.	1 374.0
Other	n.p.	n.p.	n.p.	n.p.	26.0	—	n.p.	123.0
<b>Total</b>	<b>513.0</b>	<b>350.0</b>	<b>706.0</b>	<b>273.0</b>	<b>4 331.0</b>	<b>21.0</b>	<b>294.0</b>	<b>6 489.0</b>

Source: Mineral and Petroleum Exploration, Australia, September Quarter 2000 (8412.0).

**18.7 TOTAL DRILLING EXPENDITURE, By State/Territory — 1999–2000**

	NSW \$m	Vic. \$m	Qld \$m	SA \$m	WA \$m	Tas. \$m	NT \$m	Aust. \$m
Drilling method								
Diamond	16.7	n.p.	15.4	1.1	59.2	n.p.	1.9	103.5
Reverse circulation	4.7	n.p.	5.0	1.0	67.9	n.p.	4.5	84.0
Percussion	n.p.	—	2.5	n.p.	1.2	—	—	5.3
Rotary air blast	0.9	n.p.	8.6	1.7	12.3	—	n.p.	24.9
Aircore/Vacuum	3.8	5.0	n.p.	0.2	19.5	—	n.p.	30.4
Other	n.p.	n.p.	n.p.	n.p.	3.9	—	n.p.	8.5
<b>Total</b>	<b>28.3</b>	<b>11.7</b>	<b>34.4</b>	<b>6.1</b>	<b>164.0</b>	<b>3.3</b>	<b>8.6</b>	<b>256.6</b>

Source: Mineral and Petroleum Exploration, Australia, September Quarter 2000 (8412.0).

**Petroleum exploration expenditure**

Total private petroleum exploration expenditure was \$723.3m in 1999–2000 (table 18.8), slightly lower than in 1995–96. Between 1995–96 and 1999–2000 offshore exploration expenditure increased by \$63m (11%) to \$613m, whereas onshore exploration expenditure fell by \$65m (37%) to \$110m.

Reported expenditure on petroleum exploration in 1999–2000 was \$144m (17%) lower than in 1998–99.

**Administrative and financial arrangements**

The 2000 edition of Year Book Australia contains details of various administrative arrangements related to mining and mineral exploration activities. Additional information covering pricing and taxation issues for petroleum are also covered there.

**18.8 PRIVATE PETROLEUM EXPLORATION EXPENDITURE**

	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m	\$m	\$m	\$m	\$m
Onshore	174.8	251.9	232.2	182.3	110.1
Offshore	550.3	601.0	748.9	685.4	613.2
<b>Total</b>	<b>725.1</b>	<b>853.0</b>	<b>981.2</b>	<b>867.7</b>	<b>723.3</b>

Source: *Mineral And Petroleum Exploration, Australia* (8412.0).

**Mineral rights**

Mineral rights in Australia are held by the State and Territory Governments, and the granting of exploration and mining titles is administered by them under the respective State or Territory legislation. The Commonwealth Government holds rights to minerals on Australia's continental shelf beyond coastal waters of the States and the Northern Territory, and to certain prescribed substances in the Northern Territory, within the meaning of the Atomic Energy Act (principally uranium). The Commonwealth Government has constitutional powers with respect to international trade, customs and excise, taxation and foreign investment.

**Mineral royalties**

Mineral resources are owned by the Crown in Australia, either by the State and Territory Governments within their borders (and up to three nautical miles offshore), or by the Commonwealth Government in offshore areas outside the three nautical mile limit. Accordingly, royalties are collected by State and Territory Governments for mining onshore and up to three nautical miles offshore, and by the Commonwealth outside that area.

State royalties regulations vary in regard to types of royalties, rates levied and those commodities subject to royalties.

In recent years, some State Governments have negotiated special royalty arrangements with companies which are seeking mineral leases for large-scale developments. These royalty rates may vary, depending on whether production is for export or for domestic processing.

**Administrative arrangements**

The Commonwealth Minister for Industry, Science and Resources has portfolio responsibility for national energy policy matters, including the commercial development of hydrocarbon fuels and minerals in the Australian offshore area. The Department of Industry, Science and Resources provides support for a

number of advisory bodies including the Australian and New Zealand Minerals and Energy Council, and the National Oil Supplies Emergency Committee.

The Department is also responsible for action required from Australia's membership of the International Energy Agency and for the national system of accounting for control of nuclear materials under Australia's Agreement with the International Atomic Energy Agency.

**Research**

Research into exploration, mining, ore dressing and metallurgy is conducted by government bodies, universities, private enterprise, and by the combined efforts of all these. A summary of the main organisations and their functions follows.

**AGSO — Geoscience Australia**

AGSO — Geoscience Australia (formerly the Australian Geological Survey Organisation) is the national geoscience research and information agency. It assists the government and the community to make appropriate and informed decisions about the use of resources, management of the environment, and the safety and wellbeing of its citizens. Its main activities centre on geoscience for urban centres, coasts and oceans and regional and rural areas.

They include:

- seismic monitoring services, earthquake and landslide risk assessments and nuclear test ban treaty technical advice;
- providing information on the earth's magnetic field for direction-finding, mineral exploration, geological dating and many other applications;
- ocean mapping, estuarine health studies and involvement in the International Ocean Drilling Program;
- identifying and promoting potential hydrocarbon areas and prospective basins for exploration and investment; and

- producing national geoscientific maps, databases and information systems, conducting regional and mineral systems studies and advising on Australia's mineral resources for land use planning and management and minerals exploration promotion.

### **Commonwealth Scientific and Industrial Research Organisation (CSIRO)**

CSIRO contributes to the development of sustainable and competitive minerals and energy industries in Australia through research and development activities.

This is achieved by the provision of research and development capabilities to support existing and emerging industries, as well as providing for the next generation of technology, products and processes. At the same time, CSIRO endeavours to bring about safe and ecologically sustainable development through research and advice on environmental issues related to client industries. By working closely with industry, government and other organisations, CSIRO helps transform research outcomes into new or improved business opportunities.

The research activities are conducted by CSIRO divisions as part of work programs in support of the following sectors defined by CSIRO:

- the Minerals Exploration and Mining sector;
- the Mineral Processing and Metal Production sector;
- the Petroleum sector; and
- the Energy sector,

under the guidance of the respective industry-based Sector Advisory Committees.

See *Chapter 17, Forestry and fishing* and *Chapter 25, Science and innovation* for more information on the CSIRO.

### **AMIRA International (Australian Mineral Industries Research Association Limited)**

AMIRA International is a not-for-profit private sector company, established in 1959 to facilitate the technical advancement of its members in the mineral, coal, petroleum and associated industries. It has membership and support of about 100 companies in Australia and internationally.

AMIRA International brokers and manages jointly funded research projects on a fee for service basis. Project sponsors are required to be AMIRA members. Typically, at any one time there are 75 projects under management valued at \$35m.

The primary benefit delivered by AMIRA International is the output from project sponsorship.

### **Australian Bureau of Agricultural and Resource Economics (ABARE)**

ABARE is a professionally independent agency devoted to applied economic research.

For over 50 years ABARE has worked with industry and government to provide stakeholders in Australia's rural and resource industries with up-to-date public policy analysis and commodity forecasts.

ABARE's research seeks to clearly and independently identify the benefits and costs of alternative policy options for consideration by government and private decision makers. ABARE's data about domestic and international economic performance help clients achieve increased productivity, enhanced value and improved market access.

ABARE services include:

- deriving supply and demand projections;
- assessing the outlook for commodity prices;
- examining patterns of national and world production and consumption;
- analysing the impact of economic policies;
- developing analytical computer programs and economic policies;
- undertaking regional and environmental economic assessments; and
- providing economic assessments of factors affecting the competitiveness of the resources sector.

ABARE undertakes economic research on issues affecting the full range of major minerals, energy, agricultural and natural resources industries, as well as on climate change, and on macroeconomic, microeconomic and trade issues relating to these industries.

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- *Australian Commodity Statistics*.
- *Australian Mineral Statistics*.

Commonwealth Department of Industry, Science and Resources (DISR), *Australian Petroleum Statistics*.

### **Internet sites**

ABARE, <http://www.abareconomics.com>

Australian Bureau of Statistics, <http://www.abs.gov.au>

- A Mining theme page may be found under the category *Themes*, providing information about the ABS's Mining statistics, and links to other useful Internet sites.

Australian Geological Survey Organisation, <http://www.agso.gov.au>

Australian Institute of Petroleum, <http://www.aip.com.au>

Australian Mineral Industries Research Association Limited, <http://www.amira.com.au>

Commonwealth Department of Industry, Science and Resources, <http://www.isr.gov.au>

Commonwealth Scientific and Industrial Research Organisation, <http://www.csiro.au>

Joint Coal Board, <http://www.jcb.org.au>

Resource Information Unit, <http://www.riu.com.au>

### **Other sources**

State government departments and instrumentalities are important sources of minerals and energy data, particularly at the regional level, while a number of private corporations and other entities operating within the mining and energy fields publish or make available a significant amount of information.

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## Introduction

**M**anufacturing broadly relates to the physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machinery or by hand. Manufacturing covers a range of production techniques ranging from computer assisted production using robots to production of fine jewellery by hand. An article in this chapter presents some broad statistics on manufacturing outputs classified by degree of transformation.

The manufacturing industry is an important sector of the Australian economy, contributing around 12% of Australia's gross domestic product (GDP) and around 13% of employment. However, despite significant increases in the value of the manufacturing industry's gross value added (by more than 25% over the past ten years), the industry's share of Australian GDP has fallen over the past 20 years from around 18% to its current level.

Similarly, employment in the manufacturing industry has fallen from around 1.1 million persons 20 years ago to 933,000 persons at June 2000.

This chapter presents a range of data about the manufacturing sector as a whole, and about broad categories of manufacturing industry. These categories are referred to as 'subdivisions'.

Some data are provided from the annual manufacturing survey, for which the latest results relate to 1999–2000, while others, also relating to 1999–2000 in most instances, have been derived from various monthly and quarterly surveys.

## Contribution to GDP

Table 19.1 shows that the total volume of production (gross value added) of the manufacturing industry in chain volume terms (measuring 'real' output unaffected by price change) has increased steadily from 1993–94 to 1999–2000. Manufacturing gross value added (its contribution to GDP) has increased by 15% over the past five years, 19% over the past ten years and 40% over the past 20 years. However, in percentage terms manufacturing's contribution to GDP has been trending down for some years, and has declined by 1.3 percentage points of GDP since 1993–94.

Over the period 1993–94 to 1999–2000, gross value added rose in seven of the nine manufacturing subdivisions, with the largest growth being recorded in Machinery and equipment manufacturing (up 35%), Wood and paper product manufacturing (up 25%) and Printing, publishing and recorded media (up 24%). Production levels declined over the same period in only Textile, clothing, footwear and leather manufacturing (down 19%) and Non-metallic mineral product manufacturing (down 11%).

### 19.1 MANUFACTURING GROSS VALUE ADDED, Chain Volume Measures(a) by Industry Subdivision and Contribution to GDP

Industry subdivision	1993–94 \$m	1994–95 \$m	1995–96 \$m	1996–97 \$m	1997–98 \$m	1998–99 \$m	1999–2000 \$m
Food, beverage and tobacco manufacturing	12 129	12 257	12 600	12 815	13 452	14 109	14 775
Textile, clothing, footwear and leather manufacturing	3 453	3 373	3 186	3 167	3 211	3 257	2 808
Wood and paper product manufacturing	4 554	4 688	4 733	4 849	4 904	5 075	5 689
Printing, publishing and recorded media	5 745	6 049	6 144	6 237	6 412	6 719	7 104
Petroleum, coal, chemical and associated product manufacturing	9 090	9 366	9 903	10 110	10 267	10 679	10 802
Non-metallic mineral product manufacturing	3 045	3 044	3 820	2 821	2 867	3 122	2 716
Metal product manufacturing	11 899	11 720	12 016	12 414	12 917	13 482	12 842
Machinery and equipment manufacturing	12 741	13 539	14 123	14 494	14 935	15 326	17 200
Other manufacturing	2 462	2 488	2 461	2 553	2 677	2 687	2 598
<i>Total manufacturing(b)</i>	<i>65 258</i>	<i>66 644</i>	<i>68 022</i>	<i>69 489</i>	<i>71 671</i>	<i>74 460</i>	<i>76 533</i>
<b>Contribution to GDP(c) (%)</b>	<b>14.6</b>	<b>14.4</b>	<b>14.1</b>	<b>13.8</b>	<b>13.6</b>	<b>13.5</b>	<b>13.3</b>

(a) Reference year for these chain volume measures is 1998–99. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do. (c) Strictly gross value added at basic prices, chain volume measures.

Source: Australian System of National Accounts (5206.0).

## Manufacturing trends

Industry value added (IVA) measures the value of industry outputs less the value of materials and services purchased and used up in the production of those outputs. Graph 19.2 depicts growth in chain volume measures of IVA for the period 1993–94 to 1998–99 inclusive. Total IVA for 1998–99 in chain volume terms was \$71,981m, representing a 3.9% increase over 1997–98, with an 11.4% increase over the five-year period from 1993–94.

## Structure of the manufacturing industry

At 30 June 2000, manufacturing establishments in Australia employed 932,800 persons. During 1999–2000 those establishments paid \$35,482m in wages and salaries and generated \$231,145m of turnover and \$70,018m of value added (table 19.3).

The manufacturing subdivisions with the most persons employed at 30 June 2000 were Machinery and equipment manufacturing (200,700), Food, beverage and tobacco manufacturing (168,100) and Metal product manufacturing (144,600). Non-metallic mineral product manufacturing (35,600) was the smallest employer, accounting for only 3.8% of manufacturing employment. Information on manufacturing employment by State/Territory is in table 19.11.

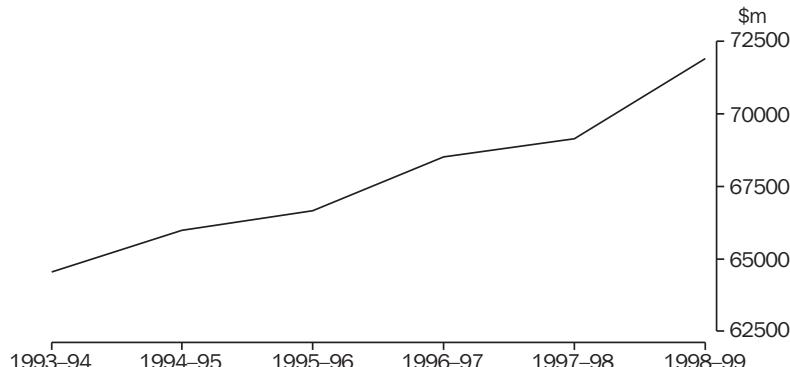
Food, beverage and tobacco manufacturing was the largest contributor to total manufacturing turnover and to total industry value added (IVA).

The industry's turnover of \$51,089m was 22% of the total for manufacturing, and its value added of \$14,496m accounted for 21%. Other subdivisions making major contributions were Machinery and equipment manufacturing (19% of turnover and 20% of value added), Metal product manufacturing (18% and 15%) and Petroleum, coal, chemical and associated product manufacturing (16% and 14%). Information on industry value added and turnover by State/Territory is contained in tables 19.6 and 19.10 respectively.

The generally direct relationship between employment and contribution to IVA is indicated in graph 19.4. The four industry subdivisions that employed 66% of the manufacturing workforce in 1999–2000, namely Machinery and equipment manufacturing; Food, beverage and tobacco manufacturing; Metal product manufacturing; and Printing, publishing and recorded media, also contributed 66% of IVA.

The most significant contributions to IVA, as depicted in graph 19.5, came from manufacturing establishments employing 100 or more persons, with a total contribution of 57% of manufacturing IVA. Nevertheless, small establishments (those employing up to 19 persons) contributed a significant 19% of total IVA. The greatest contributors to IVA among larger establishments were food, beverage and tobacco manufacturers, contributing 77% of total IVA generated by larger establishments. In contrast, this industry subdivision contributed only 6% of IVA generated by small establishments. Among small establishments the largest contributing subdivision was Other manufacturing (46%).

**19.2 INDUSTRY VALUE ADDED, Chain Volume Measures — 1993–94 to 1998–99**

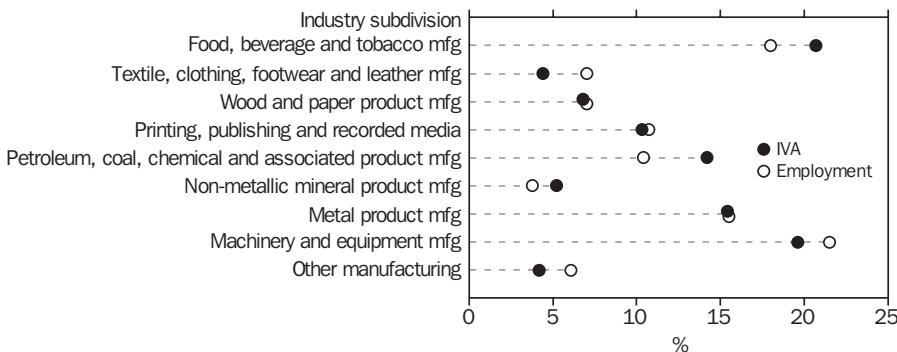
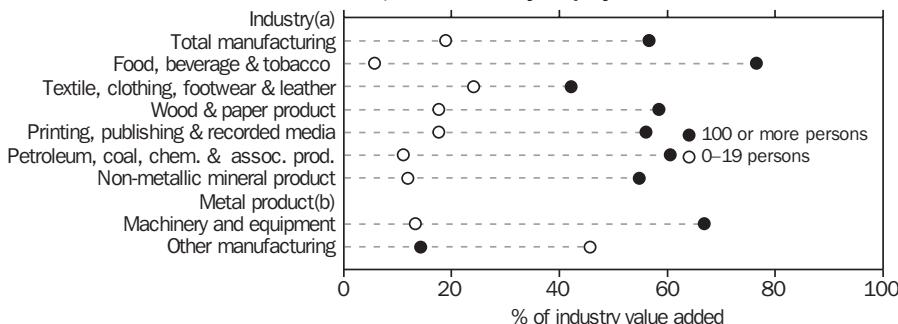


Source: *Manufacturing Industry, Australia, 1998–99* (8221.0).

**19.3 MANUFACTURING, Summary of Operations by Industry — 1999–2000**

Industry subdivision	Employment at 30 June(a)	Wages and salaries(b)	Turnover	Industry value added
	'000	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	168.1	6 140	51 089	14 496
Textile, clothing, footwear and leather manufacturing	65.3	1 895	9 337	3 058
Wood and paper product manufacturing	64.8	2 276	14 060	4 747
Printing, publishing and recorded media	99.6	3 879	17 256	7 238
Petroleum, coal, chemical and associated product manufacturing	97.5	4 321	36 002	9 953
Non-metallic mineral product manufacturing	35.6	1 517	10 560	3 650
Metal product manufacturing	144.6	5 789	41 304	10 809
Machinery and equipment manufacturing	200.7	8 149	44 350	13 739
Other manufacturing	56.6	1 516	7 188	2 327
<b>Total manufacturing</b>	<b>932.8</b>	<b>35 482</b>	<b>231 145</b>	<b>70 018</b>

(a) Includes working proprietors. (b) Excludes the drawings of working proprietors.

Source: *Manufacturing Industry, Australia, Preliminary* (8201.0).**19.4 INDUSTRY VALUE ADDED AND EMPLOYMENT, Distribution by Industry Subdivision — 1999–2000**Source: *Manufacturing Industry, Australia, (Preliminary) 1999–2000* (8201.0).**19.5 INDUSTRY VALUE ADDED, Distribution by Employment Size — 1998–99**

(a) ANZSIC subdivision in most instances. (b) Data for Metal product manufacturing have not been included.

Source: *Manufacturing Industry, Australia, 1998–99* (8221.0).

## Industry value added by State

In 1999–2000 New South Wales and Victoria (each with 33% of national manufacturing value added) continued to be the largest contributors to IVA (table 19.6). New South Wales contributed 42% of the national value added of the Printing, publishing and recorded media industry, 39% of the national value added of the Metal product manufacturing industry and between 29% and 35% of the national value added of the remaining manufacturing industries. Victoria contributed 51% of the national value added of the Textile, clothing, footwear and leather manufacturing industry, 41% of the national value added of the Machinery and equipment manufacturing industry and between 24% and 38% of the national value added of the remaining manufacturing industries.

Although Queensland accounted for only 14% of national manufacturing value added overall, it contributed 19% Non-metallic mineral product manufacturing and 18% Food, beverages and tobacco manufacturing. South Australia, which accounted for 9% of national manufacturing value added overall, contributed 13% of national value added for Machinery and equipment manufacturing. Western Australia, which accounted for 8% of national manufacturing value added overall, contributed 13% of national value added for Non-metallic mineral product manufacturing.

## Turnover

Turnover is a key measure of the performance of establishments in an industry. It covers the sales of goods and services by an establishment (together with transfers of goods to other parts of the same business) and also includes all other operating revenue generated by the establishment.

In 1999–2000 Victoria (with 33% of national manufacturing turnover) and New South Wales (with 32%) continued to be the largest manufacturing States (table 19.70). New South Wales contributed 44% of the national turnover of the Printing, publishing and recorded media industry, and between 26% and 35% of the national turnover of the remaining manufacturing industries. Victoria contributed 49% of the national turnover of the Textile, clothing, footwear and leather manufacturing industry, 41% of the national turnover of the Machinery and equipment manufacturing industry and between 23% and 35% of the national turnover of the remaining manufacturing industries.

Although Queensland accounted for only 15% of national manufacturing turnover overall, it contributed 20% of national turnover for Food, beverage and tobacco manufacturing. South Australia, which accounted for 9% of national manufacturing turnover overall, contributed 18% of national turnover for Machinery and equipment manufacturing; Tasmania, which accounted for 2% of national manufacturing turnover overall, contributed 9% of national turnover for Wood and paper product manufacturing.

### 19.6 MANUFACTURING INDUSTRY VALUE ADDED, By State/Territory — 1999–2000

Industry subdivision	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	4 179	4 402	2 670	1 684	976	524	42	19	14 496
Textile, clothing, footwear and leather manufacturing	914	1 570	205	158	132	71	2	6	3 058
Wood and paper product manufacturing	1 452	1 368	745	430	294	427	15	16	4 747
Printing, publishing and recorded media	3 065	2 259	818	388	492	77	31	108	7 238
Petroleum, coal, chemical and associated product manufacturing	3 472	3 755	1 155	546	929	87	5	4	9 953
Non-metallic mineral product manufacturing	1 230	885	687	240	464	108	24	11	3 650
Metal product manufacturing	4 215	2 702	1 731	689	1 075	177	204	17	10 809
Machinery and equipment manufacturing	3 990	5 607	1 366	1 718	785	197	30	45	13 739
Other manufacturing	715	729	422	177	242	22	5	16	2 327
<b>Total manufacturing</b>	<b>23 232</b>	<b>23 276</b>	<b>9 799</b>	<b>6 029</b>	<b>5 390</b>	<b>1 690</b>	<b>359</b>	<b>241</b>	<b>70 018</b>

Source: Manufacturing Industry, Australia, Preliminary (8201.0).

**19.7 MANUFACTURING INDUSTRY TURNOVER, By State/Territory — 1999–2000**

Industry subdivision	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	14 670	16 294	10 060	4 819	3 400	1 674	100	72	51 089
Textile, clothing, footwear and leather manufacturing	2 968	4 571	589	642	361	186	7	13	9 337
Wood and paper product manufacturing	4 111	4 157	2 169	1 429	827	1 272	38	57	14 060
Printing, publishing and recorded media	7 603	5 672	1 747	827	966	165	52	223	17 256
Petroleum, coal, chemical and associated product manufacturing	12 558	12 457	5 106	1 618	3 975	245	33	10	36 002
Non-metallic mineral product manufacturing	3 567	2 591	2 044	713	1 274	243	79	49	10 560
Metal product manufacturing	14 289	9 399	7 606	2 770	5 395	1 159	638	49	41 304
Machinery and equipment manufacturing	11 572	18 020	3 935	7 796	2 387	475	75	90	44 350
Other manufacturing	2 133	2 273	1 213	693	724	61	15	76	7 188
<b>Total manufacturing</b>	<b>73 471</b>	<b>75 433</b>	<b>34 467</b>	<b>21 307</b>	<b>19 308</b>	<b>5 481</b>	<b>1 038</b>	<b>640</b>	<b>231 145</b>

Source: *Manufacturing Industry, Australia, Preliminary* (8201.0).

## Elaborately transformed manufactures

### Introduction

This article presents statistics for manufactured goods classified by degree of transformation. The basic premise of this classification is that each manufactured product reaching the point of sale will have been subjected to one or more processes beginning at a raw material state and passing through a range of manufacturing processes and intermediate products to become a final end use product. The number and complexity of such processes determine the category for degree of transformation to which that product is classified. Readers should note that the statistics presented are still experimental as the classification used to categorise goods by degree of transformation is still under development by the ABS. Statistics in graph 19.7 and table 19.8 are indicative rather than precisely classified estimates.

The concept of degree of transformation is also related to the concept of value adding. The amount and complexity of transformation strongly influence the amount of value added by manufacturing processes. However, in making the connection between degree of transformation and value adding, it should be noted that other factors also influence the amount of value added by manufacturing activity. Furthermore, for a given Australian produced final product, not every transformation required to produce the product has necessarily been carried out in Australia.

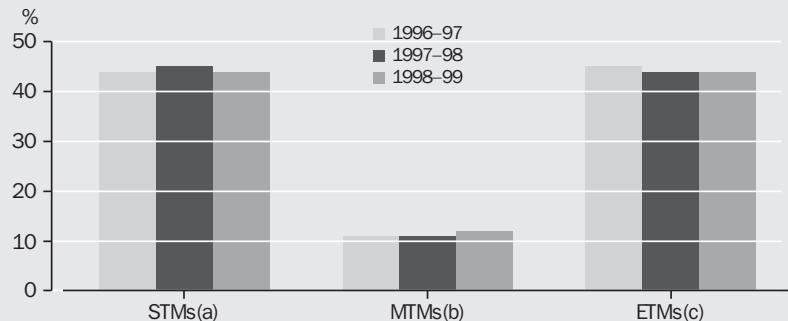
The classification has five broad categories. However, the first three of these have been combined together in the graph and table below because the boundaries between the categories have not been finally established. The categories are:

- Primary products (such as butter, pasteurised milk, red meat, hides and skins)
- Primary product manufactures (such as beer, flour, refined sugar, wood pulp)
- Simply transformed manufactures (such as clay bricks, paper, pig iron, plaster)
- Moderately transformed manufactures (such as broadwoven fabrics, soaps and detergents, steel wire)
- Elaborately transformed manufactures (such as clothing, motor vehicles, machinery, paint)

There are slight differences between the classification used for production statistics and the classification used for export statistics. However, both classifications describe elaborately transformed manufactures in a virtually identical manner.

### Production

Graph 19.8 shows that the proportions of Australian produced goods classified as simply modified, moderately modified or elaborately modified have remained virtually unchanged over the three years to 1998–99.

**19.8 PROPORTIONS BY DEGREE OF TRANSFORMATION**

(a) Simply transformed manufactures. (b) Moderately transformed manufactures.

(c) Elaborately transformed manufactures.

Source: ABS data available on request, Annual manufacturing survey.

**19.9 DEGREE OF TRANSFORMATION OF MANUFACTURED GOODS(a)**

Industry subdivision	Simple(b)	Moderate	Elaborate
	\$b	\$b	\$b
Food, beverage and tobacco manufacturing	48.7	—	—
Textile, clothing, footwear and leather manufacturing	1.1	2.8	5.1
Wood and paper product manufacturing	4.8	4.3	3.0
Printing, publishing and recorded media	—	—	10.9
Petroleum, coal, chemical and associated product manufacturing	13.3	6.6	12.1
Non-metallic mineral product manufacturing	7.7	0.8	0.6
Metal product manufacturing	14.4	9.1	13.3
Machinery and equipment manufacturing	0.2	0.2	38.1
Other manufacturing	—	—	6.2
<b>Total manufacturing</b>	<b>90.2</b>	<b>23.9</b>	<b>89.2</b>

(a) Excludes approximately \$600m of goods which have not yet been classified to any degree of transformation category.

(b) Also includes products classified to the 'Primary products' and 'Primary product manufactures' categories.

Source: Manufacturing Australia (8225.0).

Table 19.9 shows that Machinery and equipment manufacturing is the industry subdivision with the greatest proportion of elaborately transformed manufactures among its products, while Metal product manufacturing and Wood and paper product manufacturing have the most even spread of values across the various degrees of transformation categories.

**Exports**

Table 19.10 shows that elaborately transformed manufactures now exceed 20% of goods exported, and remain the fastest growing category of exports.

**19.10 DEGREE OF TRANSFORMATION OF EXPORTED GOODS(a)**

Category of goods	%	%
Unprocessed primary products and minerals	37.8	4.0
Processed primary products and minerals	21.0	5.6
Simply transformed manufactures	10.8	5.4
Elaborately transformed manufactures	20.4	12.6
Other (mainly non-monetary gold)	9.5	6.9

(a) As classified by the Department of Foreign Affairs and Trade (DFAT).

Source: Exports of primary and manufactured products, Australia, 1999 (DFAT).

**19.11 MANUFACTURING INDUSTRY EMPLOYMENT By State/Territory — 1999–2000**

Industry subdivision	NSW '000	Vic. '000	Qld '000	SA '000	WA '000	Tas. '000	NT '000	ACT '000	Aust. '000
Food, beverage and tobacco manufacturing	47.9	47.6	36.2	15.6	14.4	5.7	0.4	0.4	168.1
Textile, clothing, footwear and leather manufacturing	18.3	33.5	5.3	3.6	3.1	1.4	0.1	0.1	65.3
Wood and paper product manufacturing	19.6	18.4	11.9	6.6	4.2	3.7	0.2	0.3	64.8
Printing, publishing and recorded media	40.4	31.0	12.3	5.5	7.1	1.4	0.4	1.5	99.6
Petroleum, coal, chemical and associated product manufacturing		35.3	37.0	11.1	6.4	6.7	0.9	0.1	97.5
Non-metallic mineral product manufacturing		11.2	9.3	6.7	2.7	4.7	0.6	0.2	35.6
Metal product manufacturing		49.8	38.1	25.1	11.2	15.8	3.2	1.2	144.6
Machinery and equipment manufacturing		60.0	69.5	25.2	28.4	13.5	2.9	0.5	200.7
Other manufacturing		16.9	16.3	11.2	5.4	5.6	0.7	0.1	56.6
<b>Total manufacturing</b>	<b>299.5</b>	<b>300.5</b>	<b>144.9</b>	<b>85.4</b>	<b>75.0</b>	<b>20.3</b>	<b>3.3</b>	<b>3.9</b>	<b>932.8</b>

Source: *Manufacturing Industry, Australia, Preliminary* (8201.0).

## Employment

Victoria and New South Wales (each with 32%) dominate manufacturing employment in Australia, accounting for almost two-thirds of national manufacturing employment at 30 June 2000 (table 19.11). In all industries, either New South Wales or Victoria is the largest employing State.

New South Wales manufacturing establishments employ 41% of the national total for the Printing, publishing and recorded media. Victoria accounts for some 51% of all persons working in the Textile, clothing, footwear and leather manufacturing industry in Australia. Queensland establishments employ 22% of persons in Food, beverage and tobacco manufacturing and 19% of those in Non-metallic mineral product manufacturing. South Australia accounts for 14% of employment in the Machinery and equipment manufacturing industry.

For further information on employed wage and salary earners and the characteristics of the manufacturing labour force, refer to *Chapter 6, Labour*.

## Industrial disputes

There were 239 industrial disputes in the manufacturing industry in calendar year 2000. These disputes involved 62,000 employees and resulted in the loss of over 146,000 working days (table 19.12). Compared with 1999, this represented a rise of almost 15% in the number of disputes. This is the third successive year that the number of industrial disputes in the manufacturing industry has risen. However, the number of manufacturing employees involved in industrial disputes in 2000 fell markedly (by 46%)

from the number in 1999, and this was also reflected by a fall (of 21%) in the number of working days lost.

The manufacturing industry accounted for 34% of all industrial disputes during 2000, compared with 28% in 1999. Manufacturing industry employees involved in industrial disputes made up 19% of all employees involved in disputes during 2000, compared to 25% for 1999 and only 12% experienced in 1998. Working days lost due to manufacturing industrial disputes accounted for 31% of all working days lost during 2000, representing only a small increase on the 28% share recorded in 1999, but substantially higher than the 1998 share (18%).

**19.12 INDUSTRIAL DISPUTES**

Year	Manufacturing	All industries
TOTAL INDUSTRIAL DISPUTES (no.)		
1995	112	543
1996	78	447
1997	125	519
1998	208	731
2000	239	698
EMPLOYEES INVOLVED DIRECTLY AND INDIRECTLY ('000)		
1995	48.8	577.7
1996	65.8	310.1
1997	41.2	348.4
1998	113.9	461.1
2000	62.0	325.4
WORKING DAYS LOST ('000)		
1995	103.5	928.5
1996	145.6	534.2
1997	95.3	526.3
1998	184.5	650.5
2000	146.2	469.1

Source: *Industrial Disputes, Australia* (6322.0).

**19.13 EMPLOYEES WITH TRADE UNION MEMBERSHIP — August**

Period	Trade union members '000	Manufacturing		All industries	
		Proportion of total employment %	Trade union members '000	Proportion of total employment %	
1990(a)	520.9	46.1	2 659.6	40.5	
1992	455.3	44.4	2 508.8	39.6	
1994	421.6	40.8	2 283.4	35.0	
1996	410.1	38.7	2 194.3	31.1	
1997	378.2	36.6	2 110.3	30.3	
1998	354.4	34.5	2 037.5	28.1	
1999	325.8	32.8	1 878.2	25.7	
2000	330.8	31.1	1 901.8	24.7	

(a) Excludes persons aged 70 years and over.

Source: *Trade Union Members, Australia* (6325.0); *Employee Earnings, Benefits and Trade Union Membership, Australia* (6310.0).**Trade union membership**

Trade union membership in the manufacturing industry has been falling steadily for some years. Despite a small increase in the number of trade union members, the proportion of employees with trade union membership has decreased from a little over 50% in the mid 1980s to a little over 30% in 2000. This represents a fall in union membership of around 200,000 manufacturing employees over that period.

From 1999 to 2000 the numbers of manufacturing employees with union membership rose slightly (by 1.5%). Nevertheless, the proportion of manufacturing employees with union membership fell from 32.8% to 31.1% (table 19.13). The manufacturing industry continues to have a higher rate of union membership than the average for all industries. In percentage terms, union membership in all industries has followed a downward trend similar to that in manufacturing.

Table 19.14 shows that, while 37% of permanent manufacturing employees belonged to a trade union in 2000, only 10% of casual manufacturing employees were union members. Membership rates for permanent female employees (28%) and casual female employees (7%) each remained significantly lower than for corresponding male employees.

**19.14 PROPORTION OF TRADE UNION MEMBERS, By Sex — August 2000**

Employees	Manufacturing		All industries	
		%		%
MALES				
Permanent		37.1		31.2
Casual(a)		10.3		10.1
Total		34.1		26.3
FEMALES				
Permanent		28.2		29.9
Casual(a)		7.0		7.8
Total		22.8		22.8
PERSONS				
Permanent		35.1		30.6
Casual(a)		8.8		8.9
Total		31.1		24.7

(a) Employees without leave entitlements.

Source: *Employee Earnings, Benefits and Trade Union Membership, Australia* (6310.0).**Capital expenditure**

As table 19.15 shows, new capital expenditure by private sector businesses in the manufacturing industry rose slightly (by 2.6%) between 1998–99 and 1999–2000 following a fall of almost 15% between 1997–98 and 1998–99. Five of the nine manufacturing subdivisions experienced an increase in new capital expenditure. Largest percentage rises were for Wood and paper product manufacturing (by 26%), Petroleum, coal, chemical and associated product manufacturing (by 19%) and Machinery and equipment manufacturing (by 14%). Largest percentage falls were for Textile, clothing, footwear and leather manufacturing (by 26%) and Metal product manufacturing (by 24%).

Comparing private new capital expenditure levels in 1999–2000 with those of two years earlier shows lower levels in seven of the nine manufacturing subdivisions. Largest decreases were in Non-metallic mineral product manufacturing (by 46%), Textile, clothing, footwear and leather manufacturing (by 26%), Machinery and equipment manufacturing (by 28%) and Other manufacturing (by 27%). The only increases were for Petroleum, coal, chemical and associated product manufacturing (by 13%) and Wood and paper product manufacturing (by 9%).

## Sales and output

Table 19.16 shows that after removal of the effects of price changes, the value of sales by private manufacturing businesses increased by 3% in 1999–2000 over 1998–99. Wood and paper

product manufacturing recorded the largest increase (12%), followed by Machinery and equipment manufacturing (11%). Textile, clothing, footwear and leather manufacturing recorded the largest fall (12%), followed by Non-metallic mineral product manufacturing (10%).

Manufacturing output (sales adjusted for changes in the level of stocks) increased by 2% between 1998–99 and 1999–2000. Five of the nine manufacturing subdivisions increased their output, with the largest increases recorded for Machinery and equipment manufacturing (13%), followed by Wood and paper product manufacturing (9%). Textile, clothing, footwear and leather manufacturing recorded the largest fall (13%), followed by Non-metallic mineral product manufacturing (9%) and Metal product manufacturing (5%).

**19.15 PRIVATE NEW CAPITAL EXPENDITURE IN MANUFACTURING INDUSTRY**

Industry subdivision	1997–98	1998–99	1999–2000
	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	2 443	2 088	2 221
Textile, clothing, footwear and leather manufacturing	289	263	196
Wood and paper product manufacturing	906	786	987
Printing, publishing and recorded media	796	803	782
Petroleum, coal, chemical and associated product manufacturing	1 595	1 512	1 801
Non-metallic mineral product manufacturing	870	499	469
Metal product manufacturing	1 666	1 941	1 482
Machinery and equipment manufacturing	2 130	1 335	1 524
Other manufacturing	301	209	221
<b>Total manufacturing</b>	<b>10 996</b>	<b>9 435</b>	<b>9 685</b>

Source: *Private New Capital Expenditure, Australia, Actual and Expected Expenditure* (5625.0).

**19.16 SALES AND OUTPUT(a) BY PRIVATE MANUFACTURING BUSINESSES, Chain Volume Measures(b)**

Industry subdivision	Sales of goods produced		Output of goods	
	1998–99	1999–2000	1998–1999	1999–2000
Food, beverage and tobacco manufacturing	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	48 665	50 653	49 312	51 125
Textile, clothing, footwear and leather manufacturing	10 667	9 255	10 597	9 037
Wood and paper product manufacturing	14 894	16 730	15 090	16 518
Printing, publishing and recorded media	15 804	16 249	15 741	16 359
Petroleum, coal, chemical and associated product manufacturing	37 206	37 743	37 801	37 289
Non-metallic mineral product manufacturing	11 919	10 708	12 123	10 515
Metal product manufacturing	33 425	33 104	34 022	32 246
Machinery and equipment manufacturing	46 759	51 761	47 127	53 257
Other manufacturing	7 612	7 323	7 566	7 378
<b>Total manufacturing(c)</b>	<b>226 951</b>	<b>233 527</b>	<b>229 398</b>	<b>233 723</b>

(a) Output is calculated as sales of goods produced minus opening inventories plus closing inventories. (b) Reference year for chain volume measures is 1998–99. (c) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Stocks and Sales, Selected Industries, Australia* (5629.0).

The largest contributors to manufacturing output in 1999–2000 were Machinery and equipment manufacturing (23%), Food, beverage and tobacco manufacturing (22%), Petroleum, coal, chemical and associated product manufacturing (16%) and Metal product manufacturing (14%).

## Company profits

Profits before income tax earned by incorporated manufacturing businesses rose by 15% between 1998–99 and 1999–2000, following a fall of 6% from 1997–98 to 1998–99 (table 19.17). Profits rose between 1998–99 and 1999–2000 in seven of the nine manufacturing subdivisions; by far the largest increase was recorded in Metal product manufacturing (of \$893m, or 96%) which recorded 1999–2000 profit levels similar to those of 1997–98. Profits in the relatively small Other manufacturing industry more than doubled between 1998–99 and 1999–2000. Large relative rises were also recorded by Textile, clothing, footwear and leather manufacturing (by 52%) and Non-metallic mineral product manufacturing (by 36%).

Industry subdivisions contributing most to manufacturing industry profits for 1998–99 were Food, beverage and tobacco manufacturing (23%), Petroleum, coal, chemical and associated product manufacturing (18%), Metal product manufacturing (15%) and Printing, publishing and recorded media (12%).

## Principal manufactured commodities

Table 19.18 shows the production of selected manufactured commodities for the three years 1997–98 to 1999–2000.

## Price indexes

The ABS compiles two price indexes relating to the manufacturing sector: the Price Indexes of Materials Used in Manufacturing Industries; and the Price Indexes of Articles Produced by Manufacturing Industries (see *Chapter 28, Prices* for more details). Tables 19.19 and 19.20 set out index numbers for selected components of those indexes.

**19.17 PROFITS BEFORE INCOME TAX, Manufacturing Companies**

Industry subdivision	1997–98	1998–99	1999–2000
	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	2 947	2 966	2 895
Textile, clothing, footwear and leather manufacturing	232	190	288
Wood and paper product manufacturing	694	882	1 018
Printing, publishing and recorded media	1 185	1 349	1 552
Petroleum, coal, chemical and associated product manufacturing	2 246	2 290	2 326
Non-metallic mineral product manufacturing	723	837	1 134
Metal product manufacturing	1 989	934	1 827
Machinery and equipment manufacturing	1 537	1 419	1 378
Other manufacturing	73	76	156
<b>Total manufacturing</b>	<b>11 627</b>	<b>10 943</b>	<b>12 575</b>

Source: *Company Profits, Australia* (5651.0).

**19.18 SELECTED COMMODITIES PRODUCED BY MANUFACTURING ESTABLISHMENTS(a)**

Commodity	Units	1997–98	1998–99	1999–2000
Red meat	'000 t	2 927	2 994	3 031
Chicken meat	'000 t	551	565	592
Cheese	'000 t	300	320	369
Butter	'000 t	154	176	172
Beer(b)	mill. L	1 757	1 738	1 768
Tobacco and cigarettes	t	21 257	21 045	20 688
Newsprint	'000 t	402	400	381
Wood pulp	'000 t	958	871	861
Undressed sawn timber	'000 m <sup>3</sup>	3 650	3 602	3 928
Hardwood woodchips	'000 t	5 665	4 856	6 164
Automotive gasoline	mill. L	18 592	18 705	18 652
Fuel oil	mill. L	1 673	1 635	1 839
Aviation turbine fuel	mill. L	5 423	5 219	5 538
Automotive diesel oil	mill. L	13 183	12 968	12 737
Portland cement	'000 t	7 236	7 704	7 937
Clay bricks	m	1 532	1 594	1 735
Ready mixed concrete	'000 m <sup>3</sup>	17 412	18 601	20 597
Basic iron, spiegeleisen and sponge iron	'000 t	7 928	7 453	6 489
Blooms and slabs of iron or steel	'000 t	8 356	7 698	6 742
Alumina	'000 t	13 538	14 208	15 037
Zinc	'000 t	304	323	404
Silver	'000 t	227	410	543
Copper	'000 t	286	313	476
Lead	'000 t	185	199	235
Tin	'000 t	650	595	600
Gold	'000 t	349	419	382
Electricity	mill. kWh	176 212	179 630	184 790
Gas(c)	PJ	649	675	726

(a) Data in this table exclude production by single establishment businesses employing fewer than four persons. (b) Includes ale, stout and porter. Excludes extra light beer containing less than 1.15% by volume of alcohol. (c) Available for issue through mains. Includes natural gas.

Source: *Manufacturing Production, Australia* (8301.0).

**19.19 PRICE INDEXES, Materials Used in Manufacturing Industries(a)(b)**

Industry	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
Food, beverages and tobacco	107.7	111.0	111.7	106.2	110.0	110.5	110.8	121.0
Textiles and textile products	89.9	103.0	100.9	93.0	96.3	94.0	91.6	102.3
Knitting mills and clothing	107.7	109.3	111.4	105.9	107.1	106.4	102.6	106.5
Footwear	102.4	109.5	111.7	111.0	109.7	110.3	107.4	120.3
Leather and leather products	99.6	101.9	95.1	95.0	91.9	93.5	97.8	107.2
Sawmilling and timber products	115.3	111.3	114.0	113.7	119.8	119.8	123.0	132.8
Paper and paper products	89.7	95.8	108.3	97.0	96.4	97.6	99.8	110.0
Printing and publishing	102.7	101.1	114.1	105.8	105.5	108.1	107.7	116.5
Petroleum and coal products	101.9	100.2	103.5	117.2	108.4	94.4	157.8	217.7
Chemicals	103.5	107.8	113.9	110.7	111.9	111.4	114.0	126.3
Rubber and plastics	106.9	118.8	122.0	113.4	113.4	110.1	110.8	123.9
Non-metallic mineral products	109.8	114.3	113.7	113.1	112.6	111.3	110.7	111.5
Basic metal products	87.6	94.0	99.4	93.1	93.4	91.7	92.5	101.7
Fabricated metal products	100.8	104.4	108.7	106.2	107.3	106.2	106.1	111.7
Transport equipment and parts	115.0	116.2	115.1	110.1	113.5	116.8	120.5	125.2
Electronic equipment and other machinery	102.7	106.5	107.8	102.7	104.6	103.7	103.4	108.0
Other manufacturing	111.5	112.3	112.8	110.9	113.8	115.3	118.8	125.6
<b>All materials</b>	<b>104.7</b>	<b>107.6</b>	<b>110.1</b>	<b>106.0</b>	<b>107.0</b>	<b>105.9</b>	<b>115.8</b>	<b>132.4</b>

(a) Reference base year 1989–90 = 100.0. (b) The index is on a net basis and relates in concept only to materials that enter Australian manufacturing industry from other sectors of the Australian economy or from overseas.

Source: *Producer price indexes, Australia* (6427.0).

**19.20 PRICE INDEXES, Articles Produced by Manufacturing Industries(a)(b)**

Industry	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
Food, beverages & tobacco	112.8	115.2	117.8	119.0	122.0	122.6	125.1	131.4
Textiles and textile products	99.0	102.3	103.0	103.4	104.7	102.9	103.8	108.6
Knitting mills, clothing, footwear and leather	109.2	110.2	113.2	114.5	116.5	117.9	119.5	120.7
Log sawmilling and other wood products	113.3	116.6	116.2	116.8	118.9	121.0	126.0	130.7
Paper and paper products	109.0	108.8	113.0	111.5	110.2	110.4	111.3	114.9
Printing, publishing and recorded media	119.7	123.9	132.3	136.3	139.2	143.6	148.9	152.4
Petroleum and coal products	107.5	102.1	105.5	109.9	101.7	86.8	137.5	190.2
Chemicals	105.7	108.9	112.2	111.3	110.7	110.8	111.7	115.8
Rubber and plastics	107.0	108.9	112.8	114.0	113.8	114.0	114.9	119.1
Non-metallic mineral products	111.1	114.3	114.7	115.4	116.7	117.1	117.5	117.8
Basic metal products	94.6	101.6	104.1	98.2	102.2	98.7	104.8	115.4
Fabricated metal products	106.4	107.7	110.5	111.8	113.1	113.6	115.2	116.7
Transport equipment and parts	112.8	114.3	115.9	115.5	116.6	117.8	119.6	124.1
Electronic equipment and other machinery	105.5	106.8	107.9	109.0	109.7	109.1	109.9	112.3
Other manufacturing	111.7	114.4	117.3	118.7	119.6	121.4	123.8	128.8
<b>All Manufacturing Industry Index</b>	<b>108.5</b>	<b>110.9</b>	<b>113.7</b>	<b>114.3</b>	<b>115.9</b>	<b>115.6</b>	<b>120.6</b>	<b>128.5</b>

(a) Reference base year 1989–90 = 100.0. (b) For a full description of Division C, Manufacturing and the subdivisions within the Manufacturing Division, see *Australian and New Zealand Standard Industrial Classification (ANZSIC) (1292.0), 1993 edition*.

Source: *Producer price indexes, Australia* (6427.0).

## Research and experimental development

Research and experimental development (R&D) activity, in the business context, is defined as systematic investigation or experimentation involving innovation or technical risk, the outcome of which is new knowledge, with or without a specific practical application or new or improved products, processes, materials, devices or services. R&D activity also extends to modifications to existing products/processes. In 1998–99, manufacturing industry accounted for slightly less than 50% of R&D expenditure by all industries (down from 54% in 1997–98).

As table 19.21 shows, between 1998–99 and 1999–2000 R&D expenditure within the manufacturing industry remained virtually unchanged. Of those subdivisions which decreased their R&D expenditure, the most significant falls were \$69m (23%) in Electronic and electrical equipment and appliance manufacturing, and \$58m (14%) in Metal product manufacturing. Of those subdivisions which increased their R&D expenditure, the most significant rises were \$62m (18%) in Petroleum, coal, chemical and associated product

manufacturing and \$40m (11%) in Motor vehicle and part and other transport equipment manufacturing.

Industries contributing the most to manufacturing R&D expenditure in 1999–2000 were Motor vehicle and part and other transport equipment manufacturing (20%), Petroleum, coal, chemical and associated product manufacturing (20%) and Electronic and electrical equipment and appliance manufacturing (17%). Together, these industries accounted for 57% of total R&D expenditure of the manufacturing industry sector.

Table 19.22 shows that, of the manufacturing sector's total R&D expenditure for 1999–2000, 10% was on capital expenditure, 44% on labour costs and 46% on other current expenditure. Petroleum, coal, chemical and associated product manufacturing accounted for the highest share (37%) of total capital expenditure on R&D by manufacturing industries.

While labour costs accounted for only 44% of total R&D expenditure by manufacturing industries overall in 1999–2000, they accounted for more than 50% of R&D expenditure in several manufacturing industries.

**19.21 EXPENDITURE ON RESEARCH AND DEVELOPMENT, Manufacturing Businesses**

Industry	1997–98 \$m	1998–99 \$m	1999–2000 \$m
Food, beverage and tobacco manufacturing	181	208	186
Textile, clothing, footwear and leather manufacturing	21	20	17
Wood and paper product manufacturing	117	86	104
Printing, publishing and recorded media	17	20	15
Petroleum, coal, chemical and associated product manufacturing	328	351	413
Non-metallic mineral product manufacturing	70	53	49
Metal product manufacturing	369	296	227
Motor vehicle and part and other transport equipment manufacturing	441	380	420
Photographic and scientific equipment manufacturing	95	107	127
Electronic and electrical equipment and appliance manufacturing	427	400	342
Industrial machinery and equipment manufacturing	126	115	132
Other manufacturing	36	19	20
<b>Total manufacturing</b>	<b>2 229</b>	<b>2 055</b>	<b>2 052</b>

Source: *Research and Experimental Development, Businesses, Australia* (8104.0).

## Direct exports by manufacturing

Table 19.23 shows the proportions of manufacturing employment and turnover accounted for by manufacturing establishments, classified by the extent to which they directly engage in exporting activity. It also shows the value of those direct exports as a percentage of total sales of goods produced.

Generally, exporting establishments have higher turnover per person employed than non-exporting establishments. In 1998–99, establishments which undertook some exporting accounted for 44% of manufacturing employment, but contributed slightly under 60% of manufacturing turnover. Industries where exporting establishments contributed the most to industry turnover were Petroleum, coal, chemical and associated product manufacturing (71% of industry turnover) and Machinery and equipment manufacturing (68%). Industries where exporting establishments contributed least to industry

turnover were Other manufacturing (28%) and Printing, publishing and recorded media (27%). On average, exporting establishments showed higher wages and salaries per person employed than non-exporting establishments.

Overall, manufacturers directly exported 16% of the goods they produced in 1998–99. Industries with the highest levels of direct exporting were Metal product manufacturing (28%), Food, beverage and tobacco manufacturing (18%) and Machinery and equipment manufacturing (17%). Industries which exported less than 5% of the goods they produced were Printing, publishing and recorded media (4.7%), Non-metallic mineral product manufacturing (3.5%) and Other manufacturing (3.2%).

Businesses which employed 100 or more persons had the highest proportion of exports in their sales (18%), followed by businesses which employed 0–49 people (13%) and business employing 50–99 people (12%).

**19.22 TYPE OF EXPENDITURE ON RESEARCH AND DEVELOPMENT, Manufacturing Businesses — 1999–2000**

Industry	Capital expenditure	Labour costs(a)	Other current expenditure	Total
Food, beverage and tobacco manufacturing	\$m	\$m	\$m	\$m
Textile, clothing, footwear and leather manufacturing	24.8	80.7	80.5	186.0
Wood and paper product manufacturing	1.2	8.0	7.7	16.8
Printing, publishing and recorded media	13.5	26.1	64.3	103.9
Petroleum, coal, chemical and associated product manufacturing	0.7	9.4	4.6	14.7
Non-metallic mineral product manufacturing	75.7	160.3	177.3	413.3
Metal product manufacturing	5.6	20.0	23.2	48.9
Motor vehicle and part and other transport equipment manufacturing	14.5	89.4	122.9	226.8
Photographic and scientific equipment manufacturing	23.8	173.9	222.3	420.0
Electronic and electrical equipment and appliance manufacturing	7.4	73.0	47.0	127.4
Industrial machinery and equipment manufacturing	21.7	187.3	133.3	342.4
Other manufacturing	11.9	74.4	45.7	131.9
<b>Total manufacturing</b>	<b>203.6</b>	<b>914.2</b>	<b>934.3</b>	<b>2 052.1</b>

(a) Includes wages and salaries, payroll tax, payments to contract staff on the payroll, fringe benefits tax and workers' compensation, holiday pay, long service leave payments, sick pay, and employer contributions to superannuation and pension schemes.

Source: *Research and Experimental Development, Businesses, Australia* (8104.0).

**19.23 MANUFACTURING ESTABLISHMENTS, Summary of Operations by Proportion of Exports — 1998–99**

Industry subdivision	Establishments with exports							
	Establishments that do not export		Up to and including 50% of sales of goods produced		Of more than 50% of sales of goods produced		Exports as % of sales of goods produced	
	Employment at end of June(a)	Turnover	Employment at end of June(a)	Turnover	Employment at end of June(a)	Turnover	Exports as % of sales of goods produced	
Industry subdivision	%	%	%	%	%	%	%	%
Food, beverage and tobacco manufacturing	47.9	39.0	38.4	46.0	13.7	14.9	18.3	
Textile, clothing, footwear and leather manufacturing	56.8	42.3	38.0	47.2	5.3	10.6	13.9	
Wood and paper product manufacturing	74.4	59.9	24.8	37.0	0.8	3.1	5.9	
Printing, publishing and recorded media	79.1	72.7	19.7	24.4	1.2	2.9	4.7	
Petroleum, coal, chemical and associated product manufacturing	40.3	28.9	56.5	67.5	3.2	3.6	10.8	
Non-metallic mineral product manufacturing	63.8	67.3	34.8	31.5	1.4	1.2	3.5	
Metal product manufacturing	57.1	35.5	33.9	40.3	9.1	24.2	27.7	
Machinery and equipment manufacturing	44.3	31.6	47.2	57.9	8.5	10.6	16.7	
Other manufacturing	78.7	72.2	20.1	26.2	1.2	1.6	3.2	
<b>Total manufacturing</b>	<b>56.0</b>	<b>41.4</b>	<b>37.3</b>	<b>47.4</b>	<b>6.8</b>	<b>11.2</b>	<b>15.7</b>	

(a) Includes working proprietors.

Source: *Manufacturing Industry, Australia* (8221.0).

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## Introduction

The construction industry has a major influence on every Australian. It provides the homes in which we live, the places in which most of us work and play, our schools and hospitals, and the infrastructure such as roads, water and electricity supply, and telecommunications, essential for our day to day living. A number of other parts of the Australian economy are also closely linked to the construction industry and its activities. These include in particular, parts of the manufacturing, wholesale and retail trade and finance industries, in supplying components, fittings and furnishings, and in financing construction. Parts of the professional services industry — such as the architectural and engineering professions — are also closely linked to the construction industry.

In 1999–2000, the construction industry contributed 5.5% to the gross product of all industries, as measured by production-based Gross Domestic Product (chain volume measures). In May 2000 it employed 709,300 people, either as employees or as self-employed contractors. This represented 7.8% of the employment in all industries.

As an integral component of the Australian economy being directly affected by most macroeconomic decisions, the Australian construction industry is of significant importance to policy makers. The industry's relationship with interest rates and tax reform, combined with its sizeable contribution to GDP, ensures that issues within the sector are given significant attention by financial markets, policy makers and planners at all levels. This importance is illustrated by the Federal Government's implementation of the extended First Home Owners Grant (FHOG) in February 2001 in response to the significant downturn that occurred in the industry. Following the introduction of The New Tax System, the construction industry contracted sharply, contributing significantly to the negative GDP result for the December quarter 2000.

The construction industry engages in three broad areas of activity: residential building (houses, flats, etc.), non-residential building (offices, shops, hotels, etc.), and engineering construction (roads, bridges, water and sewerage, etc.). Construction activity is undertaken by both the private and public sectors in Australia. The private sector is engaged in all three categories of construction, and plays the major role in residential and other building activity. The public sector plays a key role in initiating and undertaking engineering construction activity, and building activity relating to health and education.

## Performance of the construction industry

### Summary by industry

A detailed survey of the construction industry was undertaken for the reference year 1996–97. The survey found that businesses in the construction industry providing predominantly trade services accounted for over 80% of the number of businesses and almost three-quarters of the people working in the industry.

More recent information about the performance of businesses in the industry is available from the ABS Economy Wide Surveys, supplemented by business income tax data.

Table 20.1 presents selected summary measures of performance, for sectors of the construction industry. Profit margin per business was highest in the construction trade services sector. This sector also dominated the number of persons employed in the industry, with 65% of the total.

### Summary by State

Selected statistics by State show that New South Wales had the largest share of construction activity in 1998–99, due to the preparations for the Olympic Games (table 20.2).

**20.1 CONSTRUCTION INDUSTRY, Summary of Performance by Industry — 1998–99**

Selected indicators	Units	General construction						<b>Total construction</b>	
		Building construction			Total	Non-building construction	Total		
		Residential construction	Non-residential building construction	Total					
Employment (1998–99 annual average)	'000	n.a.	n.a.	170	54	224	410	<b>634</b>	
Wages and salaries	\$m	891	773	1 664	1 645	3 310	4 870	<b>8 180</b>	
Total income	\$m	23 121	16 272	39 393	12 380	51 772	41 761	<b>93 533</b>	
Total operating expenses	\$m	21 040	15 643	36 683	11 894	48 577	35 319	<b>83 896</b>	
Operating profit before tax	\$m	1 682	634	2 316	524	2 840	6 423	<b>9 264</b>	
Profit margin	%	7.3	3.9	5.9	4.2	5.5	15.4	<b>9.9</b>	

Source: *Australian Industry, Australia* (8155.0); *Labour Force Estimates* (6203.0).

**20.2 CONSTRUCTION INDUSTRY, Summary of Performance by State — 1998–99**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Operating income									
General construction	20 564	10 208	10 905	2 874	4 957	537	479	1 249	<b>51 773</b>
Construction trade services	15 521	9 345	8 119	2 710	4 294	539	469	790	<b>41 787</b>
Operating expenses									
General construction	19 634	9 588	10 193	2 378	4 638	505	453	1 188	<b>48 577</b>
Construction trade services	13 509	7 863	6 759	2 331	3 434	434	359	654	<b>35 343</b>
Operating profit before tax	3 064	2 122	1 963	485	1 168	136	138	190	<b>9 264</b>
Labour Costs	5 281	2 965	2 557	752	1 446	159	113	265	<b>13 537</b>

Note: Estimates in tables 20.1 and 20.2 differ marginally due to differences in the timing of their production.

Source: *Experimental Estimates: Australian Industry, a State Perspective, Australia* (8156.0).

## Trends in construction activity

Trends over recent years in the level of activity of the construction industry as a whole are shown in table 20.3, which shows the value of work done, in chain volume terms, by kind of activity. Chain volume measures show changes in value after the direct effects of price changes have been eliminated. The table illustrates that, in 1999–2000, residential construction accounted for 42% of the activity, with engineering construction accounting for a further 33%, and non-residential construction for the remaining 25%. These were similar to the proportions in 1997–98 and in 1998–99. Over the past ten years the volumes of activity in residential and engineering construction have both grown by over 60%, whereas non-residential construction has grown by 18%.

The table also illustrates how the pattern of building activity changes over time. The pattern was very different in 1993–94. In that year, residential building accounted for 45% of total construction activity, non-residential building contributed just under a quarter of activity (22%) and engineering construction the remaining 32%. From then until 1996–97, the proportion of total construction activity occurring in residential building had declined, replaced by growth in the proportion coming from non-residential building and engineering construction. In the past three years, residential building's share of the total value of construction work done has increased.

**20.3 TOTAL CONSTRUCTION ACTIVITY, Value of Work Done By Type of Activity, Chain Volume Measures(a)**

Financial Year	Residential building \$m	Non-residential building \$m	Engineering construction \$m	Total construction(b) \$m
1991–92	14 779	11 998	11 998	39 059
1992–93	17 281	10 768	12 351	40 839
1993–94	18 939	10 356	13 378	43 457
1994–95	19 671	11 252	13 710	45 686
1995–96	16 288	12 637	15 008	44 923
1996–97	16 137	13 785	15 472	46 621
1997–98	19 154	13 851	17 391	51 635
1998–99	20 754	14 534	19 184	54 473
1999–2000	24 219	14 179	19 254	57 652

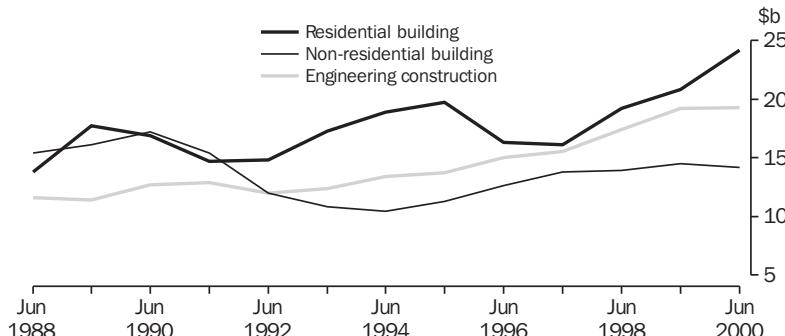
(a) Reference year for these chain volume measures is 1998–99. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Building Activity, Australia* (8752.0); *Engineering Construction Activity, Australia* (8762.0).

Graph 20.4 shows the data from table 20.3 in a longer time series. It shows the decline in the value of residential construction from mid-1995, followed by a steady recovery from about mid-1997 accelerating to record levels ahead of the introduction of The New Tax System in July 2000. Engineering construction has grown steadily over the past 10 years.

Graph 20.5 shows that construction activity for the public sector has remained relatively constant at around \$15b annually over the last ten years. The volatility evident in the total construction series is mainly due to private sector construction activity. The growth in total construction activity from June 1997 until June 2000 was driven by the growth in private sector activity.

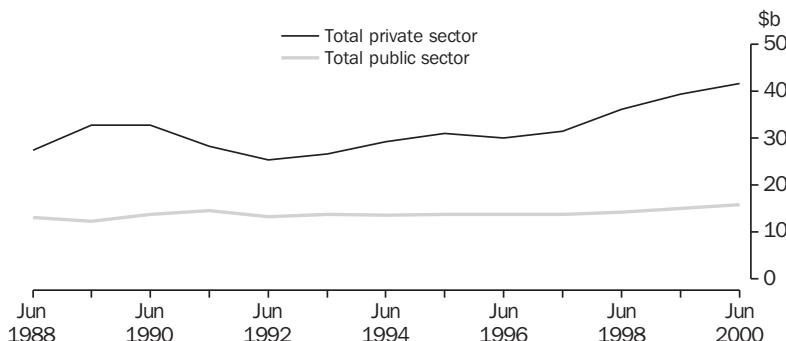
More detailed information on the value of residential and non-residential building work done, in chain volume terms, is presented in table 20.6. The value of building work done rose by \$3,109m (9%) to \$38,398m in 1999–2000, following a rise of 10% in 1998–99. The 1999–2000 growth was most heavily influenced by the surge in new houses (contributing some 78% of the annual growth). Non-residential construction activity fell by \$356m.

**20.4 ANNUAL CONSTRUCTION ACTIVITY(a), By Type of Activity**

(a) Chain volume measures, reference year 1998–99.

Source: *Building Activity, Australia* (8752.0); *Engineering Construction Activity, Australia* (8762.0).

## 20.5 ANNUAL CONSTRUCTION ACTIVITY(a), By Sector



(a) Chain volume measures, reference year 1998–99.

Source: *Building Activity, Australia* (8752.0); *Engineering Construction Activity, Australia* (8762.0).

## 20.6 BUILDING ACTIVITY, Value of Work Done by Type of Activity, Chain Volume Measures(a)

	New residential building						<b>Total building(b)</b>
	Houses		Other residential buildings		Total	Alterations and additions to residential buildings	
	\$m	\$m	\$m	\$m		\$m	
1991–92	9 801	2 687	12 548	2 234	11 998	26 717	
1992–93	11 266	3 595	14 919	2 370	10 768	28 149	
1993–94	12 176	4 216	16 441	2 508	10 356	29 501	
1994–95	12 006	4 932	16 947	2 732	11 253	31 106	
1995–96	9 585	4 069	13 654	2 633	12 637	28 916	
1996–97	9 483	4 021	13 504	2 632	13 785	29 863	
1997–98	11 386	4 700	16 090	3 063	13 851	33 001	
1998–99	12 090	5 415	17 505	3 249	14 535	35 289	
1999–2000	14 510	6 030	20 540	3 679	14 179	38 398	

(a) Reference year for chain volume measures is 1998–99. (b) Chain volume measures are generally not additive; for most periods the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Building Activity, Australia* (8752.0).

## The construction industry's linkages with the economy

This article was contributed by the Industry Information Unit, Business Competitiveness Division, Department of Industry, Science and Resources.

### Introduction

The construction industry, consisting of firms mainly engaged in the construction of residential and non-residential buildings and engineering structures, and in related trade services, is an important part of the economy, accounting for 5.5% of GDP for 1999–2000, and employing almost 8% of the work force in 1999–2000. The industry has important linkages with other sectors, so that its impacts on the economy go well beyond the direct contribution

of construction activities. This article first outlines the main features of the performance of the construction industry by mapping the main flows into the industry from other industries, the direct value added by the industry to the economy as a whole, and the broad destinations of its outputs. The article then illustrates the possible extent of the flow-on effects of construction activity on the outputs of other industries.

## Construction inputs and outputs, and industry performance

Figure 20.7 summarises the inputs to the construction industry, and sources of its unduplicated output or value added to the economy, and the destinations of its outputs. The figure shows:

- a breakdown of the goods and services inputs to production for the industry (table 20.8 shows more detail on the major goods and services used by the industry);
- the contribution of the main factors of production, labour and capital, in transforming and adding value to the inputs; and
- the destinations of the outputs in terms of the activities of consumption, investment, stock building and exports.

The data relate to 1996–97, the latest year for which input-output information is available.

The figure shows that:

- The industry generated value added of nearly \$30b, ranking it as one of the five largest industry sectors in the economy. It contributed over 6% of value added of the Australian economy for 1996–97.
- The majority of the inputs to the industry (88%) come from locally sourced goods and services. Less than 10% of inputs were imported.
- Just over half of the value added of the industry is contributed by capital (as shown by the gross operating surplus (gross profit) of firms in the industry), the balance by labour (as shown by compensation of employees (mainly wages)). This places construction in the average cohort of industries for these measures.
- The industry is predominantly its own market — 94% of the output of the industry is directly consumed, 5% is used by other industries, and the remaining 1% is exported.

Major inputs of Australia-produced goods and services into the construction industry were: property services, wholesale trade, structural

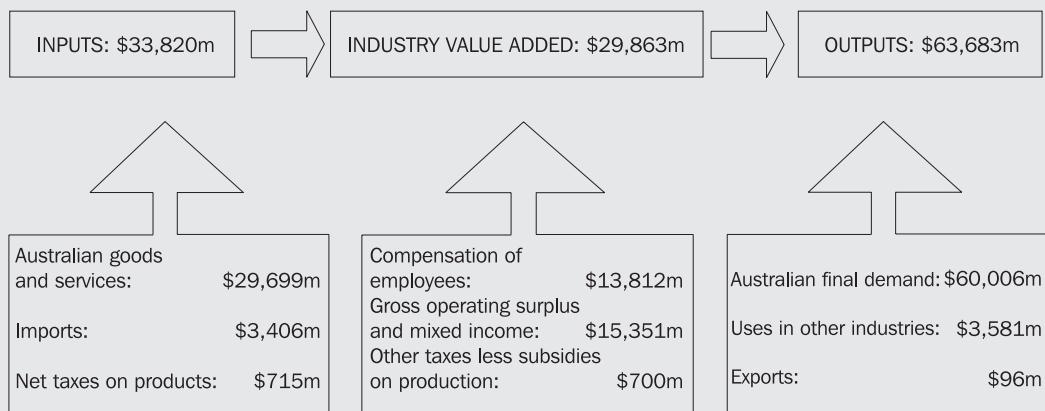
metal products, cement, lime and concrete slurry, and other wood products. Table 20.8 identifies the most significant products used.

## The industry's flow-on effects to other economic activity

Over and above the direct contribution of construction activity to the economy, it has 'flow-on' impacts on the activities of other industries. The possible size of these impacts can be illustrated using multipliers based on inter-industry flows in input-output tables. For the construction industry the multipliers can be characterised as follows:

- *the initial effect* — an initial \$1m of extra output of the construction industry, and related employment in the industry to produce that output;
- *a production induced effect* — the combination of:
  - the first round effect* — the amount of output and employment required from all industries that supply goods and services to the construction industry in order for that industry to produce the initial \$1m of extra output;
  - an industrial support effect* — the induced extra output and employment from all industries to support the production of the first round effect;
- *a consumption induced effect* — the subsequent inducement for extra output and employment due to increased spending by the wage and salary earners across all industries arising from the compensation received for their labour as part of the other effects above.

Table 20.9 summarises the multipliers for output and employment in the construction industry. They show that, for every \$1m spent on construction output (houses, non-residential buildings, etc.) in 1996–97, a possible \$2.9m in output would be generated in the economy as a whole, giving rise to 9 jobs in the construction industry (the initial employment effect), and 37 jobs in the economy as a whole from all effects.

**20.7 CONSTRUCTION SECTOR, Input-Output Map — 1996–97**

Source: Australian National Accounts: Input-Output tables —1996–97 (5209.0).

**20.8 CONSTRUCTION INDUSTRY, Australian Products Used by Product Group — 1996–97**

Product group	\$m
Property services	3 475
Structural metal products	2 560
Wholesale trade	2 511
Cement, lime and concrete slurry	2 227
Other wood products	1 892
Electronic equipment	1 394
Scientific research etc.	1 349
Plaster, other concrete products	1 322
Fabricated metal products	1 298
Other electrical equipment	1 226
Ceramic products	1 192
Iron and steel	1 091
Road transport	1 012
Other products	1 839
<b>Total</b>	<b>29 699</b>

Source: Australian National Accounts: Input-Output Tables 1996–97 (5209.0).

These flow-on effects are made up as follows. The initial effect of the additional construction is \$1m. The first round effect for this additional construction would be the increased value of activity of around \$0.5m in those businesses

manufacturing the materials needed for the additional construction, such as concrete and steel frames. The businesses supplying and servicing the concrete and steel frame businesses, such as aggregate quarrying and raw steel production, experience an increased demand for their products and services. This industrial support effect is estimated to be an additional \$0.4m. As activity has increased in the construction industry, as well as in the suppliers to that industry and the suppliers to the suppliers, there is an increase in wages and salaries to employees in this chain. The spending of these wages and salaries induces a further round of consumption effects in other areas of the economy totalling an additional \$1m.

Care is needed in interpreting multiplier effects; their theoretical basis produces estimates which somewhat overstate the actual impacts in terms of output and employment. Nevertheless, the estimates illustrate the high flow-on effects of construction activity to the rest of the economy. Clearly, through its multipliers, construction activity has a high impact on the economy.

**20.9 CONSTRUCTION INDUSTRY MULTIPLIERS FOR \$1M OF OUTPUT(a)**

	Initial effects (1)	First round effects (2)	Industrial support effects (3)	Production induced effects (4=2+3)	Consumption induced effects (5)	Total Multiplier (6=1+4+5)
Output (\$m)	1.000	0.466	0.438	0.904	0.962	2.866
Employment (no.)	9	3	4	7	21	37

(a) Direct Allocation of Imports method.

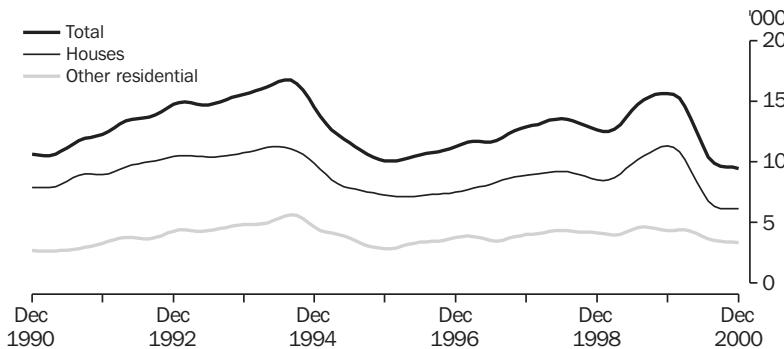
Source: Australian National Accounts: Input-Output Tables 1996-97 (5209.0).

**Residential building**

Residential building involves the construction of dwelling units, which comprise new houses, new other residential buildings (flats, apartments, villa units, townhouses, duplexes, etc.), and dwellings created as part of alterations and additions to existing buildings (including conversions to dwelling units) and as part of the construction of non-residential buildings. Building approvals are a key indicator of future activity, as nearly all building activity must be approved by local and/or other authorities.

The trend in total dwelling unit approvals grew for three and half years from February 1991, peaking in July 1994 (graph 20.10). The trend then declined until December 1995, to a level almost 40% below the July 1994 peak. The trend for dwelling units approved grew steadily between December 1995 and June 1996 prior to strong growth until April 1998. From mid 1998 until early 1999 the number of approvals declined.

During the first half of 1999–2000 there was a significant increase in approvals as a result of activity brought forward ahead of The New Tax System. However, in 2000 approvals declined sharply to a level below the lows of late 1990 and 1995.

**20.10 NUMBER OF DWELLING UNITS APPROVED, Trend Estimates**

Source: Building Approvals, Australia (8731.0).

## New houses

Graph 20.11 illustrates the general cyclical pattern of new house commencements. Lows were recorded in 1990 and 1996, with peaks in 1994 and 1998. New house construction grew throughout 1992, 1993 and 1994, the number of commencements peaking in the June quarter 1994. New house commencements fell in each quarter of 1994–95 and 1995–96, but grew in each quarter of 1996–97. There was continued growth in the trend up to the June quarter 1998 for new house commencements, although the rate of growth in the trend eased in the first half of 1998.

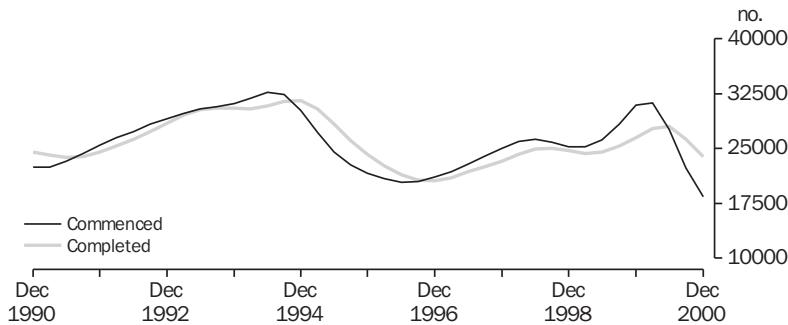
The introduction of The New Tax System introduced a shock to the system that altered this general cyclical pattern. After a slight contraction in the second half of 1998, the number of new house commencements grew at record rates in 1999 and early 2000 as a result of the rush to 'beat

the GST'. Following the introduction of The New Tax System on 1 July 2000, there was a significant downturn in commencements, with completions falling at a slightly slower rate.

The graph also illustrates the relationship between new house commencements and completions. Generally, in periods of downturn in new house construction activity, completions exceed commencements, while in periods of growth this pattern is reversed.

Table 20.12 shows that new house commencements are the major component of residential building activity. In 2000 new houses accounted for 70% of new residential dwelling units commenced (i.e. excluding approvals for conversions). This proportion is similar for approvals and completions.

**20.11 NUMBER OF NEW HOUSES COMMENCED AND COMPLETED, Trend Estimates**



Source: Building Activity, Australia (8752.0).

**20.12 RESIDENTIAL BUILDING, By Public/Private Sector — 2000**

	New houses no.	New other residential dwelling units no.	Conversions, etc. no.
Private sector			
Approved	93 492	41 435	3 222
Commenced	98 367	39 509	3 328
Completed	109 065	45 659	3 590
Public sector			
Approved	1 405	2 298	72
Commenced	1 405	2 250	82
Completed	1 670	2 355	86
Total			
Approved	94 897	43 733	3 294
Commenced	99 772	41 759	3 410
Completed	110 735	48 014	3 676

Source: *Building Approvals, Australia* (8731.0); *Building Activity, Australia* (8752.0).

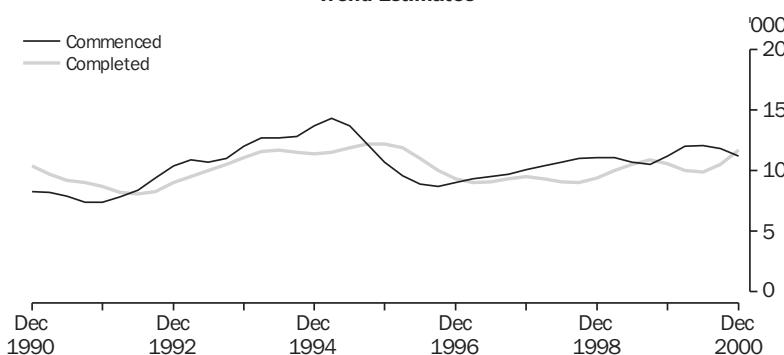
The table also shows that residential building activity is dominated by the private sector. In 2000 this sector accounted for around 98% of approvals, commencements and completions of new houses. The public sector was slightly more significant in 'new other residential building' work, accounting for 5% of approvals, commencements and completions.

### New other residential building

Other residential building refers to structures other than houses which are built for accommodation purposes. This includes buildings such as blocks of flats, home units, attached townhouses, villa units, terrace houses, semi-detached houses and maisonettes. The level of activity for this type of building is highly

variable and does not follow the regular pattern experienced in house construction. This is because of the generally larger size of other residential building construction jobs and the varying extent of speculative building of private townhouses, flats, home units and similar residential building projects over time.

Whereas table 20.12 presented the number of new other residential dwelling units approved, commenced and completed in 2000, graph 20.13 shows a ten year time series of commencements and completions of these types of buildings ending with the December quarter 2000. It can be seen that the completions series generally has lagged the commencements series by one to two quarters, although this pattern has been less clear since the June quarter 1997.

**20.13 NUMBER OF NEW OTHER RESIDENTIAL UNITS CONSTRUCTED,  
Trend Estimates**


Source: *Building Activity, Australia* (8752.0).

The number of new other residential dwelling units commenced in the December quarter 2000 was the same as in the December quarter 1999. On the other hand, the number of other residential dwelling units completed in the December quarter 2000 was 10% higher than in the December quarter 1999.

### Other dwellings

Apart from the construction of new residential buildings, dwellings can also be created as part of alterations and additions to existing buildings (including conversions to dwelling units) and as part of the construction of non-residential buildings.

Table 20.12 shows that 3,294 such dwelling units were approved in 2000. Mirroring the trends for houses and other residential dwellings, this activity was dominated by the private sector.

### Value of residential building

Table 20.14 shows that total approvals for new residential building were valued at \$18,191m in 2000, falling from \$20,008m (9%) in 1999.

This pattern was reversed for the value of work done, which increased by 15% in 2000.

This reflects the impact of the lead time between approvals and activity in the period prior to the introduction of the GST.

The value of new houses, in terms of both approvals and activity, dominates the residential sector.

**20.14 VALUE OF RESIDENTIAL BUILDING — 1999 and 2000**

	Approved		Work done	
	1999	2000	1999	2000
	\$m	\$m	\$m	\$m
New residential buildings				
New houses	14 679	12 594	12 935	14 787
New other residential buildings	5 329	5 597	5 559	6 427
Total new residential buildings	20 008	18 191	18 492	21 220
Alterations and additions to residential buildings(a)	3 194	3 349	3 426	3 682

Note: Due to seasonal adjustment methods, totals do not necessarily equal the sum of the components.

(a) Valued at \$10,000 or more.

Source: *Building Approvals, Australia* (8731.0); *Building Activity, Australia* (8752.0).

## What drives housing?

*This article was contributed by Simon Tennent, Senior Economist, Housing Industry Association.*

For many decades, the new home building industry has been one of the more volatile sectors of the economy. In the 18 months ending June 2001, however, the industry underwent one of the most dramatic and highly publicised boom-bust cycles in its history.

On the way up, the industry saw record levels of home lending and dwellings approved, record levels of industry employment and climbing trade prices as buyers rushed to beat the GST. On the way down, however, it shed more than 50,000 jobs, and contributed to some of the lowest GDP estimates in the past decade.

While the introduction of the GST could be regarded as an external shock, even without this one-off influence the industry will remain volatile due to its unique characteristics.

Like all mature industries, the housing sector is subject to slow growth and intense price competition. Volatility is manifested by activity fluctuating widely around its average growth rate. These fluctuations occur because the stock of 7,500,000 dwellings is large compared to the annual production of new homes — usually around 150,000 per annum. Thus a 1% shift in demand for housing can cause a 50% change in new dwelling starts.

So what drives this demand for housing?

First and foremost it is population — more specifically population growth, population movement, and population characteristics. According to the ABS quarterly publication *Australian Demographic Statistics* (3101.0), Australia's population over the past five years has been growing at an average rate of just over 217,000 persons (1.1%) per annum. Over 42% of this growth comes from net overseas migration — averaging 93,000 persons per annum. In new housing terms, Australia's growing population needs around 145,000 new homes each year.

In recent years, however, it has been the movement of population within Australia that has had significant consequences for the industry. Witness the flows between Victoria and Queensland, for example. Improving economic conditions and sentiment in Victoria over the late 1990s have drastically reduced the flow of population from that State to Queensland. Consequently, new housing activity in Victoria has grown by 60% while, at the same time, it has shrunk by 26% in Queensland.

The characteristics of the population are another uncertain variable for the housing industry. Much has been written and researched over the years about the implications of demographic change on housing demand. ABS figures tell us that divorce rates are rising, as is the number of single person households. The number of persons per household is falling, and people are living longer. Specifically for the industry we are seeing change with decreasing lot sizes, increasing floor areas, and an increase in the popularity of two storey homes. All of these things will continue to influence demand among Australia's new home buyers into the future.

From demography we move to economics — and in the case of demand for housing that means affordability, employment prospects, and consumer sentiment.

While the definition of affordability is often debated, essentially it is the capacity to pay — be it a mortgage or rent. For renters, the main ingredients here are household income (see for example the measure of household income in the quarterly *Australian National Accounts*:

*National Income, Expenditure and Product* (5206.0)) together with median weekly rents. For home buyers it is household income, house prices, and the variable mortgage interest rate (house prices are a product of labour, materials, fees, charges and taxes). Affordability, when plotted against house starts, has a clear and obvious relationship. When affordability improves, construction activity increases. In recent years, lower interest rates have put home ownership within reach of many more households. However, the ABS publication *House Price Indexes: Eight Capital Cities* (6416.0), shows that prices have risen accordingly. Currently, an average home loan absorbs 19% of average income.

Turning to the place of employment as a demand driver, when people have stable employment they are more likely to seek new houses. By plotting the ABS unemployment rate against ABS dwelling commencements, there is a clear long term correlation between the two — as unemployment rises, the number of dwelling commencements falls, and vice versa. This relationship, however, has faltered recently; unemployment has been creeping up at the same time as the First Home Owner's Grant has been boosting the housing industry from March 2001.

The last piece of the demand puzzle is consumer sentiment. While it is not something you can see or touch, it is vitally important in driving demand for housing. When plotted, the Westpac-Melbourne Institute Consumer Sentiment series also follows the home building industry very well. When sentiment falls in periods such as the Asian Crisis, rising interest rates, and the impending GST, the housing industry soon follows. This is soon reversed when employment picks up, interest rates fall and the economy shows strong signs of growth.

For the future, it is unlikely that these fundamental drivers will change, although at any time their relative importance will. Population characteristics will be the biggest challenge ahead for the industry as Baby Boomers retire, Generation X has families, and Generation Y leaves home. There is little doubt, however, that as long as people are employed and confident and dwellings are appropriate and affordable, the industry will continue to make a valuable contribution to the economy.

## Non-residential building

As table 20.15 shows, the total value of non-residential building work approved in 2000 was at the same level as in 1999, and the value of work done fell by 8%.

The value of non-residential building work done in 2000 was 10% higher than the value of work approved (it had been 20% higher in 1999). A pattern of the value of work done exceeding the value of approvals has, in the past, indicated a period of slowing activity in this sector as existing jobs are finished, with less new work coming on stream.

In 2000, shops, offices and other business premises together accounted for about half the value of non-residential building approved and of work done. This was similar to their share of approvals and work done in 1999.

## Engineering construction

This section contains estimates of engineering construction activity in Australia for both public and private sector organisations. These estimates, together with the preceding data on residential and non-residential building, complete the picture of construction activity in Australia.

The total value of engineering construction work for 2000 in original terms (\$18,826m) was 5% lower than in 1999 (table 20.16). The decrease of \$1,040m was substantially due to a fall (by \$1,219m) in the work done by the private sector. The fall in the value of private sector work done was offset by a small rise of \$180m (2%) in the value of work done by the public sector. The private sector accounted for 60% of the value of all work done in 2000, down from 63% in 1999.

Just over half (51%) of the value of all engineering work done in 2000 related to Roads, highways and sub-divisions and Telecommunications. In 1999 these projects had accounted for 48% of the value of all work done.

## Price indexes for construction

### Output of the building industry

The price index of the output of the building industry rose by 1.5% in 2000–01 (table 20.17). The growth in the index was lower than in the two preceding years, which may be attributed to a lower level of demand following the introduction of the GST. As the index is compiled using basic prices (prior to the imposition of indirect taxes on products and any transport and trade margins) the price movements exclude the impact of the GST.

**20.15 VALUE OF NON-RESIDENTIAL BUILDING(a) — 1999 and 2000**

	Approved		Work Done	
	1999	2000	1999	2000
	\$m	\$m	\$m	\$m
Hotels, etc.	904	533	1 289	839
Shops	2 262	2 225	2 683	2 379
Factories	905	911	900	945
Offices	1 830	2 281	2 612	2 492
Other business premises	1 617	1 824	2 115	1 868
Educational	1 564	1 761	1 461	1 688
Religious	124	102	112	137
Health	1 151	1 086	1 409	1 341
Entertainment and recreational	1 075	770	1 507	1 016
Miscellaneous	803	726	595	783
Total non-residential building	12 233	12 220	14 682	13 487

(a) Valued at \$50,000 or more.

Source: *Building Approvals, Australia* (8731.0); *Building Activity, Australia* (8752.0).

**20.16 VALUE OF ENGINEERING CONSTRUCTION WORK DONE, By Public/Private Sector and Nature of Project — 1999 and 2000**

	1999			2000		
	By the private sector	By the public sector	Total	By the private sector	By the public sector	Total
	\$m	\$m	\$m	\$m	\$m	\$m
Roads, highways and sub-divisions	4 286	1 745	6 031	3 803	1 709	5 511
Bridges	355	104	459	285	86	371
Railways	432	501	933	238	416	654
Harbours	192	32	224	125	28	152
Water storage and supply	392	296	688	358	262	620
Sewerage and drainage	553	296	850	852	288	1 140
Electricity generation, transmission and distribution	1 424	817	2 241	1 648	1 289	2 938
Pipelines	424	79	503	335	33	367
Recreation	719	159	878	934	150	1 084
Telecommunications	239	3 219	3 458	793	3 215	4 008
Oil, gas and other hydrocarbon	615	55	670	469	—	469
Bauxite, alumina and aluminium	339	—	339	121	—	121
Coal and coal handling	308	—	308	240	—	240
Other minerals	1 611	—	1 611	680	—	680
Other heavy industry	548	1	549	296	15	310
Other	115	11	126	156	4	160
<b>Total</b>	<b>12 552</b>	<b>7 314</b>	<b>19 866</b>	<b>11 333</b>	<b>7 494</b>	<b>18 826</b>

Source: Engineering Construction Activity, Australia (8762.0).

**20.17 PRICE INDEX OF THE OUTPUT OF THE BUILDING INDUSTRY(a)**

Financial year	Index	Change
1997–98	97.0	n.a.
1998–99	100.0	3.1
1999–2000	104.9	4.9
2000–01	106.5	1.5

(a) Reference base of each index: 1998–99 = 100.0.

Source: Producer Price Indexes, Australia (6427.0).

The two price indexes below measure the changes in prices of selected materials used in the construction of buildings.

**Price index of materials used in house building**

The all groups index (a weighted average of the six State capital cities) rose by 1.6 index points in 2000–01. This follows a rise of 3.3 index points in 1999–2000. Table 20.18 shows that, except for Brisbane (showing a fall of 0.2 index points), there were rises in all capital cities, with Melbourne the largest (by 3.2 index points).

**Price index of materials used in building other than house building**

Only small upwards movements in the price index for materials used in building other than house building were observed over the year 2000–01. The percentage increase of the weighted average for the six State capital series was less than 0.3% (table 20.19). This continues the pattern of recent years.

Table 20.20 presents the composition of the index in terms of the materials used. This shows that the rise in the index reflected increases between 1999–2000 and 2000–01 in most of the selected materials components. The exceptions were ready mixed concrete (which fell by 3.9 index points on top of a 2.7 index point fall between 1998–99 and 1999–2000) and reinforcing steel bar fabric and mesh (down 2.1 index points, following a fall of 5.4 index points between 1998–99 and 1999–2000).

**20.18 PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING, Six State Capital Cities(a)(b)**

Financial year	Weighted average of six State capital cities	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart
1994–95	115.4	115.0	115.9	115.9	118.8	112.7	117.3
1995–96	115.7	115.9	115.4	115.1	118.2	114.8	120.7
1996–97	116.1	116.3	115.3	115.3	120.6	115.3	120.1
1997–98	118.2	119.7	117.1	117.1	123.3	115.9	121.0
1998–99	119.5	121.6	118.0	118.2	125.0	116.1	122.2
1999–2000	122.8	126.8	121.7	120.8	127.2	117.7	123.8
2000–01	124.4	130.0	123.1	120.6	129.6	118.8	126.0

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movement within each city individually. They do not compare price levels between cities.

Source: *Producer Price Indexes, Australia* (6427.0)

**20.19 PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING,  
Six State Capital Cities(a)(b)**

Financial year	Weighted average of six State capital cities	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart
1994–95	110.4	110.3	108.9	112.9	110.9	110.1	112.2
1995–96	112.7	112.6	111.1	115.0	112.7	113.2	115.1
1996–97	113.2	113.1	110.9	115.9	114.1	114.6	116.3
1997–98	114.2	114.4	111.4	117.2	115.1	114.6	117.4
1998–99	115.2	115.2	113.2	118.4	115.5	114.1	118.5
1999–2000	116.1	116.0	114.4	119.3	116.1	115.4	119.0
2000–01	116.4	116.1	115.4	119.1	116.8	115.6	119.3

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities.

Source: *Producer Price Indexes, Australia* (6427.0).

**20.20 PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING(a),  
By Type of Material**

Material	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
Structural timber	128.3	120.5	116.4	121.7	125.4	131.1	134.3
Clay bricks	111.0	110.0	108.7	114.6	119.1	123.7	128.0
Ready mixed concrete	112.4	108.2	106.6	107.2	106.3	103.6	99.7
Steel decking cladding & sheet products	108.9	110.9	112.9	114.9	114.4	114.9	118.5
Structural steel	105.3	109.3	112.5	113.1	113.4	112.0	113.1
Reinforcing steel bar fabric and mesh	111.5	112.0	111.6	112.7	109.9	104.5	102.4
Aluminium windows	105.4	108.4	108.5	109.0	110.5	114.3	119.9
Non-ferrous pipes and fittings	118.1	129.4	128.8	135.6	128.6	131.5	141.0
Builders' hardware	116.6	119.5	118.3	120.0	123.4	130.0	135.9
Paint and other coatings	123.3	129.1	135.7	136.0	142.7	148.8	152.2
<b>All groups</b>	<b>110.4</b>	<b>112.7</b>	<b>113.2</b>	<b>114.2</b>	<b>115.2</b>	<b>116.1</b>	<b>116.4</b>

(a) Reference base year 1989–90 = 100.0.

Source: *Price Index of Materials Used in Building Other Than House Building, Six State Capital Cities* (6407.0).

**Average weekly earnings in  
the construction industry**

Average weekly earnings provide useful information on the cost of labour in the construction industry. This complements the information provided in the previous section on the cost of materials in the industry.

In May 2001 the average weekly earnings of all employees in the construction industry stood at \$707, 7% higher than the all industries average (\$663) (table 20.21).

Average weekly earnings for wage and salary earners increased steadily in the construction industry in the period 1993 to 1999, but have fallen in the last two years, in contrast to the continued growth of average weekly earnings for all industries combined. This could be attributed to compositional changes in the industry's employment patterns and to the volatility in the industry which coincided with the transition to The New Tax System.

**20.21 AVERAGE WEEKLY EARNINGS, Construction and All Industries**

At May	Construction		All industries	
	Full-time adult employees	All employees	Full-time adult employees	All employees
1993	\$ 646	\$ 579	\$ 633	\$ 518
1994	709	635	656	532
1995	730	662	688	548
1996	751	681	715	564
1997	792	718	737	578
1998	808	739	768	596
1999	831	750	791	611
2000	797	720	822	636
2001	786	707	861	663

Source: *Average Weekly Earnings* (6302.0).

**Industrial disputes**

Of the 698 industrial disputes in Australia during 2000, 221 (32%) affected the construction industry (table 20.23). These disputes involved (either directly or indirectly) 58,300 construction industry employees and resulted in the loss of 108,800 working days. This represents 23% of the total number of working days lost due to all industrial disputes in Australia in 2000.

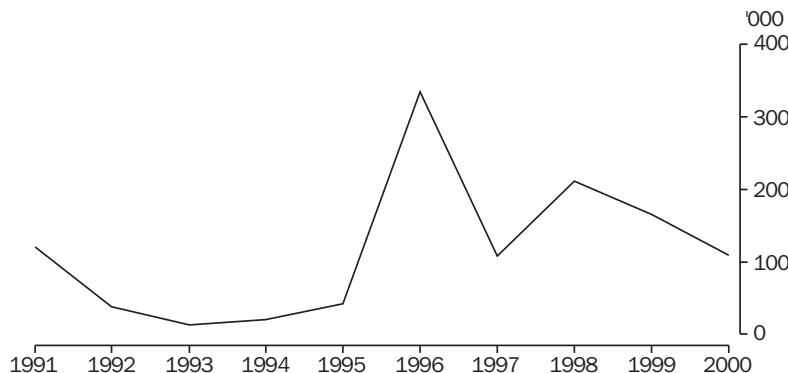
The level of industrial disputes in the construction industry has moderated in recent years (graph 20.23). The number of disputes rose markedly in the mid 1990s after a period of relatively low disputation in the early 1990s.

Table 20.24 shows that in 2000 the construction industry recorded an average of 234 working days lost per thousand employees, almost four times the average of 61 across all industries combined. Victoria, West Australia and South Australia were the most affected, with 503, 362 and 332 working days lost per thousand construction industry employees, respectively. Tasmania reported little or no strike activity in the construction industry in 2000.

**20.22 INDUSTRIAL DISPUTES, Construction and All Industries — 2000**

	Units	Construction	All industries
Total industrial disputes	no.	221.0	698.0
Employees involved (directly and indirectly)	'000	58.3	325.4
Working days lost	'000	108.8	469.1

Source: *Industrial Disputes, Australia* (6322.0).

**20.23 INDUSTRIAL DISPUTES, Days Lost by Construction Industry — 1991 to 2000**

Source: *Industrial Disputes, Australia* (6322.0).

**20.24 WORKING DAYS LOST DUE TO INDUSTRIAL DISPUTES, Construction and All Industries by State/Territory — 2000**

	Construction per '000 employees	All industries per '000 employees
NSW	65	64
Vic.	503	71
Qld	183	64
SA	332	28
WA	361	68
Tas.	—	7
NT	18	9
ACT	50	9
<b>Aust.</b>	<b>234</b>	<b>61</b>

Source: *Industrial Disputes, Australia* (6322.0).

## Trade union membership

Table 20.25 shows the general trend of declining membership of trade unions across all industries combined. Over the years shown the proportion of trade union membership in the construction industry has been generally similar to that for all industries. In the two years to August 2000 there was a rise in the number of trade union members in the construction industry, from 100,600 to 116,200. As a consequence the proportion of trade union members in construction in 2000 (26.4%) was marginally higher than in all industries (24.7%).

In the construction industry, a higher proportion of full-time employees (29%) than part-time employees (11%) were trade union members (table 20.26). Across all industries a much higher proportion of female employees were trade union members (23%) than in the construction industry (4%).

**20.25 EMPLOYEES WHO WERE TRADE UNION MEMBERS, Construction Industry — 1992 to 2000(a)**

	Construction	All industries
NUMBER OF MEMBERS ('000)		
1992	124.5	2 508.8
1993	110.1	2 376.9
1994	113.4	2 283.4
1995	105.1	2 251.8
1996	109.6	2 194.3
1997	115.0	2 110.4
1998	100.6	2 037.5
1999	110.6	1 878.2
2000	116.2	1 901.8
PROPORTION OF EMPLOYEES IN TRADE UNIONS (%)		
1992	42.1	39.6
1993	35.3	37.6
1994	34.1	35.0
1995	30.6	32.7
1996	29.7	31.1
1997	33.5	30.3
1998	25.2	28.1
1999	25.7	25.7
2000	26.4	24.7

(a) At August.

Source: *Employee Earnings, Benefits and Trade Union Members, Australia* (6310.0).

**20.26 PROPORTION OF TRADE UNION MEMBERS, By Sex — August 2000**

	Construction	All industries
	%	%
MALES		
Full-time	30.4	28.5
Part-time	18.3	13.8
Total	29.5	26.3
FEMALES		
Full-time	*4.7	26.6
Part-time	*2.6	18.3
Total	*3.7	22.8
PERSONS		
Full-time	28.1	27.9
Part-time	6.4	17.1
Total	25.7	24.7

Source: *Employee Earnings, Benefits and Trade Union Members, Australia* (6310.0).

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- Average Weekly Earnings* (6302.0).
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- Price Index of Materials Used in House Building* (6408.0).
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- Producer Price Indexes, Australia* (6427.0).
- Trade Union Members, Australia* (6325.0).

### **Internet sites**

Australian Housing and Urban Research Institute, <http://www.aburi.edu.au>

Commercial Property Monitor Pty, <http://www.cpm.com.au>

Commonwealth Department of Industry, Science and Resources, <http://www.isr.gov.au>

Master Builders Australia Inc., <http://www.ozemail.com.au/mbaust/mba.htm> (an FTP contents index is at <http://www.ozemail.com.au/~mbaust/>)

Property Council of Australia, <http://www.propertyoz.com.au>

Real Estate Institute of Australia, <http://www.reia.asn.au>

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## Introduction

The service industries sector is the most significant growing component of the Australian economy. This chapter presents an overview of the sector and provides a range of statistical information for a selection of service industries, with a particular focus on those that have recently been surveyed as part of the ABS rotating program of service industries collections.

For the purposes of this chapter, the service industries sector has been defined as all industries other than the goods producing industries (agriculture, mining, manufacturing, electricity, construction, and gas and water supply). In terms of the *Australian and New Zealand Standard Industrial Classification (ANZSIC)*, the service industries cover wholesale and retail trade, accommodation, cafes and restaurants, transport and storage, communication services, finance and insurance, property and business services, government administration and defence, education, health and community services, cultural and recreational services, and personal and other services.

## Overview

The service industries sector is the largest component of the Australian economy in terms of number of businesses, employment and gross value added.

Of the estimated 1,239,400 private sector businesses in Australia in 1999–2000, some 812,200 or about two-thirds were in the service industries. For small businesses (those with less than 20 employees), the proportions are similar, service industries accounting for 66% of just over 1.2 million small businesses in Australia (table 21.1).

Although the service industry sector accounted for two-thirds of the gross value for all industries, the goods producing industries sector showed the greatest increase in output in chain volume terms (measuring 'real' output unaffected by price change), with an increase of 21% compared to 16% in the service industries sector over the period from 1994–95 to 1999–2000 (table 21.2). This resulted in a decrease in the service industries' share of total output, from 67.2% in 1994–95 to 62.8% in 1999–2000.

The largest contributor to the service industry sector in 1999–2000 was the property and business services industry, which accounted for 22% of the gross value added of the service industries sector and 14% of the gross value added of all industries. The next largest within the service industries sector was finance and insurance services, which accounted for 13% of the gross value added of the sector.

In the five year period 1994–95 to 1999–2000, goods producing industries' gross value added increased, on average, by 17% per year in real terms. In contrast, the gross value added of the services industries increased by an annual rate of 6%.

Strong growth was recorded in both the goods producing and service industries sectors, with the communication services industry recording the largest percentage increase in output in the five year period, an increase of 69% in real terms, the equivalent of an annual growth rate of 11%. The next highest growth rate was recorded in the goods producing industries by the agriculture industry, with a 51% increase in output over the five year period, an annual growth rate of nearly 9%. The lowest growth in real terms in the period 1994–95 to 1999–2000 was in the service industries sector, where government administration and defence recorded a 1.9% decrease, and education, and health and community services, both recorded a 7% increase.

**21.1 NUMBER OF BUSINESSES — 1999–2000**

Industry	Units	Small businesses	Other businesses	Total
Goods producing industries	'000	401.4	25.8	<b>427.2</b>
Service industries	'000	780.5	31.7	<b>812.2</b>
Total all industries	'000	1 181.9	57.5	<b>1 239.4</b>
Businesses in service industries as a percentage of all businesses	%	66.0	58.6	<b>65.5</b>

Source: *Small Business in Australia Update, 1999–2000 (1321.0.55.001)*; ABS data available on request.

**21.2 GROSS VALUE ADDED(a), Chain Volume Measures(b) by Industry**

	1994–95	1999–2000	Increase
	\$m	\$m	%
Goods producing industries			
Agriculture	12 582	19 005	51.1
Mining	21 442	26 183	22.1
Manufacturing	66 644	75 560	13.4
Electricity, gas and water	10 399	11 314	8.8
Construction	26 077	34 434	32.1
<i>Total</i>	<i>137 144</i>	<i>166 496</i>	<i>21.4</i>
Service industries			
Wholesale trade	26 229	33 942	29.4
Retail trade	26 565	32 737	23.2
Accommodation, cafes and restaurants	10 348	12 692	22.7
Transport and storage	28 382	34 510	21.6
Communication services	11 560	19 549	69.1
Finance and insurance	27 637	41 451	50.0
Property and business services	51 819	72 938	40.8
Government administration and defence	23 130	22 702	-1.9
Education	24 671	26 294	6.6
Health and community services	30 508	32 771	7.4
Cultural and recreational services	9 024	10 097	11.9
Personal and other services	11 288	13 225	17.2
<i>Total</i>	<i>281 161</i>	<i>352 908</i>	<i>15.9</i>
<b>Total all industries(c)</b>	<b>418 305</b>	<b>519 404</b>	<b>24.2</b>
Service industries as a percentage of all industries	67.2	62.8	..

(a) At basic prices, which include subsidies, but are before any taxes on products. (b) Reference year for chain volume measures is 1998–99.

Source: Australian System of National Accounts, 1999–2000 (5204.0).

As table 21.3 shows, in terms of employment the service industries sector is dominant, accounting for 73% of total employment for all industries in 1999–2000. Total employment in the service industries sector in 1999–2000 was 6,497,800 persons.

In the five year period from 1994–95, employment in the service industries increased by 721,600 persons or 13%, representing an annual growth rate of 2%. In the same period the goods producing industries recorded an increase in employment of 107,400 persons. This represented an increase of 5%, an average annual growth rate of just under 0.9%.

Within the service industries, the major employing industry was retail trade with employment in 1999–2000 of 1,324,600 persons, accounting for 15% of all employment and 20% of employment in the service industries sector. Other large employing service industries were property and business services (988,700 persons), health and community services (828,100 persons), and

education (609,300 persons). The industries showing the greatest employment growth in the five year period since 1994–95 were property and business services, with a 32% increase from 749,800 persons to 988,700 persons, personal and other services with an increase of 16% in the period, and health and community services with an increase of 15%. In contrast, employment in the government administration and defence sector fell by 3% over this period.

## Statistics for selected service industries

The remainder of the chapter presents statistics for a selection of service industries. The information provided is based primarily on the rotating program of service industries collections conducted by the ABS. The exceptions are the retail trade and wholesale trade industries where information has been drawn from the monthly and quarterly sales collections respectively.

**21.3 EMPLOYED PERSONS, By Industry**

	1994–95(a) '000 persons	1999–2000(a) '000 persons	Increase %
Goods producing industries			
Agriculture	403.3	437.5	8.5
Mining	86.1	78.2	-9.2
Manufacturing	1 115.3	1 113.1	-0.2
Electricity, gas and water	86.8	64.5	-25.6
Construction	589.8	695.4	17.9
<i>Total</i>	2 281.3	2 388.7	4.7
Service industries			
Wholesale trade	493.6	494.9	0.3
Retail trade	1 187.0	1 324.6	11.6
Accommodation, cafes and restaurants	377.2	432.8	14.7
Transport and storage	381.4	407.3	6.8
Communication services	148.4	169.3	14.1
Finance and insurance	312.9	327.5	4.7
Property and business services	749.8	988.7	31.9
Government administration and defence	357.3	345.8	-3.2
Education	555.6	609.3	9.7
Health and community services	720.2	828.1	15.0
Cultural and recreational services	189.2	217.1	14.7
Personal and other services	303.7	352.3	16.0
<i>Total</i>	5 776.2	6 497.8	12.5
<b>Total all industries</b>	<b>8 057.4</b>	<b>8 886.5</b>	<b>10.3</b>
Service industries as a percentage of all industries	%	%	..
(a) Annual average.	71.7	73.1	..

Source: *Labour Force, Australia* (6203.0).

## Retail and wholesale trade

### Retail trade

The retail trade industry comprises businesses primarily engaged in the resale of new or used goods to final consumers for personal or household consumption, or in selected repair activities such as repair of household equipment or motor vehicles.

Retail turnover estimates shown below relate to the value of turnover for retailing (such as supermarkets, clothing and department stores, etc.) and hospitality and selected service industries (such as cafes and restaurants, hotels and licensed clubs, etc.). In order to measure the actual value paid by consumers from 1 July 2000, retail turnover is recorded inclusive of the Goods and Services Tax (GST).

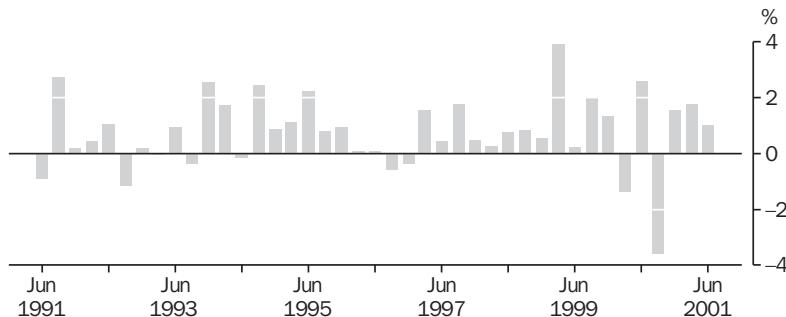
These estimates are used by retailers, industry associations, economists, government and media to analyse consumer spending behaviour and, in conjunction with other economic indicators, to

help assess current Australian economic performance. Quarterly retail turnover estimates, along with other data, are used in the calculation of household final consumption expenditure in the Australian national accounts.

Graph 21.4 presents quarterly changes in the seasonally adjusted chain volume measure of Australian total retail turnover (including selected services). The series rose from \$27,510m in the June quarter 1991 to \$37,726m in the June quarter 2001, an increase of 37.1% representing an average growth of 0.9% per quarter.

The largest quarterly increases in the seasonally adjusted chain volume measure occurred in the March quarter 1999 (3.9%) and in the September quarter 1991 (2.7%). The series also rose by 2.6% in the June quarter 2000, reflecting the unusual increase in the volume of goods sold in some industries prior to the introduction of The New Tax System (TNTS) on 1 July 2000.

**21.4 QUARTERLY CHANGE IN RETAIL TURNOVER, Chain Volume Measures  
(a), Seasonally Adjusted**



(a) Reference year for chain volume measures is 1999–2000.

Source: ABS data available on request, *Retail Business Survey*, quarterly data.

While the price of most goods rose from 1 July 2000, the volume of goods sold across most industries and States dropped as the apparent pull forward in spending in June unwound and the impact of the GST flowed through the economy. This led to a decrease of 3.6% in September quarter 2000, the most significant fall in the period June quarter 1991 to June quarter 2001. The next largest decreases in the series occurred in the March quarter 2000 (by 1.4%) and in the September quarter 1992 (by 1.2%).

Spending patterns stabilised slowly after the introduction of TNTS, although at different rates across industries and States. The seasonally adjusted chain volume measure of Australian retail turnover increased in the most recent three quarters, with a rise of 1% in the June quarter 2001 (graph 21.4).

As shown in table 21.5, the annual original chain volume measure of Australian total retail turnover increased from \$111,054m in 1990–91 to \$147,903m in 2000–01, an increase of 33.2% representing an average annual rise of 3%.

**21.5 RETAIL TURNOVER, Chain Volume Measures (a), By Industry Group, Original**

Year	Food retailing	Department stores	Clothing and soft good retailing	Household good retailing	Recreational good retailing	Other retailing	Hospitality and services	Total(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
1990–91	47 176	10 485	7 939	9 227	6 438	9 365	21 523	111 054
1991–92	49 068	10 858	8 257	9 558	6 507	9 857	20 639	113 732
1992–93	49 304	11 019	7 972	10 175	6 272	10 006	20 040	114 030
1993–94	49 826	11 101	7 992	10 959	6 513	10 920	20 879	117 639
1994–95	52 474	11 450	8 208	11 782	6 896	11 558	22 586	124 382
1995–96	54 953	11 760	8 376	12 569	7 271	12 094	22 980	129 478
1996–97	55 342	11 690	8 259	13 771	6 917	12 521	21 695	129 979
1997–98	57 281	12 025	8 477	14 289	7 051	13 595	22 027	134 561
1998–99	58 257	12 408	9 495	14 691	7 147	14 386	23 904	140 146
1999–2000	58 953	13 148	10 167	17 314	7 261	15 589	25 150	147 581
2000–01	58 752	12 547	9 631	17 940	6 973	16 725	25 335	147 903

(a) Reference year for chain volume measures is 1999–2000. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: ABS data available on request, *Retail Business Survey*, aggregated quarterly data.

During this period, the strongest annual growth occurred in 1994–95 (5.7%). The weakest growth was a 0.2% increase in 2000–01, well down on the 5.3% growth achieved in 1999–2000. Growth in these two years has been affected by the unusual increase in the volume of goods sold prior to the introduction of TNTS on 1 July 2000 and the subsequent decline in the volume of goods sold.

The industry group representing the largest component of retail turnover during this period was food retailing, accounting for 42.5% of total retail turnover in 1990–91 and 39.7% in 2000–01. The next largest industry was hospitality and services with a 17.1% share of total turnover in 2000–01, followed by household good retailing with a 12.1% share of total turnover.

A comparison of the share of retail turnover held by the industry groups in 1990–91 and 2000–01 shows that two industry groups increased their shares, namely household good retailing by 3.8 percentage points and other retailing by 2.9 percentage points. In contrast, five industry groups decreased their shares, ranging from clothing and soft good retailing by 0.6 percentage points to food retailing by 2.8 percentage points.

### Wholesale trade

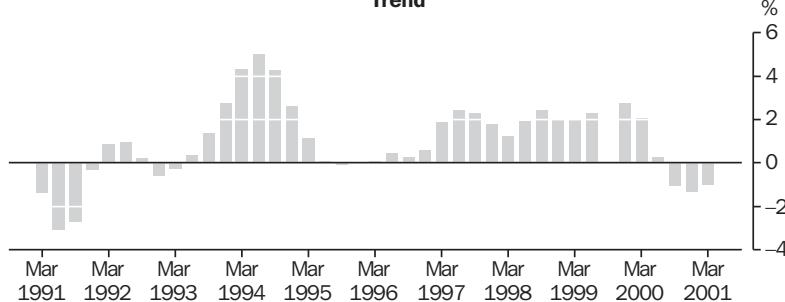
The wholesale trade industry covers those businesses involved in the resale of new or used goods to businesses or to institutional (including government) users.

Along with the retail trade industry, the wholesale trade industry is a significant component of the Australian economy and provides a key indicator of economic activity.

The quarterly trend chain volume measure of Australian total wholesale sales by private businesses rose from \$31,933m in the June quarter 1991 to \$53,715m in the June quarter 2001, an overall increase of 68.2% representing an average growth of 1.7% per quarter.

As shown in graph 21.6, the series reflected the downturn in the economy in 1991, with wholesale sales declining by 3.1% in the June quarter 1991 and 2.7% in the September quarter 1991. The largest increase (5.4%) was recorded in the June quarter 1994. A break in the series occurred between the June and September quarters 1999 as a result of the inclusion of three significant privatised marketing authorities. After declining in the September and December 2000 quarters and the March 2001 quarter (by 1.2%, 1.3% and 0.3% respectively), wholesale sales increased by 0.4% in the June quarter 2001.

**21.6 QUARTERLY CHANGE IN WHOLESALE SALES, Chain Volume Measures(a), Trend**



(a) Reference year for chain volume measures is 1998–99.

Note: A break in series occurred between the June and September 1999 quarters.

Source: ABS data available on request, Inventories and Sales Survey.

## Retailing in the '90s

The ABS conducted its first retail industry collection in respect of 1947–48 and has repeated them at about six yearly intervals until the most recent, undertaken in respect of 1998–99. This article outlines some of the main changes in the characteristics of the retail industry over the last decade.

Compared with 1991–92, results for 1998–99 show that the number of businesses in the retail trade industry increased by 18% and employment increased by 33%. Total income over the period increased by 48%, representing an annual growth rate of 5%, while operating profit before tax almost doubled to \$5.4b (table 21.7).

The retail sector is dominated by businesses located in the eastern seaboard States (table 21.8), with three-quarters of retail industry employment, wages and salaries and income being accounted for by businesses in New South Wales, Victoria and Queensland. In 1998–99

New South Wales retailers accounted for the largest share, 33% of the industry's employment, wages and salaries and income. In terms of total income, the percentage contributions for the remaining States and Territories in descending order were Victoria (23%), Queensland (18%), Western Australia (10%), South Australia (7%), Tasmania (4%), the Australian Capital Territory (2%) and the Northern Territory (1.5%). This order was also maintained for employment and wages and salaries. The distribution of these statistics is consistent with the estimated resident populations of the States and Territories at June 1999.

In 1998–99 the supermarkets and grocery stores industry generated the highest retail sales in the retail sector (\$38.3b) which was 26% of the total retail sales. Specialised food retailing, furniture, houseware and appliance retailing, motor vehicle retailing and motor vehicle services were the next highest, each contributing around 11% to total retail sales (table 21.9).

### 21.7 RETAIL INDUSTRY — 1991–92 and 1998–99

	Units	1991–92	1998–99	Percentage change %
Businesses(a)	no.	83 596	98 289	17.6
Total employment	no. of persons	831 315	1 104 651	32.9
Total income	\$m	114 307	169 251	48.1
Operating profit before tax	\$m	2 738	5 423	98.1
Operating profit margin	%	2.4	3.2	..

(a) Strictly the number of management units.

Source: *Retail Industry, Australia, 1991–92 and 1998–99* (8622.0).

### 21.8 RETAIL INDUSTRY, By State — 1998–99

State/Territory	Total income \$m	Wages and salaries \$m	Employment(a) no.
New South Wales	56 446	6 240	364 259
Victoria	39 170	4 504	258 874
Queensland	30 750	3 268	201 976
South Australia	12 657	1 569	89 972
Western Australia	17 239	1 833	106 544
Tasmania	6 604	630	43 034
Northern Territory	2 523	297	15 224
Australian Capital Territory	3 860	394	24 786
<b>Total</b>	<b>169 251</b>	<b>18 736</b>	<b>1 104 651</b>

(a) At 30 June 1999.

Source: *Retail Industry, Australia, 1998–99* (8622.0).

**21.9 RETAIL SALES, By Industry Group — 1998–99**

Industry group	Retail sales \$m	Share of total %
Supermarket and grocery stores	38 329	26
Specialised food retailing	16 410	11
Department stores	11 885	8
Clothing and soft good retailing	8 996	6
Furniture, houseware and appliance retailing	16 266	11
Recreational good retailing	7 493	5
Other personal and household good retailing	14 896	10
Household equipment repair	96	1
Motor vehicle retailing	16 161	11
Motor vehicle services	15 697	11
<b>Total retail trade</b>	<b>146 229</b>	<b>100</b>

Source: *Retail Industry, Australia, 1998-99* (8622.0).

Australians spent \$146,229m on retail purchases during 1998–99. Food and groceries accounted for more than a third of these purchases, with takeaway food the highest single contributor to sales of food and groceries. The broad retail commodity grouping food and groceries accounted for \$51,542m, or 35% of the total, on average about \$2,700 per head of population. The largest selling food and grocery items were takeaway food (\$7,532m); fresh fruit and vegetables (\$5,181m); cigarettes, cigars and other tobacco products (\$4,719m); and bread, cakes, pastries and biscuits (\$3,919m). The next largest commodity groupings were personal and other goods, on which Australians spent \$31,591m (22%), and motor vehicles and associated goods \$30,111m (21%).

Information relating to gross margins for individual commodities is available for the first time (the gross margin is the difference between the price at which a business purchases a good and the price for which it is sold, expressed as a percentage of the selling price). The individual commodities with the highest gross margins were jewellery and silverware, a gross margin of 49%, and womens' and girls' clothing at 46%. The individual commodities with the lowest gross margins were new cars and passenger vans at 5%, and petrol, diesel and distillate with a 7% gross margin (table 21.10).

**21.10 INCOME AND GROSS MARGIN, By Selected Commodity Item — 1998–99**

Item	Sales \$m	Gross margin %
Jewellery and silverware	1 386	49
Womens' and girls' clothing	4 797	46
Fresh fruit and vegetables	5 181	37
Bread, cakes, pastries and biscuits	3 919	35
Furniture and mattresses	3 664	31
Fresh meat	3 512	29
Medical and pharmaceutical products	6 996	29
Newspapers, periodicals and maps	2 089	22
Personal computers	1 270	14
Cigarettes, cigars and other tobacco products	4 719	11
New cars and passenger vans	7 139	5

Source: *Retail Industry, Commodity Sales, Australia, 1998-99* (8624.0).

## Hospitality industries

### Accommodation

The accommodation industry, an important part of the tourism and hospitality sector, consists of hotels, motels, caravan parks and similar businesses mainly engaged in providing short term accommodation. It excludes those hotels that provide short term accommodation, but whose main activity is selling alcoholic beverages for consumption on the premises.

At 30 June 1998 there were 6,143 businesses in the accommodation industry. This represented a 16% increase over the number at June 1996. These businesses employed a total of 97,201 persons at 30 June 1998, an increase of 20% since June 1996. Females accounted for almost 59% of total employment within the industry.

As table 21.11 shows, the total income of the industry in 1997–98 was \$6,763m, with takings from accommodation accounting for the majority (61%) of this total. Other significant income items included takings from meals (17%) and sales of liquor and other beverages (8%). Labour costs (\$2,035m) accounted for just over 32% of total expenses (\$6,269m), making it the most significant expense item. The resulting operating profit before tax in 1997–98 was \$502m, representing an operating profit margin for the period of 7.8%, the same as for 1995–96.

### Clubs, pubs, taverns and bars

Along with the accommodation industry, the clubs, pubs, taverns and bars industries are important elements of the tourism and hospitality sector. The clubs industry covers businesses mainly engaged in the provision of hospitality services to members, while the pubs, taverns and bars industry covers businesses which mainly sell alcoholic beverages for consumption on the premises.

At the end of June 1998, there were 8,541 businesses in the clubs, pubs, taverns and bars industries combined, employing 148,996 persons (table 21.12). During 1997–98, the total income of the clubs, pubs, taverns and bars industries was \$14,266m, an increase of 28% over 1994–95. After expenses, the combined operating profit before tax for these industries was \$1,242m, representing an operating profit margin of 8.8%.

At 30 June 1998, there were 3,749 businesses in the clubs industry, a 14% increase in the three years since June 1995. Employment increased by almost 8% in the same period, to 67,272 persons at 30 June 1998. The majority (56%) of employees worked on a casual basis.

### 21.11 ACCOMMODATION INDUSTRY

	1995–96	1997–98	Increase
	no.	no.	%
Businesses at 30 June	5 288	6 143	16.2
Employment at 30 June	persons 81 086	persons 97 201	19.9
Income	\$m	\$m	%
Takings from accommodation	3 253	4 141	27.3
Other income	2 006	2 621	30.6
<i>Total</i>	5 259	6 763	28.6
Expenses			
Labour costs	1 592	2 035	27.8
Other expenses	3 265	4 234	29.7
<i>Total</i>	4 857	6 269	29.1
Operating profit before tax	401	502	25.2
Operating profit margin	%	%	..
	7.8	7.8	

Source: *Accommodation Industry, Australia, 1997–98* (8695.0).

**21.12 CLUBS (HOSPITALITY) AND PUBS, TAVERNS AND BARS INDUSTRIES**

	1994–95	1997–98	Increase
	no.	no.	%
Businesses at 30 June	3 284	3 749	14.2
	persons	persons	%
Employment at 30 June	62 536	67 272	7.6
	\$m	\$m	%
Income			
Sales of meals and alcohol and other beverages	1 729.8	2 111.1	22.0
Takings from gambling	2 355.4	3 207.6	36.2
Total	4 729.4	6 012.5	27.1
Operating profit before tax	429.1	561.0	30.7
	%	%	
Operating profit margin	9.2	9.4	..
PUBS, TAVERNS AND BARS			
Businesses at 30 June	no. 4 325	no. 4 792	% 10.8
	persons	persons	%
Employment at 30 June	71 437	81 724	14.4
	\$m	\$m	%
Income			
Sales of meals and alcohol and other beverages	5 278.2	6 530.1	23.7
Takings from gambling	576.1	1 325.6	130.1
Total	6 390.1	8 253.3	29.2
Operating profit before tax	258.2	681.1	163.8
	%	%	
Operating profit margin	4.1	8.3	..
CLUBS (HOSPITALITY) AND PUBS, TAVERNS AND BARS			
Businesses at 30 June	no. 7 609	no. 8 541	% 12.2
	persons	persons	%
Employment at 30 June	133 973	148 996	11.2
	\$m	\$m	%
Income			
Sales of meals and alcohol and other beverages	7 008.1	8 641.3	23.3
Takings from gambling	2 931.4	4 533.1	54.6
Total	11 119.5	14 265.8	28.3
Operating profit before tax	687.3	1242.1	80.7
	%	%	
Operating profit margin	6.2	8.8	..

Source: Clubs, Pubs, Taverns and Bars, Australia, 1997–98 (8687.0).

The provision of gambling services is an important aspect of the clubs industry; 53% of the total income of the industry in 1997–98 was attributable to gambling. The clubs industry generated total income of \$6,013m in 1997–98 (an increase of 27% since 1994–95); after expenses this resulted in an operating profit

before tax of \$561m. The operating profit margin for the clubs industry was 9.4%, clubs with gambling facilities having a higher operating profit margin (9.6%) than clubs without gambling facilities (7.1%).

There were 4,792 businesses in the pubs, taverns and bars industry at 30 June 1998, an 11% increase since June 1995. In the three years from June 1995, employment in the industry increased by 14% to 81,724 persons at 30 June 1998. As in the clubs industry, most employment (65%) in the pubs, taverns and bars industry was on a casual basis.

The increasing influence of gambling activity in the pubs, taverns and bars industry was reflected in the 130% increase in gambling income in the period 1994–95 to 1997–98. Businesses in the industry generated gambling income of \$1,326m in 1997–98. Despite this growth, sales of liquor and other beverages (\$5,848m) were still the major source of income. After expenses, operating profit before tax in the industry was \$681m. In terms of operating profit margin, pubs, taverns and bars with gambling facilities outperformed those without gambling facilities (8.9% compared to 5.7%) in 1997–98. The overall operating profit margin for the industry was 8.3%, up significantly on 4.1% in 1994–95.

### Cafes and restaurants

Another important industry in the hospitality sector is the cafes and restaurants industry. This includes businesses mainly engaged in operating cafes and restaurants for consumption of meals on the premises and businesses mainly engaged in catering services. Businesses mainly engaged in selling takeaway food are excluded.

At the end of June 1999 there were 12,845 employing businesses in the cafes and restaurants industry (table 21.13). These businesses operated at 14,199 locations, comprising 4,552 licensed cafes and restaurants, 1,891 licensed and BYO cafes and restaurants, 2,748 BYO cafes and restaurants and 3,291 unlicensed cafes and restaurants. In addition, there were 1,716 locations operated by catering businesses. At the end of June 1999 the cafes and restaurants in the industry had 1,057,100 seats available for consuming food on the premises, which represented 85 seats per cafe and restaurant location.

### 21.13 CAFES AND RESTAURANTS INDUSTRY — 1998–99

	Units	Value
Businesses at 30 June		
Licensed cafes and restaurants	no.	4 197
Licensed and BYO cafes and restaurants	no.	1 801
BYO cafes and restaurants	no.	2 668
Unlicensed cafes and restaurants	no.	2 861
Catering businesses	no.	1 318
<i>Total</i>	no.	12 845
Employment at 30 June		
Waiters/waitresses	persons	63 093
Kitchen hands	persons	25 655
Managers/supervisors	persons	18 025
Chefs/cooks	persons	28 893
Other	persons	16 441
<i>Total</i>	persons	152 107
Income		
Takings from meals consumed on the premises	\$m	3 947.7
Takings from take-away food	\$m	444.6
Takings from beverages	\$m	1 117.2
Takings from catering services	\$m	1 264.7
Other income	\$m	400.0
<i>Total</i>	\$m	7 174.3
Expenses		
Labour costs	\$m	2 109.4
Purchases	\$m	2 917.2
Rent of land, buildings and other structures	\$m	504.0
Other expenses	\$m	1 274.6
<i>Total</i>	\$m	6 805.2
Operating profit before tax	\$m	334.2
Operating profit margin	%	4.8

Source: Cafes and Restaurants Industry, Australia, 1998–99 (8655.0).

During 1998–99, businesses in the cafes and restaurants industry generated \$7,174m in income. Over half of this income (55%) was generated from sales of meals consumed on the premises. Sales of beverages accounted for a further \$1,117m (16%) while catering services generated \$1,265m (18%) of total income.

Total expenses of businesses in the industry during 1998–99 were \$6,805m. The two largest expense items were purchases (\$2,917m) and labour costs (\$2,109m), which represented 43% and 31% respectively of total expenses.

During 1998–99, the industry recorded an operating profit before tax of \$334m, representing an operating profit margin of 4.8%. The operating profit before tax (excluding caterers) represented an annual return per available seat of \$251.

At the end of June 1999 total employment in the cafes and restaurants industry was 152,107 persons, of whom 63,093 (41%) were waiters and waitresses. Just over half (51%) of persons working in the industry were casuals, which was reflected in the average labour cost per employee of \$15,000.

## Selected business professions

### Accounting services

At 30 June 1996 there were 8,389 businesses in the accounting services industry (table 21.14). Most accounting businesses were small, 95% employing fewer than 20 employees. There were 18 businesses in the industry employing 100 or more persons, less than 1% of total businesses, but these 18 large businesses accounted for significant proportions of total employment (26%) and total income (39%).

There were 66,792 persons employed in the accounting services industry at the end of June 1996. The majority (83%) of employment was full-time. Females accounted for 51% of total employment in the industry. While females comprised 76% of support staff, they represented only 17% of working principals and 41% of accountants working as employees.

During 1995–96 the accounting services industry generated \$4,939m in total income, an average of \$588,800 per business. After expenses, the industry recorded an operating profit before tax of \$955m, representing an operating profit margin of 19.4%, slightly less than in 1992–93.

Income from accounting services (\$4,407m) contributed 89% of total income in 1995–96. As shown in table 21.15, taxation services (36%) generated the largest proportion of income from accounting services, followed by general business and personal accounting services (30%) and auditing services (20%).

### 21.14 ACCOUNTING SERVICES INDUSTRY

	1992–93	1995–96	Increase
	no.	no.	%
Businesses	8 699	8 389	-3.6
	persons	persons	%
Employment			
Principals	14 143	15 409	9.0
Qualified employees	18 277	22 207	21.5
Other employees	27 580	29 175	5.8
Total	60 000	66 792	11.3
	\$m	\$m	%
Total income	4 086.4	4 939.1	20.9
Operating profit before tax	828.6	954.6	15.2
	%	%	
Operating profit margin	20.5	19.4	..

Source: Legal and Accounting Services, Australia, 1995–96 (8678.0).

### 21.15 INCOME FROM ACCOUNTING SERVICES — 1995–96

	Value	Contribution to total
Type of accounting service	\$m	%
Auditing	895.9	20.3
General business and personal accounting	1 311.6	29.8
Insolvency, reconstruction	236.3	5.4
Investment financial planning advice	167.1	3.8
Taxation	1 574.6	35.7
Other accounting services	221.7	5.0
<b>Total</b>	<b>4 407.2</b>	<b>100.0</b>

Source: Legal and Accounting Services, Australia, 1995–96 (8678.0).

### Computing services

The computing services industry consists of businesses mainly involved in providing services such as data processing, information storage and retrieval, computer maintenance, computer consultancy, and other computing services. The ABS conducted a survey of the computing services industry for 1998–99, the first survey of the industry since 1995–96. In the intervening three years, the industry changed significantly, as shown in table 21.16.

In the three years since June 1996, the number of businesses in the industry increased by just over 50%, from 9,679 businesses at 30 June 1996 to 14,731 businesses at 30 June 1999. Employment in the industry increased significantly (by 35%, or 10% per annum), with employment at 30 June 1999 of 74,395 persons.

Total income of the industry in the financial year 1998–99 was \$10,474m, an increase of 30% on that recorded in 1995–96. This represented an increase of 9% per annum over the three year period. The provision of computing services accounted for 87% of all income in 1998–99. Income from the provision of telecommunications services more than doubled from \$148m in 1995–96 to \$312m in 1998–99. In contrast, income from the sale of computer and communication hardware, parts and consumables fell significantly in the period, from \$1,047m in 1995–96 to \$535m in 1998–99.

The total expenditure of businesses in the computer services industry during 1998–99 was \$9,654m. This resulted in an operating profit before tax of \$836m, which represented an operating profit margin of 8.2%, significantly higher than the 5.7% recorded in 1995–96, but lower than the 9.5% recorded in 1992–93.

#### 21.16 COMPUTING SERVICES INDUSTRY

	1992–93	1995–96	1998–99	Percentage growth from 1995–96 to 1998–99	Annualised percentage growth from 1995–96 to 1998–99
	no.	no.	no.	%	%
Businesses at 30 June	4 894	9 679	14 731	52.2	15.0
	persons	persons	persons	%	%
Employment at 30 June	30 056	55 046	74 395	35.2	10.6
	\$m	\$m	\$m	%	%
Income					
Income from the provision of computer services and the sale and licensing of packaged software	3 251.2	6 504.7	9 409.2	44.7	13.1
Income from the provision of telecommunications services	95.5	147.9	312.3	111.2	28.3
Income from the sale of computer and communication hardware, parts and consumables	488.8	1 047.8	525.1	-49.9	-20.6
Other income	264.7	387.9	227.4	-41.4	-16.3
Total	4 100.2	8 088.3	10 474.0	29.5	9.0
Expenses					
Labour costs	1 293.6	2 726.8	4 065.0	49.1	14.2
Payments to contractors and consultants for computing and communications services	294.6	892.0	1 396.4	56.5	16.1
Other expenses	2 160.9	4 022.7	4 193.0	4.2	1.4
Total	3 749.1	7 641.5	9 654.4	26.3	8.1
Operating profit before tax	364.9	455.1	835.6	83.6	22.5
	%	%	%		
Operating profit margin	9.5	5.7	8.2	..	..

Source: Computing Services Industry, Australia, 1998–99 (8669.0).

The computing services industry is concentrated in New South Wales and Victoria, which together accounted for 75% of total employment and 78% of total income in 1998–99. States' shares of both employment and income were well above their shares of the Australian population in 1998–99 (34% and 25% respectively). The average income per business in the industry was \$711,000. Businesses operating in the Australian Capital Territory (average income of \$853,600) and New South Wales (\$813,000) had the highest average income per business. The lowest were recorded in Tasmania (\$255,000) and the Northern Territory (\$252,800).

### Consultant engineering services

The ABS conducted a survey of the consultant engineering services industry for 1995–96, to update the results of a survey in respect of 1992–93. There were 5,514 businesses in the industry at 30 June 1996 (table 21.17). This represented an increase of only 1% in the three year period since June 1993.

#### 21.17 CONSULTANT ENGINEERING SERVICES INDUSTRY

	1992–93	1995–96	Increase
	no.	no.	%
Businesses at 30 June	5 454	5 514	1.1
Employment at 30 June	persons	persons	%
Full-time	23 244	25 384	9.2
Part-time	4 964	5 352	7.8
Total	28 208	30 736	9.0
Contract and agency staff	3 954	8 212	107.7
Total income	\$m	\$m	%
Expenses	2 358	3 233	37.1
Labour costs	971	1 242	27.9
Payments to contract and agency staff	449	499	11.1
Other expenses	782	996	27.3
Total	2 202	2 736	24.3
Operating profit before tax	156	351	125.4
Operating profit margin	6.7	11.0	..

Source: Consultant Engineering Services, Australia 1995–96 (8693.0).

The consultant engineering services industry employed a total of 30,736 persons at 30 June 1996, of which full-time employment accounted for 83% (25,384 persons). Employment in the industry at 30 June 1996 represented a 9% increase since June 1993. In addition to 30,736 employed persons,

a further 8,212 persons were working on a contract or agency basis in the industry at 30 June 1996. The number of staff working on this basis more than doubled since June 1993, when there were 3,954 contract and agency staff. Overall 38,948 persons were working in the industry at 30 June 1996, an increase of 21% since June 1993.

The 5,514 businesses operating at 30 June 1996 generated total income of \$3,233m and had expenses of \$2,736m. The main sources of income were civil engineering (\$505m), mining and geotechnical engineering services (\$463m), and building/structural engineering services (\$391m). The main items of expense were labour costs and payments to contractors and agency staff, which together accounted for 64% of all expenses in 1995–96.

The consultant engineering services industry recorded an operating profit before tax of \$351m for the 1995–96 financial year, which represented an operating profit margin of 11.0%. This was a significant increase on the profit margin (6.7%) recorded in 1992–93.

Businesses in the consultant engineering services industry were concentrated in four States. Businesses operating in New South Wales accounted for 28% of total income, while Victoria (29%), Queensland (18%), and Western Australia (18%) were the other significant contributors.

### Legal services

At the end of June 1999 there were 11,026 organisations involved in the legal services industry. The large majority (98%) of these organisations were either solicitor practices (7,115 organisations) or barrister practices (3,704 organisations). The remaining organisations comprised 39 patent attorney businesses, nine government solicitors, eight legal aid authorities and 152 community legal centres.

The 7,115 solicitor practices (table 21.18) operating at 30 June 1999 represented an increase of 11% on the 6,403 practices operating at 30 June 1996. Employment within solicitor practices increased by 10% over the same period, with 67,278 persons employed at the end of June 1999. There were 25,044 qualified solicitors and barristers working in solicitor practices at 30 June 1999. Other persons working for solicitor practices were para legals (6,383 persons), articled clerks (1,894 persons) and other staff (33,957 persons). On average there were 1.7 other staff for every qualified solicitor.

## 21.18 SOLICITOR PRACTICES

	Units	1995-96	1998-99	Percentage change
				%
Practices at 30 June	no.	6 403	7 115	11.1
Employment at 30 June				
Qualified solicitors/barristers	persons	23 495	25 044	6.6
Other	persons	37 555	42 234	12.5
Total	persons	61 051	67 278	10.2
Income				
Income from legal services				
Commercial and finance	\$m	1 509.0	2 194.3	45.4
Property	\$m	1 022.2	1 152.3	12.7
Personal injury	\$m	735.8	966.4	31.3
Family	\$m	275.4	279.1	1.3
Other	\$m	985.2	1 235.1	25.4
Total	\$m	4 527.7	5 827.2	28.7
Other income	\$m	307.9	364.3	18.3
Total	\$m	4 835.6	6 191.5	28.0
Expenses				
Labour costs	\$m	1 816.5	2 131.7	17.4
Other expenses	\$m	1 757.6	2 120.0	20.6
Total	\$m	3 574.1	4 251.7	19.0
Operating profit before tax	\$m	1 325.1	1 939.8	46.4
Operating profit margin	%	27.5	31.4	..

Source: *Legal Services Industry, Australia, 1998-99* (8667.0).

During 1998-99, solicitor practices generated \$6,192m in income, representing an average gross income per practice of \$870,200. The main sources of income were from commercial law (\$1,821m), property law (\$1,152m) and personal injury law (\$966m). These three fields of law accounted for 64% of solicitor practice income.

The total expenses of solicitor practices during 1998-99 were \$4,252m, a 19% increase since 1995-96. Labour costs (\$2,132m) accounted for 50% of total expenses. The major components of labour costs were wages and salaries paid to solicitors and barristers of \$805m (representing \$63,300 per employed solicitor/barrister) and wages and salaries paid to other employees of \$1,153m (representing \$27,300 per other employee).

After expenses, the operating profit before tax of solicitor practices during 1998-99 was \$1,940m. The operating profit margin in 1998-99 was 31.4%, a small increase on the operating profit margin of 27.5% in 1995-96.

During 1998-99 solicitor practices spent 1,782,000 hours on pro bono work, made up of 826,000 hours providing legal services without expecting a fee, 835,200 hours providing legal services at a reduced fee and 120,300 hours of involvement in free community legal education and law reform work.

At the end of June 1999 there were 3,704 barrister practices, an 11% increase over the number of practices operating at the end of June 1996 (table 21.19). At 30 June 1999 there were 5,908 persons working in barrister practices. In terms of employment, all barrister practices were small businesses, with average employment per practice of 1.6 persons. There were 3,704 qualified barristers, the remainder being support staff. Males comprised 89% of barristers.

Barrister practices generated \$843m in income during 1998-99, a 23% increase on the \$687m generated in 1995-96.

The main sources of income for barrister practices in 1998-99 were from personal injury law (\$235m), commercial law (\$228m), and criminal law (\$89m). Significant income was also sourced from administrative and constitutional law (\$54m), family law (\$43m), banking and finance law (\$38m), intellectual property law (\$33m) and property law (\$31m).

Total expenses of barrister practices during 1998-99 were \$299m. The two major expenses were chamber fees of \$54m and labour costs of \$49m. The operating profit before tax of these practices was \$544m, which represented an operating profit margin of 64.7%. This compares with an operating profit margin of 60.5% in 1995-96.

**21.19 BARRISTER PRACTICES**

Type of legal service	Units	1995–96	1998–99	Percentage change
				%
Practices at 30 June	no.	3 350	3 704	10.6
Employment at 30 June	persons	5 779	5 908	2.2
Income				
Income from legal services				
Personal injury	\$m	161.1	234.9	45.8
Commercial and finance	\$m	273.1	266.4	-2.5
Criminal	\$m	63.0	89.0	41.3
Other	\$m	174.9	247.0	104.3
Total	\$m	672.1	837.3	24.6
Other income	\$m	14.6	5.5	-62.3
Total	\$m	686.7	842.8	22.7
Expenses				
Labour costs	\$m	66.5	49.3	-25.9
Other expenses	\$m	220.9	249.8	25.4
Total	\$m	287.4	299.2	4.1
Operating profit before tax	\$m	411.7	543.6	32.0
Operating profit margin	%	60.5	64.7	..

Source: Legal Services Industry, Australia, 1998–99 (8667.0).

**Real estate services**

The real estate services industry covers businesses mainly engaged in valuing, purchasing, selling (by auction or private treaty), managing or renting real estate on behalf of other people. The most recent survey of the industry was in respect of 1998–99.

There were 7,589 private sector businesses in the real estate services industry at 30 June 1999 (table 21.20). This represented a fall of 6% in the

three year period since June 1996. At 30 June 1999 there were 52,079 persons employed in the industry, a decrease of 5% since June 1996. The industry comprised 21,276 sales staff (41% of total employment), 9,439 property managers (18%), 2,399 leasing staff (5%), 1,581 valuers (3%) and 17,384 other staff, who were mainly administrative staff. Female staff (28,167 persons) accounted for 54% of total industry employment at the end of June 1999, compared to 49% in June 1996.

**21.20 REAL ESTATE SERVICES INDUSTRY**

	Units	1995–96	1998–99
Businesses at 30 June			
Real estate agency	no.	n.a.	6 216
Property valuation service	no.	n.a.	429
Conveyancing	no.	n.a.	463
Other	no.	n.a.	481
Total	no.	8 079	7 589
Employment at 30 June	persons	54 817	52 079
Income			
Income from property sales and leasing commissions	\$m	2 018.8	2 502.8
Income from property management commissions	\$m	855.7	925.0
Other income	\$m	412.9	475.0
Total	\$m	3 287.5	3 902.7
Expenses			
Labour costs	\$m	1 600.1	1 847.5
Other expenses	\$m	1 422.9	1 590.2
Total	\$m	3 023.1	3 437.7
Operating profit before tax	\$m	264.4	465.0
Operating profit margin	%	8.2	12.0

Source: Real Estate Services Industry, Australia, 1998–99 (8663.0).

During 1998–99, private sector businesses in the real estate services industry generated \$3,903m in income, an increase of 19% since 1995–96. Most income (64%) was derived from property sales and leasing commissions. The other major source of income was property management commissions, which accounted for 24% of total income. After expenses, the industry had an operating profit before tax of \$465m. This represented an operating profit margin of 12.0%, significantly higher than the operating profit margin (8.2%) recorded in 1995–96.

Businesses in the real estate services industry were concentrated in four States. In 1998–99, New South Wales accounted for 34% of total income, while Victoria (26%), Queensland (19%) and Western Australia (12%) were also major contributors.

In conjunction with the survey of real estate services, the ABS conducted its first survey of government valuer-general organisations, in respect of 1998–99. Results of this survey are presented in table 21.21.

At the end of June 1999, there were nine government valuer-general organisations, employing 979 persons, of which 602 worked as valuers.

The large majority (96%) of total income (\$131m during 1998–99) came from property valuations, which also included government funding for this

valuation activity. Of the total expenses of \$126m, 42% was attributable to labour costs. Other major expenses were contract payments to private sector valuers (\$23m) and corporate overhead payments (\$19m).

### Travel agency services

The travel agency services industry covers those businesses whose main activity is the provision of travel agency services such as transport and/or accommodation bookings and tour wholesaling or retailing. The ABS conducted a survey of this industry in respect of 1996–97, to follow up on the results of the first survey in respect of 1986–87.

As shown in table 21.22 there were 3,266 businesses involved in the travel agency services industry at 30 June 1997. These businesses comprised 2,842 retail travel agent businesses, 174 wholesalers/ticket consolidators, 170 inbound tour operators and 80 tourist bureaux.

The industry generated total income of \$1,980m in 1996–97. Retail travel agency businesses accounted for \$1,129m (57%), while wholesalers/ticket consolidators were the other major contributor, accounting for \$483m (24%) of total income.

Total employment of the industry at 30 June 1997 was 24,451 persons, the majority (80% or 19,502 persons) employed full-time. The retail travel agents accounted for 68% (16,505 persons) of total employment in the industry.

### 21.21 GOVERNMENT VALUER-GENERAL ORGANISATIONS — 1998–99

	Units	Value	%
	no.	9	..
Organisations at 30 June			
Employment at 30 June			
Permanent full-time	persons	865	88.4
Permanent part-time	persons	37	3.8
Casual/temporary	persons	77	7.9
Total	persons	979	100.0
Income			
Income from property valuations	\$m	125.5	95.9
Other income	\$m	5.4	4.1
Total	\$m	130.9	100.0
Expenses			
Labour costs	\$m	53.4	42.4
Other expenses	\$m	72.6	57.6
Total	\$m	126.0	100.0

Source: *Real Estate Services Industry, Australia, 1998–99* (8663.0).

**21.22 TRAVEL AGENCY SERVICES INDUSTRY — 1996–97**

	Units	Retailers	Wholesalers and ticket consolidators	Inbound tour operators	Tourist bureaux	Total
Businesses at 30 June	no.	2 842	174	170	80	<b>3 266</b>
Employment at 30 June						
Full-time	persons	13 508	3 985	1 699	310	<b>19 502</b>
Part-time	persons	2 997	577	1 078	298	<b>4 949</b>
Total	persons	16 505	4 562	2 777	608	<b>24 451</b>
Income						
Ticket sales	\$m	903.4	373.9	287.5	6.0	<b>1 570.8</b>
Other travel related income	\$m	133.8	40.2	18.3	2.2	<b>194.6</b>
Other income	\$m	92.1	68.7	34.3	19.1	<b>214.2</b>
Total	\$m	1 129.3	482.8	340.1	27.3	<b>1 979.5</b>
Expenses						
Labour costs	\$m	407.1	156.8	70.3	13.7	<b>647.9</b>
Other expenses	\$m	628.7	395.4	248.9	14.7	<b>1 287.7</b>
Total	\$m	1 035.8	552.2	319.2	28.4	<b>1 935.6</b>
Operating profit before tax	\$m	89.4	-72.5	21.3	-0.9	<b>37.3</b>
Operating profit margin	%	8.1	-16.8	6.5	-5.3	<b>2.0</b>

Source: *Travel Agency Services Industry, Australia, 1996–97* (8653.0).

The travel agency services industry generated an operating profit before tax of \$37m in 1996–97. This represented an operating profit margin of 2.0% for the year. However, the operating profit margin varied considerably by type of travel agency business. While retail travel agents and inbound tour operators both recorded positive operating margins (8.1% and 6.5% respectively), wholesale travel agency businesses recorded a negative operating profit margin (-16.8%), from a net loss of \$73m in 1996–97.

### Market research services

The ABS conducted its first survey of the market research services industry in respect of 1998–99. The industry is composed of businesses mainly engaged in providing market research services, but excludes businesses mainly providing business consulting services and/or marketing services.

At the end of June 1999 there were 272 businesses in the industry, of which 224 businesses mainly provided market research consultancy services, and 48 businesses mainly provided field work services supporting other businesses in the industry (table 21.23).

At 30 June 1999 there were 10,744 persons working in the market research services industry, including 1,580 consultants, researchers and data analysts with an average salary of \$60,900. In comparison, the average salary of the 9,164 other employees was \$9,000, reflecting the very high incidence (75%) of casual staff.

During 1998–99 total income within the market research services industry was \$456m, the key components being quantitative research (\$307m) and qualitative research, which accounted for \$104m. Labour costs (\$203m) represented 53% of total expenses (\$384m). An operating profit before tax of \$72m in 1998–99 represented an operating profit margin of 15.9%.

During 1998–99 total income from market research activity was \$439m (96% of total income). Table 21.24 shows that 144 businesses in the industry received income of \$98m from market research in fast moving consumer goods. The other main spheres of work were other retail with 126 businesses receiving \$62m, and finance and insurance services with 132 businesses receiving \$56m.

In 1998–99 the market research services industry was concentrated in New South Wales, with 59% of market research businesses operating in that State and accounting for 50% of total industry employment and 53% of total industry income. The only other State with substantial market research activity was Victoria, which accounted for 31% of total industry employment and 31% of total industry income.

**21.23 MARKET RESEARCH SERVICES INDUSTRY — 1998–99**

	Units	Value
Businesses at 30 June		
Market research consultancy businesses	no.	224
Field work for market research consultancy businesses	no.	48
Total	no.	272
Employment at 30 June		
Consultants, researchers and data analysts	persons	1 580
Administrative support	persons	651
Data collection/processing	persons	8 414
Other	persons	98
Total	persons	10 744
Income		
Income from market research services		
Qualitative research	\$m	104.2
Quantitative research	\$m	306.5
Other (including desk research)	\$m	28.1
Total	\$m	438.8
Other income	\$m	16.9
Total	\$m	455.8
Expenses		
Labour costs	\$m	203.4
Other expenses	\$m	180.5
Total	\$m	383.9
Operating profit before tax	\$m	71.9
Operating profit margin	%	15.9

Source: Market Research Services, Australia, 1998–99 (8556.0).

**21.24 INCOME FROM MARKET RESEARCH, By Sphere of Work — 1998–99**

	Businesses at end June(a)	Value	Proportion of total income
	no.	\$m	%
Fast moving consumer goods	144	97.5	22.2
Retail (excluding fast moving consumer goods)	126	62.2	14.2
Tourism and hospitality	83	22.0	5.0
Communication and information technology	122	31.4	7.2
Automotive	66	18.1	4.1
Utilities	73	17.6	4.0
Finance and insurance services	132	56.1	12.8
Health and pharmaceutical	118	43.1	9.8
Media	61	40.6	9.3
Other	127	50.1	11.4
<b>Total</b>	<b>272</b>	<b>438.8</b>	<b>100.0</b>

(a) Businesses may have more than one sphere of work. Hence the counts of businesses for each sphere of work do not sum to the total.

Source: Market Research Services, Australia, 1998–99 (8556.0).

## Selected business services

### Cleaning services

The ABS conducted its first survey of the cleaning services industry in respect of 1998–99. The industry includes businesses mainly engaged in the cleaning of windows and building interiors, and related cleaning services. Businesses mainly involved in the cleaning of building exteriors or cleaning of carpets and curtains are excluded.

At the end of June 1999 there were 5,938 businesses in the cleaning services industry, of which 2,864 were sole proprietorships or partnerships. As shown in table 21.25, the cleaning of commercial buildings and offices was the main cleaning activity for 2,899 businesses (49% of all businesses in the industry).

At June 30 1999, total employment in the cleaning services industry was 95,001 persons, of whom 90,267 persons (95%) worked as cleaners. Nearly half (48%) of the persons working in the industry were permanent part-time employees. Casual employees accounted for 26% and full-time employees accounted for 22% of total employment. The remaining 5% of employment comprised working proprietors and partners.

During 1998–99 the total income of the cleaning services industry was \$2,137m, of which \$2,044m was derived from general cleaning services. Some 42% of the latter came from the cleaning of commercial buildings and offices, 16% from the cleaning of education premises, 15% from retail premises and 8% from industrial premises.

Labour costs of \$1,377m represented 70% of total expenses (\$1,981m) of the cleaning services industry during 1998–99. The average labour costs per employee were \$15,200, which reflected the high incidence of casual and part-time employees working in the industry. After expenses, the operating profit before tax for the cleaning services industry was \$156m, representing an operating profit margin of 7.3%.

Of the 5,938 businesses in the cleaning services industry, only 101 businesses (less than 2% of all businesses) employed more than 100 persons. These large businesses accounted for 52% of industry income, and 55% of industry employment.

### 21.25 CLEANING SERVICES INDUSTRY — 1998–99

	Units	Value
Businesses at 30 June		
Sole proprietor or partnership	no.	2 864
Incorporated company	no.	2 415
Trust	no.	659
<i>Total</i>	no.	5 938
Businesses by main cleaning activity		
Commercial buildings/office premises	no.	2 899
Industrial premises	no.	345
Retail premises	no.	532
Domestic premises	no.	717
Event venues	no.	28
Education premises	no.	776
Hospitality premises	no.	449
Health premises	no.	85
Transport facilities	no.	38
Other	no.	69
<i>Total</i>	no.	5 938
Employment at 30 June		
Cleaning	persons	90 267
Other	persons	4 734
<i>Total</i>	persons	95 001
Income		
Income from general cleaning services		
From the private sector	\$m	1 555.4
From the public (government) sector	\$m	488.7
<i>Total</i>	\$m	2 044.1
Other income	\$m	92.9
<i>Total</i>	\$m	2 137.0
Expenses		
Labour costs	\$m	1 377.1
Payments to sub-contractors for general cleaning services	\$m	166.0
Purchases	\$m	100.2
Other expenses	\$m	337.9
<i>Total</i>	\$m	1 981.0
Operating profit before tax	\$m	155.5
Operating profit margin	%	7.3

Source: *Cleaning Services Industry, Australia, 1998–99* (8672.0).

### Security services

The first ABS survey of the security services industry was conducted in respect of 1998–99. The industry is defined as all businesses mainly engaged in providing security, protection and private enquiry services. It excludes police services and businesses mainly providing locksmith services, alarm installing, or manufacturing and wholesaling of alarms.

At the end of June 1999 there were 1,714 businesses in the security services industry (table 21.26). The provision of static guard/crowd control services was the main activity of 811 businesses within the sector, and the provision of mobile patrol services was the main activity of 420 businesses. Of the remainder, 368 businesses were mainly involved in private investigative and enquiry services, 54 businesses in security monitoring services, and 26 businesses in cash-in-transit/armoured car services.

#### **21.26 SECURITY SERVICES INDUSTRY — 1998–99**

	Units	Value
<b>Businesses by main security activity at 30 June</b>		
Cash-in-transit/armoured car service	no.	26
Mobile patrol service	no.	420
Static guard/crowd control service	no.	811
Security monitoring service	no.	54
Private investigator/enquiry service	no.	368
Other security services	no.	35
<i>Total</i>	<i>no.</i>	<i>1 714</i>
<b>Employment at 30 June</b>	<b>persons</b>	<b>31 752</b>
<b>Income</b>		
Income from security services		
Mobile patrol service	\$m	320.9
Static guard/crowd control service	\$m	532.2
Security monitoring service	\$m	121.2
Private investigator/enquiry service	\$m	53.3
Other security services	\$m	311.6
<i>Total</i>	<i>\$m</i>	<i>1 339.2</i>
Other income	\$m	55.6
<i>Total</i>	<i>\$m</i>	<i>1 394.8</i>
<b>Expenses</b>		
Labour costs	\$m	756.2
Payments to sub-contractors for security services	\$m	205.9
Other expenses	\$m	341.5
<i>Total</i>	<i>\$m</i>	<i>1 303.6</i>
Operating profit before tax	\$m	89.7
Operating profit margin	%	6.5

Source: Security Services, Australia, 1998–99 (8557.0).

At 30 June 1999 there were 31,752 persons working in the security services industry. Casual employees accounted for 47% of total employment, while full-time employees and permanent part-time employees accounted for 37% and 14% respectively.

During 1998–99, the total income of the security services industry was \$1,395m. Businesses in the industry carried out a diverse range of security work, with 38% of total income generated from static guard and crowd control services, 23% from

mobile patrol services and 22% from other security services including cash-in-transit and armoured car services. Other major sources of income were security monitoring services (9% of total income) and private investigator and enquiry services (4% of total income).

Expenses of \$1,304m were incurred by the security services industry during 1998–99. Labour costs of \$756m accounted for 58% of total expenses. In 1998–99, the industry recorded an operating profit before tax of \$90m, which represented an operating profit margin of 6.5%.

At 30 June 1999 there were 19 businesses in the security services industry employing 100 persons or more. These businesses accounted for 54% of industry employment and 63% of industry income in 1998–99; the operating profit before tax of these large businesses was \$68m, accounting for 76% of the industry's operating profit before tax.

#### **Employment services**

The first ABS survey of the employment services industry was conducted in respect of 1998–99. The industry includes all businesses mainly involved in the provision of employment services such as personnel recruitment, search, selection, referral and job placement on a permanent, temporary and contract employment basis.

At the end of June 1999 there were 2,127 businesses involved in the provision of employment services (table 21.27). Of these, 1,719 (82%) were for profit, the remainder being not-for-profit organisations. During 1998–99 there were 2,736,333 job placements made by these businesses, of which 88% were temporary and contract placements.

At 30 June 1999 there were 28,912 persons working directly for businesses in the employment services industry, with 50% of these persons working as employment consultants. A further 278,937 persons were employed by businesses in the employment services industry and were on-hired to other businesses.

During 1998–99, the total income generated by the employment services industry was \$7,818m. The main components of this income were derived from employers for persons on-hired (\$5,784m or 74%) and income derived from job network placement activity of \$595m.

Income generated from employer payments for permanent placement and personnel recruitment services was \$548m.

**21.27 EMPLOYMENT SERVICES INDUSTRY — 1998–99**

	Units	Value
	no.	\$m
Businesses at 30 June	no.	2 127
Placements during the year ended 30 June 1999	no.	2 561 676
By for profit businesses	no.	174 657
By not-for-profit businesses	no.	2 736 333
<i>Total</i>		
Employment at 30 June		
Persons working directly for employment placement businesses	persons	28 912
Persons on-hired to other businesses/organisations	persons	278 937
<i>Total</i>	persons	307 849
Income		
Income from employers for		
Permanent placement/personnel recruitment	\$m	547.5
Persons on-hired	\$m	5 783.7
Other	\$m	501.0
<i>Total</i>	\$m	6 832.1
Income from job network placement activity	\$m	594.6
Government funding	\$m	164.7
Other	\$m	226.3
<i>Total</i>	\$m	7 817.7
Expenses		
Labour costs	\$m	5 757.7
Rent, leasing and hiring expenses	\$m	130.1
Advertising expenses	\$m	82.9
Other expenses	\$m	1 433.4
<i>Total</i>	\$m	7 404.1
Operating profit/surplus before tax	\$m	426.1
Operating profit margin	%	5.6

Source: Employment Services, Australia, 1998–99 (8558.0).

Total expenditure of businesses in the employment services industry during 1998–99 was \$7,404m. Labour costs were the highest single expense (\$5,758m), representing 78% of total expenses. The average labour costs per person working directly for businesses in the employment services industry were \$39,500.

Other significant expenses incurred by the industry were Rent, leasing and hiring expenses (\$130m) and Advertising expenses (\$83m).

In 1998–99 the industry recorded an operating profit/surplus before tax of \$426m, representing an operating profit margin of 5.6%.

## Selected health professions

### Audiology and audiology services

The first ABS survey of the audiology and audiology industry was conducted in respect of 1997–98. This industry includes businesses mainly engaged in providing audiology and audiology services such as hearing assessment and the sale and fitting of hearing instruments.

As shown in table 21.28, at 30 June 1998 there were 146 audiology and audiology businesses in Australia, operating from 985 locations (362 of which were located in capital cities). These businesses employed a total of 1,367 persons at 30 June 1998, and generated total income of \$158m in 1997–98. Fee for service income of \$127m represented 81% of total income, \$72m of which was in the form of payments from the Office of Hearing Services.

In 1997–98, the audiology and audiology industry had an operating profit before tax of just under \$1m, which represented an operating profit margin of 0.7%.

Table 21.29 shows that audiology and audiology businesses provided a range of services during 1997–98, including the fitting and post-fitting of hearing instruments (140 businesses), sale of hearing instruments (135 businesses) and consultation and diagnostic work (134 businesses). Only 49% of audiology and audiology businesses were involved in the provision of workplace assessment services.

**21.28 AUDIOLOGY AND AUDIOMETRY SERVICES INDUSTRY — 1997–98**

	Units	Value
Businesses at 30 June	no.	146
Private practice locations at 30 June		
Capital city	no.	362
Other	no.	623
Total	no.	985
Employment at 30 June		
Audiologists	persons	503
Audiometrists	persons	162
Other	persons	702
Total	persons	1 367
Income		
Fee for service	\$m	127.4
Other income	\$m	30.6
Total	\$m	157.9
Expenses		
Labour costs	\$m	56.8
Purchases of hearing instruments	\$m	55.1
Other expenses	\$m	45.1
Total	\$m	156.9
Operating profit before tax	\$m	0.9
Operating profit margin	%	0.7

Source: *Audiology and Audiometry Services, Australia, 1997–98* (8554.0).

**21.29 AUDIOLOGY AND AUDIOMETRY ACTIVITIES, By Number and Proportion of Businesses — 1997–98**

	Total	Proportion of businesses undertaking activity
	no.	%
Consultation and diagnostic work	134	91.8
Fitting and post-fitting of hearing instruments	140	95.9
Sale of hearing instruments	135	92.5
Sale of assistive listening devices	111	76.0
Repair and maintenance of hearing instruments	128	87.7
Hearing rehabilitation and counselling	126	86.3
Workplace assessments	72	49.3
<b>All businesses(a)</b>	<b>146</b>	<b>100.0</b>

(a) Businesses are counted once for each activity in which they are involved. Hence the counts of businesses by type of activity do not sum to the total.

Source: *Audiology and Audiometry Services, Australia, 1997–98* (8554.0).

**Chiropractic and osteopathic services**

The ABS conducted its first survey of chiropractic and osteopathic businesses in private practice in respect of 1997–98. As shown in table 21.30, there were 2,150 chiropractic and osteopathic businesses in the industry at 30 June 1998, consisting of 1,776 chiropractic businesses and 374 osteopathic businesses. The majority (56%) of these businesses were unincorporated businesses (i.e. sole proprietorships or partnerships).

Practitioners accounted for 43% of employment within the industry, the remainder being support staff. The average wages and salaries paid to employed practitioners were similar for the two professions, employed chiropractors being paid \$36,300 and osteopaths \$34,300. In comparison, the

average wage of support staff within the chiropractic and osteopathic services industry was \$14,000 during 1997–98, partly reflecting the fact that the majority of support staff (67%) worked part-time.

During 1997–98 the industry received total income of \$268m. Fee for service income was the major component, accounting for 95% (\$254m) of total income. The industry incurred expenses of \$212m, of which labour costs of \$102m were the major component.

In 1997–98 the chiropractic and osteopathic services industry generated an operating profit before tax of just under \$55m, representing an operating profit margin of 20.4%. The operating profit margin for osteopathic services was 29.5%, compared to 19.4% for chiropractic services.

**21.30 CHIROPRACTIC AND OSTEOPATHIC SERVICES — 1997–98**

	Units	Chiropractic services	Osteopathic services	Total
Businesses at 30 June	no.	1 776	374	2 150
Private practice locations at end June				
Capital city	no.	1 570	359	1 929
Other	no.	710	116	826
Total	no.	2 280	475	2 755
Employment at end June				
Practitioners	persons	2 111	398	2 509
Other	persons	3 033	328	3 361
Total	persons	5 144	726	5 870
Income				
Fee for service	\$m	228.9	25.1	254.0
Other income	\$m	10.4	3.7	14.1
Total	\$m	239.2	28.8	268.0
Expenses				
Labour costs	\$m	93.7	8.4	102.1
Other expenses	\$m	98.3	11.7	110.0
Total	\$m	192.0	20.2	212.2
Operating profit before tax	\$m	46.2	8.4	54.6
Operating profit margin	%	19.4	29.5	20.4

Source: *Chiropractic and Osteopathic Services, Australia 1997–98* (8550.0)

**Optometry and optical dispensing services**

The ABS conducted its first survey of the optometry and optical dispensing services industry in respect of 1997–98. At 30 June 1998 there were 1,557 optometry and optical dispensing businesses in the industry. The majority (60%) of these businesses provided both optometry and optical dispensing services, while 25% provided optometry services only, the remaining 15% providing only optical dispensing services.

As shown in table 21.31, there were 8,915 persons working in the industry at the end of June 1998. Optometrists (2,702 persons) and optical dispensers (2,448 persons) accounted for 58% of total employment. Females accounted for 61% of persons working in the industry. However, the proportion of females varied by occupation, only 36% of optometrists and 54% of optical dispensers being female. In contrast, females accounted for 82% of all other staff.

During 1997–98, the optometry and optical dispensing industry generated total income of \$818m. Sales of optical goods accounted for 80% of total industry income. Included in sales of optical goods were sales of:

- 1,949,000 frames (with lenses) at an average sale price of \$211 per frame (with lenses);
- 1,082,000 sets of lenses (without frames) at an average sale price of \$99 per set of lenses (without frame); and
- 337,000 frames (without lenses) at an average sale price of \$123 per frame (without lenses).

**21.31 OPTOMETRY AND OPTICAL DISPENSING SERVICES — 1997–98**

	Units	Value
Businesses at 30 June	no.	1 557
Locations at end June		
Capital city	no.	2 196
Other	no.	840
Total	no.	3 036
Employment at end June		
Optometrists	persons	2 702
Optical dispensers	persons	2 448
Other	persons	3 765
Total	persons	8 915
Income		
Sales of goods	\$m	653.4
Fee for optometry service	\$m	150.3
Other income	\$m	14.7
Total	\$m	818.4
Expenses		
Labour costs	\$m	223.3
Purchases	\$m	252.9
Other expenses	\$m	256.8
Total	\$m	733.0
Operating profit before tax	\$m	89.1
Operating profit margin	%	10.9

Source: *Optometry and Optical Dispensing Services, Australia 1997–98* (8553.0).

Fees from optometry services during the period were \$150m, 85% of which was from Medicare bulk billing payments.

Total expenses during 1997–98 for the optometry and optical dispensing industry were \$733m. Purchases of optical goods (\$253m) were the most significant expense item, followed by labour costs (\$223m). On average, employed optometrists were paid wages and salaries of \$40,900 during 1997–98. In contrast, the average wages and salaries paid to optical dispensers were \$25,000, and those for other staff were \$20,200 — partly attributable to the relatively large proportion (45%) of other staff who worked part-time.

After expenses, the industry recorded an operating profit before tax of \$89m for 1997–98, representing an operating profit margin of 10.9%.

### **Physiotherapy services**

At the end of June 1998 there were 3,266 businesses in the physiotherapy services industry, operating from 4,050 private practice locations. The majority (72%) of physiotherapy businesses were unincorporated businesses i.e. sole proprietorships or partnerships.

As shown in table 21.32, there were 9,055 persons working in the industry as at 30 June 1998. Females accounted for 74% (6,719) of persons working, with 66% of physiotherapists and 88% of support staff being female. In total, 61% of persons in the physiotherapy services industry worked part-time.

In 1997–98, fee for service income accounted for \$344m (95%) of total income (\$364m). The physiotherapy services industry incurred expenses of \$270m during the period, the majority of which was attributable to labour costs (54% of total expenses).

The operating profit before tax for the industry was \$93m in 1997–98, resulting in an operating profit margin of 25.7%.

### **Dental services**

The ABS conducted its first survey of the dental services industry in respect of 1997–98. Of the 5,257 businesses in the industry at 30 June 1998, 3,339 (71%) were unincorporated businesses (i.e. sole proprietors or partnerships). As shown in table 21.33, the 5,257 businesses operated from 6,384 locations, 81% of them in capital cities.

At the end of June 1998, there were 24,108 persons working in the dental services industry, 74% of whom were female. While only 21% of dental practitioners were female, 97% of support staff were female. The average wage of support staff employees was \$19,100, reflecting (in part) the fact that only 53% of support staff were working full-time. By comparison, 74% of dental practitioners were working full-time at 30 June 1998.

### **21.32 PHYSIOTHERAPY SERVICES INDUSTRY — 1997–98**

	Units	Physiotherapy services
Businesses at 30 June	no.	3 266
Private practice locations at 30 June		
Capital city	no.	3 097
Other	no.	953
Total	no.	4 050
Employment at 30 June		
Practitioners	persons	5 663
Other	persons	3 392
Total	persons	9 055
Income		
Fee for service	\$m	344.0
Other income	\$m	20.1
Total	\$m	364.1
Expenses		
Labour costs	\$m	145.8
Other expenses	\$m	123.9
Total	\$m	269.7
Operating profit before tax	\$m	93.1
Operating profit margin	%	25.7

Source: *Physiotherapy Services, Australia 1997–98* (8552.0).

**21.33 DENTAL SERVICES INDUSTRY — 1997–98**

	Units	General dental services	Oral surgery services	Other specialist services	Total
Businesses at 30 June	no.	4 621	126	510	<b>5 257</b>
Number of locations					
Capital city	no.	4 190	214	696	<b>5 099</b>
Other	no.	961	71	252	<b>1 285</b>
Total	no.	5 151	285	948	<b>6 384</b>
Employment at 30 June					
Practitioners	persons	6 539	144	685	<b>7 368</b>
Other	persons	13 800	558	2 382	<b>16 740</b>
Total	persons	20 339	702	3 067	<b>24 108</b>
Income					
Fee for service	\$m	1 317.6	56.8	266.9	<b>1 641.3</b>
Other income	\$m	35.7	2.7	5.4	<b>43.9</b>
Total	\$m	1 353.4	59.5	272.3	<b>1 685.2</b>
Expenses					
Labour costs	\$m	470.9	18.1	79.4	<b>568.4</b>
Other expenses	\$m	543.0	21.5	101.1	<b>665.6</b>
Total	\$m	1 013.8	39.6	180.5	<b>1 234.0</b>
Operating profit before tax	\$m	339.5	20.0	91.7	<b>451.2</b>
Operating profit margin	%	25.2	34.1	33.8	<b>26.9</b>

Source: *Dental Services, Australia, 1997–98* (8551.0).

During 1997–98, the industry generated total income of \$1,685m. Fee for service income was the major component, accounting for 97% (\$1,641m) of total income. Total expenses during 1997–98 were \$1,234m. Labour costs accounted for 46% (\$568m) of total expenses.

The dental services industry generated an operating profit before tax of \$451m in 1997–98, which represented an operating profit margin of 26.9%. The operating profit margins of businesses in the oral surgery services sector (34.1%), and the other specialist dental services sector (33.8%) were significantly higher than that recorded by the general dental services sector (25.2%).

### Veterinary services

The ABS conducted its first survey of the veterinary services industry in respect of 1999–2000, approaching a sample of employing private veterinary practices.

At the end of June 2000, there were 1,792 employing veterinary practices operating in the veterinary services industry (table 21.34). These practices operated from 2,325 locations, fairly evenly distributed between the capital cities (1,153 practices) and country areas (1,172).

These practices employed 13,218 persons at the end of June 2000, veterinarian general practitioners (4,513 persons) accounting for 34% of total employment, and veterinarian specialists

(265 persons) for a further 2%. Nurses (5,667) accounted for 43% of employment; some 97% of veterinary nurses were female.

The total income of employing veterinary practices during 1999–2000 was \$994m, with income from the provision of professional services (\$865m) being the main source of income, representing 87% of total income.

Income from the treatment of companion animals (\$714m) accounted for 83% of professional services income. Most of the remaining income was generated from the treatment of farm production animals (\$83m), racehorse breeding (\$30m), and treatment of animals in the horse and dog racing industry (\$29m). Income from other veterinary services totalled \$25m and included such services as grooming (\$8m), boarding (\$7m), and burial and carcass disposal (\$5m).

Veterinary practices incurred total expenses of \$836m during 1999–2000. The two major expense items were labour costs of \$354m (42% of total expenses) and purchases of \$266m (32% of total expenses). Wages and salaries of \$312m were the most significant component of labour costs, with employed veterinarians being paid wages and salaries of \$169m, resulting in average wages and salaries per employed veterinarian of \$52,200. The most significant purchases made by veterinary practices were on goods and medications for resale totalling \$244m (29% of total expenses).

### 21.34 VETERINARY SERVICES INDUSTRY — 1999–2000

	Units	Value
Practices at 30 June	no.	1 792
Private practice locations at 30 June		
Capital city	no.	1 153
Other	no.	1 172
Total	no.	2 325
Employment at 30 June		
Veterinarian general practitioners	persons	4 513
Veterinarian specialists	persons	*265
Nurses	persons	5 667
Other	persons	2 772
Total	persons	13 218
Income		
Professional services	\$m	864.6
Sales of merchandise	\$m	95.5
Other income	\$m	33.8
Total	\$m	993.9
Expenses		
Labour costs	\$m	354.1
Purchases	\$m	265.6
Other expenses	\$m	216.1
Total	\$m	835.7
Operating profit before tax	\$m	158.5
Operating profit margin	%	16.0

Source: Veterinary Services, Australia 1999–2000 (8564.0).

The veterinary services industry recorded an operating profit before tax of \$159m during 1999–2000, which represented an operating profit margin of 16.0%.

### 21.35 COMMUNITY SERVICES — 1995–1996 and 1999–2000

	Units	1995–96	1999–2000	Percentage change
Businesses/organisations at 30 June				
'For profit' organisations	no.	2 115	2 800	32.4
'Not for profit' organisations	no.	5 403	5 938	9.9
Government organisations	no.	540	548	1.5
Total	no.	8 058	9 287	15.3
Expenditure on community service activities				
Direct expenditure				
Personal and social support	\$m	1 456.2	2 170.4	49.0
Child care	\$m	991.0	1 156.3	16.7
Training and employment for persons with disabilities	\$m	374.1	498.5	33.3
Financial and material assistance	\$m	146.6	141.6	-3.4
Residential care	\$m	4 889.1	6 091.8	24.6
Foster care placement	\$m	112.5	189.9	68.8
Statutory protection and placement	\$m	196.2	232.8	18.7
Juvenile and disability corrective services	\$m	191.7	246.4	28.5
Other direct community services activities	\$m	33.6	20.4	-39.3
Total direct expenditure	\$m	8 390.8	10 748.1	28.1
Community services related activities	\$m	1 209.0	1 894.6	56.7
Total expenditure	\$m	9 599.9	12 642.7	31.7

Source: Community Services, Australia, 1995–96 and 1999–2000 (8696.0).

### Community services

The ABS conducted its second survey of community services in respect of 1999–2000, following the first survey in respect of 1995–96.

The survey covered businesses and organisations providing community services including personal and social support, financial and material assistance, job placement and support for persons with disabilities, child care, accommodation for the aged and other residential and non-residential care in both the government and non-government sectors.

At the end of June 2000, there were 9,287 employing businesses and organisations involved in the provision of community services within the scope of the survey, representing a 15% increase on the number of employing community services businesses and organisations at the end of June 1996 (table 21.35).

The 9,287 businesses and organisations comprised 2,800 'for profit' organisations, 5,938 'not for profit' organisations and 548 government organisations. While the number of government organisations remained virtually the same since June 1996, the numbers of 'for profit' and 'not for profit' organisations increased by 32% and 10% respectively.

A total of \$12,643m was spent on community services and related activities during 1999–2000. This expenditure represented a 32% increase from 1995–96, and comprised \$10,748m of direct community service expenditure and \$1,895m of expenditure on community service-related activities. The total expenditure comprised \$2,111m by ‘for profit’ organisations, \$7,086m by ‘not for profit’ organisations and \$3,445m by government organisations.

Direct community service expenditure by these organisations increased by 28% from 1995–96. However, the increases varied by sector; expenditure by ‘for profit’ organisations increased by 16%, ‘not for profit’ organisations by 47% and government organisations by 6%.

Of the total of 9,287 organisations, there were 8,355 businesses and organisations classified to the community services industry, (i.e. their main activity was the provision of community services) (table 21.36). In terms of number of organisations, the industry was dominated by child care (3,575 organisations) and non-residential care services (2,452 organisations), which accounted for 43% and 29% respectively of the number of organisations in the community services industry. The remaining industries included nursing homes (793 organisations), accommodation for the aged (690 organisations) and other residential care services (845 organisations). The 8,355 organisations represented a 16% increase since June 1996. These organisations operated from 16,519 locations, with 9,503 in capital cities and suburbs and 7,017 locations in other areas.

### 21.36 COMMUNITY SERVICES INDUSTRY — 1999–2000

	Units	Nursing homes	Child care services	Accommodation for the aged	Residential care services n.e.c.	Non-residential care services n.e.c.	Total
<b>Businesses/organisations at 30 June</b>							
‘For profit’ organisations	no.	452	2 002	164	126	51	<b>2 795</b>
‘Not for profit’ organisations	no.	341	1 573	526	719	2 400	<b>5 559</b>
<i>Total</i>	no.	793	3 575	690	845	2 452	<b>8 355</b>
<b>Locations at 30 June</b>							
Capital cities and suburbs	no.	1 015	2 836	873	1 123	3 655	<b>9 503</b>
Other areas	no.	678	1 595	583	865	3 296	<b>7 017</b>
<i>Total</i>	no.	1 693	4 431	1 455	1 989	6 951	<b>16 519</b>
<b>Persons working at 30 June</b>							
Employment							
Direct service delivery	no.	75 298	38 346	35 569	19 022	52 446	<b>220 681</b>
Other	no.	9 221	2 763	6 833	3 136	26 388	<b>48 341</b>
<i>Total</i>	no.	84 519	41 109	42 402	22 158	78 834	<b>269 022</b>
Volunteers for the month of June							
Contract workers	no.	15 751	11 344	16 877	20 620	211 741	<b>276 333</b>
<i>Total persons working</i>	no.	2 242	2 492	2 068	1 189	5 322	<b>13 314</b>
Income							
Government funding	\$m	2 195.8	463.1	878.9	568.0	1 415.9	<b>5 521.7</b>
Sales of goods and services	\$m	822.7	572.8	510.2	113.5	319.2	<b>2 338.4</b>
Other income	\$m	157.1	24.8	171.2	116.4	1 249.9	<b>1 719.4</b>
<i>Total</i>	\$m	3 175.6	1 060.7	1 560.3	797.9	2 985.0	<b>9 579.5</b>
Expenses							
Labour costs	\$m	2 158.2	697.4	950.2	527.1	1 521.7	<b>5 854.6</b>
Other expenses	\$m	873.1	311.0	525.3	245.9	1 345.0	<b>3 300.2</b>
<i>Total</i>	\$m	3 031.3	1 008.4	1 475.5	773.0	2 866.7	<b>9 154.9</b>
Operating profit before tax	\$m	144.3	*52.3	84.7	*24.9	118.3	<b>424.6</b>
Operating profit margin	%	4.5	4.9	5.4	*3.1	4.0	<b>4.4</b>
Industry value added	\$m	2 351.1	778.1	1 029.8	495.4	879.5	<b>5 533.9</b>

Source: *Community Services, Australia, 1995–96 and 1999–2000* (8696.0).

During June 2000, there were 558,669 persons working for community services organisations in these industries, comprising 269,022 employees at the end of June, 276,333 volunteers working at some time during June 2000, and 13,314 contract persons. The main employing industries were the nursing homes industry (31% of the employees) and non-residential care services industry (29% of the employees). Of the total number of volunteers, 77% worked in the non-residential care services industry.

During 1999–2000, the total income of organisations in these industries was \$9,580m. The major components of income were government funding and income from direct community services provision (also referred to as fee for service income), which accounted for 58% and 24% respectively of total income. Total expenses of these community service industries came to \$9,155m, of which labour costs accounted for 64%.

The total value added of these industries was \$5,534m.

## **Libraries, museums, commercial art galleries and botanic gardens**

### **Libraries**

The ABS conducted its second survey of the libraries industry in respect of 1999–2000, following a survey in respect of 1996–97.

The survey included local government libraries, National and State libraries, and archival service organisations. Excluded from the collection were libraries with restricted access such as those operated by educational institutions (universities and schools), and libraries operated by businesses and organisations for internal reference purposes.

At the end of June 2000, there were 505 local government library organisations with 1,510 library locations, eight National and State library organisations with 26 locations, and eight National and State archive organisations with 27 locations. During 1999–2000, there were 99.4 million visits to local government, National and State libraries, with visits to local government libraries accounting for 94% of this figure (93.3 million visits) (table 21.37).

The total library holding stock of these organisations was 54.3 million books and other library materials at the end of June 2000, of which 36.4 million were available as lending stock and 17.9 million as non-lending stock.

In total, 12,596 employees worked for libraries and archives at the end of June 2000, with 9,592 persons (76%) employed by local government libraries. Of the 12,596 employees, 3,513 persons (28%) were employed as qualified librarians and archivists.

**21.37 LIBRARIES INDUSTRY — 1999–2000**

	Units	Local Government libraries	National and State libraries	National and State archives	Total
Organisations at 30 June	no.	505	8	8	<b>521</b>
Locations at 30 June	no.	1 510	26	27	<b>1 563</b>
Visits to library locations	'000	93 335.1	6 063.5	n.a.	<b>99 398.6</b>
Library holdings					
Lending stock	'000	36 416.4	..	..	<b>36 416.4</b>
Non-lending stock	'000	2 963.9	14 925.0	n.a.	<b>17 888.9</b>
Total	'000	39 380.3	14 925.0	n.a.	<b>54 305.3</b>
Employees at 30 June					
Librarians and archivists	persons	2 422	732	359	<b>3 513</b>
Other employees	persons	7 170	1 516	397	<b>9 083</b>
Total	persons	9 592	2 248	756	<b>12 596</b>
Income					
Government funding	\$m	455.7	190.9	78.2	<b>724.8</b>
Income from services to clients	\$m	17.1	11.4	8.2	<b>36.6</b>
Other income	\$m	5.3	24.7	0.8	<b>30.7</b>
Total	\$m	478.0	227.0	87.2	<b>792.2</b>
Expenses					
Wages and salaries	\$m	244.0	88.0	30.1	<b>362.1</b>
Other expenses	\$m	212.5	144.1	48.2	<b>404.8</b>
Total	\$m	456.4	232.1	78.3	<b>766.9</b>

Source: *Public Libraries, Australia, 1999–2000* (8651.0).

Total income of the industry in 1999–2000 was \$792m. The great majority of income was from government funding, which accounted for \$725m or 91% of total income. Expenses incurred by the industry totalled \$767m, with wages and salaries of \$362m accounting for 47% of all expenses.

## Museums

The most recent survey of the museums industry was conducted in respect of financial year 1999–2000. This survey was different to those conducted in respect of 1996–97 and 1997–98 in that the 1999–2000 survey attempted to cover all museum establishments, whereas previous surveys were both of limited scope. For the purpose of the 1999–2000 survey, a museum establishment was defined as an enclosed area which stored artefacts, artworks and museum objects and which was open to the general public.

At the end of June 2000, there were 2,049 museum establishments in Australia, of which 1,188 (58%) were operated on a volunteer basis (table 21.38). The 2,049 museums contained a total of 61.6 million artefacts, artworks and museum objects at the end of June 2000, and were visited by 27.5 million visitors during 1999–2000. The majority of admissions to museums were free of charge (60%) and, on average, museums were open for 30 hours per week during 1999–2000.

At the end of June 2000, there were 37,402 persons working in museums, comprising 6,956 persons directly employed by the museums, 29,963 volunteers and 484 persons paid by other (related) organisations. The volunteers worked a total of 379,110 hours during June 2000, representing an average of 13 hours per volunteer for the month.

**21.38 MUSEUMS INDUSTRY — 1999–2000**

	Units	Employment size					
		Nil employment	1–4 persons	5–19 persons	20–99 persons	100 or more persons	Total
Museum/gallery establishments at 30 June 2000	no.	1 188	461	237	84	78	2 049
Artefacts/art works/museum objects at 30 June 2000	'000	9 960.0	8 340.1	n.p.	n.p.	36 574.9	61 635.3
Admissions during the year ended 30 June 2000							
Paid	'000	1 379.1	1 676.1	2 660.6	1 709.3	3 540.6	10 965.7
Free	'000	3 623.3	1 574.3	4 235.4	1 213.4	5 919.9	16 566.1
Total	'000	5 002.4	3 250.4	6 895.8	2 922.7	9 460.5	27 531.8
Average hours per week museum/gallery open during year ended 30 June 2000	no.	23.6	38.2	38.9	40.6	50.2	30.4
Total employment paid by the museum/gallery at 30 June	persons	—	822	1 198	1 098	3 838	6 956
Employees paid by a related organisation at 30 June	persons	364	*80	40	—	—	484
Volunteers during the month of June	persons	14 570	6 045	4 490	1 888	2 970	29 963
Volunteer hours worked per volunteer during the month of June 2000	no.	11.8	14.6	13.5	14.7	10.5	12.7
Income							
Government funding	\$m	4.4	24.3	51.5	38.9	368.2	487.2
Fundraising income	\$m	1.8	3.9	8.0	14.0	25.7	53.5
Admissions income	\$m	2.9	5.9	9.6	9.4	24.6	52.4
Sales of goods	\$m	1.6	*4.1	7.8	*8.3	29.9	51.7
Other income	\$m	1.6	4.8	*10.8	13.3	41.0	71.6
Total	\$m	12.3	43.0	87.7	83.9	489.4	716.4
Expenses							
Labour costs	\$m	—	17.2	30.1	29.3	156.7	233.4
Depreciation and amortisation	\$m	*0.3	*1.9	2.8	5.3	35.0	45.3
Repair and maintenance(a)	\$m	*3.5	*4.2	*5.5	8.0	21.9	43.2
Exhibition/display development costs	\$m	*0.9	3.1	6.2	1.9	12.8	24.9
Other expenses	\$m	5.7	15.7	21.1	32.2	221.1	295.7
Total	\$m	10.4	42.1	65.7	76.7	447.5	642.5

(a) Includes conservation expenses of artefacts, artworks and museum objects.

Source: *Museums, Australia, 1999–2000* (8650.0).

During 1999–2000, museums accrued a total of \$716m in income. The main sources were Government funding (\$487m), fundraising income (\$54m) and admissions income (\$52m).

Of the \$643m incurred in expenses by museums during 1999–2000, labour costs were the most significant at \$233m (36% of total expenses). Other major expenses for museum establishments included depreciation and amortisation (\$45m), repair and maintenance expenses (\$43m), and exhibition/display development costs (\$25m).

### Commercial art galleries

The ABS conducted the second survey of the commercial art galleries industry in respect of 1999–2000, following an earlier collection in respect of 1996–97. The businesses included in the survey were those mainly engaged in the display and sale of artworks, and also included Aboriginal and Torres Strait Islander art centres. The survey did not cover direct sales by the artist, or sales of artworks by auction houses, art museums, department stores, etc.

At the end of June 2000, there were 514 commercial art gallery businesses operating in Australia, comprising 31 Aboriginal and Torres Strait Islander art centres and 483 other commercial art gallery businesses. Commercial art gallery businesses employed 1,409 persons, females accounting for 61% of total persons employed (table 21.39).

The total income of commercial art gallery businesses in 1999–2000 was \$132m. Income from the sale of artworks owned by the business was \$73m (55% of total income), while commission income from the sale of artworks (selling artworks on behalf of others) was \$43m, or 33% of total income.

Commercial art gallery businesses incurred total expenses of \$122m during 1999–2000, the most significant expense being the purchase of artworks for resale at \$44m (36% of total expenses).

The total value of artworks sold by commercial art gallery businesses in 1999–2000 was \$218m, the total value of artworks sold on commission accounting for \$145m. The total value of artworks sold of Aboriginal and Torres Strait Islander artists was \$36m, while the sale of artworks of other Australian artists raised \$168m.

### 21.39 COMMERCIAL ART GALLERIES INDUSTRY

	Units	1996–97	1999–2000
Businesses at 30 June	no.	457	514
Employment at end June			
Males	no.	434	552
Females	no.	721	857
Persons	no.	1 156	1 409
Income			
Commission income from the sales of artworks on consignment	\$m	25.7	43.4
Income from sales of artworks owned by the business	\$m	49.5	72.7
Other income	\$m	12.1	15.6
Total	\$m	87.3	131.8
Cost of artworks sold			
Purchases of artworks for resale	\$m	30.2	44.4
Plus opening stocks of artworks	\$m	28.0	33.1
Less closing stocks of artworks	\$m	25.5	32.2
Total	\$m	32.7	45.3
Other expenses			
Wages and salaries(a)	\$m	11.3	22.0
Other	\$m	40.4	55.7
Total	\$m	51.7	77.7
Operating profit before tax	\$m	**2.5	*8.8
Operating profit margin	%	**3.5	*7.0

(a) Excludes drawings of working proprietors and partners of unincorporated businesses.

Source: *Commercial Art Galleries, Australia, 1996–97 and 1999–2000* (8651.0).

### Botanic gardens

The ABS conducted its second survey of botanic gardens in respect of 1999–2000, following a previous collection in respect of 1996–97. The information relates to employing businesses and statutory authorities, the main activity of which was the operation of a botanic garden, herbarium or arboretum. In addition, botanic garden activities of Commonwealth and State government departments and local government authorities which employ staff to operate and maintain botanic gardens were included in the collection. However, non-employed organisations operating botanic gardens were excluded.

At the end of June 2000, there were 72 employing organisations operating botanic gardens. These organisations operated from 123 locations, comprising 74 mainly botanic gardens, 24 arboreta and 25 herbaria. During 1999–2000 there were 11.8 million visits to botanic gardens (table 21.40).

**21.40 BOTANIC GARDENS**

	Units	1996–97	1999–2000
Organisations at 30 June	no.	53	72
Locations at end June			
Botanic gardens	no.	64	74
Arboreta	no.	19	24
Herbaria	no.	20	25
Total	no.	103	123
Employees at end June	no.	1 129	1 250
Volunteers during June	no.	1 493	1 991
Number of visits	millions	n.a.	11.8
Income			
Government funding	\$m	70.9	73.4
Other income	\$m	11.8	18.4
Total	\$m	82.7	91.8
Expenses			
Wages and salaries	\$m	40.7	44.0
Other expenses	\$m	29.5	37.5
Total	\$m	70.2	81.5

Source: *Botanic Gardens, Australia, 1999–2000 (8563.0)*.

At the end of June 2000 there were 1,250 employees and 1,991 volunteers working for botanic gardens, a total workforce of 3,241 persons. The main employment groupings of employees were curatorial, horticultural and gardening (692 persons), managerial and administrative (186 persons), educational, public relations and retail sales (183 persons) and specialists and research (158 persons).

The total income of botanic gardens during 1999–2000 was \$92m, income from government funding (\$73m) accounting for 80% of their total income. Other significant sources of income were fundraising (\$5m) and rent, leasing and hiring income (\$4m).

During 1999–2000, botanic gardens had total expenses of \$82m, the major expense being labour costs of \$50m, of which wages and salaries accounted for \$44m. Other major expenses included depreciation and amortisation (\$6m), repair and maintenance expenses (\$5m) and electricity, gas and water charges (\$3m).

## Film, video and television industries

### Film and video production

The ABS conducted its third survey of the film and video production industry, in respect of 1999–2000. Previous surveys were conducted in respect of 1993–94 and 1996–97. This industry covers businesses mainly engaged in the production of motion pictures on film or video

tape for theatre or television projection. Also included are businesses mainly providing post production services such as dubbing and sub-titling and editing.

At the end of June 2000 there were 1,975 businesses in the film and video production industry, compared with 2,004 businesses operating at the end of June 1997 (table 21.41). However, employment increased by 58% to 15,195 persons over the three years from 30 June 1997. It should be noted that employment in the industry at the end of June can fluctuate depending on what productions are underway at that time.

The film and video industry generated \$1,474m in total income for 1999–2000, an increase of 24% on 1996–97 income of \$1,185m. The main source of income was from the production of television programs, at \$472m (32% of total industry income). Income from the provision of post production/laboratory services was \$263m (18% of total income), while income from the provision of production services to other businesses was \$233m, or 16% of total income.

Expenses for the industry during 1999–2000 totalled \$1,398m, the most significant expenses being wages and salaries of \$374m and payments to other businesses for production services of \$251m.

The industry recorded an operating profit before tax of \$77m, which represented an operating profit margin of 5.6% for 1999–2000, compared with the small negative operating profit margin for 1996–97.

**21.41 FILM AND VIDEO PRODUCTION INDUSTRY**

	Units	1996–97	1999–2000	Percentage change
		no.	1 975	%
Businesses at 30 June		2 004	1 975	-1.4
Total employment at 30 June	persons	9 591	15 195	58.4
Income				
Income from the production of television programs	\$m	377.8	472.2	25.0
Income from the provision of production services to other businesses	\$m	122.3	233.1	90.6
Income from the provision of post-production/laboratory services	\$m	146.6	262.6	79.1
Other income	\$m	537.8	505.9	-5.9
Total	\$m	1 184.5	1 473.8	24.4
Expenses				
Wages and salaries	\$m	335.7	373.5	11.3
Payments to other businesses for production services	\$m	199.8	250.8	25.5
Other expenses	\$m	726.1	773.6	6.5
Total	\$m	1 261.6	1 397.9	10.8
Operating profit/loss before tax	\$m	-77.0	76.5	..
Operating profit margin	%	-0.1	5.4	..

Source: *Film and Video Production and Distribution, Australia, 1999–2000* (8679.0).

Table 21.42 shows that the main activity of businesses in the industry was making productions specifically for television (\$516m), which accounted for 55% of the total value of production activity in 1999–2000 (\$945m). The other major activities were the production of commercials and advertisements (\$194m) and feature films (\$149m) which accounted for 21% and 16% respectively of total activity.

**21.42 FILM AND VIDEO PRODUCTION COSTS — 1999–2000**

Type of activity	Value \$m	Contribution to total %
Productions made specifically for television	516.0	54.6
Commercials and advertisements	194.9	20.6
Feature films	148.6	15.7
Corporate/marketing/training videos	45.0	4.8
Documentaries	4.3	0.5
Music/video clips	3.2	0.3
Other	32.3	3.4
<b>Total</b>	<b>944.3</b>	<b>100.0</b>

Source: *Film and Video Production and Distribution, Australia, 1999–2000* (8679.0).

**Film and video distribution**

In conjunction with the survey of the film and video production industry, the ABS also conducted its third survey of the film and video distribution industry, in respect of 1999–2000. The survey covered employing businesses mainly engaged in leasing or wholesaling motion pictures on film, video tape or DVD to organisations for exhibition or sale. It also includes channel providers to pay television operators.

At the end of June 2000 there were 58 businesses operating in the film and video distribution industry, compared with 66 businesses operating at the end of June 1997 (table 21.43). There were 1,426 persons working in the industry at the end of June 2000, an increase of 6% over employment at June 1997. The majority of persons (74%) in the industry worked on a permanent, full-time basis.

The total income for the industry was \$1,142m during 1999–2000, an increase of 17% on the \$974m recorded for 1996–97. The two main sources of income were the rental or lease of pre-recorded video tapes, DVDs, films and video games (\$581m) which accounted for 51% of industry income, and sales of pre-recorded video tapes and DVDs (\$260m) which accounted for 23% of total income.

## 21.43 FILM AND VIDEO DISTRIBUTION INDUSTRY

	Units	1996–97	1999–2000	Percentage change
	no.	66	58	%
Businesses at 30 June				-12.1
Employment at 30 June				
Permanent full-time	persons	1 107	1 059	-4.3
Permanent part-time and casuals(a)	persons	234	366	56.4
Total	persons	1 341	1 426	6.3
Income				
Rental/lease of pre-recorded video tapes, DVDs, films and video games	\$m	434.1	580.8	33.8
Sales of pre-recorded video tapes, DVDs, films and video games	\$m	254.3	260.3	2.4
Provision of channels to Pay TV operators	\$m	156.0	169.2	8.5
Other	\$m	129.5	131.5	1.5
Total	\$m	973.9	1 141.8	17.2
Expenses				
Wages and salaries	\$m	62.1	66.8	7.6
Copyright fees/licences for film and video distribution(b)	\$m	n.a	235.6	..
Advertising expenses	\$m	90.1	127.1	41.1
Program rights/licence fees used	\$m	136.1	124.4	-8.6
Other expenses	\$m	682.5	484.5	-29.0
Total	\$m	970.8	1 038.4	7.0
Operating profit/loss before tax	\$m	3.1	103.6	..
Operating profit margin	%	0.3	9.3	..

(a) For 1996–97, employment at end of June excluded casual employees. (b) For 1996–97, copyright fees/licences were published under licence fees.

Source: *Film and Video Production and Distribution, Australia, 1999–2000* (8679.0).

Businesses in the film and video distribution industry had total expenses of \$1,038m. The three major expenses were copyright fees and licences of \$236m (23% of total expenses), advertising expenses of \$127m and program rights used of \$124m (each 12%).

During 1999–2000, the film and video distribution industry recorded an operating profit before tax of \$104m, a significant increase on \$3m for 1996–97.

### Motion picture exhibition

The most recent survey of the motion picture exhibition industry was conducted in respect of 1999–2000. This was the fifth time the ABS surveyed the industry, and while the most recent three surveys have shown a decline in the number of businesses, other indicators such as the number of cinema screens, paid admissions and employment have all shown steady increases. This has been primarily due to the emergence of multiplex (3 to 13 screens) and megaplex (14 or more screens) sites.

At the end of June 2000 there were 173 businesses in the motion picture exhibition industry, a reduction from 188 businesses at the end of June 1997, and 224 businesses at the end of June 1994 (table 21.44). However, over the same period, the number of cinema screens increased to 1,519, and paid admissions increased by 8% to 79.4 million, from 73.3 million in 1996–97. Based on the Australian estimated resident population at June 2000, paid admissions represented 4.1 visits per person during 1999–2000, compared to 4.0 visits per person in 1996–97.

Employment in the industry was 9,282 persons at 30 June 2000, an increase of 20% over the 7,739 persons employed at end June 1997. The majority of employees in the motion picture exhibition industry at 30 June 2000 were casuals (7,492), accounting for 81% of total employment.

Total income for the industry for the financial year 1999–2000 was \$1,046m, up 26% on 1996–97 income of \$832m. Gross box office receipts of \$679m were the most significant source of income, representing 65% of total income, while sales of food and beverages (\$176m) accounted for 17% of income.

## 21.44 MOTION PICTURE EXHIBITION INDUSTRY

	Units	1994–94	1996–97	1999–2000	Change on 1996–97 %
Businesses at 30 June	no.	224	188	173	-8.0
Cinema details					
Cinema sites at 30 June	no.	329	325	326	0.3
Cinema screens at 30 June	no.	754	1 050	1 513	44.1
Cinema seats at 30 June	'000	227	323	374	15.6
Paid admissions during year	'000	60 047	73 262	79 384	8.4
Drive-in theatre sites at 30 June	no.	41	28	17	-39.5
Drive-in screens at 30 June	no.	52	36	27	-24.9
Total employment at 30 June	no.	5 729	7 739	9 282	19.9
Income					
Gross box office receipts	\$m	447.5	551.8	678.9	23.0
Sales of food and beverages	\$m	105.0	142.1	175.9	23.8
Other income	\$m	82.8	138.3	191.3	38.3
Total	\$m	635.3	832.2	1 046.1	25.7
Expenses					
Labour costs	\$m	99.0	123.1	148.5	20.6
Film hire/rental	\$m	168.1	211.2	268.2	27.0
Other expenses	\$m	293.0	378.9	536.1	41.5
Total	\$m	560.1	713.2	934.3	31.0
Operating profit before tax	\$m	75.1	119.9	113.3	-5.5
Operating profit margin	%	12.0	14.9	11.4	..

Source: Motion Picture Exhibition, Australia, 1999–2000 (8654.0).

The major expense items for the industry in 1999–2000 were wages and salaries of \$130m (14% of total expenses), and film hire and rental which accounted for \$268m or 29% of total expenses.

The industry recorded an operating profit before tax of \$113m, a 6% decrease since 1996–97 (\$120m). The operating profit margin for 1999–2000 was 11.4%, compared to 14.9% for 1996–97 and 12.0% for 1993–94.

### Video hire

The first ABS survey of the video hire industry was conducted in respect of 1999–2000. The industry includes all businesses mainly engaged in hiring pre-recorded video cassettes and DVDs for personal use, but excludes businesses which receive only a minor part of their income from the hiring of video, such as service stations, chemists and newsagents.

At the end of June 2000, there were 1,166 businesses in the video hire industry, operating from 1,228 locations in capital cities and suburbs and 387 locations in rural areas (table 21.45). At the end of June 2000, there were 5,499,400 active video hire store memberships, and the industry recorded 151,897,300 video rental transactions during the year ending 30 June 2000.

At the end of June 2000, there were 11,034 persons employed by the video hire industry, of whom 7,279 (66%) were employed on a casual basis. This high rate of casual employment was reflected in the average labour cost per employee of \$12,500.

Total income of the video hire industry in 1999–2000 was \$595m, with income from the rental of videos the most significant income source, accounting for \$444m (75%). Other major sources were income from the rental of video games (\$38m), income from the sale of videos and video related material (\$36m) and income from the sale of food and beverages (\$40m).

The major items of expenditure for the industry during 1999–2000 were labour costs which accounted for \$129m (23%), and depreciation and amortisation at \$103m (19%). Other significant expense items were the rental of premises (\$74m) and purchases of videos (\$68m).

In 1999–2000 the operating profit before tax for the video hire industry was \$42m, which translated into an operating profit margin of 7.2%.

**21.45 VIDEO HIRE INDUSTRY — 1999–2000**

	Units	Value
Businesses at end June	no.	1 166
Locations at end June		
Capital city and suburbs	no.	1 228
Total	no.	1 615
Active video hire store membership at end June 2000	'000	5 499.4
Video rental transactions for the year ended 30 June 2000	'000	151 897.3
Employment at 30 June		
Working proprietors and partners of unincorporated businesses	persons	741
Employees		
Permanent employees	persons	3 014
Casuals	persons	7 279
Total employees	persons	10 293
Total employment	persons	11 034
Income		
Income from the rental of videos	\$m	443.8
Income from the rental of video games	\$m	38.3
Sale of videos and video related goods	\$m	36.3
Sale of food and beverages	\$m	40.0
Other income	\$m	36.8
Total	\$m	595.2
Expenses		
Labour costs	\$m	128.9
Depreciation and amortisation	\$m	103.4
Rental of premises	\$m	74.3
Purchases of videos	\$m	67.8
Other expenses	\$m	184.3
Total	\$m	558.7
Operating profit before tax	\$m	42.0
Operating profit margin	%	7.2

Source: Video Hire Industry, Australia, 1999–2000 (8562.0).

## Television services

The ABS conducted its third survey of the television services industry in respect of 1999–2000, following earlier collections in respect of 1993–94 and 1996–97.

At the end of June 2000 there were 41 private sector television broadcasters and 2 public sector television broadcasters operating in Australia (table 21.46). The private sector television broadcasters comprised 34 commercial free-to-air broadcasting businesses and 7 pay television broadcasting businesses.

At the end of June 2000 there were 10,668 persons employed by private sector television broadcasters, of whom 7,807 persons were employed by commercial free-to-air broadcasters, and 2,861 persons were employed by pay television broadcasters.

The total income of \$4,182m of private sector broadcasters comprised \$3,271m from commercial free-to-air broadcasters and \$911m from pay television broadcasters. The major source of income received by commercial free-to-air broadcasters was the sale of airtime (\$2,821m), while the main source of income from pay television broadcasters was subscription and membership fees of \$789m.

Total expenses of the private sector broadcasters were \$4,083m during 1999–2000, of which \$2,468m was outlaid by commercial free-to-air broadcasters and \$1,616m by pay television broadcasters. The main component of expenses of commercial free-to-air broadcasters was program rights used of \$864m; for pay television broadcasters it was payments to channel providers of \$470m.

During 1999–2000, the private sector broadcasters recorded an operating profit before tax of \$128m.

**21.46 TELEVISION SERVICES INDUSTRY — 1999–2000**

	Units	Commercial free-to-air television	Pay television	Total private sector television broadcasters
Businesses at 30 June	no.	34	7	41
Employees at 30 June				
Permanent full-time	no.	6 392	2 379	8 771
Permanent part-time and casuals	no.	1 415	482	1 897
Total	no.	7 807	2 861	10 668
Income				
Gross income from the sale of airtime	\$m	2 821.1	..	2 821.1
Subscription and membership income	\$m	..	789.1	789.1
Other income	\$m	449.9	121.7	571.6
Total	\$m	3 271.0	910.9	4 181.9
Expenses				
Wages and salaries	\$m	302.2	159.4	461.6
Program rights used/Payments to channel providers	\$m	863.9	469.8	1 333.7
Other expenses	\$m	1 301.4	986.5	2 287.9
Total	\$m	2 467.5	1 615.7	4 083.2
<u>Operating profit before tax</u>	\$m	803.5	-675.8	127.7

Source: *Television Services, Australia, 1999–2000* (8559.0).

## Performing arts

The ABS conducted its second survey of the performing arts industries in respect of 1999–2000, following an earlier survey in respect of 1996–97. These industries are made up of businesses mainly engaged in activities including the provision of music and theatre productions, the operation of performing arts venues, and the provision of other services to the arts such as casting agency operation and costume design.

There were 1,437 employing organisations in the performing arts industries at 30 June 2000 (table 21.47). There were 705 organisations in the music and theatre production industry, 125 organisations in the performing arts venues industry, and 606 organisations in the services to the arts industry. Of the latter, 152 organisations operated performing arts festivals, and 454 organisations provided other services to the arts.

In total, these industries employed 16,429 persons at 30 June 2000. A further 20,752 persons worked as volunteers, comprising 17,718 volunteers who

worked for festivals during their operation in the 1999–2000 financial year and 3,034 volunteers who worked during June 2000 for organisations in the music and theatre production industry.

During 1999–2000, the total income for the performing arts industries was \$1,634m, of which government funding accounted for \$470m and box office takings \$461m.

Total expenses for the performing arts industries during 1999–2000 were \$1,584m, and the operating profit before tax was \$50.4m, which represented an operating profit margin of 4.8%.

There were 47,083 paid performances in the music and theatre production industry during 1999–2000, while performing arts festivals had 19,896 paid performances. In total, there were 15.2 million paid attendances, with music and theatre production performances accounting for 13.3 million of these paid attendances.

**21.47 PERFORMING ARTS INDUSTRIES — 1999–2000**

	Units	Music and theatre production	Performing arts venues	Festivals	Other services to the arts	Total
Organisations at 30 June	no.	705	125	152	454	1 437
Performing arts spaces at 30 June	no.	68	260	..	..	328
Productions with paid performances						
Paid performances	no.	47 083	21 136	19 896	—	..
Paid attendances	'000	13 268.6	..	1 890.7	..	15 159.3
Employment at 30 June						
Working proprietors and partners	persons	144	—	—	77	221
Employees	persons	6 916	5 149	374	3 769	16 208
<i>Total</i>	persons	7 060	5 149	374	3 846	16 429
Volunteers	persons	(a)3 034	—	(b)17 718	—	..
Income						
Income from box office	\$m	233.1	40.8	42.2	144.3	460.5
Government funding	\$m	116.7	93.5	27.1	232.7	470.0
Other income	\$m	155.5	181.6	33.3	332.8	703.3
<i>Total</i>	\$m	505.4	315.9	102.7	709.8	1 633.8
Expenses						
Wages and salaries	\$m	171.6	97.1	12.5	82.8	364.0
Contract payments to performers/artists	\$m	46.8	16.1	24.9	78.6	166.4
Other expenses	\$m	259.1	195.5	61.7	537.0	1 053.2
<i>Total</i>	\$m	477.6	308.7	99.1	698.4	1 583.7
Operating profit/surplus before tax	\$m	27.8	7.2	..	11.7	50.4
Operating profit margin	%	8.0	3.7	..	2.5	4.8

(a) Volunteers during the month of June 2000. (b) Volunteers during the duration of festivals.

Source: *Performing Arts Industries, Australia, 1999–2000* (8697.0).

## Gambling services

The ABS conducted its second survey of the gambling services industries in respect of 1997–98. The industries include businesses mainly engaged in lotteries and lotto operations, casino operations and other gambling services such as totalisator and bookmaker operations, but not the gambling services provided by clubs, pubs, taverns and bars, which accounted for about 41% of net takings from gambling in 1997–98 (see the *Clubs, pubs, taverns and bars* section).

As table 21.48 shows, there were 1,776 businesses in the gambling services industries at 30 June 1998, a decrease of 13% since the end of June 1995. However, employment increased from 32,062 to 37,035 persons in the same period, most of this increase being attributable to casinos, which increased employment by 4,694 persons during the period.

The industry generated total income of \$7,935m in 1997–98. The major contributor was net takings from gambling, which increased by 37% over 1994–95, to \$7,086m (89% of total income). Total income for the casinos industry grew by 64% in the period 1994–95 to 1997–98, a much higher rate than for lotteries (25%) and other gambling services (28%). Nevertheless, in terms of operating profit margin the lotteries and other gambling services industries (8.6% and 18.4% respectively) outperformed casinos (~10.8%). This was partly due to the very high abnormal expenses incurred by casinos in 1997–98.

Total expenses in 1997–98 for the gambling services industry was \$7,518m; the major expense item was gambling/gaming taxes and levies, which accounted for just over 35% of total expenses.

Further information is included in the article *Gambling in Australia* in *Year Book Australia 2000*.

**21.48 GAMBLING SERVICES INDUSTRIES**

	Units	Lotteries	Casinos	Other gambling services	Total
Businesses at 30 June					
1994–95	no.	178	14	1 849	<b>2 041</b>
1997–98	no.	134	13	1 629	<b>1 776</b>
Change	%	-24.7	-7.1	-11.9	<b>-13.0</b>
Employment at 30 June					
1994–95	no.	2 006	15 837	14 219	<b>32 062</b>
1997–98	no.	2 782	20 531	13 722	<b>37 035</b>
Change	%	38.7	29.6	-3.5	<b>15.5</b>
Net takings from gambling					
1994–95	\$m	1 885.1	1 381.8	1 909.5	<b>5 176.4</b>
1997–98	\$m	2 440.3	2 165.1	2 480.8	<b>7 086.2</b>
Change	%	29.5	56.7	29.9	<b>36.9</b>
Commissions from gambling					
1994–95	\$m	19.9	0.9	85.2	<b>106.0</b>
1997–98	\$m	17.0	1.5	99.4	<b>117.9</b>
Change	%	-14.5	66.7	16.7	<b>11.2</b>
Total income (net of payouts to players)					
1994–95	\$m	2 039.9	1 650.5	2 093.9	<b>5 784.3</b>
1997–98	\$m	2 545.1	2 709.7	2 680.5	<b>7 935.3</b>
Change	%	24.8	64.2	28.0	<b>37.2</b>
Operating profit before tax					
1994–95	\$m	250.2	107.4	405.4	<b>762.9</b>
1997–98	\$m	217.2	-287.9	489.7	<b>419.0</b>
Change	%	-13.2	-368.2	20.8	<b>-45.1</b>
Operating profit margin					
1994–95	%	12.5	6.5	19.6	<b>13.4</b>
1997–98	%	8.6	-10.8	18.4	<b>5.3</b>

Source: *Gambling Industries, Australia, 1997–98* (8684.0).

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## Introduction

**T**ourism encompasses most short-term travel away from the normal place of work and residence.

It is defined by the World Tourism Organization (WTO) as: “the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes”.

This identifies ‘tourism’ as being more than just leisure travel. It also encompasses travel for business, health, education, religious and other reasons.

Tourism comprises both domestic and international travel. As it involves the consumption or purchase by tourists — or ‘visitors’ in the WTO terminology — of any good or service, its economic impact is felt across many sectors of the economy. In Australia the industries most affected by direct tourism demand are transport, accommodation, cafes, restaurants, takeaway food outlets and other retail trade. Indirectly, tourism affects a wide range of other industries. When a visitor buys a meal, for example, tourism indirectly creates demand in the food manufacturing, transportation and electricity industries in order to produce the inputs required to make the meal.

Tourism also draws on services provided by the Commonwealth Government, State and Territory Governments and local government organisations without direct charge to tourists. These include: the construction and maintenance of roads, airports, harbours, railways and national parks; tourism promotion; immigration and customs services; information services; and the provision of a large number of recreational facilities.

While tourism has long been an economic factor in Australia, in recent times it has grown to the extent that it is now recognised as a major contributor to total economic activity. In response to requests for information about the economic impact of tourism the ABS produced a tourism satellite account in 2000. This showed that direct tourism demand contributed 4.5% to Gross Domestic Product in 1997–98 (see the article below).

International tourism has experienced substantial growth in the past decade or so. The impact of the Sydney 2000 Olympic and Paralympic Games, the depreciation of the Australian dollar against major currencies and a range of other factors are expected to substantially increase international tourism in Australia over the next decade.

Australia’s island status and distance from most of its international source markets mean that tourism in this country will continue to be dominated by domestic tourism for the foreseeable future. Despite high annual growth rates, international tourism only accounts for around one-quarter of total tourism activity.

## Economic importance of tourism

### Introduction

In October 2000 the ABS published *Australian National Accounts: Tourism Satellite Account, 1997–98* (5249.0). This publication represents the first ABS attempt to put tourism into a national accounting framework.

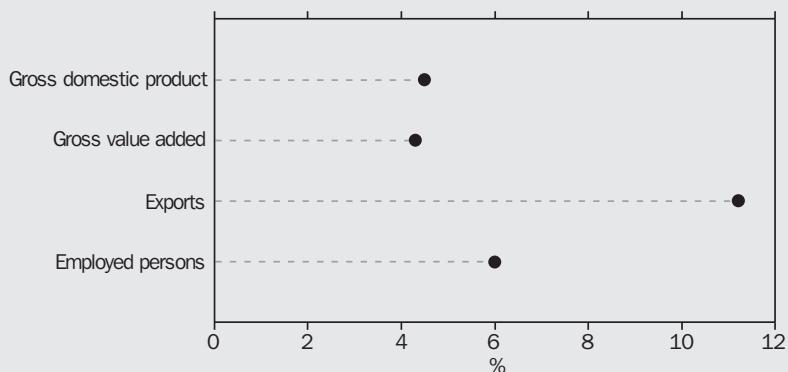
Tourism is not a conventional industry in the System of National Accounts (SNA 93). It is defined by the customer (visitor) rather than the product produced. The tourism satellite account (TSA) creates a broad picture of tourism which allows it to be compared to conventional industries like agriculture, manufacturing and retail trade.

The estimates of tourism gross domestic product (TGDP) and tourism gross value added relate to the direct impact of tourism activity. This means

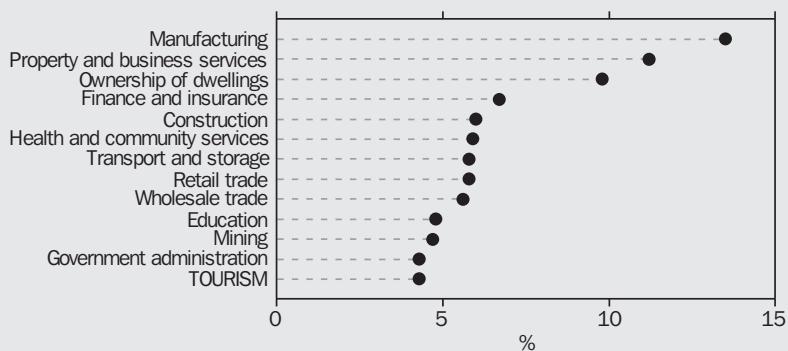
that only the value added where there is a direct economic or physical relationship between the visitor and the producer of a good or service is included. Similarly, the employment estimates only include employment generated where visitors have a direct relationship with the producer of the good or service.

### Key results

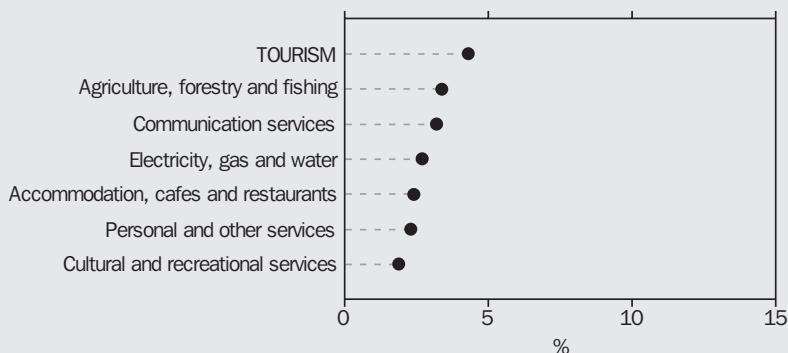
Tourism GDP measures the total market value of goods and services produced in Australia which are consumed by visitors, less the cost of the inputs used in producing those goods and services. Tourism accounted for \$25.2b or 4.5% of Australia’s GDP in 1997–98. Most of this was generated by domestic households (68% of tourism GDP), while international visitors and business/government visitors accounted for 21% and 11% of tourism GDP respectively.

**22.1 TOURISM'S SHARE OF THE AUSTRALIAN ECONOMY**

Source: Australian National Accounts: *Tourism Satellite Account 1997-98* (5249.0)

**22.2 CONTRIBUTION TO GROSS VALUE ADDED, Industries Contributing More than Tourism**

Source: Australian National Accounts: *Tourism Satellite Account 1997-98* (5249.0).

**22.3 CONTRIBUTION TO GROSS VALUE ADDED, Industries Contributing Less than Tourism**

Source: Australian National Accounts: *Tourism Satellite Account 1997-98* (5249.0).

Gross value added is the preferred national accounts measure of industry production as it excludes taxes and subsidies on products. In 1997–98, tourism gross value added was \$22.4b. The air and water transport (14.5%), accommodation (10.7%), cafes, restaurants and takeaway food outlets (9.9%) and other retail trade industries (8.8%) accounted for 44% of total tourism gross value added. The remaining share was distributed widely among other industries.

Tourism contributed 4.3% to total industry gross value added. This compares well with other industries (see graphs 22.2 and 22.3).

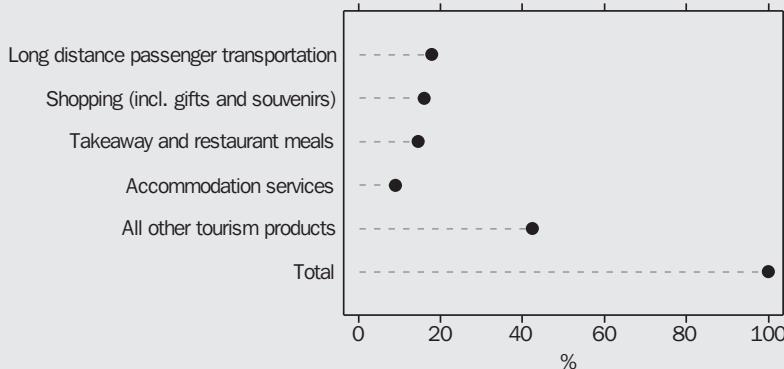
International visitors consumed \$12.8b worth of goods and services, or 11.2% of total export earnings in 1997–98. Only the mining (35%), manufacturing (23%) and agriculture (20%) industries contributed larger shares.

Tourism consumption totalled \$58.2b. Domestic households consumed the largest share (67%) while international visitors (22%) and domestic business/government visitors (11%) consumed the remainder. Overnight visitors accounted for the bulk of domestic tourism consumption (77%). The remainder of domestic consumption was by day visitors (23%).

Long distance passenger transportation was the largest tourism product (18% of the total consumption of tourism products), followed by shopping (16%), takeaway and restaurant meals (15%) and accommodation services (9%) (graph 22.4).

The TSA estimates that 513,000 persons were in tourism-generated employment in 1997–98. This represented 6% of total employed persons in the economy. The retail trade and accommodation industries were the largest contributors, accounting for 27% and 18% respectively of tourism employment. Of total tourism employment, 37% were employed on a part-time basis and there was a fairly equal proportion of males and females.

#### 22.4 CONSUMPTION OF SELECTED TOURISM PRODUCTS



Source: Australian National Accounts: Tourism Satellite Account 1997–98 (5249.0).

## International comparisons

Australia is one of a small number of countries that have produced an official TSA. Tables 22.5 to 22.7 show Australia's TSA ratios, for tourism's share of gross value added and employment, and the international visitor share of total tourism expenditure. The ratios have been adjusted to a conceptual basis comparable with ratios for New Zealand, Canada and the USA.

The adjusted tables show that the tourism share of gross value added is higher in Australia than in Canada and the USA, but lower than in New Zealand. The tourism share of employment is similar in New Zealand and Australia, but tourism contributes more to employment in Australia than in Canada or the USA.

International visitors made similar contributions to tourism consumption in Australia and the USA, but both these countries recorded lower contributions than Canada. A comparison with New Zealand is not possible as total international visitor consumption was not published in the New Zealand TSA for 1997.

## 22.5 TOURISM'S SHARE OF GROSS VALUE ADDED, Selected Countries

Country	Share	Australia's ratio (1997–98) adjusted to same conceptual basis
New Zealand (1997)	4.7	4.0
Canada (1997)(a)	2.5	3.9
USA (1997)(a)	2.3–2.8	3.3

(a) Canadian and USA estimates are at factor cost i.e. taxes on production are excluded.

Source: ABS data available on request, Australian National Accounts: Tourism Satellite Account (5249.0).

## Domestic tourism

Australian residents aged 15 and over spent a total of 293.4 million nights visiting other parts of the country in 2000 (table 22.8). Each trip took an average of four nights, and each person in the population made an average of almost five trips during the year. Residents of the Australian Capital Territory were the most frequent travellers (averaging seven trips per person), while residents of the Northern Territory tended to stay away for the longest period (averaging six nights per trip). These trends are virtually unchanged from those in 1999.

## 22.6 TOURISM'S SHARE OF EMPLOYMENT, Selected Countries

Country	Share	Australia (end June 1998) adjusted to same conceptual basis
New Zealand (1997)(a)	5.6	5.6
Canada (1997)	3.7	5.7
USA (1997)	3.3–4.0	5.1

(a) New Zealand estimates are for full-time equivalent employees.

Source: ABS data available on request, Australian National Accounts: Tourism Satellite Account (5249.0).

## 22.7 INTERNATIONAL VISITOR SHARE OF TOTAL TOURISM EXPENDITURE, Selected Countries

Country	Share	Australia (1997–98) adjusted to same conceptual basis
New Zealand (1997)	n.p.	20
Canada (1997)	29	20
USA (1997)	19–22	22

Source: ABS data available on request, Australian National Accounts: Tourism Satellite Account (5249.0).

## Conclusion

The TSA expands the core national accounts to include tourism within the national accounting framework. The results show the importance of tourism to the Australian economy.

As table 22.9 shows, 'pleasure/holiday' was the most common purpose of visit, accounting for 49% of visitor nights, followed by 'visiting friends/relatives' (29%). 'Business' visits accounted for 15% of all visitor nights, while 'other' reasons accounted for 4%.

New South Wales was the most popular destination, accounting for almost a third of all visitor nights (32%). Queensland was the next most popular destination, with a quarter of all visitor nights, while Victoria accounted for nearly a fifth of all visitor nights (18%).

**22.8 SUMMARY OF PERSON TRIPS AND NIGHTS AWAY(a), By State/Territory of Origin — 2000**

State/Territory of origin	'000(b)	'000	per person	Average nights away	
				Average trips	Total nights away
New South Wales	5 147	25 176	4.9	97 500	3.9
Victoria	3 819	18 924	5.0	71 404	3.8
Queensland	2 813	13 865	4.9	55 985	4.0
South Australia	1 206	5 504	4.6	22 369	4.1
Western Australia	1 486	6 132	4.1	27 958	4.6
Tasmania	372	1 708	4.6	7 765	4.5
Northern Territory	145	657	4.5	4 156	6.3
Australian Capital Territory	247	1 806	7.3	6 246	3.5
<b>Australia</b>	<b>15 236</b>	<b>73 771</b>	<b>4.8</b>	<b>293 384</b>	<b>4.0</b>

(a) For persons aged 15 years and over. (b) Population aged 15 years and over.

Source: National Visitor Survey, Bureau of Tourism Research.

**22.9 VISITOR NIGHTS(a), By State/Territory of Destination and Main Purpose of Visit — 2000**

State/Territory of destination	'000	'000	'000	Visiting friends/relatives		'000	'000
				All business	Pleasure/holiday		
New South Wales	13 171	45 908	28 415	4 224	92 559		
Victoria	7 453	25 916	17 562	2 414	54 039		
Queensland	10 780	38 132	20 166	2 781	74 087		
South Australia	4 058	9 702	5 943	1 071	21 251		
Western Australia	4 834	14 583	7 078	1 216	28 857		
Tasmania	1 078	4 449	2 187	*268	8 139		
Northern Territory	1 905	3 825	1 074	*402	7 914		
Australian Capital Territory	1 427	1 842	2 447	679	6 467		
<b>Australia(c)</b>	<b>44 706</b>	<b>144 375</b>	<b>84 897</b>	<b>13 055</b>	<b>293 384</b>		

(a) By Australian residents, 15 years of age and over. (b) Includes visitor nights where purpose of visit was not asked.

(c) Components may not add to total as total includes unspecified and offshore visits that could not be allocated to a State or Territory.

Source: National Visitor Survey, Bureau of Tourism Research.

**22.10 VISITOR NIGHTS(a), Type of Accommodation Used by State/Territory — 2000**

Accommodation type	'000	'000	'000	'000	'000	'000	'000	'000	'000
Hotel, resort, motel, motor inn	20 734	11 845	18 709	4 238	5 295	2 140	2 380	1 926	67 284
Guest house/B&B	1 246	1 162	475	*305	*406	*310	*54	*55	4 013
Self-catering cottage/apartment	8 083	4 171	10 274	1 506	2 571	772	*311	*408	28 096
Caravan park or commercial camping ground	10 268	5 147	5 780	2 621	3 432	504	977	*221	28 950
Friends' or relatives' property	39 151	23 046	28 102	8 156	10 406	3 121	1 781	3 050	116 837
Own property (e.g. holiday house)	5 032	3 977	2 307	1 339	1 625	*522	*234	*103	15 139
Caravan or camping on private property	2 770	2 024	2 832	1 494	1 909	*295	734	*136	12 193
Other/not stated(c)	5 275	2 666	5 609	1 593	3 214	*475	1 442	567	20 871
<b>Total(d)</b>	<b>92 559</b>	<b>54 039</b>	<b>74 807</b>	<b>21 251</b>	<b>28 857</b>	<b>8 139</b>	<b>7 914</b>	<b>6 467</b>	<b>293 384</b>

(a) Australian residents aged 15 years and over. (b) Components may not add to total as total includes unspecified and offshore visits that could not be allocated to a State or Territory. (c) Other accommodation includes backpacker/hostel, university/school dormitory/college, hospital/hospital related accommodation for relatives, and privately owned boat/yacht etc. (d) Includes visitor nights where accommodation type was not asked.

Source: National Visitor Survey, Bureau of Tourism Research.

**22.11 VISITOR NIGHTS(a), By State/Territory of Residence and States/Territories Visited — 2000**

State/Territory visited	State or Territory of residence								
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
Destination									
New South Wales	57 081	14 228	11 079	2 530	2 459	963	*362	3 857	92 559
Victoria	8 558	34 691	3 081	4 012	1 550	1 272	*282	593	54 039
Queensland	18 328	11 366	37 409	2 063	1 929	1 248	767	977	74 087
South Australia	3 169	3 771	896	11 065	979	*261	804	*306	21 251
Western Australia	3 035	2 709	1 130	1 046	20 078	*328	*340	*191	28 857
Tasmania	1 479	1 976	502	*352	*213	3 429	*17	*170	8 139
Northern Territory	2 251	1 510	847	1 048	523	*169	1 496	**72	7 914
Australian Capital Territory	3 600	1 118	1 040	*253	*203	*96	**77	**80	6 467
<b>Australia(b)</b>	<b>97 500</b>	<b>71 404</b>	<b>55 985</b>	<b>22 369</b>	<b>27 958</b>	<b>7 765</b>	<b>4 156</b>	<b>6 246</b>	<b>293 384</b>

(a) For Australian residents aged 15 years and over. (b) Includes other and not stated.

Source: National Visitor Survey, Bureau of Tourism Research.

In 2000, the most frequently used accommodation by domestic travellers was the property of friends or relatives (40% of visitor nights), followed by hotels, resorts, motels and motor inns (23%). A similar pattern occurred in the States and Territories with the exception of the Northern Territory, where hotels, resorts, motels and motor inns were a more popular choice of accommodation than friends' or relatives' property (30% and 23% respectively) (table 22.10).

Intrastate visits accounted for most domestic tourism visitor nights in 2000 (56%). They were particularly important in Western Australia, Victoria and New South Wales where 70%, 64% and 62% respectively of domestic visitor nights in the State were accounted for by residents of the State. The Australian Capital Territory was the only State or Territory where intrastate visits did not make up the largest proportion of total visitor nights (table 22.11).

In terms of numbers of visitor nights, net beneficiaries from domestic tourism (i.e. where inbound interstate visitor nights are greater than outbound interstate visitor nights) in 2000 were Queensland, Western Australia, Tasmania and both Territories. The Northern Territory benefited most from tourism in relative terms, with more than twice the number of inbound visitor nights than outbound visitor nights. Victoria contributed the most to tourism in relative terms, with the number of outbound visitor nights almost double that of inbound visitor nights.

## International inbound tourism

### Characteristics

There were 4,651,785 visitors in 1999–2000, a 9% increase in visitor arrivals from 1998–99 (table 22.12). During the six months to the end of 2000 there were 2,666,000 visitors, an increase of 12% on the corresponding period in 1999. This increase is partly due to the arrival of visitors for the Sydney Olympic and Paralympic Games, held during the months of September and October 2000.

In 1999–2000 there were significant increases in inbound visitors from most countries, compared to 1998–99. The largest increase was from Korea (58%). The largest decrease was in visitors from Indonesia (17%) (table 22.13).

In 1998–99, the most international visitors to Australia came from Japan. The number of Japanese visitors decreased by 3% in 1999–2000 while the number of visitors from New Zealand increased by 8%. This saw New Zealand become Australia's most important source, accounting for 17% of total inbound visitors, followed by Japan with 15% of inbound visitors and the United Kingdom with 12%.

Over half (56%) of all international visitors who arrived during 1999–2000 came to Australia for a holiday. Another 19% came to visit friends/relatives and 12% arrived for business purposes or to attend a convention or conference (table 22.14).

**22.12 INBOUND VISITORS(a)**

Financial Year	Visitors no.	Change(b) %
1991–92	2 519 712	13.1
1992–93	2 785 597	10.6
1993–94	3 168 961	13.8
1994–95	3 535 265	11.6
1995–96	3 966 161	12.2
1996–97	4 252 654	7.2
1997–98	4 220 005	-0.8
1998–99	4 288 027	1.6
<u>1999–2000</u>	<u>4 651 785</u>	<u>8.5</u>

(a) Final overseas arrivals and departures data for calendar year 2000 are not available due to delays being experienced by the Department of Immigration and Multicultural Affairs in processing passenger cards. Financial year data are presented in this table for only the 2002 edition of *Year Book Australia*. (b) From previous financial year.

Source: *Overseas Arrivals and Departures, Australia* (3401.0).

Visitors from New Zealand and the United Kingdom constituted almost half (46%) of all international visitors who came to visit friends/relatives in 1999–2000. New Zealand was the main source of visitors for business purposes (25%), to attend a convention or conference (20%), and for employment (26%). Japan provided 23% of visitors arriving for a holiday. Asian countries accounted for nearly two-thirds (64%) of all visitors arriving in Australia for ‘education’ purposes.

The long travelling distances to Australia contribute to long stays for international visitors. In 1999–2000, 41% of visitors stayed a minimum of two weeks, while 21% stayed for at least a month (table 22.14). Over two-thirds (67%) of travellers ‘visiting friends or relatives’ stayed at least two weeks. Visitors arriving for ‘education’ purposes also tended to stay for long periods (83% for a minimum of two weeks and 47% for six months or more), but their absolute numbers were relatively small.

In 1999–2000 most arrivals were in December (10% of total arrivals), while the fewest arrivals (7%) were in May (table 22.15). A number of factors contribute to the relative lack of seasonality, primarily the attractive climate experienced in different parts of Australia throughout the whole year and the wide diversity of source countries.

New South Wales is by far the most popular State for all categories of international visitors. In 1999–2000, 38% of all nights spent by international visitors were spent in New South Wales. Queensland was the next most popular State, accounting for 22% of all international visitor nights. Tasmania was the least popular destination, accounting for less than 2% of international visitor nights in 1999–2000 (table 22.16).

**22.13 INBOUND VISITORS, By Country/Region of Residence and Main Purpose of Trip — 1999–2000(a)**

	Main purpose of trip								Change on 1998–99
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated	Total visitors	
				'000	'000	'000	'000	'000	
New Zealand	22.8	117.0	215.3	347.7	11.5	5.5	53.2	773.1	7.5
Other Oceania	5.1	10.8	26.9	57.0	1.0	6.7	28.0	135.4	-0.6
Germany	2.4	10.8	20.1	102.0	0.8	3.4	7.7	147.2	13.4
United Kingdom	7.0	35.4	197.9	266.5	9.5	3.2	34.7	554.4	14.8
Other Europe	12.8	36.7	90.8	227.6	6.3	14.2	40.7	429.1	15.9
Indonesia	1.8	8.0	14.3	32.7	0.8	15.1	10.4	83.1	-17.2
Malaysia	3.8	9.6	26.6	86.9	0.5	10.5	8.9	146.8	14.6
Singapore	5.8	31.4	30.1	183.7	0.7	13.0	12.3	277.0	13.3
Hong Kong (SAR of China)	3.0	16.8	27.9	81.6	0.3	10.3	9.1	149.0	7.4
Japan	4.0	26.2	19.7	604.3	2.7	10.8	37.8	705.5	-2.8
Korea	4.9	9.9	16.9	83.5	0.6	10.3	13.2	139.4	57.7
Taiwan	1.8	5.3	9.0	103.0	0.3	7.4	14.1	140.9	-4.3
Other Asia	13.0	44.6	52.4	111.0	3.3	27.2	39.3	290.8	16.7
United States of America	18.6	73.2	90.5	197.6	3.4	17.2	36.4	436.9	11.0
Other America	4.9	10.1	29.9	51.9	1.6	5.5	10.3	114.2	7.3
Middle East and North Africa	1.6	4.1	13.4	25.6	0.3	1.0	5.9	52.0	12.6
Other Africa	2.8	8.8	22.1	27.8	0.9	1.7	8.4	72.4	-6.9
Not stated	—	—	0.3	0.2	—	—	3.9	4.4	37.5
<b>Total</b>	<b>116.3</b>	<b>458.9</b>	<b>904.2</b>	<b>2 590.5</b>	<b>44.3</b>	<b>163.1</b>	<b>374.5</b>	<b>4 651.8</b>	<b>8.5</b>

(a) Final overseas arrivals and departures data for calendar year 2000 are not available due to delays being experienced by the Department of Immigration and Multicultural Affairs in processing passenger cards. Financial year data are presented in this table for only the 2002 edition of Year Book Australia.

Source: *Overseas Arrivals and Departures, Australia* (3401.0).

**22.14 INBOUND VISITORS, By Intended Length of Stay and Main Purpose of Trip — 1999–2000(a)**

Intended length of stay	Main purpose of trip								Proportion or total
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated	Total visitors	
				'000	'000	'000	'000	'000	
Under 1 week	41.7	218.9	105.2	828.5	4.5	6.6	88.7	1 294.2	27.8
1 week and under 2 weeks	51.6	128.9	194.7	823.8	6.7	20.6	203.8	1 430.0	30.7
2 weeks and under 1 month	18.6	56.2	289.9	540.6	2.4	13.0	33.9	954.6	20.5
1 month and under 2 months	2.7	20.8	161.2	202.4	2.5	9.2	14.0	412.8	8.9
2 months and under 3 months	0.5	10.7	53.4	57.6	2.3	9.2	6.8	140.4	3.0
3 months and under 6 months	0.8	14.1	65.9	73.9	5.0	27.4	10.5	197.6	4.2
6 months and under 12 months	0.4	9.2	33.9	63.7	21.0	77.1	16.8	222.1	4.8
<b>Total</b>	<b>116.3</b>	<b>458.9</b>	<b>904.2</b>	<b>2 590.5</b>	<b>44.3</b>	<b>163.1</b>	<b>374.5</b>	<b>4 651.8</b>	<b>100.0</b>

(a) Final overseas arrivals and departures data for calendar year 2000 are not available due to delays being experienced by the Department of Immigration and Multicultural Affairs in processing passenger cards. Financial year data are presented in this table for only the 2002 edition of Year Book Australia.

Source: *Overseas Arrivals and Departures, Australia* (3401.0).

**22.15 INBOUND VISITORS, By Month and Main Purpose of Trip — 1999–2000(a)**

	Convention/ conference '000	Business '000	Visiting friends/ relatives '000	Main purpose of trip				Total visitors '000	Proportion %
				Holiday '000	Employment '000	Education '000	Other and not stated '000		
Month									
<b>1999</b>									
July	10.6	35.7	67.6	205.8	4.2	29.3	35.1	388.5	8.4
August	9.3	38.0	56.7	212.2	3.6	7.5	28.3	355.6	7.6
September	11.5	36.6	67.0	197.9	3.7	7.5	29.0	353.1	7.6
October	12.1	37.9	77.0	221.8	3.4	10.8	33.9	397.0	8.5
November	11.4	44.2	83.6	237.0	3.9	5.8	30.8	416.7	9.0
December	3.6	27.0	120.7	271.8	2.9	6.5	28.3	460.8	9.9
<b>2000</b>									
January	6.5	29.6	66.1	195.4	4.7	22.9	35.6	360.8	7.8
February	8.4	41.7	74.3	241.4	3.5	33.2	32.0	434.6	9.3
March	10.4	45.4	76.3	235.2	3.8	9.1	31.7	411.9	8.9
April	11.1	38.3	87.7	221.7	3.9	9.8	33.0	405.6	8.7
May	11.6	44.7	57.5	166.1	3.5	9.1	26.9	319.3	6.9
June	9.8	39.8	69.6	184.2	3.2	11.5	29.8	347.9	7.5
<b>Total</b>	<b>116.3</b>	<b>458.9</b>	<b>904.2</b>	<b>2 590.5</b>	<b>44.3</b>	<b>163.1</b>	<b>374.5</b>	<b>4 651.8</b>	<b>100.0</b>

(a) Final overseas arrivals and departures data for calendar year 2000 are not available due to delays being experienced by the Department of Immigration and Multicultural Affairs in processing passenger cards. Financial year data are presented in this table for only the 2002 edition of Year Book Australia.

Source: *Overseas Arrivals and Departures, Australia* (3401.0).

**22.16 INBOUND VISITOR NIGHTS(a), By State/Territory and Main Purpose of Trip — 1999–2000(b)**

	Business '000	Visiting friends/ relatives '000	Holiday '000	Main purpose of trip		Total '000	Proportion of total
					All other reasons '000		
State/Territory							
New South Wales	2 702	7 738	16 168	15 623	42 232		37.6
Victoria	1 573	4 693	5 667	8 709	20 642		18.4
Queensland	803	4 593	14 342	4 440	24 177		21.5
South Australia	288	1 089	1 700	2 011	5 089		4.5
Western Australia	435	3 107	4 820	4 836	13 197		11.7
Tasmania	123	308	619	651	1 702		1.5
Northern Territory	136	333	2 399	429	3 297		2.9
Australian Capital Territory	179	299	286	1 240	2 004		1.8
<b>Australia</b>	<b>6 259</b>	<b>22 161</b>	<b>46 002</b>	<b>37 939</b>	<b>112 361</b>		<b>100.0</b>

(a) All visitors aged 15 years and over. (b) The Bureau of Tourism research uses final overseas and arrivals data to compile the International Visitor Survey results. Because of the delays in the receipt of these data for calendar year 2000, financial year data are presented in this table for only the 2002 edition of Year Book Australia.

Source: *International Visitor Survey, Bureau of Tourism Research*.

## Expenditure

In 1999–2000, international visitors to Australia spent an average of \$4,066 on each trip.

Visitors from China spent the most, averaging \$6,070, followed by the United States of America (\$5,899), 'Other Europe' (\$5,411) and Indonesia (\$5,279). The lowest average expenditure, \$1,808 per visitor, was by visitors from New Zealand (table 22.17).

The largest expenditure items for visitors from Canada, the United Kingdom, Europe and New Zealand were prepaid international airfares

and food, drink and accommodation. The only exception was visitors from Germany, who spent a quarter of their total expenditure on package tours. Visitors from the United States of America spent about one-fifth (18%) of their total expenditure on food, drink and accommodation, around one-quarter (26%) on package tours and just over a third (35%) on prepaid international airfares (table 22.18).

Visitors from Asian countries also spent relatively large amounts on food, drink and accommodation. However, for most of these countries education fees also took a large proportion of their total expenditure. The most notable exception to this trend were visitors from Japan, who spent more than half of their total expenditure on package tours.

People visiting for 'other' reasons (e.g. education, employment, health) had the highest average expenditure (\$7,126 per person). These visitors

spent just over half their total expenditure on food, drink and accommodation (26%) and education fees (25%). Business visitors had the next highest average expenditure (\$3,941). Their largest expenditure items were prepaid international airfares and food, drink and accommodation (42% and 27% of total expenditure respectively).

#### 22.17 AVERAGE VISITOR EXPENDITURE, By Country/Region of Residence and Expenditure Item — 1999–2000(a)

Country/region of residence	Items of expenditure								\$
	Package tours	Prepaid international airfares	Transport(b)	Food, drink and accommodation	Shopping	Entertainment and gambling	Education fees	Other(c)	
New Zealand	219	422	179	520	334	55	9	70	1 808
Germany	1 302	1 372	847	1 177	307	65	16	73	5 159
United Kingdom	857	1 713	608	1 267	348	107	4	91	4 995
Other Europe	1 027	1 559	730	1 336	385	90	160	124	5 411
Indonesia	276	625	599	1 228	612	257	1 400	282	5 279
Malaysia	291	514	238	808	463	178	835	142	3 469
Singapore	423	574	332	719	434	167	533	105	3 287
Hong Kong (SAR of China)	609	700	474	963	526	159	721	120	4 272
Japan	2 062	320	266	347	630	59	88	33	3 804
Korea	857	573	305	909	570	180	531	104	4 030
Taiwan	887	504	215	586	577	100	517	93	3 479
Thailand	327	667	284	1 087	522	151	924	175	4 137
China	743	887	468	1 369	740	612	1 076	175	6 070
Other Asia	280	984	310	783	548	152	485	97	3 638
United States of America	1 510	2 044	505	1 055	371	82	227	105	5 899
Canada	692	1 646	581	1 199	349	98	101	106	4 772
Other countries	359	1 109	333	674	502	76	147	107	3 307
<b>All countries</b>	<b>913</b>	<b>985</b>	<b>412</b>	<b>853</b>	<b>451</b>	<b>109</b>	<b>248</b>	<b>95</b>	<b>4 066</b>

(a) The Bureau of Tourism Research uses final overseas and arrivals data to compile the International Visitor Survey results. Because of the delays in the receipt of those data for calendar year 2000, financial year data are presented in this table for only the 2002 edition of Year Book Australia. (b) Includes: organised tours; international airfares bought in Australia; domestic airfares; other transport fares; self-drive cars, rent-a-cars, campervans; petrol and oil for self-drive cars or other vehicles; and motor vehicles. (c) Includes: phone, Internet, fax and postage; convention registration fees; medical expenses; and other expenses not elsewhere specified.

Source: International Visitor Survey, Bureau of Tourism Research.

**22.18 AVERAGE VISITOR EXPENDITURE, By Expenditure Item and Main Purpose of Trip — 1999–2000(a)**

	Business	Main purpose of trip			
		Visiting friends and relatives	Holiday	All other reasons	Total
Expenditure items	\$	\$	\$	%	\$
Package tours	378	174	1 373	599	913
Prepaid international airfares	1 662	1 228	690	1 180	985
Transport(b)	270	270	414	774	412
Food, drink and accommodation	1 065	499	703	1 842	853
Shopping	337	433	471	516	451
Entertainment and gambling	80	105	98	199	109
Education fees	6	77	28	1 754	248
Other(c)	144	57	57	263	95
<b>All items</b>	<b>3 941</b>	<b>2 843</b>	<b>3 834</b>	<b>7 126</b>	<b>4 066</b>

(a) The Bureau of Tourism Research uses final overseas and arrivals data to compile the International Visitor Survey results. Because of the delays in the receipt of those data for calendar year 2000, financial year data are presented in this table for only the 2002 edition of Year Book Australia. (b) Includes: organised tours; international airfares bought in Australia; domestic airfares; other transport fares; self-drive cars, rent-a-cars, campervans; petrol and oil for self-drive cars or other vehicles; and motor vehicles. (c) Includes: phone, Internet, fax and postage; convention registration fees; medical expenses; and other expenses not elsewhere specified.

Source: International Visitor Survey, Bureau of Tourism Research.

## International outbound tourism

The number of Australian residents travelling abroad has been increasing over the last nine financial years (table 22.19). The annual percentage increase in Australian departures was smaller than the increase in visitor arrivals until 1996–97, when those leaving increased by 8% while those arriving increased by 7%.

The two following financial years also saw larger increases in Australians travelling abroad than international visitors to Australia. However, in 1999–2000 the growth in inbound visitors was almost double that of outbound visitors (9% and 5% respectively). In 1999–2000 there were over 1.3 million more international visitors to Australia than Australians travelling abroad. Consequently, tourism continues to improve the net contribution of the travel item to Australia's balance on current account (in table 30.8 of *Chapter 30, International accounts and trade*, the difference between travel services credits and debits).

## 22.19 AUSTRALIAN RESIDENTS TRAVELLING ABROAD(a)

Financial year	no.	Change %
1991–92	2 173 453	2.7
1992–93	2 299 504	5.8
1993–94	2 303 964	0.2
1994–95	2 421 983	5.1
1995–96	2 624 359	8.4
1996–97	2 837 207	8.1
1997–98	3 031 897	6.9
1998–99	3 188 692	5.2
1999–2000	3 332 258	4.5

(a) Final overseas arrivals and departures data for calendar year 2000 are not available due to delays being experienced by the Department of Immigration and Multicultural Affairs in processing passenger cards. Financial year data are presented in this table for only the 2002 edition of Year Book Australia.

Source: Overseas Arrivals and Departures, Australia (3401.0).

Australians travel abroad to visit a wide variety of destinations. As table 22.20 shows, the most popular main destination is New Zealand, accounting for 15% of Australian residents visiting other countries in 1999–2000. The next most popular destinations were the United States (11%) and the United Kingdom (10%). The number of Australian residents travelling to Indonesia fell by 26% compared to 1998–99. This fall was partly due to the political unrest in East Timor during this time.

Nearly half (45%) of Australian residents travelling abroad in 1999–2000 went for a holiday, while a further 25% went to ‘visit friends/relatives’. ‘Holiday’ was the main purpose of trip for Australians travelling to all destinations except the Philippines, Middle East and North Africa, and ‘Other Asia’, where ‘visiting friends/relatives’ was the main purpose.

Australians travelling for ‘business’ reasons accounted for 17% of Australian outbound travellers. Their main destinations were New Zealand, the United States, ‘Other Asia’ and Singapore.

The long distances Australian residents travel to other countries is reflected in the length of time spent per trip. In 1999–2000 only 12% stayed

broad less than a week, while almost a third (32%) stayed away for at least a month (table 22.21). The high proportion of Australians ‘visiting friends/relatives’ (25%) also contributed to long periods of stay, as such travellers traditionally stay comparatively long periods. In 1999–2000, 50% of such visitors stayed away for a month or more.

While the number of Australian residents departing for visits abroad varies from month to month, there are not large seasonal fluctuations. The largest number of departures was in September (10%), while February recorded the lowest number of departures (6%) (table 22.22).

**22.20 AUSTRALIANS TRAVELLING ABROAD, By Country/Region of Main Destination and Main Purpose of Trip — 1999–2000(a)**

Country/region of main destination	Main purpose of trip								Change on 1998–99
	Convention/conference '000	Business '000	Visiting friends/relatives '000	Holiday '000	Employment '000	Education '000	Other and not stated '000	Total '000	
Fiji	4.4	8.6	13.1	76.0	0.5	1.0	3.7	107.2	2.9
New Zealand	19.3	100.1	167.2	183.1	4.9	4.1	28.1	506.7	6.1
Other Oceania	2.4	24.0	16.8	89.2	18.1	3.5	8.9	162.9	12.9
Italy	2.4	6.3	15.5	36.8	0.5	1.4	1.8	64.7	-2.3
United Kingdom	9.1	36.2	113.6	147.2	9.1	3.2	11.8	330.2	7.9
Other Europe	16.3	34.3	107.9	123.2	3.8	6.3	15.3	307.1	11.7
Indonesia	3.8	25.4	15.3	197.5	5.2	1.5	8.2	256.8	-26.4
Malaysia	7.4	21.8	26.2	61.4	3.2	1.0	5.3	126.3	12.9
Philippines	1.1	11.7	25.2	13.5	0.7	0.4	3.1	55.6	0.1
Singapore	8.5	42.5	21.7	57.9	5.7	1.8	7.9	145.9	9.1
Thailand	5.6	16.3	9.5	109.4	2.2	1.0	3.9	147.8	7.5
China	3.9	24.9	21.9	26.0	2.5	2.1	4.9	86.3	5.5
Hong Kong (SAR of China)	4.8	38.5	38.6	52.4	7.3	1.3	6.8	149.7	4.9
Other Asia	8.8	58.6	94.7	74.9	8.8	7.7	14.4	267.9	7.5
United States of America	44.0	74.6	61.4	167.5	7.0	5.6	13.6	373.7	15.4
Other America	5.9	10.2	24.3	46.5	1.7	1.6	3.7	94.0	9.1
Middle East and North Africa	1.1	7.9	28.7	28.5	3.2	1.0	6.1	76.6	-2.3
Other Africa	3.2	11.2	16.6	20.9	1.6	0.7	3.6	57.8	14.6
Not stated	0.1	0.4	—	3.4	0.5	—	10.5	15.0	-2.1
<b>Total</b>	<b>152.0</b>	<b>553.3</b>	<b>818.2</b>	<b>1515.1</b>	<b>86.5</b>	<b>45.4</b>	<b>161.7</b>	<b>3332.3</b>	<b>4.5</b>

(a) Final overseas arrivals and departures data for calendar year 2000 are not available due to delays being experienced by the Department of Immigration and Multicultural Affairs in processing passenger cards. Financial year data are presented in this table for only the 2002 edition of Year Book Australia.

Source: Overseas Arrivals and Departures, Australia (3401.0).

**22.21 AUSTRALIANS TRAVELLING ABROAD, By Intended Length of Stay and Main Purpose of Trip — 1999–2000(a)**

	Main purpose of trip							Total	Proportion of total
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated		
Intended length of stay	'000	'000	'000	'000	'000	'000	'000	'000	%
Under 1 week	37.7	195.7	54.4	103.9	5.4	3.0	16.1	416.2	12.5
1 week and under 2 weeks	63.4	153.1	124.5	539.3	6.4	9.4	57.8	954.0	28.6
2 weeks and under 1 month	37.9	104.7	228.8	454.3	12.3	11.8	32.8	882.7	26.5
1 month and under 2 months	10.8	43.3	215.4	249.2	10.3	4.2	19.4	552.5	16.6
2 months and under 3 months	1.4	18.9	82.1	71.3	7.0	3.0	8.7	192.5	5.8
3 months and under 6 months	0.7	19.1	73.3	55.2	13.4	5.0	10.2	176.8	5.3
6 months and under 12 months	0.1	18.4	39.7	42.0	31.7	8.9	16.8	157.6	4.7
<b>Total</b>	<b>152.0</b>	<b>553.3</b>	<b>818.2</b>	<b>1 515.1</b>	<b>86.5</b>	<b>45.4</b>	<b>161.7</b>	<b>3 332.3</b>	<b>100.0</b>

(a) Final overseas arrivals and departures data for calendar year 2000 are not available due to delays being experienced by the Department of Immigration and Multicultural Affairs in processing passenger cards. Financial year data are presented in this table for only the 2002 edition of Year Book Australia.

Source: *Overseas Arrivals and Departures, Australia* (3401.0).

**22.22 AUSTRALIANS TRAVELLING ABROAD, By Month of Departure and Main Purpose of Trip — 1999–2000(a)**

Month	Main purpose of trip							Total	Proportion of total
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated		
1999	'000	'000	'000	'000	'000	'000	'000	'000	%
July	13.7	43.1	65.1	141.0	6.8	3.7	13.2	286.6	8.6
August	14.5	45.1	62.6	137.4	6.8	3.5	11.2	281.1	8.4
September	16.0	46.0	71.6	167.5	6.2	8.4	14.9	330.7	9.9
October	13.6	48.0	55.9	121.2	6.4	2.8	14.2	262.0	7.9
November	11.0	49.1	62.4	99.1	6.8	3.7	12.4	244.3	7.3
December	3.8	25.0	113.5	142.6	6.7	3.1	14.6	309.3	9.3
2000									
January	8.7	40.4	58.7	109.7	10.6	4.9	14.0	246.9	7.4
February	9.7	50.0	50.3	81.7	6.3	2.1	11.8	211.8	6.4
March	13.9	54.1	60.8	112.4	6.3	2.8	12.9	263.1	7.9
April	15.4	47.7	69.1	147.9	8.3	3.5	15.7	307.7	9.2
May	16.3	54.7	68.0	122.0	8.3	2.5	13.1	284.9	8.5
June	15.4	50.2	80.3	132.6	7.1	4.4	13.7	303.8	9.1
<b>Total</b>	<b>152.0</b>	<b>553.3</b>	<b>818.2</b>	<b>1 515.1</b>	<b>86.5</b>	<b>45.4</b>	<b>161.7</b>	<b>3 332.3</b>	<b>100.0</b>

(a) Final overseas arrivals and departures data for calendar year 2000 are not available due to delays being experienced by the Department of Immigration and Multicultural Affairs in processing passenger cards. Financial year data are presented in this table for only the 2002 edition of Year Book Australia.

Source: *Overseas Arrivals and Departures, Australia* (3401.0).

## Tourist accommodation

At 31 December 2000 there were 194,926 rooms available in Australia in hotels, motels, guest houses and serviced apartments having 15 or more rooms or units (table 22.23). This was an increase of 3% over the number available at 31 December 1999. The number of serviced apartments having 15 or more rooms or units increased by 8% (to 646) over the same period. During 2000 the supply of accommodation exceeded demand, with room occupancy rates of 64% for hotels, 53% for motels, and 59% for serviced apartments.

Takings from these accommodation establishments increased by 13% in the calendar year 2000 compared to 1999. While takings increased in the March and June quarters compared to the same quarters in 1999, larger increases occurred in the September and December quarters due at least partly to higher tariffs during the Olympic and Paralympic Games period. The introduction of the Goods and Services Tax and its inclusion in accommodation takings from 1 July 2000 also contributed.

The Survey of Tourist Accommodation (STA) was expanded during calendar year 2000 to include holiday flats and units, caravan parks and visitor hostels.

In the three years to December 2000, the number of holiday flats, units and houses with 15 or more rooms and units available for short-term letting increased by 4% to 29,835. Demand kept pace with the increase in supply, resulting in a marginal rise in the occupancy rate in 2000 compared to 1997 (up 0.1 percentage points). Takings increased by 17% to \$401.6m over the three-year period.

There were 244,905 vans, sites, cabins or flats available in caravan parks with 40 or more powered sites at the end of 2000. This was a decrease of 4% compared to results for 1997, when these establishments were last included in the STA. While the number of powered and unpowered sites and on-site vans all fell, the number of cabins and flats increased by 36%. This increase in the quantity of the more expensive cabins and flats is reflected in a 22% increase in takings over the three-year period to \$593.8m. Occupancy increased by 2.3 percentage points.

For the calendar year 2000 there was a 33% increase in bed spaces available in visitor hostels with 25 or more beds. Takings increased by 71% to \$129.8m, when compared with 1997 annual figures. Bed occupancy rates also increased slightly, by just over one percentage point.

## 22.23 TOURIST ACCOMMODATION(a) — 2000

	Units	March	June	September	December	Quarter ended	Year ended December 2000
<b>LICENSED HOTELS WITH FACILITIES(b)</b>							
Establishments	no.	767	767	774	780	780	780
Guest rooms	no.	73 760	74 302	76 607	76 783	76 783	76 783
Bed spaces	no.	197 179	197 513	203 977	204 109	204 109	204 109
Room occupancy rates	%	63.3	62.0	63.3	65.3	63.5	63.5
Bed occupancy rates	%	38.9	37.2	38.8	40.3	38.8	38.8
Gross takings from accommodation	\$'000	556 825	525 795	681 214	659 337	2 423 170	
<b>MOTELS AND GUEST HOUSES WITH FACILITIES(b)</b>							
Establishments	no.	2 411	2 412	2 412	2 402	2 402	2 402
Guest rooms	no.	85 821	86 091	85 078	84 722	84 722	84 722
Bed spaces	no.	254 335	254 578	251 929	250 170	250 170	250 170
Room occupancy ratesy	%	53.1	53.4	53.1	52.4	53.0	53.0
Bed occupancy rates	%	31.6	31.2	31.5	31.2	31.4	31.4
Gross takings from accommodation	\$'000	337 890	335 620	383 303	359 491	1 416 305	
<b>SERVICED APARTMENTS(b)</b>							
Establishments	no.	611	626	641	646	646	646
Guest rooms	no.	31 542	32 437	33 394	33 421	33 421	33 421
Bed spaces	no.	107 951	110 381	113 130	113 267	113 267	113 267
Room occupancy rates	%	60.0	55.9	60.9	60.3	59.3	59.3
Bed occupancy rates	%	38.8	34.8	39.0	38.8	37.8	37.8
Gross takings from accommodation	\$'000	193 602	178 063	237 641	221 080	830 387	
<b>TOTAL HOTELS, MOTELS AND SERVICED APARTMENTS(b)</b>							
Establishments	no.	3 789	3 805	3 827	3 828	3 828	3 828
Guest rooms	no.	191 123	192 830	195 079	194 926	194 926	194 926
Bed spaces	no.	559 465	562 472	569 036	567 546	567 546	567 546
Room occupancy rates	%	58.2	57.1	58.4	58.8	58.1	58.1
Bed occupancy rates	%	35.5	34.0	35.6	36.0	35.3	35.3
Room nights occupied	'000	10 088	10 000	10 449	10 543	41 080	
Gross takings from accommodation	\$'000	1 088 317	1 039 478	1 302 158	1 239 908	4 669 862	
<b>HOLIDAY FLATS, UNITS AND HOUSES(b)</b>							
Flats, units etc.							
One bedroom	no.	4 876	4 889	4 989	5 218	5 218	5 218
Multiple bedroom	no.	23 377	22 585	23 243	24 617	24 617	24 617
Total flats, units etc.	no.	28 253	27 474	28 232	29 835	29 835	29 835
Bed spaces	no.	127 195	126 264	132 123	136 445	136 445	136 445
Unit occupancy rates	%	54.2	43.3	49.2	51.5	49.6	49.6
Unit nights occupied	'000	1 389.1	1 081.6	1 273.1	1 367.3	5 111.2	
Gross takings from accommodation	\$'000	106 110	73 957	104 345	117 212	401 623	
<b>CARAVAN PARKS(c)</b>							
Establishments	no.	1 827	1 818	1 803	1 800	1 800	1 800
Powered sites(d)	no.	176 451	176 597	176 435	175 863	175 863	175 863
Unpowered sites	no.	43 908	44 607	44 642	44 806	44 806	44 806
Cabins, flats etc.	no.	23 658	24 067	23 942	24 236	24 236	24 236
Total capacity	no.	244 017	245 271	245 019	244 905	244 905	244 905
Site occupancy rates(e)	%	51.2	48.9	49.6	48.4	49.5	49.5
Site nights occupied	'000	11 368	10 909	11 171	10 896	44 344	
Gross takings from accommodation	\$'000	148 825	132 272	154 908	157 838	593 843	
<b>VISITOR HOSTELS(e)</b>							
Establishments	no.	478	467	466	466	466	466
Bed spaces	no.	39 792	39 415	40 336	40 659	40 659	40 659
Bed occupancy rates	%	50.4	48.9	48.0	48.6	49.0	49.0
Guest nights	'000	1 810	1 753	1 778	1 813	7 155	
Gross takings from accommodation	\$'000	30 664	29 624	34 718	34 791	129 797	

(a) Comprising establishments with 15 or more rooms or units. (b) For definitions see the source below. (c) Comprising establishments with 40 or more powered sites and cabins. Includes long-term caravan parks. (d) Includes on-site vans. (e) Comprising establishments with 25 or more beds.

Source: *Tourist Accommodation, Australia (8635.0)*, December quarter 2000 and March quarter 2001.

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- Tourist Accommodation, Australia* (8635.0).
- Tourism Indicators, Australia* (8634.0).

### **Other publications**

Bureau of Tourism Research

- *International Visitor Survey*
- *National Visitor Survey*
- *Tourism Research Report*

Commonwealth Department of Industry, Science and Resources

- *Impact* (a monthly fact sheet on the economic impact of tourism and the latest trends in visitor arrivals).

## Internet sites

Australian Tourist Commission, <http://www.atc.net.au>

Bureau of Tourism Research, <http://www.btr.gov.au>

Canberra Tourism and Events Corporation, <http://www.canberratourism.com.au>

Centre for Regional Tourism Research, <http://crtr.crctourism.com.au>

Commonwealth Department of Industry, Science and Resources, <http://www.isr.gov.au>

Cooperative Research Centre for Sustainable Tourism, <http://www.crctourism.com.au>

Northern Territory Tourist Commission, <http://nttc.com.au>

South Australian Tourist Commission, <http://www.tourism.sa.gov.au>

Tourism NSW, <http://www.tourism.nsw.gov.au>

Tourism Queensland, <http://www.queensland-holidays.com.au>

Tourism Tasmania, <http://www.tourism.tas.gov.au>

Tourism Victoria, <http://www.tourism.vic.gov.au>

Western Australian Tourism Commission, <http://www.tourism.wa.gov.au>

World Travel and Tourism Council, <http://www.wttc.org>

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## Introduction

**T**ransport can be described broadly as the movement of goods or people from an origin to a destination. It is one of the most fundamental aspects of an advanced economy. Buildings cannot be constructed without transportation of materials and people, food must be transported from farms to shops, and people must travel to get to and from work, recreation and other facilities. Transport has enormous economic and social impact, generates substantial employment and contributes significantly to Gross Domestic Product, with numerous support industries ranging from automotive manufacturers to travel agencies. There are also social costs of transport — such as road accidents, traffic congestion, fuel emissions, noise pollution and spillages of dangerous cargos. Information about all aspects of transport and its support industries is vital to effective planning by governments and industry.

Four themes are addressed in this chapter:

- transport activity, covering the domestic and international movement of goods and people;

- safety;
- transport infrastructure, comprising roads, rail track, ports, etc., transport equipment and skilled persons; and
- transport organisations.

## Transport activity

### General transport activity

This section provides data relating to the movements of goods and persons. Examples include distance travelled, tonnes of freight carried and numbers of passengers.

### Road transport activity

Motor vehicles travelled a total distance of 180,782 million kilometres in the year ended 31 October 2000 at an average of 15,400 kilometres per vehicle on the road (table 23.1). Business use accounted for an estimated 34.4% of distance travelled, while the journey to and from work accounted for a further 22.1%. Private use made up the remaining 43.5%.

#### 23.1 BUSINESS AND PRIVATE VEHICLE USE, By Type of Vehicle — Year ended 31 October 2000(a)

Type of vehicle	Business					
	Laden	Unladen	Total(b)	Total to and from work	Private	Total
TOTAL KILOMETRES TRAVELED (million)						
Passenger vehicles	n.a.	n.a.	31 085	35 050	72 590	138 725
Motor cycles	n.a.	n.a.	131	449	587	1 167
Light commercial vehicles	12 704	4 833	17 537	4 318	5 281	27 136
Rigid trucks	4 406	1 834	6 240	94	81	6 415
Articulated trucks	3 887	1 436	5 323	*6	*2	5 331
Non-freight carrying trucks	n.a.	n.a.	252	**1	**1	254
Buses	n.a.	n.a.	1 664	19	70	1 754
<b>Total</b>	<b>20 997</b>	<b>8 104</b>	<b>62 233</b>	<b>39 937</b>	<b>78 612</b>	<b>180 782</b>
AVERAGE KILOMETRES TRAVELED PER VEHICLE(c) ('000)						
Passenger vehicles	n.a.	n.a.	10.2	7.1	8.5	14.7
Motor cycles	n.a.	n.a.	2.6	4.6	3.1	4.6
Light commercial vehicles	14.3	8.3	17.6	7.5	6.1	17.1
Rigid trucks	15.9	8.5	22.3	4.4	2.7	21.3
Articulated trucks	71.3	30.2	96.5	2.9	*1.3	94.4
Non-freight carrying trucks	n.a.	n.a.	13.9	*3.2	*1.8	13.8
Buses	n.a.	n.a.	34.2	4.3	9.4	32.6
<b>Total</b>	<b>17.2</b>	<b>9.5</b>	<b>13.9</b>	<b>7.1</b>	<b>8.2</b>	<b>15.4</b>

(a) Because of changes to methodology, caution should be used when comparing these data with data from the 1995 and earlier surveys presented in previous editions of Year Book Australia. (b) Includes business travel of non-freight carrying vehicles.

(c) Calculated using total kilometres travelled divided by the average number of registered vehicles, for each type of vehicle, by type of use.

Source: Survey of Motor Vehicle Use, Australia (9208.0).

**23.2 AREA OF OPERATION, By Type of Vehicle — Year ended 31 October 2000(a)**

Type of vehicle	Area of operation					
	Within State/Territory of registration			Total	Interstate(c)	Australia
	Capital city(b)	Provincial urban	Other areas of State or Territory			
TOTAL KILOMETRES TRAVELED (million)						
Passenger vehicles	82 488	17 986	31 219	131 692	7 032	138 725
Motor cycles	536	212	318	1 066	*101	1 167
Light commercial vehicles	12 049	4 351	9 830	26 230	906	27 136
Rigid trucks	3 405	757	2 022	6 184	231	6 415
Articulated trucks	977	338	2 539	3 854	1 477	5 331
Non-freight carrying types	108	**74	*63	245	*9	254
Buses	820	268	589	1 678	76	1 754
<b>Total</b>	<b>100 383</b>	<b>23 987</b>	<b>46 580</b>	<b>170 950</b>	<b>9833</b>	<b>180 782</b>
AVERAGE KILOMETRES TRAVELED PER VEHICLE(d) ('000)						
Passenger vehicles	11.6	6.7	9.8	14.0	6.8	14.7
Motor cycles	4.1	3.7	2.9	4.3	*3.5	4.6
Light commercial vehicles	15.4	10.2	13.1	16.7	5.0	17.1
Rigid trucks	22.4	11.6	14.4	20.7	8.8	21.3
Articulated trucks	29.9	19.3	64.1	70.5	79.2	94.4
Non-freight carrying types	16.1	*17.3	*7.5	13.7	*5.3	13.8
Buses	27.0	18.5	25.6	31.6	14.7	32.6
<b>Total</b>	<b>12.2</b>	<b>7.3</b>	<b>10.9</b>	<b>14.7</b>	<b>7.6</b>	<b>15.4</b>

(a) Because of changes to methodology caution must be taken when comparing these data with data from the 1995 and earlier surveys presented in previous editions of Year Book Australia. (b) Relates to travel within the capital of the State/Territory where a vehicle is registered (i.e. Sydney for vehicles registered in New South Wales). (c) Interstate travel relates to distance travelled in States/Territories other than the one in which the vehicle was registered (e.g. distance travelled by a New South Wales registered vehicle in Victoria). It is not classified by capital city/provincial urban/other area (i.e. distance travelled by a New South Wales registered vehicle in Melbourne is shown as interstate travel and not capital city travel). (d) Calculated as total kilometres travelled divided by the number of vehicles travelling, for each type of vehicle, by area of operation.

Source: Survey of Motor Vehicle Use, Australia (9208.0).

Table 23.2 shows the areas in which motor vehicles travelled. Only 5.4% of total distance travelled was interstate while 55.5% was within the capital city of the State or Territory in which the vehicle was registered.

### Rail transport activity

The Australian rail industry is very diverse, comprising rail operators (freight, passenger, tourist and heritage), manufacturers, suppliers, consultants, track access corporations, maintenance and construction contractors, logistics providers and a wide range of other companies covering all sectors of the industry.

Australia's railways are undergoing significant change as a result of the Commonwealth and State/Territory Governments' policy to increase competition. Consequently, there has been an increase in private rail activity, with a decline in government ownership and management of railways.

The following information as at 30 June 2001 on the ownership and management of individual State railways was supplied by Australasian Railways Association.

*New South Wales:* The Rail Infrastructure Corporation (RIC) manages rail infrastructure including maintenance and operator access to the network. The State government-owned enterprises are:

- FreightCorp, the State's major rail freight operator which also operates in South Australia and between Sydney and Melbourne. The NSW Government has announced its intention to privatise FreightCorp; and
- the State Rail Authority, operating urban, commuter and country rail passenger services, and interstate passenger trains to Melbourne and Brisbane.

A number of private operators also operate rail services.

**Victoria:** The Victorian Rail Track Corporation (VicTrack) is the State government statutory corporation which owns the public transport land in Victoria. This land is leased by VicTrack to various government and private operators. In February 1999 Victoria's rail freight operator V/Line Freight was sold to US regional rail operator Rail America, which trades as Freight Australia. In mid-1999 Victoria's rail passenger services were franchised to private operators:

- UK based National Express Group - V/Line Passenger (under a 10 year franchise agreement);
- M>Train (15 year agreement);
- M>Tram (12 years);
- French based Melbourne Transport Enterprises-Connex (15 years); and
- locally based MetroLink, including the major construction company Transfield Yarra Trams (12 years).

**Queensland:** The primary rail system remains operated by government-owned business enterprises that have responsibility for their entire operations. There are also a number of private enterprises operating smaller railways, primarily for the transportation of products such as sugar cane.

**South Australia:** In November 1997 the Commonwealth sold the non-urban rail systems. Australian Southern Railroad operates the former SA Freight. Great Southern Railway operates the long distance passenger trains, namely the Ghan, the Indian Pacific and the Overland. There are also some private operators.

**Western Australia:** In late 2000, the West Australian government owned Westrail was sold to a consortium comprising Australian Southern Railroad and Wesfarmers. The urban rail passenger operations and non-urban rail and bus passenger services remain government owned under the Western Australian Government Railways

Commission. In north-west WA, private railways haul iron ore from mine to port on some of the world's longest, heaviest and most efficient trains.

**Tasmania:** In November 1997 the Commonwealth sold Tasrail to Australian Transport Network.

**Commonwealth:** National Rail Corporation Ltd (NRC) operates interstate rail freight services between Brisbane and Perth as well as intrastate services in NSW. It is jointly owned by the Commonwealth Government and the NSW and Victorian Governments, which have agreed to its privatisation. The Australian Rail Track Corporation owns the interstate standard gauge track in South Australia extending to Kalgoorlie in WA, and leases the interstate standard gauge track in Victoria from the State Government and VicTrack.

### Domestic airline activity

Table 23.3 shows the hours flown and aircraft departures for the major domestic and regional airlines. Aircraft departures increased by 3.8% in 2000 compared to departures in 1999. The number of hours flown in 2000 increased by 4.8% from 1999.

In addition to scheduled services of domestic and regional airlines shown in table 23.3, a wide range of other activities is undertaken by the aviation industry, including business flying, aerial agriculture, charter, training and private flying (table 23.4). Charter operations and training have, in recent years, made up more than half of general aviation hours flown and approximately 40% of total domestic hours flown. Charter operations involve the use of aircraft in non-scheduled operations for the carriage of passengers and cargo for hire or reward. General aviation hours flown in 2000 were 13% lower across all activity types than hours flown in 1999. Fuel contamination problems which grounded some aircraft may have been a factor in the lower figures recorded.

#### 23.3 DOMESTIC AIRLINE ACTIVITY — MAJOR AIRLINES, Hours Flown and Departures

	1996 '000	1997 '000	1998 '000	1999 '000	2000 '000
Domestic airlines(a)					
Hours flown	454	440	440	442	463
Aircraft departures	254	242	239	240	249

(a) Includes Ansett Australia, Qantas Airways Ltd, Virgin Blue and the jet services of Impulse Airline.

Source: Department of Transport and Regional Services.

**23.4 GENERAL AVIATION ACTIVITY, Hours Flown**

	1996 '000	1997 '000	1998 '000	1999 '000	2000(a) '000
Charter	483	487	498	508	487
Agricultural	126	137	148	135	117
Flying training	450	455	484	454	355
Other aerial work	293	315	319	314	274
Private/business	447	446	430	432	369
<b>Total</b>	<b>1 799</b>	<b>1 839</b>	<b>1 878</b>	<b>1 842</b>	<b>1 602</b>

(a) 2000 figures are preliminary.

Source: Bureau of Air Safety Investigation.

**23.5 SCHEDULED INTERNATIONAL AIRLINE TRAFFIC TO AND FROM AUSTRALIA(a) — Year ended December**

Type of traffic	1999	Flights(b)(c) 2000
TRAFFIC TO AUSTRALIA		
Qantas Airways Limited	12 675	13 751
Ansett Australia	1 640	1 450
Other airlines	27 219	30 633
<b>All airlines</b>	<b>41 534</b>	<b>45 834</b>
TRAFFIC FROM AUSTRALIA		
Qantas Airways Limited	12 733	13 817
Ansett Australia	1 646	1 454
Other airlines	26 713	30 083
<b>All airlines</b>	<b>41 092</b>	<b>45 354</b>

(a) Australia and Norfolk Island. (b) Includes Qantas flights using aircraft leased from other airlines and vice versa. (c) The difference between to and from numbers arises because some outward flights are operated as non-scheduled, and so are not counted in the table.

Source: Department of Transport and Regional Services.

**International air transport activity**

As table 23.5 shows, the number of flights into and out of Australia in 2000 both increased by 10.4% over 1999 levels. Other airlines (i.e. overseas operators) represented 66.5% of all scheduled international airline traffic. In 2000 these airlines increased their incoming flights by 12.5% and their outgoing flights by 12.6%, and were the primary contributors to the overall increase in flights. Qantas also contributed to the total growth in flights, with a 8.5% increase in flights into and out of the country, flights to and from Indonesia, New Zealand, Singapore, UK and USA recording increases. In contrast, the number of Ansett flights fell across all services except to and from Hong Kong.

**Domestic freight activity**

Movement of freight within Australia is a significant part of the transport task, with goods being transported intrastate and interstate.

**Road freight activity**

As can be seen from table 23.6, articulated trucks are responsible for the largest percentage of the freight transport task performed by road (77.2% of total tonne-kilometres of all freight carrying vehicles in the year ended 31 October 2000). Trucks registered in Victoria accounted for the highest tonne-kilometres travelled by articulated trucks (22.2% of total freight vehicles), while vehicles registered in New South Wales recorded the highest tonne-kilometres for rigid trucks (5.9% of total) and light commercial vehicles (1.3% of total).

**23.6 FREIGHT VEHICLES, Tonne-Kilometres(a) by State of Registration — Year ended 31 October 2000**

State/Territory of registration	Light commercial vehicles mill. t-km	Rigid trucks mill. t-km	Articulated trucks mill. t-km	Total mill. t-km
New South Wales	1 693	7 580	21 817	31 090
Victoria	1 085	5 703	28 530	35 319
Queensland	1 425	5 580	19 587	26 591
South Australia	342	1 592	12 561	14 495
Western Australia	667	2 594	11 766	15 027
Tasmania	132	417	1 852	2 401
Northern Territory	56	*181	2 585	2 821
Australian Capital Territory	79	154	725	957
<b>Australia</b>	<b>5 478</b>	<b>23 801</b>	<b>99 422</b>	<b>128 702</b>

(a) Total tonne-kilometres are the total tonnes carried multiplied by the distance travelled in kilometres.

Source: Survey of Motor Vehicle Use, Australia (9208.0).

**Rail freight activity**

Table 23.7 shows a steady increase in freight carried by private and government operators over most of the last 10 years (with a substantial jump in 1997). Over this period, freight tonnage increased by 46.8%. Net tonne-kilometres increased by 52.0%, indicating an increase in the average distances over which freight was carried.

**23.7 RAIL FREIGHT OPERATIONS**

	Tonnes million	Tonne-kilometres(a) billion
1991	346.0	88.3
1992	346.2	89.3
1993	361.2	92.1
1994	379.3	97.8
1995	381.9	99.7
1996	399.4	104.3
1997	470.1	114.4
1998	487.5	125.2
1999	492.0	127.4
2000	508.0	134.2

(a) Tonne-kilometres are the number of kilometres travelled multiplied by the number of tonnes moved.

Source: Australasian Railway Association Inc.

**Sea freight activity**

Table 23.8 shows the weight of shipping cargo loaded at Australian ports for discharge at another Australian port. In 1999–2000, interstate freight loaded remained at about the same level as in 1998–99, but intrastate freight increased by 11.5%. In 1999–2000, interstate trade accounted for nearly two-thirds of coastal freight (63.6%).

**23.8 AUSTRALIAN COASTAL FREIGHT LOADED — 1995–96 to 1999–2000**

Year	Million tonnes		
	Interstate	Intrastate	Total
1995–96	32.0	15.8	47.8
1996–97	32.6	16.6	49.1
1997–98	34.3	18.2	52.5
1998–99	31.9	16.5	48.4
1999–2000	32.0	18.4	50.3

Source: Australian port authorities.

Tonnes of coastal cargo loaded in 1999–2000 increased by 3.9% to 50.3 million tonnes (table 23.9). Of this, 63.8% comprised bulk commodities. The commodities contributing most to the growth in tonnes carried were petroleum products (excluding crude oil) and bauxite/alumina (up 26.1% and 22.2% respectively). These increases were partly offset by falls in the amounts of iron ore and crude oil loaded.

A marginal fall in total tonnes-kilometres was recorded in 1999–2000. The main contributors to this fall were iron ore and crude oil, while all other commodities increased.

**Air freight activity**

In 2000 there were declines in air cargo on board for domestic operators (by 1.8%) and regional operators (by 30.4%). For the domestic airlines, cargo tonne-kilometres increased slightly (by 0.3%), indicating an increase in the average distance over which cargo was moved.

**23.9 COASTAL CARGO LOADED, By Major Commodity — 1995–96 to 1999–2000**

Year	Iron ore	Bauxite/alumina	Crude oil	Major bulk cargo commodities		<b>Total</b>
				Petroleum products (excluding crude oil)	Other cargo	
TONNES (million)						
1995–96	9.0	9.6	7.6	6.5	15.1	<b>47.8</b>
1996–97	8.3	10.1	8.3	6.9	15.6	<b>49.1</b>
1997–98	8.2	10.3	8.9	7.2	18.0	<b>52.5</b>
1998–99	8.6	9.9	6.0	6.9	17.0	<b>48.4</b>
1999–2000	6.8	12.1	4.5	8.7	18.2	<b>50.3</b>
TONNE-KILOMETRES (billion)						
1995–96	40.4	21.1	16.3	9.7	18.6	<b>106.1</b>
1996–97	38.1	22.2	18.8	12.9	20.7	<b>112.7</b>
1997–98	40.9	22.4	13.5	10.3	19.6	<b>106.7</b>
1998–99	40.3	21.8	15.2	10.7	20.9	<b>108.9</b>
1999–2000	29.7	27.9	14.9	11.8	24.0	<b>108.3</b>

Source: Australian port authorities.

**23.10 DOMESTIC AIR FREIGHT ACTIVITY — 1996 to 2000**

	Units	1996	1997	1998	1999	2000
Domestic airlines						
Cargo on board(a)	'000 tonnes	172.8	190.7	192.8	192.3	188.9
Cargo tonne-kilometres(a)	million	207.8	233.7	238.4	245.4	246.0
Total tonne-kilometres(b)	million	2 565.0	2 605.8	2 648.1	2 752.1	2 910.1
Revenue weight load factor(c)	%	57.8	58.2	58.7	59.5	59.7
Regional airlines						
Cargo on board(a)	'000 tonnes	2.8	3.0	3.1	2.3	1.6

(a) Freight data for domestic and regional airlines are not complete. The data cover only revenue traffic carried by operators of domestic and regional regular public transport services, and do not include charter or non-scheduled activities. (b) Includes freight and mail. (c) Includes the weight of passengers and baggage. (d) Total tonne-kilometres travelled as a percentage of total tonne-kilometres available on all flights. It therefore reflects the utilisation of aeroplanes for both cargo and passenger use.

Source: Department of Transport and Regional Services.

**International freight activity****Sea freight activity**

There was a steady rise in the weight of both exports and imports moved by sea over the five years to 1999–2000 (table 23.11). The nature of Australia's trade means that the weight of exports far exceeds that of imports. Over this period, the weight of exports increased by 23.9% and that of imports by 20.2%. Most of the tonnage of exports and imports is shipped by bulk carriers or tankers.

**Air freight activity**

The tonnage of total cargo moved into and out of Australia by air increased slightly in 2000 over the previous year (table 23.12). Tonnage of outgoing freight continued to exceed that of incoming freight (by 4.7% in 2000). In contrast, the tonnage of mail moved out of Australia in 2000 (despite increasing by 20.3%) remained well under the tonnage of incoming mail (which increased by 13.6%). The Australian airlines accounted for 25.9% of incoming and 28.6% of outgoing cargo.

At 31 December 2000 there were seven dedicated freighter airlines operating regular scheduled international air services.

**23.11 INTERNATIONAL SEA IMPORTS AND EXPORTS — 1995–96 to 1999–2000**

Year	Imports	Exports	Million tonnes
			Total
1995–96	47.1	372.9	420.0
1996–97	49.8	404.0	453.8
1997–98	51.7	427.1	478.8
1998–99	56.3	432.1	488.4
1999–2000	56.6	462.2	518.8

Source: Bureau of Transport Economics; ABS Foreign Trade Database.

**23.12 SCHEDULED INTERNATIONAL AIRLINE TRAFFIC TO AND FROM AUSTRALIA(a) — Year ended December**

Type of traffic	1999			2000		
	Freight tonnes	Mail tonnes	Total cargo tonnes	Freight tonnes	Mail tonnes	Total cargo tonnes
TRAFFIC TO AUSTRALIA						
Qantas Airways Limited	91 215	5 005	96 220	76 526	5 476	82 002
Ansett Australia	10 364	637	11 001	7 597	306	7 903
Other airlines	233 689	8 515	242 204	247 972	9 760	257 732
<b>All airlines</b>	<b>335 268</b>	<b>14 158</b>	<b>349 426</b>	<b>332 095</b>	<b>15 542</b>	<b>347 637</b>
TRAFFIC FROM AUSTRALIA						
Qantas Airways Limited	93 988	8 061	102 049	83 426	11 560	94 986
Ansett Australia	10 251	75	10 326	8 499	12	8 511
Other airlines	242 009	3 024	245 033	255 927	1 850	257 777
<b>All airlines</b>	<b>346 247</b>	<b>11 160</b>	<b>357 407</b>	<b>347 852</b>	<b>13 422</b>	<b>361 274</b>

Source: Department of Transport and Regional Services.

**23.13 FREIGHT CARRIED, By City Pairs(a) — Year ended December**

	1998	1999	2000
	tonnes	tonnes	tonnes
Auckland/Sydney	54 849	54 047	50 090
Singapore/Melbourne	34 935	51 096	48 574
Singapore/Sydney	38 758	43 689	46 313
Hong Kong/Sydney	36 789	34 252	33 976
Los Angeles/Sydney	26 500	36 061	32 721
Auckland/Melbourne	32 199	34 722	29 559
Singapore/Perth	26 160	27 436	27 822
Hong Kong/Melbourne	23 821	26 031	25 879
Seoul/Sydney	11 399	12 316	18 792
Singapore/Brisbane	11 823	14 988	18 337
Other city pairs	334 674	344 878	347 889
<b>All city pairs</b>	<b>631 908</b>	<b>681 515</b>	<b>679 948</b>

(a) The table does not necessarily show the final origin/destination of freight. For example, all freight going to or coming from Europe would require a stopover, generally in Asia.

Source: Department of Transport and Regional Services.

Table 23.13 shows the main origin/destination pairs for freight moving into and out of Australia. Despite a fall of 7.3% in 2000, the Auckland/Sydney route remains the major contributor with 7.4% of the total freight. The Seoul/Sydney and Singapore/Brisbane routes recorded the most significant increases in 2000, of 52.6% and 22.3%, respectively.

**Domestic passenger activity**

People travel within Australia for many reasons, including family, business, recreation and travel to and from work. This section provides details of rail and air passenger activity within Australia.

### Rail passenger activity

The number of passengers carried by private and government rail operators is shown in table 23.14. Since a fall in 1992-93 there have been increases in the number of rail passengers each year. Between 1992-93 and 2000-01 the number of urban passengers increased by 24.3% and non-urban passengers increased by 48.6%. Heavy rail has consistently accounted for more than three-quarters of urban rail passenger operations.

### Air passenger activity

As at 30 September 2001 there were two major domestic carriers operating in Australia, Qantas and Virgin Blue. A third major domestic carrier, Ansett Australia, ceased operations in September 2001.

As at 30 June 2001, prior to Ansett Australia ceasing operations, 31 regional operators provided regular public transport air services to about 200 airports in Australia.

The *Aircraft fleet* section provides details of domestic fleets.

Total passenger departures increased by 13.5% over the five years to 2000, the largest increase (7.3%) occurring between 1999 and 2000 (table 23.15). The major domestic and regional airlines both increased their number of passengers over these five years. In 2000, the major domestic airlines accounted for 81.2% of total Australian domestic passenger departures. Over the five years to 2000, the regional airlines increased their share of passenger departures from 14.9% in 1996 to 18.8% in 2000.

The major domestic airlines have continued to reduce the ratio of vacant seat kilometres to distance travelled. In 2000 the ratio was 22.6%, down 3.9 percentage points from the 1996 ratio of 26.5%.

#### 23.14 RAIL PASSENGER OPERATIONS(a) — 1991-92 to 2000-01

	Million persons				
	Urban				
	Heavy rail	Tram and light rail	Total	Non-urban	Total
1991-92	409.2	113.7	522.9	7.7	530.6
1992-93	395.5	102.5	498.0	7.0	505.0
1993-94	401.6	105.6	507.2	8.4	515.6
1994-95	419.7	110.5	530.2	8.5	538.7
1995-96	440.9	115.5	556.4	9.1	565.5
1996-97	455.9	118.3	574.2	9.8	584.0
1997-98	457.3	120.5	577.8	9.9	587.7
1998-99	462.8	122.5	585.3	9.9	595.2
1999-2000	482.2	136.5	618.7	10.5	629.2
2000-01	482.4	136.5	618.9	10.4	629.3

(a) Excludes historical and tourist services. There are no rail passenger services in Tasmania, the Northern Territory or the Australian Capital Territory.

Source: Australasian Railway Association Inc.

#### 23.15 DOMESTIC AIRLINE ACTIVITY — 1996 to 2000

	Units	1996	1997	1998	1999(a)	2000(a)
Passenger departures(b)						
Domestic airlines	'000	23 678.3	23 375.3	23 574.8	24 392.4	25 660.4
Regional airlines	'000	4 161.0	4 712.7	4 851.4	5 038.7	5 928.9
Total	'000	27 839.3	28 088.0	28 426.2	29 431.1	31 589.3
Other activity (domestic airlines only)						
Passenger kilometres performed(c)	million	26 191.4	26 357.1	26 774.1	27 852.7	29 600.8
Seat kilometres available(d)	million	35 639.5	35 402.9	35 466.7	36 119.2	38 231.5
Percentage of vacant seat kilometres	%	26.5	25.6	24.5	22.9	22.6

(a) Regional airline data includes estimates. (b) The unit of measurement is traffic on board (which includes transit traffic). Includes revenue passengers only. (c) The sum for all flights of the number of passengers on each flight multiplied by the distance travelled. (d) The sum for all flights of the number of seats on a flight multiplied by distance travelled.

Source: Department of Transport and Regional Services.

**23.16 PASSENGER MOVEMENTS(a) WITH MAJOR DOMESTIC AND REGIONAL AIRLINES AT PRINCIPAL AIRPORTS — 1996 to 2000**

Airport	1996 no.	1997 no.	1998 no.	1999 no.	2000(b) no.
Sydney	13 901 702	14 070 134	(b)14 275 077	(b)14 874 624	16 264 933
Melbourne	11 097 264	11 227 713	11 429 141	(b)11 902 182	12 939 135
Brisbane	7 375 444	7 470 083	(b)7 438 341	(b)7 833 436	8 810 670
Adelaide	3 559 829	3 636 073	(b)3 789 458	(b)3 868 966	3 981 933
Perth	3 066 332	3 152 995	3 235 524	3 257 087	3 462 617
Canberra	1 735 758	1 788 064	1 805 223	1 901 266	2 041 016
Hobart	852 506	831 969	(b)855 934	(b)877 992	927 957
Darwin	821 584	822 583	853 721	(b)878 963	906 584
Cairns	1 926 655	1 918 238	1 915 717	(b)2 022 908	2 132 713
Coolangatta	2 043 393	1 918 063	1 888 644	(b)1 938 328	1 917 756
Townsville	670 254	685 989	(b)703 984	(b)739 522	771 790
Launceston	592 443	558 995	535 944	(b)545 100	531 542

(a) The number of passengers on board arriving at or departing from each airport. Includes passengers in transit, who are counted as both arrivals and departures at airports through which they transit. (b) Includes estimates for unreported data.

Source: Department of Transport and Regional Services.

Table 23.16 shows the number of passengers boarding or departing by major domestic and regional airlines at the main airports. In 2000, the year of the Sydney Olympics, all airports recorded increased passenger movements over 1999, with more marked growth in the three capital cities on the east coast of Australia. The increase in activity with Impulse and Virgin Blue entering the market had a particular impact on Brisbane airport, with a 12.5% increase in 2000 to 8.8 million movements. In 2000 there was a 9.3% increase in the number of passengers arriving at Sydney airport (16.3 million in total) and a 8.7% increase at Melbourne airport (12.9 million in total).

### International passenger activity

The primary form of international passenger activity is air transportation. Details of this activity are shown in the following section.

#### Air passenger activity

##### International scheduled services

At 31 December 2000 there were 43 international scheduled airlines operating regular scheduled passenger air services to and from Australia (excluding airlines that operate purely on a code share basis).

During 2000, China Southern Airlines and Philippine Airlines recommenced services to and from Australia while AOM French Airlines, Alitalia, Connie Kalitta Services (freight only) and Mandarin Airlines (services taken over by China Airlines) ceased services.

The *Aircraft fleet* section provides details of international fleets.

##### International non-scheduled services

Passenger charter policies in Australia encourage inbound tourism by non-scheduled services, particularly over routes not served by the scheduled carriers. The majority of these flights originated from Canada, the United Kingdom and Japan. In 2000 there were also significant charter operations to and from East Timor.

##### International traffic

Passenger traffic to and from Australia grew by a combined 10.0% in 2000, compared with 5.3% in 1999 (table 23.17). The number of passengers coming to Australia increased by 9.6% while departures increased by 10.4%. The Australian airlines' share of traffic to Australia fell from 38.5% in 1999 to 37.3% in 2000. Their share of outgoing traffic followed a similar pattern, with a decline from 38.7% to 37.2%.

**23.17 SCHEDULED INTERNATIONAL AIRLINE TRAFFIC TO AND FROM AUSTRALIA(a) — Year ended December**

Type of traffic	1999	2000	Passengers
TRAFFIC TO AUSTRALIA			
Qantas Airways Limited	2 646 876	2 805 052	
Ansett Australia	259 737	274 235	
Other airlines	4 635 710	5 183 669	
<b>All airlines</b>	<b>7 542 323</b>	<b>8 262 956</b>	
TRAFFIC FROM AUSTRALIA			
Qantas Airways Limited	2 622 369	2 793 493	
Ansett Australia	258 187	264 541	
Other airlines	4 563 684	5 163 945	
<b>All airlines</b>	<b>7 444 240</b>	<b>8 221 979</b>	

(a) Australia and Norfolk Island.

Source: Department of Transport and Regional Services.

**23.18 PASSENGER TRAFFIC THROUGH AUSTRALIAN INTERNATIONAL AIRPORTS — Year ended December**

Airport	1998	1999	2000	Passengers
Sydney	6 933 551	7 388 153	8 235 473	
Melbourne	2 489 132	2 654 807	3 043 169	
Brisbane	2 251 240	2 375 767	2 460 877	
Perth	1 434 077	1 474 898	1 580 594	
Cairns	688 058	660 659	680 133	
Adelaide	223 035	241 014	270 099	
Darwin	177 773	156 058	169 496	
Coolangatta(a)	14 519	16 923	28 138	
Norfolk Island	15 704	15 073	14 073	
Broome(b)	..	..	2 883	
Port Hedland(c)	4 398	2 969	..	
Townsville(d)	416	242	..	
Christmas Island(e)	2 712	..	..	
Hobart(f)	2 690	..	..	
<b>Total</b>	<b>14 237 305</b>	<b>14 986 563</b>	<b>16 484 935</b>	

(a) International operations commenced in December 1996. (b) International operations ceased in January 1996, ceased in February 1997 and recommenced in April 2000. (c) International operations suspended from January 2000. (d) International operations recommenced in May 1997, ceased in June 1998, recommenced again in October 1998 and ceased again in February 1999. (e) International operations commenced in November 1993, ceased in February 1997, recommenced in October 1997 and ceased again in April 1998. (f) International operations ceased in April 1998.

Source: Department of Transport and Regional Services.

Table 23.18 shows the number of international passengers arriving and departing from each international airport. Sydney's share of passenger traffic was 50% in 2000 (up 0.7 percentage points from 1999), followed by Melbourne with 18.5% (up 0.8 percentage points from 1999), and Brisbane with a 14.9% share (down 1 percentage point from 1999). In the year of the Sydney Olympics, Melbourne, Sydney and Perth all recorded steady growth from the previous year, with passenger traffic increasing through Melbourne by 14.6%, through Sydney by 11.5% and through Perth by 7.2%.

## Safety

An unwanted side effect of transport activity is accidents, the costs of which include loss of life or injury to persons, and destruction of, and damage to, equipment and infrastructure.

Transport related deaths fell by 12.6% in the 5 year period 1995 to 1999. Deaths from transport accidents occur across all transport modes; however, the great majority (92.5% in 1999) are associated with road transport. Table 23.19 shows transport-related deaths across the transport modes over the five years 1996 to 1999.

**23.19 DEATHS(a) FROM TRANSPORT ACCIDENTS, By Mode, Australia — 1995 to 1999**

Mode	1995 no.	1996 no.	1997 no.	1998 no.	1999 no.
Road					
Motor vehicle traffic accidents	2 029	1 943	1 801	1 731	1 741
Other	97	89	75	82	120
Total	2 126	2 032	1 876	1 813	1 861
Rail	48	34	39	43	43
Water	60	59	48	39	57
Air	65	71	49	63	50
<b>Total(b)</b>	<b>2 301</b>	<b>2 197</b>	<b>2 014</b>	<b>1 958</b>	<b>2 011</b>

(a) Based on the International Classification of Deaths, Edition 9 (ICD9) for years up to and including 1998 and Edition 10 for 1999. Data in this table relate to year of registration of death and are based on death occurring up to one year following a transport accident. Data will therefore differ from the traffic fatalities shown in tables 23.21, 23.22 and 23.24 as data in those tables are based on year of occurrence of transport-related deaths which occur within 30 days of an incident. (b) Includes vehicle accidents not elsewhere classifiable.

Source: Data available on request, Registrar of Births, Deaths and Marriages in each State and Territory.

## Rail and water accidents

As shown in table 23.19, in 1999 there were 57 deaths relating to water transport accidents, a 46.2% increase from 1998, but 5.0% lower than the 60 deaths from water accidents in 1995. There were 43 deaths relating to rail transport accidents in 1999, the lowest number from of all modes, representing 2.1% of total transport accident deaths in Australia. This level was unchanged from 1998.

## Road traffic accidents involving fatalities and casualties

In 2000 the number of accidents involving fatalities in Australia rose for the first time since 1995, increasing by 5% from the number in 1999 (table 23.20). All States except Western Australia, Tasmania and the Australian Capital Territory recorded increases in fatal road traffic accidents in 2000, South Australia recording the largest jump (14.4%) from 1999.

Australia-wide, there were 1,819 deaths in 2000 from road traffic accidents, an increase of 3.2% on the previous year and the highest level since 1996. South Australia recorded the highest increase (9.9%). Between 1994 and 2000 the number of persons killed from road traffic accidents fell in

New South Wales (by 6.7%), Queensland (23.9%), and Tasmania (27.1%). A large fall (by 10.3%) in total road fatalities occurred in 1997, with Tasmania (down 50.0%), South Australia (down 18.2%) and Western Australia (down 20.2%) being the main contributors to the decline from 1996. The other years since 1994 experienced small fluctuations in fatalities.

The fatality rate from road traffic accidents per 100,000 persons in the Northern Territory was almost three times higher than the national rate in 2000, at 26.1 deaths per 100,000 persons (table 23.21). The Australian Capital Territory had the lowest rate of fatalities (5.8 per 100,000 persons).

In 1999, the Northern Territory had the highest rate of casualties from road traffic accidents (191.3 per 100,000 persons and 35.8 per 10,000 vehicles in 1999), as shown in table 23.22. Victoria had 112.4 casualties per 100,000 persons resulting from road traffic accidents — a higher rate than the Australian Capital Territory (59.6), Tasmania (88.5), South Australia (91.8), Queensland (107.8) and Western Australia (111.2).

**23.20 ROAD TRAFFIC ACCIDENTS INVOLVING FATALITIES, By State/Territory**

Year	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
ACCIDENTS INVOLVING FATALITIES (no.)									
1994	552	345	364	143	195	52	36	15	1 702
1995	563	371	408	163	194	53	56	14	1 822
1996	538	382	338	162	220	53	58	17	1 768
1997	525	346	322	123	184	29	56	17	1 602
1998	491	348	257	152	199	47	59	20	1 573
1999	506	345	273	132	188	47	44	17	1 552
2000	543	373	276	151	185	38	48	16	1 630
2001(a)	238	200	134	69	76	34	20	7	778
PERSONS KILLED (no.)									
1994	646	377	418	159	211	59	41	17	1 928
1995	620	418	456	181	209	57	61	15	2 017
1996	581	417	385	181	247	64	72	23	1 970
1997	576	377	361	148	197	32	60	17	1 768
1998	556	390	279	168	223	48	69	22	1 755
1999	577	383	314	151	217	53	49	19	1 763
2000	603	407	318	166	213	43	51	18	1 819
2001(a)	260	217	142	77	83	43	24	7	896

(a) For 6 months January to June 2001.

Source: Australian Transport Safety Bureau, *Road Fatalities Australia*.**23.21 ROAD TRAFFIC FATALITIES, By State/Territory — 2000**

State/Territory	Persons killed		
	no.	per 100,000 population(a)	per 10,000 motor vehicles registered(b)
New South Wales	603	9.3	1.6
Victoria	407	8.5	1.2
Queensland	318	8.9	1.4
South Australia	166	11.1	1.6
Western Australia	213	11.3	1.6
Tasmania	43	9.1	1.3
Northern Territory	51	26.1	4.9
Australian Capital Territory	18	5.8	0.9
<b>Australia</b>	<b>1 819</b>	<b>9.5</b>	<b>1.5</b>

(a) Estimated resident population at 30 June 2000.

(b) Number of registered motor vehicles and motor cycles (excluding tractors, caravans, plant and equipment) at 31 October 1999.

Source: Australian Transport Safety Bureau, *Road Fatalities Australia*; population data —Estimated Resident Population, Australia, June 2000 (3201.0); registered vehicles —Motor Vehicle Census, Australia, 31 October 1999 (9309.0).

markedly higher than for the UK and Sweden which both recorded 6.0 road traffic-related fatalities per 100,000 persons in 1998.

**23.22 ROAD TRAFFIC ACCIDENTS INVOLVING CASUALTIES(a), By State/Territory — 1999**

State/Territory	Persons injured		
	no.	Per 100,000 of population(b)	Per 10,000 motor vehicles registered(c)
			n.a.
New South Wales(d)		n.a.	n.a.
Victoria	5 298	112.4	16.2
Queensland	3 787	107.8	16.4
South Australia	1 371	91.8	13.3
Western Australia	2 070	111.2	15.4
Tasmania	416	88.5	12.6
Northern Territory	369	191.3	35.8
Australian Capital Territory	185	59.6	9.4

(a) Accidents reported to the police or other relevant authority which occurred in public thoroughfares and which resulted in death within thirty days or personal injury to the extent that the injured person was admitted to hospital. (b) Estimated resident population at 30 June 1999. (c) Number of registered motor vehicles and motor cycles (excluding tractors, caravans, plant and equipment) at 31 October 1999. (d) The release of these data for New South Wales has been suspended by the NSW Roads and Traffic Authority.

Source: Australian Transport Safety Bureau, *Road Injury Database*; Population data —Estimated Resident Population, Australia, June 1999 (3201.0); registered vehicles —Motor Vehicle Census, Australia, 31 October 1999 (9309.0).**International comparison of road traffic fatalities**

Table 23.23 shows for 1998 how the number of fatalities in Australia compare with those for selected other countries. While Australia's rate of 9.4 road traffic-related fatalities per 100,000 persons is comparable to that of Canada (9.7) and Japan (8.5), it is considerably lower than for the USA (15.3) and France (15.1). Australia's rate is, however,

### 23.23 ROAD TRAFFIC FATALITIES, International Comparisons — 1998

Country	no.	Persons killed	Total population
		per 100,000 of population	million
Australia	1 755	9.4	18.8
Canada	2 934	9.7	30.3
France	8 918	15.1	59.0
Japan	10 805	8.5	126.5
New Zealand	502	13.3	3.8
Sweden	531	6.0	8.8
Switzerland	597	8.4	7.1
United Kingdom	3 581	6.0	59.2
USA	41 471	15.3	270.3

Source: Australian Transport Safety Bureau, *Bench-marking Road Safety —The 1998 Report*.

### Air accidents and casualties

The number of aircraft accidents has declined significantly (by 31.3%) since 1991 (table 23.24). In 2000 there were 46 fatalities, the second lowest level in the past 10 years and down markedly from the early nineties. Similarly, the number of aircraft accidents, 222 in 2000, was significantly lower than in the early nineties.

### 23.24 AIR TRANSPORT(a), Accidents and Fatalities(b)

Year	Accidents	Fatalities
	no.	no.
1991	323	54
1992	310	61
1993	319	67
1994	268	64
1995	269	51
1996	243	49
1997	254	40
1998	225	54
1999	194	49
2000	222	46

(a) Includes airlines, general aviation and sport aviation. Excludes data for ballooning accidents. (b) Includes accidents involving Australia-registered aircraft occurring overseas and accidents involving foreign-registered aircraft occurring in Australia. Therefore, data presented in this table are not comparable with those relating to road traffic accidents in table 23.20.

Source: Bureau of Air Safety Investigation.

## Transport infrastructure

Transport infrastructure comprises three elements, all of which are required to perform the transport task:

- physical infrastructure — e.g. roads, rail track, ports, airports, pipelines;
- transport equipment — e.g. motor vehicles, trains, ships, aeroplanes; and
- people with the necessary skills — e.g. licensed drivers, pilots etc.

### Physical infrastructure

Australia requires a vast transport network, and the cost of building and maintaining this infrastructure is very high. During 2000 the value of public and private sector engineering construction was \$5,490m on roads, highways and subdivisions; \$366m on bridges; \$649m on railways; \$147m on harbours and \$366m on pipelines. Major projects under way in 2001 include a rail link to Darwin and the strengthening or replacing of many road bridges on major freight routes to allow for heavier freight-carrying vehicles.

### Length of the road system

Table 23.25 shows the map lengths of Australian roads. Although most States and Territories upgrade some of their roads each year, all except the ACT continue to have more kilometres of roads of gravel, crushed stone or other improved surface than kilometres of bitumen or concrete. South Australia has the lowest percentage of bitumen or concrete roads to total roads at 28.6%.

### Rail network

Table 23.26 shows the diversity of track gauge in Australia, reflecting the historical development of State infrastructure. It also reflects private development, such as the 4,150 route-kilometres of narrow gauge associated with the Queensland sugar industry. Competition reform and government policy to allow open access have resulted in private companies offering freight and passenger services over government-owned track.

**23.25 LENGTHS OF ROADS OPEN FOR GENERAL TRAFFIC, By Road Surface and State/Territory — At 30 June 2001**

Surface of roads	Units	NSW(a)(b)	Vic.(c)	Qld	SA	WA(d)	Tas.(e)	NT(f)	ACT
Bitumen or concrete	km	89 559	75 320	68 076	27 714	49 097	10 311	6 431	2 537
Gravel, crushed stone or other improved surface	km	92 278	53 630	51 741	41 228	55 911	(g)12 945	6 570	133
Formed only	km	(h) 26 650	43 235	18 615	29 002	700	7 633	—	—
Cleared only	km	n.a.	(i) 15 244	9 205	13 779	(i) 751	—	—	—
<i>Total</i>	km	181 837	155 600	178 295	96 762	147 789	23 956	21 385	2 670
Percentage of total surface with bitumen or concrete	%	49.3	48.4	38.2	28.6	33.2	43.0	30.1	95.0

(a) Excludes Lord Howe Island, forestry controlled roads or crown roads. (b) Road length is defined as route (end-to-end) length plus ramps, connections, additional carriageways, etc. All reported lengths include roads, bridges and ferry route lengths. (c) Excludes roads coming under the responsibility of the Department of Conservation and Natural Resources. Excludes service roads previously reported. Includes Vic Roads declared roads as at June 2001 and unclassified roads as at June 2000. (d) Excludes approximately 25,300 kilometres of forestry roads. (e) Includes an estimate for forestry roads. (f) Excludes roads not managed by the Northern Territory Government. (g) Includes local government roads in Formed only and Cleared only categories. (h) Included in gravel, crushed stone or other improved surface. (i) Included with Formed only.

Source: Derived mainly from Road and Traffic Authorities and local government sources in each State and Territory.

**23.26 AUSTRALIAN TRACK NETWORK(a), Route Kilometres Operated — at 30 June**

Gauge	1999	2000	2001
Narrow			
610mm	4 150	4 150	4 150
1067mm	15 122	15 081	15 081
Standard 1435mm	16 381	16 339	16 339
Broad 1600mm	4 009	4 009	4 009
Dual	264	265	265
<b>Total</b>	<b>39 930</b>	<b>39 844</b>	<b>39 844</b>

(a) Includes tram and light rail.

Source: Australasian Railway Association Inc.

### Airports

At 14 June 2001, there were 281 licensed airports in Australia and its external territories. Of these, ten were operating as international airports servicing scheduled international airlines (see table 23.18). The majority of licensed airports are owned and operated by local

councils, State government departments and private companies. The remaining airports are owned and operated by the Department of Defence or leased by the Commonwealth to private sector companies or government corporations.

### Registered motor vehicles

The number of motor vehicles registered in Australia has increased since 1996. At 31 October 1999 there were 11,934,797 motor vehicles (excluding motor cycles, tractors, plant and equipment, caravans and trailers) registered in Australia (table 23.27). This represents an increase of 1.7% since 31 October 1998. With the exception of Tasmania, the Northern Territory and the ACT, the remaining States now have fleets of over one million vehicles (table 23.28). Approximately 8 out of every 10 vehicles are passenger vehicles.

**23.27 NUMBER OF REGISTERED MOTOR VEHICLES — 1996 to 1999(a)**

Motor vehicle census years	Passenger vehicles(b)	Light commercial vehicles	Trucks						Motor cycles	
			Rigid	Articulated	Non-freight carrying	Buses	<b>Total(c)</b>	'000		
			'000	'000	'000	'000				
1996	9 021.5	1 601.6	341.0	58.4	16.0	58.8	<b>11 097.3</b>	<b>'000</b>	303.9	
1997	9 206.2	1 632.2	342.4	59.3	16.7	61.1	<b>11 351.3</b>	<b>'000</b>	313.1	
1998	9 526.7	1 686.4	347.2	62.3	17.5	64.1	<b>11 738.0</b>	<b>'000</b>	328.8	
1999	9 719.9	1 721.2	346.8	63.3	17.7	65.9	<b>11 934.8</b>	<b>'000</b>	333.8	

(a) As at 31 October in all years shown. (b) Includes campervans. (c) Excludes motor cycles, tractors, plant and equipment, caravans and trailers.

Source: Motor Vehicle Census, Australia (9309.0).

**23.28 REGISTERED MOTOR VEHICLES — 31 October 1999**

	Passenger vehicles(a)	Light commercials	Trucks				Motor cycles
			Rigid	Articulated	Non-freight carrying	Buses	
State/Territory	'000	'000	'000	'000	'000	'000	'000
NSW	2 969.7	482.1	105.9	16.3	3.2	16.6	<b>3 593.8</b>
Vic.	2 652.2	402.0	85.5	18.1	5.7	15.0	<b>3 178.5</b>
Qld	1 746.3	396.3	70.0	12.8	2.9	14.1	<b>2 242.4</b>
SA	843.0	126.0	25.6	5.9	1.9	4.0	<b>1 006.4</b>
WA	1 024.7	212.4	44.6	7.6	2.8	9.9	<b>1 302.0</b>
Tas.	245.7	61.0	9.7	1.5	0.9	2.2	<b>321.0</b>
NT	67.7	24.6	3.3	0.8	0.2	3.0	<b>99.5</b>
ACT	170.7	16.8	2.3	0.2	0.1	1.0	<b>191.2</b>
Aust.	9 719.9	1 721.2	346.8	63.3	17.7	65.9	<b>11 934.8</b>

(a) Includes campervans. (b) Excludes motor cycles, tractors, plant and equipment, caravans and trailers.

Source: Motor Vehicle Census, Australia (9309.0).

In 1971 the average age of the Australian motor vehicle fleet was 6.1 years. The average age has since grown steadily to reach 10.7 years in both 1997 and 1998 before falling to 10.6 in 1999 (table 23.29). The average age of passenger vehicles (81% of the vehicle fleet) declined by 0.1 years to 10.3 years as at 31 October 1999, following a similar fall between the 1997 and 1998 Motor Vehicle Censuses.

The number of registered motor vehicles (excluding motor cycles) relative to the resident population increased steadily over the seven years 1991 to 1998. However, the 647 vehicles per 1,000 population at 31 October 1999 was up only marginally from 644 a year earlier (table 23.30).

**23.29 ESTIMATED AVERAGE AGE OF THE VEHICLE FLEET(a), By State/Territory of Registration — 31 October 1999**

Type of vehicle	State of registration									Aust.
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	1999	
Passenger vehicles	9.2	10.8	10.2	11.9	10.5	12.1	8.9	10.1	10.3	
Campervans	17.1	19.2	16.3	18.8	20.2	18.9	18.9	18.4	18.4	
Light commercial vehicles	10.4	12.4	11.0	12.6	11.7	13.1	9.8	10.9	11.4	
Rigid trucks with GVM 3.5 and less than 4.5 tonnes	11.2	14.3	12.6	14.6	13.7	16.7	7.1	11.9	12.7	
Rigid trucks with GVM 4.5 tonnes and over	13.8	16.8	14.3	17.2	16.9	16.8	12.4	11.0	15.4	
Articulated trucks	11.4	11.8	11.3	10.8	13.1	11.0	11.6	7.9	11.6	
Non-freight carrying trucks	14.0	15.3	11.8	13.8	16.8	16.8	11.0	16.6	14.6	
Buses	9.2	10.4	9.8	11.3	8.0	13.7	6.5	8.9	9.5	
Motor cycles	9.2	9.9	10.6	(b)9.7	11.6	10.3	8.4	9.4	10.1	
<b>Total</b>	<b>9.5</b>	<b>11.2</b>	<b>10.5</b>	<b>12.1</b>	<b>11.0</b>	<b>12.5</b>	<b>9.2</b>	<b>10.1</b>	<b>10.6</b>	

(a) Excludes plant and equipment, caravans and trailers. (b) Year of manufacture is frequently not reported for South Australian motor cycles.

Source: Motor Vehicle Census, Australia (9309.0).

**23.30 MOTOR VEHICLES(a) ON REGISTER PER 1,000 OF POPULATION, By State/Territory of Registration — 1991 to 1999**

State/Territory	Motor vehicle census years						
	1991	1993	1995	1996	1997	1998	1999
NSW	525	529	545	556	563	581	574
Vic.	622	642	637	669	677	682	693
Qld	569	593	614	624	627	645	659
SA	637	638	653	667	671	693	692
WA	653	665	679	694	706	725	723
Tas.	643	661	676	686	686	684	701
NT	507	497	520	529	530	538	535
ACT	556	591	604	613	637	631	635
Aust.	582	595	606	614	630	644	647

(a) Excludes motor cycles, tractors, plant and equipment, caravans and trailers.

Source: Motor Vehicle Census, Australia (9309.0); Population data –Estimated Resident Population, Australia (3201.0).

**Registrations of new motor vehicles**

The number of new motor vehicles registered in 2000–01 increased 10.5% on the previous year (table 23.31). This rise follows a marked fall in 1999–2000 when the introduction of The New Tax System delayed purchases of new motor vehicles as buyers anticipated a reduction in vehicle prices.

Table 23.32 shows new registrations by vehicle type for each State and Territory in 2000–01. New South Wales recorded the highest share of total new vehicle registrations (33.7%), though not for every vehicle type. There were more new registrations of articulated trucks in Victoria and non-freight carrying trucks in both Victoria and Queensland.

**Rail rolling stock**

Table 23.33 shows the number of locomotives, passenger cars and wagons in the Australian rail fleet. A large number of the narrow gauge diesel locomotives are owned by Queensland operators (Queensland Rail and Sugar Cane Railways), and service the Brisbane to Cairns route or the extensive rail network transporting sugar cane. Queensland Rail has the largest fleet of locomotives with 350 narrow gauge diesel and 184 narrow gauge electric. Other operators with large locomotive fleets are Freight Corp (NSW) and Tranz Rail (NZ) which operates in Tasmania.

**23.31 REGISTRATIONS OF NEW MOTOR VEHICLES, Australia, By Type of Vehicle — 1995–96 to 2000–01**

Year	Passenger vehicles	Light commercial vehicles(a)	Trucks					Total (excludes motor cycles)	Motor cycles
			Rigid	Articulated	Non-freight carrying	Buses			
			no.	no.	no.	no.			
1995–96	531 778	86 666	9 726	2 909	1 074	4 376	<b>636 529</b>	22 345	
1996–97	557 962	88 204	9 470	3 145	1 099	3 972	<b>663 852</b>	22 842	
1997–98	654 697	96 762	11 387	4 006	1 247	3 746	<b>771 845</b>	26 765	
1998–99	671 513	103 568	13 182	3 973	1 194	3 636	<b>797 066</b>	30 070	
1999–2000	596 357	110 176	13 502	3 296	1 068	4 026	<b>728 425</b>	32 579	
2000–01	684 569	99 845	12 171	3 415	1 464	3 126	<b>804 590</b>	35 070	

(a) Includes utilities, panel vans, cab chassis and forward control load carrying vehicles of 3.5 tonnes gross vehicle mass (GVM) or less.

Source: New Motor Vehicle Registrations, Australia (9301.0), and other ABS data on new motor vehicles available on request.

**23.32 REGISTRATIONS OF NEW MOTOR VEHICLES, By State/Territory — 2000–2001**

State/Territory	Passenger vehicles	Light commercial vehicles(a)	Trucks				Total (excludes motor cycles)	Motor cycles
			Rigid	Articulated	Non-freight carrying	Buses		
NSW	232 497	32 183	4 247	896	282	892	<b>270 997</b>	10 383
Vic.	189 822	23 600	3 147	1 109	579	771	<b>219 028</b>	10 205
Qld	125 294	23 798	2 823	755	324	744	<b>153 738</b>	6 780
SA	43 089	6 075	610	314	92	99	<b>50 379</b>	2 210
WA	63 132	9 256	937	225	117	354	<b>74 021</b>	3 621
Tas.	12 604	2 374	197	91	65	42	<b>15 373</b>	720
NT	5 601	1 386	140	18	4	94	<b>7 243</b>	491
ACT	12 530	1 173	70	7	1	30	<b>13 811</b>	660
Aust.	684 569	99 845	12 171	3 415	1 464	3 126	<b>804 590</b>	35 070

(a) Includes utilities, panel vans, cab chassis and forward control load carrying vehicles of 3.5 tonnes gross vehicle mass (GVM) or less.

Source: ABS data available on request, New Motor Vehicle Registrations.

**23.33 AUSTRALIAN RAIL FLEET, Locomotives, Passenger Cars and Wagons — at 30 June**

Location	2000	2001
	no.	no.
<b>LOCOMOTIVES</b>		
Diesel		
Broad gauge	131	183
Standard gauge(a)	886	875
Narrow gauge	1 050	1 018
Electric		
Standard gauge	60	60
Narrow gauge	211	211
XPT standard gauge	19	21
<b>Total</b>	<b>2 357</b>	<b>2 368</b>
<b>PASSENGER CARS</b>		
Locomotive hauled	951	1 020
Diesel rail cars		
Locomotive hauled	123	145
Suburban	143	144
<b>Total</b>	<b>266</b>	<b>289</b>
Electric railcars		
Interurban(b)	313	283
Suburban	2 603	2 690
<b>Total</b>	<b>2 916</b>	<b>2 973</b>
Tram/Light rail	554	556
Charter/Heritage	44	47
<b>Total</b>	<b>4 731</b>	<b>4 885</b>
<b>WAGONS</b>		
Revenue		
Broad gauge	1 860	2 025
Standard gauge	21 017	20 703
Narrow gauge	73 888	73 336
<b>Total</b>	<b>96 765</b>	<b>96 064</b>
Other	1 573	1 719
<b>Total</b>	<b>98 338</b>	<b>97 783</b>

(a) Includes 60 diesel-electric locomotives. (b) Includes 12 tilt cars.

Source: Australasian Railway Association Inc.

**Shipping fleet**

There were 8,735 ships registered in Australia at 30 June 2001 (table 23.34), with Queensland having the largest fleet (2,774 ships). In all States/Territories except South Australia and Tasmania, more than half the fleets were registered for recreational use. High percentages of ships registered in South Australia (49.1%) and Tasmania (41.1%) were registered for fishing purposes.

The major Australian trading fleet (2,000 Dead Weight Tonnes (DWT) and over) comprised 54 ships at 30 June 2000 (table 23.35). The largest registered coastal ships were the *Iron Whyalla* and the *Iron Spencer* (both 141,475 DWT) which shipped iron ore and coal. The minor trading fleet, consisting of vessels with Gross Tonnage (GRT) of between 150 and 2000 tonnes, comprised 23 ships.

**Aircraft fleet**

At the end of September 2001, the composition of the domestic airline fleet was in a state of continuing change following the demise of Ansett Australia on 14 September 2001.

The following information, relating to the aircraft fleet in Australia at 30 June 2001, was provided by the Department of Transport and Regional Services.

At 30 June 2001 there were 11,704 aircraft registered in Australia, including 10,645 aeroplanes and helicopters. Of these the main airlines had 187, with a further 120 registered by their associated airlines.

**23.34 SHIPS REGISTERED(a) IN AUSTRALIA — 30 June 2001**

Location	Recreational	Fishing	Government	Demise chartered(b)	Commercial and trading(c)	Total
New South Wales	1 771	279	4	6	245	2 305
Victoria	649	197	—	2	99	947
Queensland	1 585	758	19	12	402	2 774
South Australia	283	315	1	—	43	642
Western Australia	606	416	—	3	150	1 175
Tasmania	252	216	2	—	56	526
Northern Territory	274	63	1	—	28	366
<b>Australia</b>	<b>5 420</b>	<b>2 244</b>	<b>27</b>	<b>21</b>	<b>1 023</b>	<b>8 735</b>

(a) Australian-owned commercial or trading ships of 24 metres or more in tonnage length. All ships, regardless of tonnage length, must be registered before departing on a voyage from Australia or from a foreign port where there is an Australian diplomatic representative. (b) Demise charter is the charter of a foreign ship operated by an Australian company in Australian waters. These ships are not necessarily engaged in trade or commerce. (c) Relates to ships used for trading and commercial purposes. Some of these ships are less than 24 metres in tonnage length.

Source: Australian Maritime Safety Authority.

**23.35 THE AUSTRALIAN TRADING FLEET, Ships 150 Gross Tonnes or More — 30 June 2000**

Ships	no.	Dead weight tonnage (DWT)(a)	Gross tonnes
<b>Major Australian fleet(b)</b>			
Coastal			
Australian registered	40	1 362 268	912 856
Overseas registered	5	124 353	75 881
Total coastal fleet	45	1 486 621	988 737
Overseas			
Australian registered	8	633 694	636 346
Overseas registered	1	149 235	88 122
Total overseas fleet	9	782 929	724 468
Total	54	2 269 550	1 713 205
<b>Minor trading ships(c)</b>			
Australian registered	22	12 986	10 947
Overseas registered	1	800	5 618
Total	23	13 786	16 565
<b>Australian trading fleet</b>	<b>77</b>	<b>2 283 336</b>	<b>1 729 770</b>

(a) The weight that a vessel can carry, including cargo, bunkers, water and stores. (b) 2,000 Dead Weight Tonnes (DWT) and over. (c) Minor trading ships are between 150 Gross Tonnage (GRT) and 2,000 DWT. GRT is the measure of internal capacity of a ship that is available within the hull and enclosed spaces for cargo, stores, passenger and crew.

Source: Department of Transport and Regional Services.

Virgin Airlines (operating as Virgin Blue) commenced domestic services in Australia in August 2000 and operated a fleet of nine Boeing 737s. Impulse Airlines ceased trading as a domestic carrier in May 2001. Ansett Australia ceased trading in September 2001. A short article on the history of Ansett Australia follows below.

At 30 June 2001 31 regional operators provided regular public transport air services to about 200 airports in Australia. More than half the regional airline fleet comprised turbine engine and jet aircraft carrying up to about 90 passengers.

Qantas operates both international and domestic flights. British Airways purchased 25% of Qantas Airways Limited on 10 March 1993. The company

was floated on the Australian Stock Exchange on 22 June 1995. Qantas is a member of the Oneworld Global Alliance of airlines.

Qantas operated a fleet of 111 aircraft including 22 Boeing 737-400s, 25 Boeing 747-400s, 29 Boeing 767-300s and 16 Boeing 737-300s. The QantasLink operation included subsidiary companies Eastern Australia Airlines, Southern Australia Airlines and Sunstate Airlines, as well as aircraft supplied by National Jet Systems and Impulse Airlines. QantasLink had a total fleet of 67 aircraft, including 17 BAe 146 and 8 Boeing 717-200 jet aircraft.

## Ansett Australia 1936–2001

Ansett Airways, first registered in 1936, was formed by Sir Reginald Ansett. After an investment of one thousand pounds for its first commercial aircraft, Ansett Airways Ltd. was incorporated in Victoria as a public company in 1937 with services to Sydney, Broken Hill and Adelaide from its base in Melbourne. Ansett ceased regular operations during World War II and worked under contract to the United States Air Force assisting in the evacuation of the residents of Darwin and Broome.

In May 1946, Ansett Airways became Ansett Transport Industries. A decade later Ansett bought Australian National Airways and by 1958 its fleet had grown to over 40 aircraft.

In October 1964, Ansett introduced the first jet airliner, the Boeing 727, to Australian service. By 1969, Ansett had achieved the status of Australia's largest domestic airline. In 1979, control of Ansett passed to TNT and News Ltd and in 1980 a totally separate company, Ansett Air Freight, was formed.

Ansett Australia operated its first international flight on 11 September 1993. Air New Zealand purchased 50% of Ansett Australia on 1 October 1996 and purchased the remaining 50% on 13 June 2000. Ansett Australia, Ansett International, Air New Zealand and Singapore Airlines joined the Star Global Alliance, the largest in the Asia-Pacific region.

As at 30 June 2001, Ansett's fleet consisted of 67 aircraft, including 24 Boeing 737-300s, 20 Airbus A320-200s and 9 Boeing 767-200 aircraft. Regional airlines in the Ansett Group were Kendall Airlines, Aeropelican, Hazelton Airlines and Skywest Airlines, which together comprised a fleet of 53 aircraft, including 11 CRJ-200 jet aircraft.

On 14 September 2001, Ansett Australia was placed into voluntary administration and all operations of the group were ceased.

Negotiations on the future of Ansett Australia are continuing.

## Licensed operators

### Drivers' and riders' licences

Table 23.36 shows the number of motor vehicle drivers' and riders' licences on issue for each State and Territory at 30 June 2001. New South Wales recorded over 4.9 million licences, the highest number on issue, 17.5% more than nearly 4.2 million motor vehicle licences issued in Victoria. In 2001, Queensland recorded the highest number of motor cycle licences on issue (including combined licences) at just over 490,000.

### Air pilot licenses

At 31 July 2001 there were 32,389 holders of a current aeroplane pilot licence, including 17,386 private pilots, 4,854 commercial pilots and 5,998 air transport pilots.

In addition there were 3,347 holders of a current helicopter pilot licence (including student licences), of whom 1,039 were private pilots, 1,763 commercial pilots and 429 air transport pilots. Other licences in force related to 95 commercial balloonists and 347 flight engineers.

### 23.36 DRIVERS' AND RIDERS' LICENCES, By State/Territory — 2001(a)

Type of licence	NSW no.	Vic. no.	Qld no.	SA no.	WA no.	Tas. no.	NT no.	ACT no.
Motor vehicle	4 471 008	3 842 230	2 201 683	936 657	1 126 503	274 564	140 238	212 585
Motor cycle	4 691	8 514	1 143	996	1 049	147	212	(b)23 740
Combined	443 761	339 983	489 236	161 285	235 132	32 040	32 415	..
<b>Total</b>	<b>4 919 460</b>	<b>4 190 727</b>	<b>2 692 062</b>	<b>1 098 938</b>	<b>1 362 684</b>	<b>306 751</b>	<b>172 865</b>	<b>236 325</b>

(a) Data include learner licences. (b) Includes combined licences.

Source: AustRoads National Exchange of Vehicle and Driver Information System (NEVDIS) for NSW, Vic., Qld, SA, WA and Tas. Motor Registrars for NT and ACT.

## Transport organisations

### General transport organisations

#### Australian Transport Council

The Australian Transport Council was established on 11 June 1993, subsuming the functions of the Australian Transport Advisory Council.

It comprises Commonwealth, State, Territory and New Zealand Ministers responsible for transport, roads, marine and ports matters. The Papua New Guinea Minister for Civil Aviation, and the Australian Local Government Association are also represented on the Council as observers.

The Council meets biannually; its primary role is to review and coordinate various aspects of transport policy, development and administration. It initiates discussion and reports on issues raised by Council members, and provides advice to governments on the coordination and integration of all transport and road policy issues at a national level.

#### Standing Committee on Communications, Transport and the Arts

The standing committee is one of nine general purpose investigatory committees established by the House of Representatives of the Parliament of Australia. The role of the Standing Committee on Communications, Transport and the Arts is to carry out inquiries into matters referred to it by the House of Representatives or a Minister of the Commonwealth Government. The matters that may be referred by the House include reports by the Commonwealth Auditor-General. The Committee can also inquire into matters raised in annual reports of Commonwealth government departments and authorities subject to a schedule tabled by the Speaker of the House.

#### Commonwealth Department of Transport and Regional Services (DOTRS)

The Department promotes economic, social and regional development by enhancing Australia's infrastructure performance. It is committed to the integration of transport and regional development. Divisional Business units of the department include:

- *Bureau of Transport Economics* (BTE).

A centre for applied economic research, the BTE undertakes studies and investigations that contribute to an improved understanding of the factors influencing the efficiency and growth of the transport sector and the

development of effective transport policies. The BTE also undertakes consultancy work for a number of external agencies.

- *Australian Transport Safety Bureau* (ATSB). Created as an independent Division-level unit within the Department of Transport and Regional Services on 1 July 1999, the ATSB works closely with the States and Territories, which investigate accidents. It deals with the non-regulatory aspects of air, sea, rail and road safety.

*Air and Sea.* Using a 'no blame' whole-of-system approach, ATSB investigates accidents, incidents and safety deficiencies, and analyses safety data to prevent repeat occurrences and to minimise the effects of those that do eventuate. As a Commonwealth body the Bureau has legislative authority to investigate cases involving all civilian aircraft and large marine vessels. It works independently of regulators such as the Civil Aviation Safety Authority, Airservices Australia, and the Australian Maritime Safety Authority.

*Rail.* ATSB's Rail Safety Unit will adopt a similar no-blame systems approach to rail safety investigations on the interstate rail track when Commonwealth legislation has been enacted. It currently investigates, if requested, on behalf of States and is establishing a national rail safety database.

*Road.* The ATSB's road safety activities include: the federal road safety Black Spots program; road safety research and statistical analysis; the National Road Safety Strategy; and vehicle recall investigations (reflecting the Commonwealth Government's responsibilities under the Trade Practices Act).

- *Aviation.* The role of the division is to advise on international and domestic aviation issues; regulate international airline operations; and manage Australia's participation in the work of the International Civil Aviation Organisation (ICAO). It also manages the continuing relationship between the Government and Australia's airlines, and with the aviation safety organisations — particularly Airservices Australia (Airservices) and the Civil Aviation Safety Authority (CASA), and it publishes Australia's international and domestic air-service statistics from AVSTATS.

## **CSIRO**

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is conducting research, in collaboration with the transport industry, into intelligent transport systems. These systems involves the application of information technology and telecommunications to traffic control and management.

## **Institute of Transport Studies, the University of Sydney**

The primary objective of the Institute is to undertake graduate teaching, management development programs, grant and contract research and development in the fields of transport and logistics studies.

## **Road transport organisations**

### **AUSTROADS**

AUSTROADS is the national association of road transport and traffic authorities. It provides strategic direction for the development, management and use of Australia's road system through consultation and discussion with peak industry bodies. The functions of AUSTROADS are coordination of research, and preparation of guides and standards for improvements in, and harmonisation of, practices within an agreed national policy framework. Its membership comprises the six Australian State and two Territory road authorities, the Commonwealth Department of Transport and Regional Services, the Australian Local Government Association and Transit New Zealand.

### **NEVDIS**

Under the authority of AUSTROADS, NEVDIS (National Exchange of Vehicle and Driver Information System) has been developed. It is a national database that provides access to all registered vehicles and licensed drivers in Australia. It was implemented in an effort to reduce license fraud, vehicle theft and vehicle fraud. The aim of the NEVDIS registration module is to ensure that vehicles in Australia can be uniquely identified through the vehicle's VIN and that a vehicle can only be identified and registered in one State at any given time.

### **ARRB Transport Research Ltd**

ARRB Transport Research Ltd is a leading provider of value added technology and research services addressing land transport problems.

The company's National Strategic Research Program, performed under contract to AUSTROADS, keeps Australia at the leading edge of developments in the road transport industry.

ARRB Transport Research employs over 140 people who form a multi-disciplinary pool of scientists, engineers, and specialist technical and support staff for infrastructure design, asset management, construction quality, materials testing, traffic operations, safety analysis, environmental sustainability, and freight issues.

The company has its headquarters in Melbourne, with extensive laboratory and testing facilities, and an office in Perth to service customers in Western Australia and the Indian Ocean Rim.

In addition to addressing Australia's transport problems, ARRB Transport Research has a rapidly growing export business, with products sold in over 60 countries.

### **National Road Transport Commission (NRTC)**

The National Road Transport Commission (NRTC) is a small, independent body established in 1991. Its charter is to develop nationally uniform or consistent policies and practices that improve the safety and efficiency of road transport, and reduce its environmental impacts and the costs of administration. The NRTC and its national transport legislation were to have expired in January 1998, but have been extended until 2004.

Transport reforms are developed in close consultation with Commonwealth Government, the State and Territory Governments, the road transport industry, road user groups and other interested persons and organisations, for approval by Australia's Transport Ministers.

## **Rail transport organisations**

### **Australasian Railway Association**

The Australasian Railway Association was founded in 1994 and provides leadership in promoting a competitive rail industry for the benefit of its members and the wider community. It currently represents 140 members from both the public and private sectors. It is now established as the peak industry body for the rail industry in Australia and New Zealand.

## Water transport organisations

### Australian Maritime Safety Authority (AMSA)

AMSA is a government business enterprise established under the *Australian Maritime Safety Authority Act 1990* on 1 January 1991. AMSA is responsible, on behalf of the Commonwealth Government, for the regulation and safety oversight of Australia's shipping fleet and management of Australia's international maritime obligations. AMSA is funded largely through levies on the shipping industry.

## Air transport organisations

### Airservices Australia

Airservices Australia, established in July 1995 under the *Air Services Act 1995*, is a Government-owned commercial authority responsible for the management of air traffic control over 11% of the world's surface. Its principal functions are: air traffic control and airspace management; aeronautical information; communications; radio navigation aids; search and rescue alerting; and airport rescue and fire fighting services.

Airservices Australia works with other government organisations concerned with aviation policy, safety and regulation in Australia, namely the Department of Transport and Regional Services, the Civil Aviation Safety Authority and the Bureau of Air Safety Investigation.

Airservices Australia has a prominent role in the implementation of the global Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) system, which uses satellite technology to provide a more efficient air traffic system.

### Civil Aviation Safety Authority (CASA)

CASA was established as an independent statutory authority on 6 July 1995. Its primary focus is delivering aviation safety to the Australian public. It does this by: setting aviation standards and rules; licensing pilots and aviation engineers; certifying aircraft and operators; carrying out safety surveillance; enforcing safety standards and rules; providing regulatory oversight of the national airways system, air traffic services and rescue and fire fighting services; and actively assisting the aviation industry to maintain high safety levels through education, training advice and consultation.

CASA reports to the Federal Minister for Transport and Regional Services.

### International organisations

Australia is one of the 185 members (as at 31 July 2001) of the International Civil Aviation Organization (ICAO) and is a member of the 33 member governing Council. Australia is also represented on the 15 member Air Navigation Commission which is responsible for drafting international standards and procedures for the safety and efficiency of air navigation. In addition, Australia participates in the South Pacific Forum, meetings of the Directors-General of Civil Aviation for Asia and the Pacific, and aviation-related work undertaken in APEC.

### International agreements

As at 30 June 2001, Australia has air services agreements of full treaty status with 40 countries. Renegotiation of capacity and route rights has occurred under most of these to accommodate traffic growth on international routes to and from Australia. Agreements with 13 countries will be upgraded to treaty status once the draft agreements are incorporated into domestic law. Australia has four air services arrangements of less than treaty status.

These agreements and arrangements enable airlines of Australia and its bilateral partners to operate a network of international air services to and from Australia.

### **International Air Services Commission (IASC)**

The International Air Services Commission (IASC) is an independent statutory authority responsible for the allocation of capacity and route entitlements negotiated under air services arrangements to existing and prospective Australian international carriers.

The Commission was established on 1 July 1992 following the Commonwealth Government's decision to allow Australian airlines other than Qantas to fly internationally. The Government decided that the process of allocating capacity to Australian airlines should be at arms length from the negotiation function.

The IASC works within a legislative and policy framework laid down by the Government. Under the *International Air Services Act 1992*, the IASC objectives are to foster competition, consumer benefits, tourism, trade and the maintenance of competitive Australian airlines.

When considering applications for capacity, the Commission takes into account public benefit criteria outlined in a policy statement issued by the Minister for Transport and Regional Services.

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## Introduction

This chapter addresses the performance of industries involved in communication services and information technology, and describes the use of information technology by businesses, farms and households.

## The communication services industries

The communication services industries encompass telecommunication services, and postal and courier services. These industries comprise the Communication Services Division of the *Australian and New Zealand Standard Industrial Classification (ANZSIC)*.

The telecommunication services industry is made up of businesses mainly providing telecommunication services to the public by wire, cable or radio. The primary activities of the industry include cable and communication channel services, network communication services, operation of radio relay stations, satellite communication services, telecommunications, telephone services, teleprinter and telex services, and operation of television relay stations.

The industry excludes businesses which manufacture telecommunications equipment, businesses engaged in cable laying and transmission line construction, and those providing secretarial services (e.g. personalised telephone answering services or message delivery services). Also, the ABS classifies the provision of radio and television services (as distinct from the operation of radio and television relay stations) as part of the Cultural and Recreational Services Division of the ANZSIC. Information on radio and television broadcasting, including the role of the National Transmission Agency, the Australian Broadcasting Corporation, the Special Broadcasting Service and commercial radio and television services, is included in *Chapter 12, Culture and recreation*.

Table 24.1 shows key measures of industry structure and performance for the Communication Services Division as a whole, compiled from the ABS's annual Economic Activity Survey. As can be seen from the table, by some measures the communication services sector overall has been one of the fastest growing in Australia. For example, sales grew from just under \$20b in 1994–95 to nearly \$32b in 1999–2000. Other measures have fluctuated over the years though most indicators for 1999–2000 were positive:

- The number of businesses decreased slightly by 2% in 1999–2000 after many years of growth.
- Employment reached a peak in 1995–96, declined in the following two years, but increased again in 1998–99; it continued to increase in 1999–2000, by 1%.
- Gross operating surplus continued a strong increase in 1999–2000, rising by 24%.
- Pre-tax profit experienced a further increase of 12% in 1999–2000, after a 33% rise in 1998–99.
- Net worth grew by 8% in 1999–2000, following a 20% rise in 1998–99.
- Capital spending has fluctuated over the years, but increased by 39% in 1999–2000.
- Industry gross product (the former measure of an industry sector's contribution to Gross Domestic Product) grew by 2% in 1995–96, by 16% in 1996–97 and by 5% in 1997–98. For 1997–98 and the following years, the measure of contribution to GDP has changed somewhat in line with international standards (see footnote (a) to table 24.1). The new measure, 'industry value added', still measures an industry's contribution to GDP. Industry value added for the communication services industries increased by 3% to \$16.7b in 1998–99 and by 16% to \$19.5b in 1999–2000.

**24.1 COMMUNICATION SERVICES INDUSTRIES, Structure and Performance**

	Units	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
Industry structure							
Businesses at 30 June	no.	1 956	2 363	3 049	3 540	3 917	3 858
Employment at 30 June	'000	127	137	125	118	120	121
Income statement							
Sales of goods and services	\$m	19 883	21 632	23 692	24 696	29 712	31 973
Less cost of sales	\$m	7 583	9 272	11 136	9 827	13 640	15 473
<i>Trading profit</i>	\$m	12 300	12 360	12 556	14 869	16 072	16 500
Plus interest	\$m	154	179	171	140	156	141
Plus other operating income	\$m	252	624	77	19	80	809
Less labour costs	\$m	6 451	6 273	6 605	6 122	5 586	5 612
Less depreciation	\$m	2 572	2 791	3 026	2 961	3 357	3 782
Less other operating expenses	\$m	200	142	442	426	400	361
<i>Earnings before interest and tax</i>	\$m	3 483	3 957	2 731	5 520	6 966	7 964
Less interest expenses	\$m	615	723	742	916	837	805
<i>Operating profit before tax</i>	\$m	2 868	3 234	1 989	4 603	6 130	6 889
<i>Total assets</i>	\$m	32 094	34 373	37 964	36 358	41 048	45 600
Total liabilities	\$m	17 814	17 730	23 714	21 196	22 873	26 043
Net worth	\$m	14 280	16 643	14 251	15 162	18 175	19 556
Capital expenditure	\$m	4 488	6 217	5 365	5 304	6 179	8 614
Gross operating surplus	\$m	6 153	6 615	8 351	10 084	11 143	13 868
Industry gross product(a)	\$m	12 605	12 888	14 956	15 648	..	..
Industry value added(a)	\$m	..	..	..	16 205	16 729	19 480

(a) From 1997–98, under the new international standard, the 1993 edition of the System of National Accounts (SNA93), the contribution to GDP by industries is measured by 'industry value added' (IVA). Estimates for IVA measure the value added by an industry to the intermediate inputs used by that industry. Previously the corresponding contribution to GDP was measured by 'industry gross product' (IGP). Further information on the changes to international standards can be found in the Information Paper: Implementation of Revised International Standards in the Australian National Accounts (5251.0).

Source: *Business Operations and Industry Performance, Australia, Preliminary, 1999–2000* (8142.0).

## The information technology and telecommunications sector

The Information Technology and Telecommunications (IT&T) sector is that part of the economy which produces information and telecommunications goods and services. It includes businesses involved in telecommunication services, computer services, and selected manufacturing and wholesale trade industries. The IT&T sector overlaps with part of the Communication Services Division discussed above.

Table 24.2 provides statistics for a selection of industries considered to be the predominant contributors to the production and distribution of IT&T goods and services. The table is based on ABS surveys conducted in respect of 1995–96 and 1998–99.

The Australian IT&T sector has undergone significant change over the three years to 1998–99. Total income for the sector was approaching \$63b in 1998–99, an increase of 28% over 1995–96. The IT&T industries contributing to this outcome were telecommunication services, with an increase in income of 39% since 1995–96 (for more detail see table 24.4), wholesale trade with a rise of 31%, computer services with a rise of 30% and manufacturing with a fall of 31%.

At June 1999, Australia's IT&T sector consisted of 18,072 IT&T businesses, an increase of 34% (or 4,537 businesses) since June 1996. This increase was mainly due to an increase in the number of computer consultancy businesses. There were 199,341 persons working in IT&T businesses at June 1999, a 2% decrease from 1996. Employment increased in computer services by 35% and in wholesale trade by 1%. This was offset by decreases in manufacturing of 39% and telecommunication services of 19%.

**24.2 INDUSTRIES IN THE IT&T SECTOR, Income and Employment**

Industry	Total income			Employment		
	1995–96	1998–99	Percentage change	1995–96	1998–99	Percentage change
	\$m	\$m	%	no.	no.	%
Manufacturing						
Computer and business machines	1 934	1 146	-41	5 755	2 461	-57
Telecommunication, broadcasting and transceiving equipment	1 660	1 508	-9	7 335	5 125	-30
Electronic equipment n.e.c.	99	345	248	836	1 959	134
Electric cable and wire	1 073	307	-71	3 369	997	-70
<i>Total</i>	4 766	3 306	-31	17 295	10 542	-39
Wholesale trade						
Computers	12 255	15 748	29	26 599	27 212	2
Business machines and electrical and electronic equipment n.e.c.	5 071	7 004	38	13 030	12 725	-2
<i>Total</i>	17 326	22 752	31	39 629	39 936	1
Telecommunication services	18 734	26 083	39	91 701	74 467	-19
Computer services						
Data processing	925	n.p.	n.p.	5 291	7 174	36
Information storage and retrieval	180	100	-45	994	908	-9
Computer maintenance	903	n.p.	n.p.	5 032	2 519	-50
Computer consultancy	6 080	8 680	43	43 711	63 794	46
<i>Total</i>	8 088	10 474	30	55 028	74 395	35
<b>Total</b>	<b>48 913</b>	<b>62 616</b>	<b>28</b>	<b>203 653</b>	<b>199 341</b>	<b>-2</b>

Source: *Information Technology, Australia, 1998–99* (8126.0).

Revenue from the domestic production of IT&T goods and services in 1998–99 was nearly \$40b, 28% higher than in 1995–96. Telecommunication services (rise of 40%) and packaged software and computer services (rise of 32%) recorded large increases. However, production of manufactured IT&T goods decreased by 24% or \$1.2b over the three year period. The decline in domestic

production of manufactured IT&T goods was offset by a 21%, or \$1.9b, increase in imports of these products.

*Chapter 25, Science and innovation* concludes with a Special Article on Research and Experimental Development in IT&T. The topic is examined in two dimensions: R&D undertaken in IT&T disciplines and R&D undertaken by the Australian IT&T industry.

**24.3 IT&T GOODS AND SERVICES, Domestic Production and Imports**

Industry	Domestic production			Imports		
	1995–96	1998–99	Percentage change	1995–96	1998–99	Percentage change
	\$m	\$m	%	\$m	\$m	%
Computer/telecommunications equipment, etc.	4 805	3 650	-24	8 904	10 757	21
Packaged software and computer services	8 583	11 342	32	745	1 310	76
Telecommunication services	17 773	24 872	40	1 060	1 467	38
<i>Total</i>	<b>31 161</b>	<b>39 864</b>	<b>28</b>	<b>10 709</b>	<b>13 534</b>	<b>26</b>

Source: *Information Technology, Australia, 1998–99* (8126.0).

## Telecommunication services within Australia

### The telecommunications environment in Australia

On 1 July 1997, the Australian Communications Authority (ACA) was formed by the merger of the Australian Telecommunications Authority and the Spectrum Management Agency. The ACA, along with the Australian Competition and Consumer Commission (ACCC), is responsible for administering the telecommunications industry and the radiocommunications community under legislation passed in March 1997. This allows Australia to take advantage of the social and economic opportunities presented by technological developments in the communication services industry as well as providing an environment of competition in the telecommunication services industry, reinforcing consumer protection arrangements and reforming technical regulation in the communication services industry.

### Role of the Australian Communications Authority

The ACA is responsible for regulating telecommunications and radiocommunications, including promoting industry self-regulation and managing the radiofrequency spectrum. The ACA also has significant consumer protection responsibilities. The ACA was established under the *Australian Communications Authority Act 1997*, and exercises powers under the *Telecommunications Act 1997*, the *Radiocommunications Act 1992*, and other related legislation.

The ACA licenses telecommunications carriers, ensures compliance with carrier licence conditions and service provider rules, and monitors service performance and quality. The ACA also administers legislative provisions relating to powers and immunities of carriers in the construction of telecommunications facilities, and protection of consumers through safeguards and service guarantees. The Universal Service Obligation (USO) is administered by the ACA to ensure reasonable and equitable access across Australia to standard telecommunication services. Under the USO, Telstra is obliged to ensure that standard telephone services and pay phones are reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business. The ACA also manages the National Numbering Plan and information programs on key issues affecting consumers.

Industry self-regulation is encouraged through the development of voluntary industry codes of practice and technical standards, and the Australian Communications Industry Forum (ACIF) was established by the communication services industry to support this process. The aim of self-regulation is to encourage industry to respond to customer needs without first having to overcome excessive regulatory restrictions. When a code fails or proves inadequate, the ACA is empowered to intervene and enforce a code or develop a mandatory standard. In this environment of industry self-regulation, the Customer Service Guarantee (CSG) and the Universal Service Obligation (USO) provide for consumer protection. Under the CSG, telephone subscribers are legally entitled to claim compensation from carriage service providers (CSPs) who fail to: keep appointments; provide service connections; repair faults; and provide certain other services, within set timeframes.

Access to the radiofrequency spectrum is facilitated by the ACA through licensing, managing interference and ensuring industry compliance with mandatory standards and conditions. Spectrum auctions are used in areas of spectrum scarcity and high market demand as a means of allocating spectrum fairly and efficiently. The ACA also advises on the use of telecommunications and the radiofrequency spectrum and investigates interference complaints.

The ACA monitors compliance with technical standards for communications equipment and cabling, including the new standard for electromagnetic radiation, and for electromagnetic compatibility of electrical and electronic equipment. The ACA is also responsible for standards protecting the integrity of communications networks and the interoperability of the standard telephone service.

The ACA represents Australia's communications interests internationally through its membership of the International Telecommunication Union, the Asia-Pacific Telecommunity and other appropriate bodies.

### Role of the Australian Competition and Consumer Commission in telecommunications

The ACCC was formed in November 1995 by the merger of the Trade Practices Commission and the Prices Surveillance Authority. It administers the *Trade Practices Act 1974* and the *Prices Surveillance Act 1983* and has additional responsibilities under other legislation. The ACCC's telecommunications group has prime responsibility for administering the Commission's functions for competition and economic regulation of telecommunications which include:

- administering telecommunications-specific competitive safeguards, which enables the Commission to deal with anti-competitive conduct by carriers and carriage service providers as well as allowing it to issue tariff filing directions and record-keeping rules to assist with its telecommunications powers and functions;
- administering the telecommunications-specific regime for facilitating access to the networks of carriers. This includes declaring services for access, approving access codes, approving access undertakings, arbitrating disputes for declared services and registering access agreements; and
- administering other legislative provisions in the Telecommunications Act and other related legislation, including in relation to price control of Telstra's retail services, international conduct rules, number portability, electronic addressing, interconnection standards and arbitration of disputes about access to network information, access to facilities, operator services, directory assistance services, provision of number portability, preselection, emergency call services and carriage services for use by the Defence forces.

### Telecommunication services industry

Major changes have been occurring in the telecommunication services industry as a result of the 1997 legislative changes, particularly the deregulation of the telecommunications market and the introduction of open competition.

The *Telecommunications Act 1997* allows any person to provide a range of telecommunication services, provided they comply with the provisions of the Act. Providers may use telecommunications capacity acquired from a licensed carrier or, in defined circumstances, from non-carrier infrastructure, to supply a range of local or national telecommunication services to consumer and commercial markets.

Service providers typically purchase network capacity from carriers at discounted rates.

In theory this allows them to provide either similar services at competitive prices or a variety of value-added services. These services include basic telephony services, mobile phone services, data and value-added services, Internet services and other telecommunication services.

The number of licensed telecommunication carriers operating in Australia has increased from 3 at June 1997 to 72 at June 2000. At June 1999, there were around 850 service providers, over 520 of these mainly engaged in providing Internet services. This was a substantial increase from June 1997, when there were just 411 service providers, just over 300 of these being Internet service providers. These numbers exclude businesses for which telecommunication service provision was a minor part of their business operation. The following section, *Internet activity*, provides updated information on the number of Internet Service Providers at end June 2001.

Table 24.4 shows summary indicators of the performance of the ABS telecommunication services industry from surveys conducted in 1995–96, 1996–97 and 1998–99. The strong growth in this industry is demonstrated by the growth in total income by 25% or \$5.2b over the three years to 1998–99, to reach a little over \$26b.

**24.4 TELECOMMUNICATION SERVICES INDUSTRY(a), Summary Indicators**

Indicator	Units	1995–96	1996–97	1998–99
Businesses at 30 June	no.	410	411	869
Employment at 30 June	no.	91 701	79 654	74 467
Income from IT&T services	\$m	17 938	19 762	25 071
Total income	\$m	18 734	20 927	26 083
Total expenses	\$m	15 934	19 458	20 602
Operating profit before tax	\$m	2 782	1 473	5 549

Source: *Information Technology, Australia, 1998–99* (8126.0).

**Internet activity**

In the September quarter 2000, the ABS commenced a quarterly survey of all identified businesses in Australia providing Internet connectivity services, except for libraries, Internet kiosks and Internet cafes. Table 24.5 shows summary indicators of Internet activity from the June quarter 2001 survey. The important features were as follows:

- there were 628 Internet Service Providers (ISPs) in Australia supplying Internet access services to 4.2 million active subscribers. The five largest ISPs (each with more than 100,000 subscribers) provided Internet access to 57% of subscribers;
- across Australia, ISPs provided 2,200 points of presence and 480,600 access lines, indicating that, on average, there were 8.7 subscribers per Internet access line;
- there were 1,204 million megabytes (Mbs) of data downloaded by Internet subscribers during the June quarter 2001, an average of 288 Mbs per subscriber; and
- although there was a wide distribution of ISPs across Australia, capital cities accounted for 72% of access lines, 74% of subscribers and 82% of Mbs downloaded.

**24.5 INTERNET ACTIVITY, AUSTRALIA, Summary Indicators — June quarter 2001**

Indicator	Units	Capital cities	Other areas	Total
Internet Access				
Points of presence	no.	972	1 228	2 200
Access lines	no.	347 551	133 049	480 600
Subscribers	'000	3 090	1 091	4 181
Data downloaded	million Mbs	982	222	1 204
Average number of subscribers per access line	no.	8.9	8.2	8.7
Average data downloaded per subscriber	Mbs	318	203	288

Source: *Internet Activity, Australia, June Quarter 2001* (8153.0).

**Postal communications****Australian Postal Corporation**

The Australian Postal Corporation (trading as Australia Post) is a government business enterprise owned by the Commonwealth of Australia. It operates under the *Australian Postal Corporation Act 1989*. Australia Post is independent of government funding, achieves a substantial profit from its activities, and pays a full range of taxes and charges. In 1999–2000, Australia Post paid \$327m in taxes and government charges (\$328m in 1998–99).

Australia Post offers letter and parcel delivery services within Australia and internationally. It also provides a range of related services including electronic bulk mail handling, advertising mail, bill payment, money order and banking services, express delivery services and philatelic products and services.

Australia Post's legal obligations require it to:

- provide Australians with a universal letter service;
- carry standard letters within Australia at a uniform price;
- ensure that the letter service meets the social, industrial and commercial needs of the community;

- perform its functions according to sound business practice; and
- perform its functions consistent with the Commonwealth's general policies.

Financial and other operating statistics for Australia Post are shown in tables 24.6, 24.7 and 24.8.

#### 24.6 AUSTRALIAN POSTAL CORPORATION, Consolidated Financial Statement

	1996–97	1997–98	1998–99	1999–2000
	\$ MILLION			
Revenue	3 124	3 300	3 449	3 743
Expenditure	2 781	2 924	3 074	3 317
Operating profit before income tax	353	335	373	392
Dividends	220	215	149	156
Total taxes and government charges(a)	308	295	328	327
Cost of Universal Service Obligation(b)	67	71	70	79
Total assets(c)	2 589	2 736	2 854	3 037
	PER CENT			
Return on assets(d)	14.6	12.8	13.8	14.0

(a) Includes sales tax and customs duty, payroll tax, local government taxes and charges, federal excise duty, and fringe benefits tax.

(b) The Universal Service Obligation ensures that all Australians have reasonable access to the letter service; this includes the delivery of standard letters by ordinary post at a uniform price even when the delivery cost is higher. (c) At 30 June of the financial years shown. (d) Operating profit before net interest and income tax divided by average total assets.

Source: Australian Postal Corporation.

#### 24.7 AUSTRALIAN POSTAL CORPORATION, Mail Delivery Network and Post Outlets

	1996–97	1997–98	1998–99	1999–2000
	no.	no.	no.	no.
Households receiving mail	7 387 216	7 348 319	7 668 143	7 922 702
Businesses receiving mail	822 949	822 412	838 009	856 598
<b>Total delivery points</b>	<b>8 130 498</b>	<b>8 170 731</b>	<b>8 506 152</b>	<b>8 779 300</b>
Corporate outlets and licensed post offices	3 934	3 922	3 903	3 887

Source: Australian Postal Corporation.

#### 24.8 AUSTRALIAN POSTAL CORPORATION, Total Postal Articles Handled

	1995–96	1996–97	1997–98	1998–99	1999–2000
	million	million	million	million	million
Posted in Australia for delivery in Australia	3 734	3 888	4 046	4 194	4 461
Posted in Australia for delivery overseas	159	157	165	172	193
Posted overseas for delivery in Australia	155	160	161	164	169
<b>Total articles through mail network</b>	<b>4 047</b>	<b>4 206</b>	<b>4 372</b>	<b>4 530</b>	<b>4 823</b>

Source: Australian Postal Corporation.

## Use of information technology

### Business use of information technology

The use of information technology by Australian employing businesses has risen significantly since the early 1990s. Computer use has grown fairly steadily, rising from 49% of businesses in 1993–94 to 63% in 1997–98 and 76% in 1999–2000.

Internet use grew more rapidly between 1997–98 and 1999–2000, the proportion of businesses with Internet access almost doubling from 29% to 56%. The proportion of businesses with Web sites or home pages more than doubled over the same period (from 6% to 16% of businesses).

### Extent of use of information technology by Australian businesses

The extent to which Australian businesses use information technology is related to business size and industry. At June 2000, 100% of large businesses (those with employment of 100 or more persons) used a computer, 95% had access to the Internet and 68% had a Web site or home page. Very small businesses (those with employment of fewer than 5 employees) had much lower adoption of information technology at June 2000, with 69% using a computer, 49% having Internet access and only 9% having a Web site or home page.

Computer use and Internet access were highest in the Property and business services and Electricity, gas and water supply industries at June 2000. At least 85% of businesses in these two industries used computers and at least 76% had access to the Internet. Computer and Internet use was lowest in the Personal and other services industry, where 60% of businesses used a computer and 39% had Internet access. Web site use was highest in the Electricity, gas and water supply industry, with 56% of businesses having a Web site or home page, and lowest in the Construction industry (6% of businesses).

### Employment of information technology staff by businesses

At June 2000, 17% of all businesses in Australia employed their own information technology staff (including Web design staff). A higher proportion of large businesses employed information technology staff than smaller businesses,

some 68% of businesses with employment of 100 or more persons having information technology staff compared with 13% of businesses with employment of fewer than 5 persons. The percentage of businesses with information technology staff ranged from 46% in the Electricity, gas and water supply industry to 10% in both the Construction and Personal and other services industries.

### Business use of the Internet

At June 2000, 28% of businesses with access to the Internet were engaged in activities associated with selling goods or services to customers. This included receiving orders, sending invoices and providing after sales service. Of businesses with Internet access, 24% used it for activities associated with buying goods or services such as ordering from suppliers, purchasing information on-line or receiving invoices. Over a third (36%) of businesses with Internet access were using on-line banking facilities. A fifth (20%) of businesses were using Internet access only for email and/or information searches.

### Business use of Web sites

The majority of businesses with Web sites or home pages at June 2000 used their site to display company information (88%) and/or advertise their goods or services (79%). An estimated 6% of businesses with Web sites offered secure access or secure transactions on those sites. While 14% of businesses with Web sites offered on-line ordering, only 3% of businesses with Web sites used shopping cart software and only 5% had an on-line payments facility. The integration of Web site technology with back-end systems, such as existing accounting and stock control software, occurred in only 4% of businesses with a Web site or home page.

### The significance of Internet commerce in Australia

The estimated total value of sales/orders received by businesses via the Internet for the year ending 30 June 2000 was \$5.1b. This represented approximately 0.4% of total sales/orders received for goods and services by Australian businesses in that financial year. While Internet commerce accounted for only a very small proportion of total sales/orders, it was dominated by business to business transactions.

**24.9 BUSINESS USE OF SELECTED INFORMATION TECHNOLOGIES — At 30 June 2000(a)**

	Number of businesses '000	Businesses with			
		IT staff %	Computers %	Internet access %	Web site or home page %
Employment size					
1–4 persons	415	13	69	50	9
5–19 persons	184	22	85	65	24
20–99 persons	36	38	97	83	46
100 or more persons	6	68	100	95	68
Industry					
Mining	2	19	82	70	30
Manufacturing	54	20	79	60	23
Electricity, gas and water supply	—	46	85	79	56
Construction	90	10	68	46	6
Wholesale trade	45	21	83	62	22
Retail trade	112	12	68	42	15
Accommodation, cafes and restaurants	32	12	61	40	19
Transport and storage	32	13	64	46	14
Communication services	4	17	77	42	17
Finance and insurance	23	18	81	71	19
Property and business services	149	29	88	76	19
Health and community services	51	14	83	57	9
Cultural and recreational services	17	15	81	63	26
Personal and other services	30	10	60	39	19
<b>Total businesses</b>	<b>641</b>	<b>17</b>	<b>76</b>	<b>56</b>	<b>16</b>

(a) Proportions are of all businesses in each category.

Source: *Business Use of Information Technology, Australia, 1999–2000* (8129.0).

Of the 38,000 ‘Internet commerce active’ businesses estimated to be receiving sales income via the Internet in 1999–2000, 39% generated less than 1% of their sales in this manner. A further 27% generated between 1% and 5% of their total sales via the Internet, while 34% of businesses generated 5% or more of their total sales via the Internet. Only 2% of businesses generated 50% or more of their sales via the Internet.

### Barriers to greater use of information technology by businesses

While the level of use of computer and Internet technology appeared to be relatively high among Australian businesses by June 2000, one in four businesses did not use a computer and nearly half of all businesses did not have access to the Internet. Use of Web sites was much lower, with 84% of businesses not having one. It is clearly of interest to know why a portion of businesses were not embracing information technology at even the most basic level.

The largest barrier to using information technology, whether a computer, the Internet or a Web site, was the perception by the business that the technology was ‘not suited to the nature

of the business’. This finding is consistent with results obtained at the end of June 1998, when 63% of businesses without a computer identified computer use as not suited to the nature of the business and 60% of businesses without Internet access identified it as not suited to the nature of the business.

At June 2000, nearly half (47%) of the businesses not using a computer reported that computer use was not suited to the nature of the business, while just over a third (36%) identified lack of skills or appropriate training as a barrier to computer use. For businesses with a computer but without Internet access, the most frequent reason given was that Internet access did not suit the nature of the business (54%), followed by a lack of interest in Internet access (26%). The most frequent reason given for not using a Web site or home page within a business was again that it did not suit the nature of the business (53% of businesses using a computer were without a Web site/home page).

### Factors limiting further development of business Web sites

Of those businesses with a Web site or home page at June 2000, 44% were satisfied with its functions. For other businesses, the factors which most limited the further development of their Web site or home page were the cost of further development, the low rate of use of Internet commerce by customers or suppliers, and lack of skills. These factors were identified by 33%, 26% and 24% of businesses with Web sites or home pages respectively.

### Farm use of information technology

There has been steady growth in the use of information technology by farms in Australia. At June 2000, 58% of Australian farms with an estimated value of agricultural operations (EVAO) of \$5,000 or more used a computer, compared with 49% at March 1999 and 40% at March 1998.

An estimated 34% of farms in Australia used the Internet at June 2000, compared with 18% at March 1999 and 11% at March 1998 (table 24.10). Although fewer farms used the Internet than used a computer at June 2000, the 91% increase in the number of farms using the Internet over the 15 months to June 2000 far exceeded the percentage growth in the use of computers for the same period.

At June 2000:

- the Northern Territory reported the highest proportion of farms using a computer (71%) and the highest proportion of farms using the Internet (49%);

- New South Wales reported the lowest proportion of farms using a computer (53%) and the lowest proportion of farms using the Internet (31%);
- the Poultry farming industry reported the highest proportion of farms using a computer (72%) and the highest proportion of farms using the Internet (45%);
- the Grain, sheep and beef cattle farming industry reported the lowest proportion of farms using a computer (55%) and the lowest proportion of farms using the Internet (31%); and
- there was a strong relationship between farm size as measured by the estimated value of agricultural operations (EVAO), and the use of a computer and the Internet. As farm size increased so did the proportion of farms using a computer and the Internet. For example, 68% of farms with an EVAO of \$1 million or more used the Internet, compared with 25% of those with an EVAO less than \$50,000.

### Household use of information technology

In 2000, 53% of households (3.8 million) had a computer, an 11% increase over 1999.

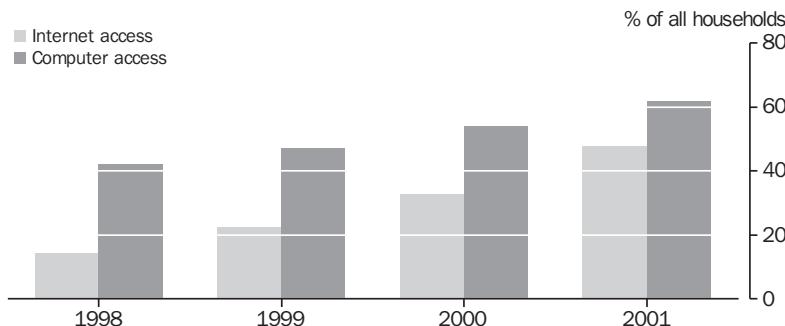
About one-third (33%) of households (2.3 million) had Internet access, a 49% increase over 1999 (graph 24.11). The graph also shows estimates for households with a home computer and those with Internet access in 2001 based on the reported intentions of those households without either in 2000. On that basis, a little over 60% of households are expected to have a home computer and almost 50% are expected to have home Internet access.

**24.10 FARMS USING A COMPUTER AND THE INTERNET(a), By State/Territory**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	%	%	%	%	%	%	%	%	%
<b>June 2000</b>									
Farms using a computer	53	58	58	64	68	57	71	70	58
Farms using the Internet	31	33	32	40	40	35	49	42	34
<b>March 1999</b>									
Farms using a computer	49	49	45	53	59	49	65	64	49
Farms using the Internet	19	17	16	19	18	22	31	26	18
<b>March 1998</b>									
Farms using a computer	40	37	37	43	49	36	52	55	40
Farms using the Internet	12	10	10	12	10	12	22	20	11

Source: Use of Information Technology on Farms, Australia, 1999-2000 (8150.0).

### 24.11 HOUSEHOLD COMPUTER AND INTERNET ACCESS — 1998 to 2000 and Projected to 2001



Source: *Household Use of Information Technology, Australia, 2000* (8146.0).

### Characteristics of households with home Internet access

Households with children and those on higher incomes were more likely to have access to computers and the Internet at home (table 24.12).

### Characteristics of adult Internet users

An estimated 6.5 million adults in Australia (47% of all adults) accessed the Internet from any site (home, work or other site) at some time in 2000 (table 24.13). The comparable figure for 1999 was 5.6 million adults (41% of all adults). During 2000:

- 75% of 18–24 year olds accessed the Internet from any site, compared with 62% of 25–34 year olds, 52% of 35–44 year olds, 47% of 45–54 year olds, 26% of 55–64 year olds and 9% of adults aged 65 years and over;

- 50% of adult males and 43% of adult females accessed the Internet from any site; and
- 50% of adults in capital cities accessed the Internet from any site, compared with 40% of adults who resided in other areas.

Adults were most likely to access the Internet from home during 2000. This reflects the strong growth over recent years in the number of households with home Internet access. The most popular uses of the Internet by adults at home during 2000 were to use email or chat rooms (68% of adults accessing the Internet at home), general browsing (57%) and to find information related to work (36%).

### 24.12 HOUSEHOLD COMPUTER AND INTERNET ACCESS, By Household Type(a) and Income(a)

	Computer access			Internet access		
	1998	1999	2000	1998	1999	2000
Household type	%	%	%	%	%	%
Households						
With children under 18	64	66	72	22	31	45
Without children under 18	33	37	43	13	17	26
Household income						
Under \$25,000	20	21	24	5	6	10
\$25,000–\$49,999	44	45	52	12	17	28
\$50,000–\$74,999	61	64	66	21	31	40
\$75,000–\$99,999	71	73	78	32	39	55
\$100,000 or more	80	81	85	44	52	69

(a) Proportions are of all households in each category.

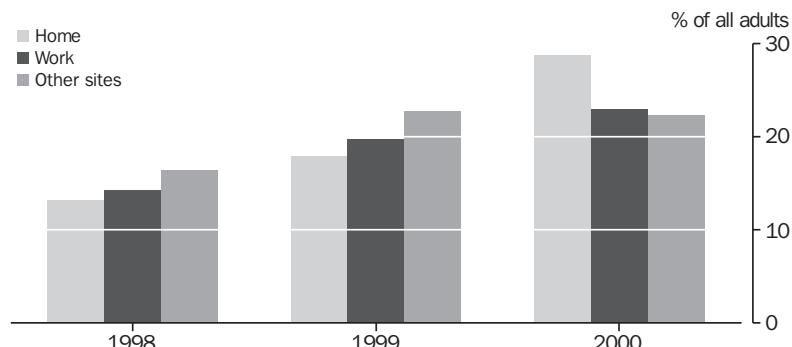
Source: *Household Use of Information Technology, Australia, 2000* (8146.0).

**24.13 ADULTS ACCESSING THE INTERNET(a)(b), Main Characteristics — 2000**

Characteristic	Site of Internet access(a)			
	Home	Work	Other sites	Any site
	%	%	%	%
Age (years)				
18 to 24	39	24	59	75
25 to 34	34	33	33	62
35 to 44	35	28	19	52
45 to 54	33	29	14	47
55 to 64	18	13	8	26
65 or over	7	2	2	9
Sex				
Males	32	26	24	50
Females	25	20	21	43
Region				
Capital cities	32	25	24	50
Rest of Australia	22	19	20	40
<b>Total</b>	<b>29</b>	<b>23</b>	<b>22</b>	<b>47</b>

(a) Proportions are of all persons in each category. (b) Internet access occurred during the preceding 12 months. (c) Persons may have accessed the Internet at only one or any number of sites.

Source: Household Use of Information Technology, Australia, 2000 (8146.0)

**24.14 ADULT INTERNET ACCESS, By Access Site — 1998 to 2000**

Source: Household Use of Information Technology, Australia, 2000 (8146.0).

**Characteristics of children accessing the Internet**

An estimated 2.5 million children in Australia aged 5 to 14 years accessed the Internet from any site (home, school or elsewhere) at some time during the 12 months to April 2000 (table 24.15). Among children aged 5 to 14 years:

- regardless of whether Internet access occurred at home, school or elsewhere, the likelihood that a child had accessed the Internet increased with age;

- there was virtually no difference in the likelihood that a child of either sex had accessed the Internet, either at home, school or elsewhere; and
- overall, there was no difference in the likelihood that the Internet had been accessed between children in capital cities and those in other areas. However, children in capital cities were more likely to access the Internet at home than children in other areas.

**24.15 CHILDREN ACCESSING THE INTERNET(a)(b), Main Characteristics — 2000(c)**

Characteristic	%	Site of Internet access(d)			
		Home	School	Someone else's home	Public library
Age (years)					
5 to 8	12	12		3	1
9 to 11	30	37		10	3
12 to 14	42	51		19	7
Sex					
Males	27	32		10	4
Females	25	30		9	3
Region					
Capital cities	28	30		10	3
Rest of Australia	23	33		10	4
<b>Total children</b>	<b>26</b>	<b>31</b>		<b>10</b>	<b>3</b>
					<b>47</b>

(a) Children were aged 5 to 14 years. (b) Proportions are of all children in each category. (c) Internet access occurred during the preceding 12 months. (d) Children may have accessed the Internet at only one or any number of sites.

Source: *Use of the Internet by Householders, Australia, August 2000* (8147.0).

The most popular uses of the Internet at home by children aged 5 to 14 years were for school or educational activities (83% of all 5–14 year olds who accessed the Internet at home), to use email or chat rooms (51%), browsing the Internet for leisure (50%) and to play games (40%).

### Internet purchasing

About 7% of Australian adults (967,000) used the Internet to purchase or order goods or services for their own private use in 2000, compared to 5% of Australian adults (653,000) in 1999.

The majority of Internet users (5.5 million adults) were not Internet shoppers during 2000.

In 2000, adults mainly purchased or ordered the following items over the Internet:

- books or magazines (by 33% of adult Internet shoppers);
- music (by 21%); and
- computer software (by 19%).

During this period, 82% of adult Internet shoppers paid for all or part of their purchases/orders on-line. On average, over a 12 month period, each Internet shopper in 2000 spent \$600 purchasing or ordering goods or services for private use via the Internet.

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*Information Technology, Australia, 1998–99* (8126.0).

*Internet Activity, Australia, June 2001* (8153.0).

*Use of Information Technology on Farms, Australia, 1999–2000* (8150.0).

*Use of the Internet by Householders, Australia, August 2000* (8147.0).

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Australia Post, *Annual Report 1998–99*.

National Office for the Information Economy, *Current State of Play — A quarterly information economy statistical report* (available from its Internet site <http://www.noie.gov.au>)

### **Internet sites**

Australian Bureau of Statistics, Information Technology Statistics Theme Page <http://www.abs.gov.au> (select *Themes* from menu on home page)

Australian Communications Authority, <http://www.aca.gov.au>

Australian Competition and Consumer Commission, <http://www.accc.gov.au>

Australian Information Industries Association, <http://www.aiia.com.au>

Commonwealth Department of Communications, Information Technology and the Arts (DOCITA),  
<http://www.dcita.gov.au>

National Office for the Information Economy, <http://www.noie.gov.au>

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## Introduction

The application of science and technological innovation to industrial processes influences the strength and competitiveness of industry by providing a basis for technological change and encouraging economic growth and development.

Australia has a range of statistics relating to science and innovation, many of which are compiled by the ABS. The key indicators relate to Australia's Research and Development (R&D) effort and the extent to which businesses innovate. Australia's statistics in this field are based on international standards, particularly the *Frascati Manual* developed by the Organisation for Economic Co-operation and Development (OECD), which is the basic international source of methodology for collecting and using R&D statistics.

A number of other indicators, notably patents and bibliometrics, are compiled by the Department of Industry, Science and Resources and are reported in the Commonwealth Government's *Science and Technology Statement*. These indicators have not been included in this chapter.

## Expenditure and human resources devoted to R&D

The OECD defines R&D to comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of people, culture and society, and the use of this stock of knowledge to devise new applications.

Statistics on the amount of expenditure and human resources devoted to R&D in the business sector are collected annually. Comparable statistics on the higher education, government and private non-profit sectors are collected biennially. Tables 25.1 and 25.2 summarise the latest statistics available.

**25.1 EXPENDITURE ON R&D, By Sector**

	1994–95 \$m	1995–96 \$m	1996–97 \$m	1997–98 \$m	1998–99 \$m	1999–2000 \$m
Business	3 508.3	4 356.6	4 237.2	4 219.1	4 067.6	4 045.3
Government						
Commonwealth	1 193.3	n.a.	1 264.2	n.a.	1 192.6	n.a.
State	782.8	n.a.	812.7	n.a.	879.0	n.a.
Total	1 976.0	n.a.	2 076.9	n.a.	2 071.6	n.a.
Higher education(a)	1 829.6	2 039.1	2 307.6	n.a.	2 602.7	n.a.
Private non-profit	152.7	n.a.	173.4	n.a.	183.9	n.a.
<b>Total</b>	<b>7 466.6</b>	<b>n.a.</b>	<b>8 795.1</b>	<b>n.a.</b>	<b>8 925.8</b>	<b>n.a.</b>

(a) Data for the calendar year ending within the financial year shown.

Source: *Research and Experimental Development, Businesses, Australia* (8104.0); *Research and Experimental Development, Higher Education Organisations, Australia* (8111.0); *Research and Experimental Development, All Sector Summary, Australia* (8112.0).

## Expenditure on R&D —How does Australia compare internationally?

The most commonly used indicator for comparison purposes is the ratio of expenditure on R&D to Gross Domestic Product (GDP). As table 25.3 shows, in 1998–99 Australia's R&D expenditure was 1.50% of its GDP, ranking it below Japan (3.04%), Finland (2.89%), the United States (2.60%), Korea (2.55%), Germany (2.31%), France (2.18%), Iceland (2.04%), Netherlands (1.95%), the United Kingdom (1.83%) and Canada (1.71%).

In terms of business enterprise R&D, Australia's ratio of R&D expenditure to GDP (0.68%) is again below the ratios for the industrialised countries referred to earlier, and is also below the rate for the Czech Republic.

For government sector R&D as a percentage of GDP, Australia ranks higher. An R&D to GDP ratio of 0.35% places it fifth in the group of OECD member countries for which data are available, behind only Iceland (0.76%), Korea (0.45%), France (0.41%) and Finland (0.36%). Government sector R&D as a percentage of GDP is much higher for Australia than for the United States and Canada.

For the higher education sector, Australia also ranks highly. With an R&D to GDP ratio of 0.44%, Australia ranks behind only Finland (0.57%), Netherlands (0.53%), Iceland (0.51%), Japan (0.45%) and Canada (0.45%) among OECD countries.

**25.2 HUMAN RESOURCES DEVOTED TO R&D, By Sector**

	1994–95 '000 person years	1995–96 '000 person years	1996–97 '000 person years	1997–98 '000 person years	1998–99 '000 person years	1999–2000 '000 person years
Business	25.8	27.1	26.4	24.8	25.0	26.1
Government						
Commonwealth	10.7	n.a.	10.3	n.a.	9.4	n.a.
State	8.6	n.a.	9.0	n.a.	9.5	n.a.
Total	19.3	n.a.	19.4	n.a.	18.9	n.a.
Higher education(a)	40.1	n.a.	42.7	n.a.	45.5	n.a.
Private non-profit	1.7	n.a.	2.2	n.a.	2.1	n.a.
<b>Total</b>	<b>87.0</b>	<b>n.a.</b>	<b>90.7</b>	<b>n.a.</b>	<b>91.5</b>	<b>n.a.</b>

(a) Data for the calendar year ending within the financial year shown.

Source: *Research and Experimental Development, Businesses, Australia* (8104.0); *Research and Experimental Development, All Sector Summary, Australia* (8112.0).

**25.3 EXPENDITURE ON R&D AS A PERCENTAGE OF GDP, OECD Countries — 1998–99**

Country	Business %	Government %	Higher education %	Total(a) %
Japan	2.17	0.28	0.45	3.04
Finland	1.94	0.36	0.57	2.89
United States	1.94	0.21	0.37	2.60
Korea	1.79	0.45	0.28	2.55
Germany	1.57	0.34	0.40	2.31
France	1.36	0.41	0.38	2.18
Iceland	0.75	0.76	0.51	2.04
Netherlands	1.06	0.35	0.53	1.95
United Kingdom	1.20	0.24	0.36	1.83
Canada	1.03	0.22	0.45	1.71
<b>Australia</b>	<b>0.68</b>	<b>0.35</b>	<b>0.44</b>	<b>1.50</b>
Czech Republic	0.82	0.33	0.12	1.27
Italy	0.55	0.22	0.25	1.02
Spain	0.47	0.15	0.27	0.90
Poland	0.30	0.22	0.20	0.72
Hungary	0.26	0.21	0.17	0.68

(a) Includes private non-profit.

Source: *Main Science and Technology Indicators 2001–1*, OECD, Paris, 2001.

## Source of funds for expenditure on R&D

In 1998–99, the business sector funded 46% of all Australian R&D. This compares with 42% recorded in 1988–89. The Commonwealth Government funded 39% of R&D in 1998–99 (down from 44% in 1988–89) and the State Governments funded 8% (down from 10% in 1988–89).

In 1998–99, 93% of funding for R&D carried out by businesses came from the business sector. It has remained at about this level for the preceding decade. Commonwealth government organisations provided 3% of funding for business R&D expenditure in 1998–99.

About 83% of Commonwealth government sector R&D was funded by Commonwealth government organisations in 1998–99. The Commonwealth government proportion of self-funding has dropped from 94% ten years ago, with the business sector and the private non-profit sector making up most of the remainder, each contributing 6% in 1998–99.

About 69% of State government R&D was funded by State government organisations in 1998–99. This is significantly lower than a decade earlier, when the proportion was 81%. The private non-profit sector funded 15% of the State government R&D in 1998–99, up from 4% a decade earlier.

About 87% of higher education R&D funding in 1998–99 came from the Commonwealth Government (compared with 89% in 1988–89). Business enterprises provided 5% of the funding in 1998–99, up from 3% a decade earlier.

Commonwealth government organisations funded 29% of the R&D of the private non-profit sector in 1998–99, while the contribution by State Governments was 11%.

Tables 25.4 and 25.5 show the data for 1988–89 and 1998–99 respectively.

**25.4 EXPENDITURE ON R&D, Sector by Source of Funds — 1988–89**

Sector	\$m	% of total	\$m	% of total	\$m	% of total	Private non-profit and other Australian(a)		Overseas		Total \$m
							Commonwealth Government	State Government	Businesses	Australian(a)	
Business Government	62.0	3.4	4.4	0.2	1 687.1	93.8	4.2	0.2	40.7	2.3	1 798.3
Commonwealth	816.9	93.9	3.9	0.4	40.6	4.7	2.7	0.3	5.6	0.6	869.6
State	44.6	9.2	391.7	81.1	23.8	4.9	21.3	4.4	1.3	0.3	482.7
Total	861.5	63.7	395.6	29.3	64.4	4.8	23.9	1.8	6.9	0.5	1 352.3
Higher education(b)	951.3	88.7	16.6	1.5	27.6	2.6	70.2	6.5	7.2	0.7	1 072.9
Private non-profit	19.8	37.1	5.9	11.1	4.4	8.3	21.0	39.4	2.2	4.1	53.3
<b>Total</b>	<b>1 894.6</b>	<b>44.3</b>	<b>422.5</b>	<b>9.9</b>	<b>1 783.5</b>	<b>41.7</b>	<b>119.3</b>	<b>2.8</b>	<b>57.0</b>	<b>1.3</b>	<b>4 276.8</b>

(a) Includes funds provided via government levies. (b) Data for calendar year 1988.

Source: *Research and Experimental Development, All Sector Summary, Australia (8112.0)*.

**25.5 EXPENDITURE ON R&D, Sector by Source of Funds — 1998–99**

Sector	\$m	% of total	State Government			Businesses	Private non-profit and other Australian(a)		Overseas		Total \$m
			Commonwealth Government	State Government	Businesses		Private non-profit and other Australian(a)	Overseas			
Business Government	112.6	2.8	8.9	0.2	3 769.7	92.7	36.1	0.9	140.4	3.5	4 067.6
Commonwealth	993.6	83.3	24.8	2.1	71.4	6.0	76.7	6.4	26.1	2.2	1 192.6
State	77.1	8.8	610.0	69.4	58.3	6.6	128.8	14.7	4.8	0.5	879.0
Total	1 070.7	51.7	634.9	30.6	129.7	6.3	205.4	9.9	30.9	1.5	2 071.6
Higher education(b)	2 266.0	87.1	68.8	2.6	135.8	5.2	90.9	3.5	41.2	1.6	2 602.7
Private non-profit	47.4	28.6	22.9	10.6	27.3	17.4	73.2	39.6	13.1	3.8	183.9
<b>Total</b>	<b>3 496.7</b>	<b>39.2</b>	<b>735.5</b>	<b>8.2</b>	<b>4 062.5</b>	<b>45.5</b>	<b>405.6</b>	<b>4.5</b>	<b>225.6</b>	<b>2.5</b>	<b>8 925.8</b>

(a) Includes funds provided via government levies. (b) Data for calendar year 1998.

Source: *Research and Experimental Development, All Sector Summary, Australia (8112.0); Research and Experimental Development, Businesses, Australia (8104.0)*.

### R&D expenditure — Business sector

Business expenditure on R&D in Australia in 1999–2000 (table 25.6) was marginally lower than in 1998–99. However, human resources devoted to R&D increased by 5%.

The decrease in R&D expenditure between 1998–99 and 1999–2000 was attributable to a 43% fall in the Mining industry. Expenditure by the Manufacturing industry remained about the same, while expenditure by Other industries in total increased by 12%.

**25.6 BUSINESSES, R&D Resources by Industry of Business**

Industry of business	Businesses			Expenditure on R&D			Effort on R&D			
	1997–98		1998–99	1999–2000	1997–98	1998–99	1999–2000	1997–98	1998–99	1999–2000
	no.	no.	no.	\$m	\$m	\$m	'000 person years	'000 person years	'000 person years	
Mining (including services to mining)	106	102	96	537	478	273	1.0	1.0	0.7	
Manufacturing										
Food, beverage and tobacco	149	148	134	181	208	186	1.1	1.1	1.1	
Textile, clothing, footwear and leather	54	54	50	21	20	17	0.2	0.2	0.2	
Wood and paper product	35	30	38	117	86	104	0.3	0.2	0.4	
Printing, publishing and recorded media	33	34	26	17	20	15	0.2	0.2	0.2	
Petroleum, coal, chemical and associated product	317	314	334	328	351	413	2.4	2.3	2.3	
Non-metallic mineral product	60	59	50	70	53	49	0.4	0.4	0.4	
Metal product	182	174	181	369	296	227	1.4	1.2	1.1	
Motor vehicle and part and other transport equipment	124	126	139	441	380	420	2.7	2.8	3.1	
Photographic and scientific equipment	100	103	172	95	107	127	0.9	0.9	1.1	
Electronic and electrical equipment and appliance	329	337	322	427	400	342	2.8	2.9	2.8	
Industrial machinery and equipment	248	232	244	126	115	132	1.2	1.1	1.3	
Other manufacturing	73	77	87	36	19	20	0.2	0.2	0.2	
<i>Total manufacturing</i>	<i>1 704</i>	<i>1 688</i>	<i>1 777</i>	<i>2 229</i>	<i>2 055</i>	<i>2 052</i>	<i>13.8</i>	<i>13.5</i>	<i>14.1</i>	
Other industries										
Wholesale and retail trade	331	303	295	315	337	352	2.5	2.3	2.5	
Finance and insurance	40	33	34	85	81	126	0.4	0.7	0.8	
Property and business services	771	797	868	599	612	720	5.1	5.4	5.8	
Scientific research	104	153	148	154	161	210	1.1	1.2	1.3	
Other n.e.c.	181	182	191	301	343	313	1.0	1.0	0.9	
<i>Total other industries</i>	<i>1 427</i>	<i>1 468</i>	<i>1 536</i>	<i>1 454</i>	<i>1 535</i>	<i>1 721</i>	<i>10.1</i>	<i>10.5</i>	<i>11.2</i>	
<b>Total all industries</b>	<b>3 237</b>	<b>3 258</b>	<b>3 409</b>	<b>4 219</b>	<b>4 068</b>	<b>4 045</b>	<b>24.8</b>	<b>25.0</b>	<b>26.1</b>	

Source: Research and Experimental Development, Business Enterprises, Australia (Cat. no. 8104.0).

Major research fields (table 25.7) in which business sector R&D expenditure took place were Computer software (13%), Communications technologies (9%), Manufacturing engineering (9%), Automotive engineering (8%), Information systems (7%) and Medical and health sciences (6%).

A slightly different pattern applied to human resources devoted to R&D, with 19% in Computer software, 9% in Automotive engineering, 9% in Manufacturing engineering, 7% in Information systems, 7% in Communications technologies and 6% in Medical and health sciences.

## 25.7 BUSINESSES, R&amp;D Resources by Research Fields — 1999–2000

Field of research	Type of expenditure				
	Capital expenditure	Labour costs	Other current expenditure	Total	Human resources '000 person years
Natural sciences, technologies and engineering					
Mathematical sciences	0.5	8.1	5.4	14.0	0.1
Physical sciences	2.9	18.6	12.9	34.3	0.3
Chemical sciences	31.0	78.0	71.2	180.3	1.1
Earth sciences	5.6	17.4	37.2	60.2	0.2
Information systems and technologies	19.6	45.0	45.7	110.4	0.7
Computer software	22.9	135.9	105.2	264.0	1.8
Communications technologies	36.5	363.4	142.3	542.2	5.0
Other information, computers and communication technologies	20.5	80.3	65.1	165.9	1.2
Manufacturing and process technologies and engineering	18.1	55.8	48.5	122.5	0.8
Industrial biotechnology and food sciences	13.3	23.5	34.2	70.9	0.3
Material sciences and technologies	31.4	143.8	171.2	346.4	2.4
Other applied sciences and technologies	16.3	134.6	173.4	324.4	2.4
Mechanical and industrial engineering	34.0	80.8	86.6	201.4	1.3
Mining and mineral processing	10.1	48.6	91.7	150.4	0.6
Other general engineering	10.2	59.1	55.6	124.8	1.0
Biological sciences	15.6	40.2	105.3	161.2	0.4
Agricultural sciences	6.3	30.5	34.2	71.0	0.5
Medical and health sciences	30.1	124.5	201.5	356.1	1.7
<i>Total natural sciences, technologies and engineering</i>	<i>27.3</i>	<i>138.8</i>	<i>157.0</i>	<i>323.1</i>	<i>1.8</i>
Social sciences and humanities					
Social sciences	19.0	56.6	73.0	148.6	0.9
Humanities	20.9	100.6	131.1	252.6	1.4
<i>Total social sciences and humanities</i>	<i>1.7</i>	<i>12.5</i>	<i>6.3</i>	<i>20.5</i>	<i>0.2</i>
<b>Total</b>	<b>393.9</b>	<b>1 796.7</b>	<b>1 854.7</b>	<b>4 045.3</b>	<b>26.1</b>

Source: *Research and Experimental Development, Business Enterprises, Australia* (8104.0).

In terms of socioeconomic objectives (table 25.8), most business sector R&D expenditure (\$3,617m or 89%) was directed towards Economic development. Of this, \$1,791m (50%) was directed towards Manufacturing. About 6% was directed towards Society and 4% towards Defence.

A similar pattern applied to human resources devoted to R&D, with 90% directed towards Economic development, 6% directed towards Society and 3% towards Defence.

**25.8 BUSINESSES, R&D Resources by Socioeconomic Objective — 1999–2000**

Socioeconomic objective	Type of expenditure				'000 person years
	Capital expenditure	Labour costs	Other current expenditure	Total	
\$m	\$m	\$m	\$m		
Defence	1.2	71.0	81.8	154.0	0.7
Economic development					
Plant — production and primary products	5.0	22.8	17.5	45.3	0.4
Animal — production and primary products	1.7	13.4	28.3	43.3	0.2
Mineral resources (excl. energy)	26.7	50.9	159.2	236.7	0.7
Energy resources	4.8	33.0	43.8	81.6	0.4
Energy supply	28.6	48.3	57.5	134.5	0.7
Manufacturing	193.5	767.4	830.2	1 791.1	12.0
Construction	8.6	26.8	34.6	70.0	0.4
Transport	15.9	56.6	58.1	130.6	0.9
Information and communication services	83.3	519.8	381.6	984.7	7.0
Commercial services	5.8	58.9	25.5	90.1	0.8
Economic framework	0.8	5.9	2.3	8.9	0.1
Total economic development	374.7	1 603.7	1 638.6	3 616.9	23.5
Society					
Health	12.0	86.4	104.0	202.3	1.2
Education and training	0.3	4.4	1.4	6.0	0.1
Social development and community services	0.4	13.3	4.4	18.1	0.3
Total society	12.6	104.1	109.8	226.4	1.5
Environment					
Environmental policy frameworks and other aspects	1.1	4.7	6.4	12.3	0.1
Environmental management	3.6	11.3	16.6	31.5	0.2
Total environment	4.7	16.0	23.0	43.8	0.3
Non-oriented research	0.7	2.0	1.5	4.1	—
<b>Total</b>	<b>393.9</b>	<b>1 796.7</b>	<b>1 854.7</b>	<b>4 045.3</b>	<b>26.1</b>

Source: Research and Experimental Development, Business Enterprises, Australia (8104.0).

## R&D expenditure —General government sector

Expenditure on R&D carried out by government organisations in Australia in 1998–99 was estimated to be \$2,072m, a marginal decrease on expenditure in 1996–97 (see table 25.1).

As shown in table 25.9, the fields of research in which most government R&D expenditure took place were: Agricultural sciences (\$664m, or 32%), Biological sciences (\$255m, or 12%),

Earth sciences (\$207m, or 10%), Medical and health sciences (\$189m, or 9%), Applied sciences and technologies (\$188m, or 9%) and General engineering (\$181m, or 9%).

A slightly different pattern applied to human resources devoted to R&D, with Agricultural sciences accounting for 32%, Medical and health sciences 15%, Biological sciences 12%, Applied sciences and technologies 8%, Earth sciences 7% and General engineering 7%.

## 25.9 GOVERNMENT ORGANISATIONS, R&amp;D Resources by Field of Research — 1998–99

Field of research	Type of expenditure					Human resources '000 person years
	Land and buildings \$m	Other capital expenditure \$m	Labour costs \$m	Other current expenditure \$m	Total \$m	
Natural sciences, technologies and engineering						
Mathematical sciences	0.4	0.8	12.4	6.7	20.3	0.2
Physical sciences	1.9	6.3	49.5	31.2	88.8	0.8
Chemical sciences	2.0	7.2	48.1	30.0	87.3	0.7
Earth sciences	5.2	8.8	90.2	103.2	207.4	1.4
Information, computers and communication sciences	2.5	9.7	66.7	38.2	117.1	1.0
Applied sciences and technologies	4.0	14.8	103.9	65.3	188.0	1.6
General engineering	7.2	13.4	101.9	58.0	180.5	1.4
Biological sciences	8.5	10.7	125.6	110.5	255.2	2.2
Agricultural sciences	19.4	21.9	321.7	300.8	663.8	6.2
Medical and health sciences	5.7	7.6	108.9	66.8	189.0	2.8
<i>Total natural sciences, technologies and engineering</i>	<i>56.8</i>	<i>101.1</i>	<i>1 028.9</i>	<i>810.5</i>	<i>1 997.3</i>	<i>18.1</i>
Social sciences and humanities						
Social sciences	0.8	1.6	45.4	23.8	71.6	0.8
Humanities	0.1	0.1	1.4	1.2	2.7	—
<i>Total social sciences and humanities</i>	<i>0.8</i>	<i>1.7</i>	<i>46.8</i>	<i>25.0</i>	<i>74.3</i>	<i>0.8</i>
<b>Total</b>	<b>57.6</b>	<b>102.8</b>	<b>1 075.8</b>	<b>835.4</b>	<b>2 071.6</b>	<b>18.9</b>

Source: Research and Experimental Development, Government and Private Non-profit Organisations, Australia (8109.0).

In terms of socioeconomic objectives (table 25.10), most government sector R&D expenditure (\$1,139m or 55%) was directed towards Economic development. Of this, \$353m (31%) was directed towards Plant production and primary products, \$237m (21%) towards Animal production and primary products and \$237m (21%) towards Manufacturing.

About 21% was directed towards Environment, 11% towards Society, 10% towards Defence, and 3% to Advancement of knowledge.

A slightly different pattern applied to human resources devoted to R&D, with 51% directed towards Economic development, 18% towards Environment, 18% towards Society, 10% towards Defence, and 3% to Advancement of knowledge.

**25.10 GOVERNMENT ORGANISATIONS, R&D Resources by Socioeconomic Objective — 1998–99**

	Type of expenditure					Human resources '000 person years
	Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total	
Socioeconomic objective	\$m	\$m	\$m	\$m	\$m	
Defence	0.1	18.5	126.9	59.5	205.1	1.9
Economic development						
Plant — production and primary products	10.0	11.9	167.1	163.8	352.8	3.2
Animal — production and primary products	8.8	8.4	114.3	105.9	237.4	2.2
Mineral resources (excl. energy)	1.5	3.7	29.1	25.1	59.4	0.4
Energy resources	0.9	2.7	23.1	32.6	59.3	0.3
Energy supply	0.5	1.8	8.8	4.9	16.0	0.1
Manufacturing	9.0	13.5	125.0	89.2	236.7	1.9
Construction	0.9	3.2	21.9	12.5	38.4	0.3
Transport	3.3	0.2	10.8	4.4	18.6	0.1
Information and communication services	2.4	3.4	36.9	26.3	69.1	0.5
Commercial services	0.3	1.5	6.3	5.0	13.1	0.1
Economic framework	0.6	1.5	22.5	13.9	38.6	0.4
Total economic development	38.2	51.8	565.7	483.8	1 139.4	9.6
Society						
Health	4.6	9.4	112.8	70.5	197.2	2.9
Education and training	0.2	0.2	6.1	1.8	8.3	0.1
Social development and community services	0.2	1.0	21.2	9.9	32.2	0.4
Total society	5.0	10.6	140.0	82.2	237.8	3.4
Environment						
Environmental knowledge	8.2	13.7	141.4	128.2	291.6	2.2
Environmental aspects of economic development	3.2	3.3	30.8	21.1	58.3	0.5
Environmental management and other aspects	1.3	2.7	38.5	36.4	78.9	0.7
Total environment	12.7	19.7	210.7	185.6	428.7	3.4
Advancement of knowledge						
Natural sciences, technologies and engineering	1.4	2.1	31.1	23.3	57.9	0.6
Social sciences and humanities	0.2	0.1	1.5	1.1	2.8	—
Total advancement of knowledge	1.6	2.2	32.5	24.3	60.7	0.7
<b>Total</b>	<b>57.6</b>	<b>102.8</b>	<b>1 075.8</b>	<b>835.4</b>	<b>2 071.6</b>	<b>18.9</b>

Source: *Research and Experimental Development, Government and Private Non-profit Organisations, Australia* (8109.0).

## R&D expenditure — Higher education sector

Estimated expenditure on R&D carried out in Australia by the higher education sector in 1998 was \$2,603m, an increase of 13% over expenditure in 1996, and 28% over expenditure in 1995 (see table 25.1).

Table 25.11 shows that the fields of research in which most higher education R&D expenditure took place in 1998 were Medical and health

sciences (\$592m, or 23% of total expenditure), Social sciences (\$507m, or 19%), Biological sciences (\$312m, or 12%) and the Humanities (\$198m, or 8%). Direct labour costs accounted for 47% of total R&D expenditure.

A slightly different pattern applied to human resources devoted to R&D, with 24% on the Social sciences, 19% on Medical and health sciences, 12% on the Humanities and 11% on Biological sciences.

**25.11 HIGHER EDUCATION ORGANISATIONS, R&D Resources by Field of Research — 1998**

Field of research	\$m	\$m	\$m	\$m	\$m	\$m	Type of expenditure
							Human resources '000 person years
Natural sciences, technologies and engineering							
Mathematical sciences	0.2	2.3	31.9	3.0	25.6	63.1	1.0
Physical sciences	1.8	10.3	46.3	3.9	44.2	106.5	1.4
Chemical sciences	1.7	12.2	50.2	8.6	48.3	121.0	1.9
Earth sciences	1.2	8.6	50.1	6.2	46.9	113.0	1.9
Information, computers and communication technologies	1.3	10.8	65.7	8.5	52.9	139.2	2.3
Applied sciences and technologies	1.3	10.5	42.2	7.5	37.3	98.8	1.7
General engineering	2.8	14.7	80.8	12.9	71.0	182.3	2.8
Biological sciences	5.5	22.6	135.6	16.6	131.6	311.8	4.9
Agricultural sciences	1.5	8.4	70.5	10.8	79.5	170.7	2.7
Medical and health sciences	6.1	27.6	277.7	23.4	257.6	592.4	8.5
<i>Total natural sciences, technologies and engineering</i>	<i>23.4</i>	<i>128.1</i>	<i>851.0</i>	<i>101.2</i>	<i>795.0</i>	<i>1 898.7</i>	<i>29.0</i>
Social sciences and humanities							
Social sciences	8.2	13.1	265.7	22.0	197.5	506.5	10.9
Humanities	3.2	4.3	102.5	15.9	71.6	197.5	5.6
<i>Total social sciences and humanities</i>	<i>11.4</i>	<i>17.4</i>	<i>368.2</i>	<i>37.9</i>	<i>269.1</i>	<i>704.0</i>	<i>16.5</i>
<b>Total</b>	<b>34.8</b>	<b>145.5</b>	<b>1 219.3</b>	<b>139.1</b>	<b>1 064.1</b>	<b>2 602.7</b>	<b>45.5</b>

Source: Research and Experimental Development, Higher Education Organisations, Australia (8111.0).

In terms of socioeconomic objectives (table 25.12), most higher education R&D expenditure (\$1,094m or 42%) was directed towards Advancement of knowledge. About 27% was directed towards Society, 23% towards Economic development, and 7% towards Environment. The major subdivision within Society was Health with 19% of total R&D expenditure.

A similar pattern applied to human resources devoted to R&D, with 45% directed towards Advancement of knowledge, 26% towards Society, 22% towards Economic development, and 7% to Environment.

**25.12 HIGHER EDUCATION ORGANISATIONS, R&D Resources by Socioeconomic Objective — 1998**

Socioeconomic objective	\$m	\$m	\$m	\$m	\$m	\$m	Type of expenditure
							Human resources '000 person years
Defence	—	0.3	2.7	0.2	2.5	5.8	0.1
Economic development							
Plant — production and primary products	0.9	4.6	38.2	5.2	45.3	94.2	1.4
Animal — production and primary products	0.5	2.6	27.1	4.1	30.4	64.7	1.0
Mineral resources (excl. energy)	0.3	2.2	13.2	2.0	16.1	33.7	0.4
Energy resources	0.1	1.5	6.8	1.0	6.9	16.3	0.3
Energy supply	—	1.3	10.4	1.5	8.8	22.0	0.3
Manufacturing	1.8	11.6	49.4	8.4	45.8	117.0	1.8
Construction	1.3	2.3	19.9	2.6	13.6	39.7	0.7
Transport	0.2	1.3	7.0	1.0	5.6	15.1	0.3
Information and communication services	0.7	3.3	32.2	3.4	25.0	64.6	1.1
Commercial services	0.7	0.6	14.8	1.2	10.3	27.6	0.4
Economic framework	1.4	2.9	57.3	4.9	42.7	109.2	2.2
Total economic development	7.9	34.2	276.2	35.2	250.5	604.0	10.0
Society							
Health	4.9	18.6	243.7	20.3	219.3	506.7	7.3
Education and training	1.5	2.9	58.2	4.2	41.4	108.3	2.6
Social development and community services	1.8	2.5	48.0	3.1	40.0	95.3	1.8
Total society	8.2	24.0	349.9	27.6	300.6	710.2	11.8
Environment							
Environmental knowledge	2.1	6.9	53.9	6.0	51.1	119.9	2.1
Environmental aspects of economic development	0.5	1.5	16.1	2.3	13.9	34.2	0.6
Environmental management and other aspects	0.5	1.4	15.5	1.9	15.1	34.4	0.6
Total environment	3.1	9.8	85.5	10.1	80.1	188.5	3.3
Advancement of knowledge							
Natural sciences, technologies and engineering	10.7	69.0	338.1	43.1	312.2	773.1	11.9
Social sciences and humanities	5.0	8.1	166.9	22.9	118.2	321.0	8.5
Total advancement of knowledge	15.6	77.1	505.0	66.0	430.4	1 094.1	20.4
<b>Total</b>	<b>34.8</b>	<b>145.5</b>	<b>1 219.3</b>	<b>139.1</b>	<b>1 064.1</b>	<b>2 602.7</b>	<b>45.5</b>

Source: Research and Experimental Development, Higher Education Organisations, Australia (8111.0).

### R&D expenditure — Private non-profit sector

Expenditure on R&D carried out by private non-profit organisations in 1998–99 (\$184m) increased by 6% (see table 25.1) over 1996–97 expenditure.

Medical and health sciences comprised the major field of research for R&D expenditure in the private non-profit sector, accounting for

\$126m (68%) of the sector's total R&D expenditure in 1998–99. Labour costs continued to be the main component of R&D expenditure (50%) (table 25.13).

Medical and health sciences also comprised the leading field of research in terms of human resource use.

**25.13 PRIVATE NON-PROFIT ORGANISATIONS, R&D Resources by Field of Research — 1998–99**

Field of research	\$m	Type of expenditure				
		Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total
Field of research	\$m	\$m	\$m	\$m	\$m	person years
Natural sciences, technologies and engineering						
Mathematical sciences	—	—	—	—	—	—
Physical sciences	—	—	0.6	0.3	1.0	12
Chemical sciences	—	0.1	0.7	0.4	1.2	14
Earth sciences	—	—	—	—	—	1
Information, computers and communication technologies	—	—	0.4	0.1	0.5	4
Applied sciences and technologies	—	—	0.1	—	0.1	2
General engineering	—	—	0.2	—	0.2	3
Biological sciences	0.7	3.1	21.4	15.9	41.2	482
Agricultural sciences	—	—	0.3	0.2	0.5	5
Medical and health sciences	2.6	11.3	63.5	48.6	125.9	1 455
<i>Total natural sciences, technologies and engineering</i>	3.4	14.6	87.1	65.6	170.7	1 978
Social sciences and humanities						
Social sciences	0.1	0.2	5.0	7.8	13.1	89
Humanities	—	—	0.1	0.0	0.1	1
<i>Total social sciences and humanities</i>	0.1	0.2	5.1	7.8	13.2	90
<b>Total</b>	<b>3.5</b>	<b>14.8</b>	<b>92.2</b>	<b>73.5</b>	<b>183.9</b>	<b>2 068</b>

Source: *Research and Experimental Development, Government and Private Non-profit Organisations, Australia* (8109.0).

In the private non-profit sector, Health was the main socioeconomic objective (table 25.14), accounting for 85% or \$156m of total R&D expenditure. Education and training accounted for \$13m (7%), while \$8m (4%) was directed towards Advancement of knowledge.

A similar pattern applied to human resources devoted to R&D, with 87% directed towards Health, 5% towards Education and training, and 4% towards Advancement of knowledge.

**25.14 PRIVATE NON-PROFIT ORGANISATIONS, R&D Resources by Socioeconomic Objective — 1998–99**

Socioeconomic objective	\$m	Type of expenditure				
		Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total
Socioeconomic objective	\$m	\$m	\$m	\$m	\$m	person years
Defence	—	—	—	—	—	—
Economic development	0.3	0.5	1.4	1.5	3.7	26
Society						
Health	2.9	13.4	79.5	59.8	155.6	1 809
Education and training	0.2	0.4	5.0	7.3	12.9	95
Social development and community services	—	—	0.9	1.0	1.9	17
<i>Total society</i>	3.1	13.8	85.4	68.1	170.4	1 921
Environment	—	—	1.4	0.7	2.2	34
Advancement of knowledge	0.1	0.4	4.0	3.2	7.6	88
<b>Total</b>	<b>3.5</b>	<b>14.8</b>	<b>92.2</b>	<b>73.5</b>	<b>183.9</b>	<b>2 068</b>

Source: *Research and Experimental Development, Government and Private Non-profit Organisations, Australia* (8109.0).

## Innovation statistics

Innovation is a measure of the extent to which science and technology are used within businesses to create new products or to implement new processes for the provision of goods and services. Innovation surveys provide a wider measure of the innovation process than R&D surveys.

The ABS has conducted two surveys of innovation, the first in respect of 1993–94 and a second, more comprehensive survey, in respect of 1996–97. These surveys were based on the concepts and standard questions developed jointly by the OECD and Eurostat (the statistical office for the European community). While the main ABS innovation surveys obtained data from manufacturing businesses, exploratory surveys have also been conducted for the mining, agriculture, construction and telecommunications industries.

The statistics which follow present some of the main findings from the ABS innovation surveys of manufacturing businesses only. The data include the proportion of businesses which innovate, the reasons why businesses innovate and the costs involved. The data are presented by business size, where small businesses are defined as those having fewer than 20 employees, medium sized businesses as those having 20 to 199 employees, and large businesses as those having 200 or more employees. The survey results relate only to businesses with employees.

As can be seen in table 25.15, just over a quarter of all manufacturing businesses were identified as undertaking technological innovation in 1996–97. The rate of technological innovation had a strong

relationship with size of business.

Large businesses were over three times more likely to undertake technological innovation than small businesses.

Of businesses which undertook technological innovation, over half undertook both product and process innovation (i.e. they introduced new, or significantly technologically changed products and used new, or significantly technologically changed processes to produce their products). Only 3% of businesses introduced new processes without introducing new products. Over 8% of businesses introduced new products without using new processes.

In 1996–97, the rate of technological innovation was lower than in 1993–94, when almost one-third of manufacturing businesses undertook technological innovation. This decline was largely due to the drop in the rate of small businesses undertaking technological innovation from 28% in 1993–94 to 22% in 1996–97.

Even though only just over a quarter of manufacturing businesses undertook technological innovation, because of the higher proportion of larger businesses, innovative businesses in total contributed about two-thirds of the total employment and three-quarters of the total turnover of all manufacturing businesses.

Almost two-thirds of large businesses had staff dedicated to innovation work, while less than one-quarter of small businesses had staff dedicated to this work. Large businesses were almost three times more likely than small businesses to take staff off-line to undertake innovation work.

**25.15 MANUFACTURING BUSINESSES, Proportion Undertaking Technological Innovation by Business Size — 1996–97**

	Technological innovation			
	Product only	Process only	Product and process	Total
Business size	%	%	%	%
Small(a)	7.7	2.6	11.3	21.6
Medium(b)	11.3	5.9	37.7	55.0
Large(c)	10.4	5.8	64.0	80.2
<b>All</b>	<b>8.1</b>	<b>3.0</b>	<b>14.8</b>	<b>26.0</b>

(a) Fewer than 20 employees. (b) 20 to 1999 employees. (c) 200 or more employees.

Source: *Innovation in Manufacturing, Australia* (8116.0).

## Objectives of undertaking technological innovation

As table 25.16 shows, most businesses (around 90%) undertaking technological innovation rated 'reducing costs', 'maximising profits' and 'improving productivity' as important objectives of undertaking technological innovation. Most of the objectives listed in the table were considered important by a large majority of businesses.

## Costs of undertaking innovation

The total amount spent by manufacturing businesses on technological innovation during 1996–97 was estimated at \$3.9b. About half of this was spent on research and development (\$2.0b). A further \$1.1b was spent on tooling-up, industrial engineering and start up.

On average, businesses with expenditure on innovation activities spent \$296,100 on innovation, or \$6,300 per employee. As would be expected, expenditure on innovation increased with size of business; expenditure ranged from an average of \$61,000 for small businesses to \$4.1m for large businesses. The average innovation expenditure per employee showed the reverse trend, ranging from \$8,900 for small businesses to \$5,600 for large businesses. Similarly, the ratio of innovation expenditure to the total turnover of the business fell as size of business increased. In the case of small businesses undertaking innovation expenditure, 7% of their total turnover on average was spent on innovative activities, while large businesses spent only 2% of their total turnover on such activities (table 25.17).

**25.16 OBJECTIVES OF UNDERTAKING TECHNOLOGICAL INNOVATION — 1996–97**

Objective	Importance of the objective		
	Not applicable	Not important	Important
Reducing costs	4.1	3.9	92.0
Maximising profits	*4.4	*3.7	91.9
Improving productivity	6.2	4.7	89.2
Responsiveness to customers	6.0	6.3	87.7
Improving quality/speed of service	6.9	5.5	87.6
Increasing market share	7.3	8.1	84.6
Being at industry forefront	11.7	8.3	79.9
Expanding product range	10.7	10.3	79.1
Improving staff safety/working conditions	11.2	10.1	78.7
Establishing a new market	10.8	11.5	77.7
Being environmentally aware	16.0	14.4	69.6
Meeting Government standards/regulations	13.4	17.2	69.5
Seeking/expanding export opportunities	31.8	17.7	50.6

Source: *Innovation in Manufacturing, Australia* (8116.0).

**25.17 COSTS OF UNDERTAKING TECHNOLOGICAL INNOVATION(a) — 1996–97**

Business size	Turnover per employee	Innovation costs per employee	Innovation costs as a proportion of turnover	%
	\$'000	\$'000		
Small(b)	132	9	7	
Medium(c)	185	7	4	
Large(d)	266	6	2	
<b>All</b>	<b>238</b>	<b>6</b>	<b>3</b>	

(a) Restricted to businesses with innovation expenditure. (b) Fewer than 20 employees. (c) 20 to 1999 employees.  
(d) 200 or more employees.

Source: *Innovation in Manufacturing, Australia* (8116.0).

## Official organisations and administration

There are many organisations in Australia concerned in some way with the development of science and innovation.

The Commonwealth Government's commitment to science and innovation is reflected in the functions of the Department of Industry, Science and Resources. The Department is concerned with the development and maintenance of Australia's scientific and innovative capability.

A number of other Commonwealth Government organisations either support or carry out science and innovation related activities.

State Governments are also involved in science and innovation through State government departments, science and technology councils and other organisations. Non-government organisations participating in scientific and innovative activities include higher education institutions, professional and learned bodies, private organisations and industry groups.

## Department of Industry, Science and Resources

The Department of Industry, Science and Resources is responsible for the majority of federally supported science and technology related industry development programs.

The Department includes the Innovation and Science Division, the Australian Geological Survey Organisation, IP Australia and the Office of AusIndustry, including the Industry Research and Development Board (IRDB) programs.

The Innovation and Science Division, comprising the Science and Technology Policy Branch, the International Science and Technology Policy Branch, the Innovation Policy Branch and the Science and Technology Advisory Team, is responsible for science and technology strategy, policy, analysis and awareness. It is responsible, *inter alia*, for the preparation of the annual *Science and Technology Budget Statement*.

The Department, through AusIndustry, administers the Tax Concession for Research and Development scheme, the Strategic Assistance for Research and Development (START) Program and the Cooperative Research Centres Program. The scientific and technological bodies of the portfolio include the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Australian Nuclear Science and Technology Organisation and the Australian Institute of Marine Science.

## R&D Tax Concession Program

The tax concession for R&D, which commenced from July 1985, is the focus of one of the major programs in the Commonwealth Government's package of measures to encourage R&D in Australia.

The concession allows companies incorporated in Australia, public trading trusts and partnerships of eligible companies, to deduct up to 125% of eligible expenditure on R&D activities when lodging their corporate tax returns.

To attract the tax concession deduction, annual eligible R&D expenditure must exceed \$20,000. Where R&D is contracted to either an approved Registered Research Agency or a Cooperative Research Centre this expenditure threshold is waived.

The R&D tax concession has been enhanced as a result of the Commonwealth Government's 'Backing Australia's Ability' innovation statement. The new R&D tax concession incorporates the following elements:

- The 175% premium R&D tax concession which will be provided in addition to the 125% R&D tax concession, and rewards increases in R&D effort. It allows companies, in their corporate tax returns, to deduct up to 175% of the eligible expenditure incurred on additional R&D activities. To be eligible, companies must have increased their R&D intensity (R&D expenditure divided by turnover) during the year above a base level, which will be determined by their claim histories over the preceding three tax years.
- The R&D tax rebate which allows small companies, particularly tax loss companies, to obtain the cash equivalent of the 125% R&D tax concession and, where eligible, to claim the 175% premium R&D tax concession when their tax liabilities are assessed.
- Changes to the treatment of R&D plant which will allow users of the program to claim the full value of the plant or tangible items consumed in or associated with R&D activities. This means that companies which use an item of plant for only part of an income year for R&D will now be able to claim the concession for that portion of use.
- Changes to the definition of R&D so that, for claims to be eligible, R&D activities must involve both 'innovation' and 'high levels of technical risk'.

### **Strategic Assistance for Research and Development Program**

The R&D START Program provides grants and concessional loans to support research, development and commercialisation by Australian firms. Grants of up to \$15m are available, although they typically range between \$50,000 and \$5m. Assistance is provided on a competitive basis to companies incorporated in Australia. The program aims to:

- increase the number of private sector R&D projects undertaken with high commercial potential;
- foster innovation in Australian businesses;
- increase commercialisation of the outcomes of R&D projects; and
- foster collaborative R&D and related activities, both within industry and between industry and research institutions.

The program comprises:

- Core Start, for companies with turnover under \$50 million a year;
- Start Plus, for companies with turnover over \$50 million a year;
- Start Premium, providing further assistance for high quality projects;
- Start Graduate, to help companies with turnover under \$50m employ a graduate on a R&D project; and
- Concessional Loans, for small companies with less than 100 employees.

### **Commonwealth Scientific and Industrial Research Organisation**

The CSIRO was established as an independent statutory authority by the *Science and Industry Research Act 1949*, which has been amended on a number of occasions since then. Its primary role is as an applications-oriented research organisation in support of major industry sectors and selected areas of community interest, with a

strong commitment to the effective transfer of its results to users.

Briefly, the CSIRO's primary statutory functions are to:

- carry out scientific research for the benefit of Australian industry, the community, national objectives, national or international responsibilities, or for any other purpose determined by the Minister; and
- encourage or facilitate the application or utilisation of the results of such research.

Other functions include dissemination and publication of scientific information, international liaison in scientific matters, and provision of services and facilities.

The CSIRO's work is planned and prioritised on a sectoral basis and conducted through core business units — CSIRO Divisions. External advice on research priorities is channelled through Sector Advisory Committees. Each sector represents an industry group, market, or natural resource of national significance. There are 22 sectors covering research in five broad groupings:

- *Agribusiness* — field crops; food processing; forestry, wood and paper industries; horticulture; meat, dairy and aquaculture; wool and textiles.
- *Environment and Natural Resources* — biodiversity; climate and atmosphere; land and water; marine.
- *Information Technology, Infrastructure and Services* — information technology and telecommunications; built environment; measurement standards; radio astronomy; services.
- *Manufacturing* — chemicals and plastics; integrated manufactured products; pharmaceuticals and human health.
- *Minerals and Energy* — coal and energy; mineral exploration and mining; mineral processing and metal production; petroleum.

## Bibliography

### ABS publications

*Innovation in Manufacturing, Australia* (8116.0).

*Research and Experimental Development, All Sector Summary, Australia* (8112.0).

*Research and Experimental Development, Businesses, Australia* (8104.0).

*Research and Experimental Development, Government and Private Non-profit Organisations, Australia* (8109.0).

*Research and Experimental Development, Higher Education Organisations, Australia* (8111.0).

### Other publications

OECD, *Main Science and Technology Indicators, 2001–I*, Paris, 2001.

### Additional information

Additional information on topics presented in this chapter may be found in the annual reports of the organisations mentioned, particularly the Department of Industry, Science and Resources and the CSIRO, and in the annual Science and Technology Statements. Further statistical information on higher education is obtainable from the Department of Education, Training and Youth Affairs.

The then Department of Industry, Science and Tourism's *Australian Business Innovation, 1996* uses science and technology indicators to give a good overview and analysis of science and technology information in Australia. It presents information on business innovation, an R&D related view of trade in manufacturing, diffusion of advanced manufacturing technologies, patents, business sector R&D and bibliometrics.

Additional information on some technology related issues, particularly on the use of information technology, may be found in *Chapter 24, Communications and information technology*.

### Internet sites

Australian Bureau of Statistics, <http://www.abs.gov.au>

- A *Science and Innovation* theme page may be found under the category *Themes*.

Commonwealth Scientific and Industrial Research Organisation, <http://www.csiro.au>

Department of Industry, Science and Resources, <http://www.isr.gov.au>

- The Science and Technology Budget Statement 2001–2002 may be found at <http://www.isr.gov.au/science/analysis/budget2001/index.html>

Organisation for Economic Co-operation and Development, <http://www.oecd.org>

- A summary of the *Frascati Manual*, the basic international source of methodology for collecting and using research and development statistics, can be found at <http://www.oecd.org/dsti/sti/stat-ana/prod>

# R&D in the Information and Communications Technologies industries

## Introduction

This article looks at Research and Experimental Development (R&D) in the fast growing area of Information and Communications Technologies (ICT). R&D is examined in two ways, first, in terms of ICT-related fields of research in each of the four broad institutional sectors (see below) for which R&D is measured; and second in terms of the R&D undertaken by the ICT industries.

The ABS conducts annual R&D surveys of the Business sector; the Government, Higher education and Private non-profit sectors are surveyed every two years. The surveys collect a range of data relating to expenditure on R&D activities and the human resources devoted to R&D. The article examines ICT-related R&D in the Business sector for the four years 1996–97 to 1999–2000, in the Government sector and the Private non-profit sector for 1996–97 and 1998–99, and in the Higher education sector for the calendar years 1996 and 1998.

More detailed statistics on the supply of ICT goods and services by the ICT industries and the demand for these products across all sectors of the economy are provided in *Chapter 24, Communications and information technology*.

## Defining ICT Research and Experimental Development

The ABS uses Australian standard classifications, which are based on international classifications, to define R&D in terms of fields of research and industry sector.

### Fields of research

A Field of Research (FOR) classification was included in the 1993 edition of the *Australian Standard Research Classification (ASRC)*. This classification was used to classify R&D activity for the years 1996–97 to 1998–99. In the 1998 edition of the ASRC, the classification was revised and

renamed the *Research Fields, Courses and Disciplines (RFCD)* classification. The RFCD classification was used for the 1999–2000 Business sector survey. This new classification will also be adopted for future surveys of the Government, Private non-profit and Higher education sectors.

When looking at ICT R&D, the relevant Field of Research category is Subdivision 050000 Information, computer and communication technologies. In the RFCD classification, this category has been split into Subdivision 280000 Information, computing and communication sciences, Discipline 291600 Computer hardware and Discipline 291700 Communications technologies.

### The ICT industry sector

The ICT industry sector comprises that part of the economy which produces information and telecommunications goods and services. It does not constitute a defined industry Division in the *Australian and New Zealand Standard Industrial Classification (ANZSIC)*. It covers part of the Communication Services Division, but encompasses other industries as well. The ICT sector in Australia includes telecommunication services, computer services, and selected manufacturing and wholesale trade industries.

The following ANZSIC industries have been identified as comprising the ICT sector:

- Class 2430 Recorded media manufacturing and publishing;
- Class 2839 Professional and scientific equipment manufacturing n.e.c.;
- Group 284 Electronic equipment manufacturing;
- Class 2852 Electric cable and wire manufacturing;
- Class 4613 Computer wholesaling;

- Class 4614 Business machine wholesaling n.e.c.;
- Class 4615 Electrical and electronic equipment wholesaling n.e.c.;
- Class 7120 Telecommunication services; and
- Group 783 Computer services.

## R&D undertaken in ICT fields of research

Across all R&D sectors (Business, Government, Higher education and Private non-profit), the ICT Field of Research disciplines accounted for R&D expenditure of \$1.6b during 1998–99 (table S5.1), 18.5% of total R&D expenditure of \$8.9b. Expenditure on ICT disciplines during 1998–99 was up 6.9% in current price terms over 1996–97 levels, a growth rate well above the average growth recorded across all disciplines; the latter was only slightly up (1.5%) from the level recorded two years earlier.

The Business sector dominated ICT R&D, accounting for \$1.4b or 84% of the total; the Higher education sector accounted for 8% and the Government sector 7%. The Private non-profit sector's ICT R&D expenditure was negligible.

Other key findings are:

- Although ICT R&D expenditure increased between 1996–97 and 1998–99, in terms of level and proportion of total R&D expenditure,

it did not quite keep pace with the growth in Gross Domestic Product (GDP). In 1998–99, ICT R&D expenditure accounted for 0.28% of GDP, compared with 0.29% in 1996–97 (table S5.2).

- ICT R&D was a significant R&D activity of the Business sector, making up 34% of total R&D expenditure by that sector in 1998–99. In contrast, ICT R&D only accounted for 6% and 5% respectively of total R&D expenditure by the Government and Higher education sectors in 1998–99.
- There were 12,854 person years in human resources devoted to ICT R&D in 1998–99, with the Business sector accounting for 9,552 person years or 74%, the Higher education sector accounting for 18% and the Government sector 7%.
- Of the \$1,649m spent on ICT R&D in 1998–99, \$618m (37%) was in the Computer software field, \$492m (30%) in the Communication technologies field and \$327m (20%) in the field of Information systems and technologies (table S5.3).
- The fields of Computer software and Communication technologies were the major fields for expenditure by the Business sector; for both the Government and Higher education sectors the major field was Information systems and technologies (table S5.4).

**S5.1 R&D IN ICT FIELDS OF RESEARCH, By Sector — 1996–97 and 1998–99**

Sector	Expenditure		Human resources	
	1996–97 \$m	1998–99 \$m	1996–97 person years	1998–99 person years
Business	1 224.2	1 392.6	10 055	9 552
Government	178.4	117.1	1 541	954
Higher education(a)	139.3	139.2	2 418	2 345
Private non-profit	0.7	0.5	7	3
<b>Total</b>	<b>1 542.6</b>	<b>1 649.4</b>	<b>14 022</b>	<b>12 854</b>

(a) Data for the calendar year ending within the financial year shown.

Source: ABS data available on request, Survey of Research and Experimental Development.

**S5.2 R&D EXPENDITURE IN ICT FIELDS OF RESEARCH, Proportion of Sector R&D Expenditure and of GDP — 1996–97 and 1998–99**

Sector	Proportion of Sector R&D expenditure		Proportion of GDP	
	1996–97	1998–99	1996–97	1998–99
Business	28.9	34.2	0.23	0.23
Government	8.6	5.7	0.03	0.02
Higher education(a)	6.0	5.3	0.03	0.02
Private non-profit	0.4	0.3	—	—
<b>Total</b>	<b>17.5</b>	<b>18.5</b>	<b>0.29</b>	<b>0.28</b>

(a) Data for the calendar year ending within the financial year shown.

Source: ABS data available on request, Survey of Research and Experimental Development.

**S5.3 R&D IN ICT FIELDS OF RESEARCH, By Field — 1996–97 and 1998–99**

Field of research	Expenditure		Human resources	
	1996–97	1998–99	1996–97	1998–99
Information systems and technologies	\$m	\$m	person years	person years
Computer hardware	357.0	326.8	3 805	2 970
Computer software	55.9	55.7	563	497
Communication technologies	504.7	617.9	4 974	5 813
Other information, computer and communication technologies	426.1	491.9	3 214	2 278
<b>Total ICT fields</b>	<b>1 542.6</b>	<b>1 649.4</b>	<b>14 022</b>	<b>12 854</b>

Source: ABS data available on request, Survey of Research and Experimental Development.

**S5.4 R&D IN ICT FIELDS OF RESEARCH, By Sector — 1998–99**

Field of research	Business	Government	Higher education(a)	Private non-profit	Total
	\$m	\$m	\$m	\$m	\$m
Information systems and technologies	216.8	54.7	55.2	—	326.8
Computer hardware	48.5	2.3	5.0	—	55.7
Computer software	582.2	13.2	22.5	—	617.9
Communication technologies	439.9	17.3	34.6	—	491.9
Other information, computer and communication technologies	105.2	29.5	21.9	0.5	157.1
<b>Total ICT fields</b>	<b>1 392.6</b>	<b>117.1</b>	<b>139.2</b>	<b>0.5</b>	<b>1 649.4</b>

(a) Data for the calendar year ending within the financial year shown.

Source: ABS data available on request, Survey of Research and Experimental Development.

## R&D undertaken by the ICT industry sector

As defined above, the ICT industry sector is a hybrid which encompasses ANZSIC classes from a number of the ANZSIC industry divisions. The data presented here are drawn from the ABS Business sector R&D surveys, which provide annual data for which the latest reference year is 1999–2000.

During 1999–2000, expenditure on R&D by the ICT sector was \$1,208m, almost 30% of the total Business sector R&D expenditure. In current price terms, this expenditure was 3% lower than the level recorded in 1998–99, but 7% higher than in 1997–98 (table S5.5).

**S5.5 R&D BY THE ICT INDUSTRIES — 1997–98 to 1999–2000**

Industry of business	Expenditure			Human resources		
	1997–98 1998–99 1999–2000			1997–98	1998–99	1999–2000
	\$m	\$m	\$m	person years	person years	person years
Recorded media manufacturing and publishing	10.1	9.9	11.1	123	112	139
Professional and scientific equipment manufacturing n.e.c.	53.2	52.8	61.2	527	521	599
Computer and business machine manufacturing	48.8	34.5	39.6	318	246	226
Telecommunication, broadcasting and transceiving equipment manufacturing	185.8	174.4	131.4	947	994	1 032
Electronic equipment manufacturing n.e.c.	112.3	120.1	95.3	897	1 000	903
Electric cable and wire manufacturing	11.9	2.8	5.8	39	25	36
Computer wholesaling	46.2	49.1	65.2	400	415	627
Business machine wholesaling n.e.c.	23.3	34.3	29.3	156	155	141
Electrical and electronic equipment wholesaling n.e.c.	143.6	148.4	144.5	1 072	923	852
Telecommunication services	125.2	196.9	115.3	97	101	77
Data processing services	31.9	21.0	18.4	289	202	167
Information storage and retrieval services	n.p.	3.7	n.p.	n.p.	19	n.p.
Computer maintenance services	n.p.	—	n.p.	n.p.	—	n.p.
Computer consultancy services	334.0	401.0	489.0	3 129	3 690	4 050
<b>Total ICT industries</b>	<b>1 129.0</b>	<b>1 248.8</b>	<b>1 208.0</b>	<b>8 024</b>	<b>8 402</b>	<b>8 869</b>

Source: ABS data available on request, Survey of Research and Experimental Development.

Of the \$1,208m expenditure on R&D in 1999–2000 by the ICT sector, \$959m (79%) was in the ICT fields of research, \$189m (16%) in Other engineering and technology fields and \$24m (2%) in the Physical sciences. Within the ICT research

fields, the major fields were Computer software (\$404m or 33%) and Communication technologies (\$324m or 27%) (table S5.6).

#### S5.6 R&D EXPENDITURE BY THE ICT INDUSTRIES, By Field of Research — 1999–2000

Industry of business	ICT fields						\$m
	Information systems	Artificial intelligence and signal and image processing	Computer software	Other information, computing and communication sciences	Computer hardware	Communication technologies	
Recorded media manufacturing and publishing	n.p.	—	7.0	n.p.	n.p.	—	8.9
Professional and scientific equipment manufacturing n.e.c.	n.p.	0.2	3.4	n.p.	0.5	0.1	4.9
Computer and business machine manufacturing	4.4	0.8	6.1	n.p.	2.7	n.p.	37.3
Telecommunication, broadcasting and transceiving equipment manufacturing	—	—	n.p.	3.2	n.p.	67.4	122.7
Electronic equipment manufacturing n.e.c.	2.0	0.2	31.3	2.8	5.1	12.9	54.3
Electric cable and wire manufacturing	—	—	n.p.	n.p.	—	n.p.	0.5
Computer wholesaling	n.p.	n.p.	15.8	n.p.	n.p.	n.p.	64.8
Business machine wholesaling n.e.c.	n.p.	—	n.p.	n.p.	—	—	21.8
Electrical and electronic equipment wholesaling n.e.c.	n.p.	—	n.p.	n.p.	n.p.	102.0	138.6
Telecommunication services	2.0	n.p.	4.3	n.p.	—	107.9	115.2
Data processing services	n.p.	n.p.	14.2	n.p.	—	n.p.	n.p.
Information storage and retrieval services	0.9	—	0.6	—	—	—	1.5
Computer maintenance services	—	—	n.p.	—	—	—	n.p.
Computer consultancy services	78.7	2.7	257.3	11.9	5.9	14.0	370.5
<b>Total ICT industries</b>	<b>121.7</b>	<b>8.4</b>	<b>404.3</b>	<b>81.9</b>	<b>18.7</b>	<b>324.2</b>	<b>959.1</b>

*continued...*

**S5.6 R&D EXPENDITURE BY THE ICT INDUSTRIES, By Field of Research — 1999–2000 — *continued***

	Other fields			
	Other engineering and technology	Physical sciences	Other fields	Total
Industry of business	\$m	\$m	\$m	\$m
Recorded media manufacturing and publishing	n.p.	—	n.p.	11.1
Professional and scientific equipment manufacturing n.e.c.	15.4	19.8	21.1	61.2
Computer and business machine manufacturing	2.3	—	—	39.6
Telecommunication, broadcasting and transceiving equipment manufacturing	n.p.	n.p.	—	131.4
Electronic equipment manufacturing n.e.c.	39.3	0.2	1.5	95.3
Electric cable and wire manufacturing	5.0	n.p.	n.p.	5.8
Computer wholesaling	0.3	—	—	65.2
Business machine wholesaling n.e.c.	n.p.	—	n.p.	29.3
Electrical and electronic equipment wholesaling n.e.c.	5.4	n.p.	n.p.	144.5
Telecommunication services	—	—	0.1	115.3
Data processing services	n.p.	—	n.p.	18.4
Information storage and retrieval services	n.p.	—	n.p.	n.p.
Computer maintenance services	—	—	—	n.p.
Computer consultancy services	n.p.	n.p.	11.3	489.0
<b>Total ICT industries</b>	<b>189.3</b>	<b>23.8</b>	<b>35.8</b>	<b>1 208.0</b>

Source: ABS data available on request, Survey of Research and Experimental Development.

The ICT industries' R&D expenditure in ICT fields of \$959m accounted for 70% of the \$1,366m total expenditure on R&D in ICT fields by the Business sector in 1999–2000 (table S5.7). The Finance and insurance industry accounted for 9%, the Technical services industry 4% and the Industrial machinery and equipment manufacturing industry 3%. Computer software was the largest Business sector ICT field of research (\$542m or 40%), followed by Communications technologies (\$356m or 26%) and Information systems (\$264m or 19%).

Other highlights include:

- There were 8,869 person years in human resources devoted to R&D by the ICT industries in 1999–2000; 6% higher than in 1998–99 and

11% higher than in 1997–98. In 1999–2000, the ICT industries accounted for 34% of the total human resources devoted to R&D by the Business sector.

- The Computer consultancy services industry spent \$489m on R&D (40% of R&D expenditure by the ICT industries in total) in 1999–2000. Significant R&D expenditure was also incurred by the Electrical and electronic equipment wholesaling n.e.c. industry (\$145m or 12%), the Telecommunication, broadcasting and transceiving equipment manufacturing industry (\$131m or 11%) and the Telecommunication services industry (\$115m or 10%).

**S5.7 BUSINESS SECTOR R&D EXPENDITURE IN ICT FIELDS OF RESEARCH, By Field and Industry — 1999–2000**

	ICT industries	Finance and insurance industry	Technical services industry	Industrial machinery and equipment manufacturing industry	Other industries	Total
Field of research	\$m	\$m	\$m	\$m	\$m	\$m
Information systems	121.7	52.8	n.p.	n.p.	61.0	264.0
Artificial intelligence and signal and image processing	8.4	—	n.p.	n.p.	8.8	19.7
Computer software	404.3	38.8	12.6	22.6	64.0	542.2
Other information, computing and communication sciences	81.9	n.p.	3.9	n.p.	33.5	146.2
Computer hardware	18.7	n.p.	n.p.	4.0	7.1	37.4
Communications technologies	324.2	—	n.p.	n.p.	12.5	356.1
<b>Total ICT fields</b>	<b>959.1</b>	<b>120.2</b>	<b>59.2</b>	<b>40.1</b>	<b>187.0</b>	<b>1 365.6</b>

Source: ABS data available on request, Survey of Research and Experimental Development.

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## Introduction

The financial system in Australia can be thought of as having three overlapping components. The first consists of financial enterprises (such as banks) and regulatory authorities, the Reserve Bank and the Australian Prudential Regulation Authority. The second consists of financial markets (for example, the bond market) and their participants (issuers such as governments, and investors such as superannuation funds). The third is the payments system — that is, the cash, cheque and electronic means by which payments are effected — and its participants (for example, banks). The interaction of these components enables funds for investment or consumption to be made available from savings in other parts of the national or international economy.

This chapter provides a summary of the structure and activities of the three financial system components as they function currently. However, the financial system can, and does, change its structure and activities as a result of regulation or deregulation processes.

## Regulation

From 1 July 1998 a new financial regulatory framework came into effect, in response to the recommendations of the Financial System Inquiry (the Wallis Committee). Under the new structure a single prudential supervisor, the Australian Prudential Regulation Authority (APRA) was established to take responsibility for the supervision of banks, life and general insurance companies and superannuation funds.

The Australian Securities and Investments Commission (ASIC) assumed responsibility for market integrity and consumer protection across the financial system. The Reserve Bank retained responsibility for monetary policy and the maintenance of financial stability, including stability of the payments system.

From 1 July 1999 building societies and credit unions have been supervised by APRA. APRA has supervised benefit funds of friendly societies under the *Life Insurance Act 1995*, while health benefit funds of friendly societies are regulated by the Private Health Insurance Administration Council under the *National Health Act 1959*. Prior to 1 July 1999, building societies, credit unions and friendly societies were regulated under State legislation.

On 1 July 2000 APRA transferred regulation of self-managed superannuation funds to the Australian Taxation Office (ATO).

From September 2001 the Financial Sector (Collection of Statistics) Act provided APRA with powers to collect statistics previously collected under the range of legislation for which it was responsible plus the Financial Corporations Act administered by the Reserve Bank. The new legislation enables harmonised and consistent data collection from financial institutions.

## Inter-sectoral financial flows

Diagram 26.1 provides an overview of the flows of capital through the financial system and summarises the end result of applying the current statistical framework. It illustrates the net financial flows between sectors during the year 2000–01. The arrows show the net flow from lenders to borrowers. For example, there is a \$6.8b net flow from households to the financial corporations sector. There is also an \$39.2b net flow from financial corporations to non-financial corporations. This is mainly attributable to increased loans by financial intermediaries and increased share purchases by financial institutions such as life offices.

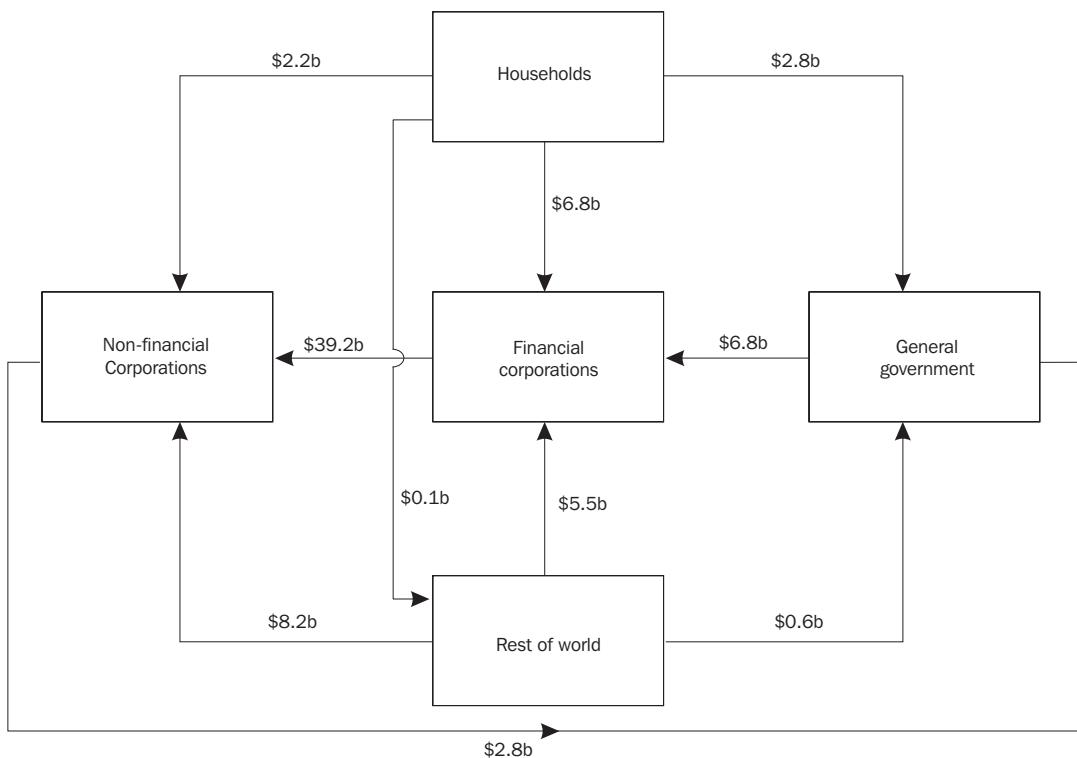
## Financial enterprises

Financial enterprises are institutions which engage in acquiring financial assets and incurring liabilities, for example, by taking deposits, borrowing and lending, providing superannuation, supplying all types of insurance cover, leasing, and investing in financial assets.

For national accounting purposes, financial enterprises are grouped into Depository corporations, Life insurance corporations, Pension funds, Other insurance corporations, Central borrowing authorities and Financial intermediaries not elsewhere classified.

*Depository corporations* are those included in the Reserve Bank of Australia's *broad money* measure (see *Money supply measures* later in the chapter). The Reserve Bank itself is a depository corporation; authorised depository institutions are those supervised by APRA and include banks, building societies and credit unions; non-supervised depository corporations registered under the Financial Corporations Act include merchant banks, pastoral finance companies, finance companies and general financiers; finally cash management trusts are also included in depository corporations.

## 26.1 INTER-SECTORAL FINANCIAL FLOWS DURING THE YEAR 2000–01



Note: The arrows show the direction of net financial flows from lending sectors to borrowing sectors. The number relating to each arrow indicates the value of that net flow during the period. Other claims are omitted from the diagram. For this reason, inter-sectoral borrowing does not equal inter-sectoral lending.

Source: Australian National Accounts: Financial Accounts (5232.0).

*Life insurance corporations* cover the statutory and shareholders' funds of life insurance companies and similar business undertaken by friendly societies and long-service-leave boards.

*Pension funds* cover separately constituted superannuation funds.

*Other insurance corporations* cover health, export and general insurance companies.

*Central borrowing authorities* are corporations set up by State and Territory Governments to provide liability and asset management services for those governments.

*Financial intermediaries n.e.c.* cover common funds, mortgage, fixed interest and equity unit trusts, issuers of asset-backed securities, economic development corporations and cooperative housing societies.

Table 26.2 shows the relative size of these groups of financial enterprises in terms of their financial assets. This table has been compiled on a consolidated basis, i.e. financial claims between institutions in the same grouping have been eliminated. The total is also consolidated, i.e. financial claims between the groupings have been eliminated. For this reason, and because there are a number of less significant adjustments made for national accounting purposes, the statistics in the summary table will differ from those presented later in this chapter and published elsewhere.

## Banks

Between 1940 and 1959, central banking business was the responsibility of the Commonwealth Bank. The *Reserve Bank Act 1959* established the Reserve Bank of Australia as the central bank, and from 1959 to 1998 the Reserve Bank was responsible for the supervision of commercial banks. From 1 July 1998, APRA assumed responsibility for bank supervision while the Reserve Bank retains responsibility for monetary policy and the maintenance of financial stability, including stability of the payments system.

Banks are the largest deposit-taking and financial institutions in Australia. At the end of June 2001 there were 50 banks operating in Australia.

All are authorised to operate by the *Banking Act 1959*. Four major banks: the Australia and New Zealand Banking Group, National Australia Bank, Westpac Banking Corporation and the Commonwealth Bank of Australia, account for over half the total assets of all banks.

These four banks provide widespread banking services and an extensive retail branch network throughout Australia. The remaining banks provide similar banking services through limited branch networks often located in particular regions. As at 30 June 2000, banks operated 5,003 branches of which 2,838 were in metropolitan areas and 2,165 elsewhere; and 5,043 agencies of which 2,091 were in metropolitan areas and 2,952 elsewhere. As at 30 June 2001, banking services were provided at 2,821 giroPost locations and 11,915 Automatic Teller Machines (ATM) throughout Australia.

The liabilities and financial assets of the Reserve Bank are set out in table 26.3. The liabilities and financial assets of the banks operating in Australia are shown in table 26.4.

**26.2 FINANCIAL INSTITUTIONS, Financial Assets**

	Depository corporations								<b>Consolidated financial sector total</b>
	Reserve Bank	Banks	Other	Life insurance corporations	Pension funds	Other insurance corporations	Central borrowing authorities	Financial intermediaries n.e.c.	
At 30 June	\$b	\$b	\$b	\$b	\$b	\$b	\$b	\$b	\$b
1996	35.6	474.1	145.0	123.8	208.5	45.9	100.2	98.1	<b>919.6</b>
1997	49.1	528.2	154.9	140.1	256.6	51.7	92.0	122.4	<b>1 029.0</b>
1998	45.1	581.5	170.6	157.5	297.3	60.7	95.5	165.3	<b>1 144.2</b>
1999	47.0	639.9	172.6	172.2	344.6	62.2	96.0	158.2	<b>1 218.3</b>
2000	51.1	723.9	190.7	191.4	416.5	71.0	91.3	213.2	<b>1 408.6</b>
2001	59.3	786.1	226.3	194.4	451.1	75.3	92.3	226.0	<b>1.505.7</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.3 RESERVE BANK OF AUSTRALIA, Financial Assets and Liabilities**

	Amounts outstanding at 30 June		
	1999	2000	2001
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Monetary gold and SDRs	1 101	1 374	1 564
Currency and deposits	10 896	9 969	12 020
One name paper	2 769	1 257	146
Bonds	30 719	36 858	43 957
Loans and placements	1 343	1 521	1 454
Other accounts receivable	129	125	137
<b>Total financial assets(a)</b>	<b>46 957</b>	<b>51 104</b>	<b>59 278</b>
<b>LIABILITIES</b>			
Currency and deposits	33 762	31 019	29 883
Unlisted shares and other equity(b)	10 913	10 446	12 265
Other accounts payable	3 459	4 354	3 515
<b>Total liabilities</b>	<b>48 134</b>	<b>45 819</b>	<b>45 663</b>

(a) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.). (b) Estimates based on net asset values.

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.4 BANKS(a), Financial Assets and Liabilities**

	Amounts outstanding at 30 June		
	1999	2000	2001
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	29 081	25 732	34 042
Acceptance of bills of exchange	69 736	75 825	78 469
One name paper	9 429	11 772	10 320
Bonds	21 600	22 299	24 455
Derivatives	19 645	25 475	31 503
Loans and placements	447 077	503 102	545 871
Equities	41 654	57 971	59 825
Prepayments of premiums and reserves	1 353	1 478	1 517
Other accounts receivable	342	222	90
<b>Total financial assets(b)</b>	<b>639 917</b>	<b>723 876</b>	<b>786 092</b>
<b>LIABILITIES</b>			
Currency and deposits	318 424	337 403	379 721
Acceptance of bills of exchange	53 719	54 302	51 892
One name paper	88 181	101 209	106 333
Bonds	58 346	72 595	85 391
Derivatives	23 448	26 380	27 043
Loans and placements	20 532	34 904	34 354
Equity	106 515	132 903	168 498
Other accounts payable	6 180	1 023	1 690
<b>Total liabilities</b>	<b>675 345</b>	<b>760 719</b>	<b>854 922</b>

(a) Does not include the Reserve Bank of Australia. (b) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.).

Source: Australian National Accounts: Financial Accounts (5232.0).

## Other depository corporations

In addition to banks, financial institutions such as building societies, credit unions and merchant banks play an important part in the Australian financial system. In the Australian Financial Accounts, Other depository institutions are defined as those with liabilities included in the Reserve Bank's definition of *broad money*. Non-bank institutions included in broad money are Other authorised depository institutions (building societies and credit cooperatives), corporations registered under the *Financial Corporations Act 1974* in categories D (money market corporations), E (pastoral finance companies), F (finance companies) and G (general financiers), and cash management trusts.

Table 26.5 shows the total assets of each category of non-bank deposit-taking institution.

There are seven categories of other depository corporations.

*Permanent building societies* are usually organised as financial cooperatives. They are authorised to accept money on deposit. They provide finance principally in the form of housing loans to their members.

*Credit cooperatives* — also known as credit unions — are similar to building societies. As their name implies, they are organised as financial cooperatives which borrow from and provide finance to their members. Credit cooperatives mainly lend for purposes other than housing.

Supervision of building societies and credit cooperatives was transferred to APRA on 1 July 1999, and from 1 July 2000 these institutions are no longer subject to the *Financial Corporations Act 1974*.

*Money market corporations* are similar to wholesale banks and for this reason they are often referred to as merchant or investment banks. They have substantial short-term borrowings which they use to fund business loans and investments in debt securities. They are registered as category D financial corporations under the *Financial Corporations Act 1974*.

*Pastoral finance companies* incur liabilities to lend to rural producers. They are category E financial corporations. *Finance companies* (category F financial corporations) borrow mainly on financial markets, for example by issuing debentures. They lend these funds to both businesses and persons. Their lending to businesses is sometimes called commercial lending and covers, for example, financial leasing of vehicle fleets. Their lending to persons is often in the form of instalment credit to finance retail sales by others. In contrast with finance companies, *general financiers* (category G financial corporations) are funded by their parent or another member of their company group. Typically they lend to corporate customers who buy products produced by member companies of their group. For example, a general financier within a motor vehicle manufacturing group will lend to the group's dealers to finance their inventory of vehicles.

*Cash management trusts* are investment funds which are open to the public. They invest the pooled monies of their unit holders mainly in money-market securities such as bills of exchange and bank certificates of deposit. As with other public unit trusts their operations are governed by a trust deed and their units are redeemable by the trustee on demand or within a short time. They are not subject to supervision by APRA or registered under the *Financial Corporations Act 1974*.

**26.5 OTHER DEPOSITORY CORPORATIONS, Total Assets**

	Amounts outstanding at 30 June		
	1999	2000	2001
	\$m	\$m	\$m
Permanent building societies	12 875	12 723	13 073
Credit cooperatives	19 995	21 509	23 945
Money market corporations	60 860	63 703	81 248
Pastoral finance companies	4 039	5 922	10 357
Finance companies	47 173	44 272	47 869
General financiers	18 290	20 660	24 235
Cash management trusts	21 531	24 776	28 693
<b>Total</b>	<b>184 763</b>	<b>193 565</b>	<b>229 420</b>

Source: Australian Financial Institutions Commission; APRA; Reserve Bank of Australia; ABS: Managed Funds, Australia (5655.0).

## Life insurance corporations

Life insurance corporations offer termination insurance and investment policies.

Termination insurance includes the payment of a sum of money on the death of the insured or on the insured receiving a permanent disability. Investment products include annuities and superannuation plans. The life insurance industry in Australia consists of 42 direct insurers, including six reinsurers. As with the banking industry, the life insurance industry is dominated by a few very large companies holding a majority of the industry's assets.

Life insurance companies are supervised by the APRA under the *Life Insurance Act 1995*.

Table 26.6 shows the financial assets and liabilities arising from both policyholder and shareholder investment in life insurance corporations.

## Pension funds

Pension funds have been established to provide retirement benefits for their members.

Members make contributions during their employment and receive the benefits of this form of saving in retirement. In order to receive

concessional taxation treatment, a pension fund must elect to be regulated under the *Superannuation Industry (Supervision) Act 1993* (SIS Act). These funds are supervised by either APRA or the ATO. Public sector funds, being funds sponsored by a government employer or government controlled business enterprise, are exempt from direct APRA supervision.

The largest number of pension funds comprise self-managed superannuation funds (also known as 'do it yourself' funds). From 1 July 2000 the ATO assumed responsibility for regulating self-managed superannuation funds.

Self-managed superannuation funds are superannuation funds:

- that have less than five members; and
- all members are trustees; and
- all trustees are members; and
- no member of the fund is an employee of another member of the fund, unless they are related; and
- no trustee receives remuneration for their services as a trustee.

**26.6 LIFE INSURANCE CORPORATIONS, Financial Assets and Liabilities**

	June 1999	June 2000	June 2001
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	11 421	11 278	11 912
Bills of exchange	5 998	3 754	4 588
One name paper	16 663	13 862	10 468
Bonds	45 750	45 321	41 147
Derivatives	—	145	82
Loans and placements	9 631	11 678	10 414
Equities	76 408	99 894	110 201
Other accounts receivable	6 281	5 469	5 591
<b>Total financial assets</b>	<b>172 152</b>	<b>191 401</b>	<b>194 403</b>
<b>LIABILITIES</b>			
One name paper issued offshore	—	—	626
Bonds etc issued offshore	42	1 187	1 172
Derivatives	—	297	699
Loans and placements	3 141	5 093	5 116
Listed and unlisted equity	35 386	39 292	47 551
Net equity in reserves	69 139	61 427	47 612
Net equity of pension funds	90 245	108 072	115 874
Other accounts payable	5 330	4 101	4 750
<b>Total liabilities</b>	<b>203 283</b>	<b>219 469</b>	<b>223 400</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

Corporate funds are funds sponsored by a single non-government employer, or group of employers. Industry funds generally have closed memberships restricted to the employees of a particular industry and are established under an agreement between the parties to an industrial award. Public sector funds are those funds sponsored by a public sector employer. Retail funds are pooled superannuation products sold through an intermediary to the general public. Funds with less than five members but which do not qualify as self-managed superannuation funds are known as small APRA funds.

In addition to separately constituted funds, the SIS Act also provides for special accounts operated by financial institutions earmarked for superannuation contributions, known as Retirement Savings Accounts, that also qualify for concessional taxation under the supervision of APRA. The liabilities represented by these accounts are liabilities of the institutions concerned and are included with the relevant institution in this chapter (for example retirement savings accounts operated by banks are included in bank deposits in table 26.4), but are also footnoted in table 26.8 for completeness.

The number of pension funds is shown in table 26.7. The assets of pension funds are shown in table 26.8 and include unfunded pension claims by pension funds on the Commonwealth Government where these have been formally recognised in accounting systems. The assets in the table do not include any provision for the pension liabilities of Australian governments to public sector employees in respect of unfunded retirement benefits. At 30 June 2001 the ABS estimate for claims by households on government for these outstanding liabilities was \$121.1b.

**26.7 PENSION FUNDS(a), Number of Funds — 30 June 2001**

Type of fund	Total
Corporate	3 235
Industry	139
Public sector	94
Retail	274
Small APRA funds	(a) 8 100
Self managed superannuation funds	(a) 214 700
<b>Total</b>	<b>(a) 226 500</b>

(a) Approximate number.

Source: APRA and ATO.

**26.8 PENSION FUNDS(a), Financial Assets**

	June 1999 \$m	June 2000 \$m	June 2001 \$m
Currency and deposits	27 817	26 700	32 441
Bills of exchange	7 180	6 055	6 249
One name paper	12 634	13 651	11 751
Bonds	30 579	35 979	35 605
Loans and placements	12 750	15 645	17 012
Equities	153 161	198 922	221 990
Unfunded superannuation claims	6 093	7 009	5 794
Net equity of pension funds in life office reserves	90 245	108 072	115 874
Other accounts receivable	4 167	4 471	4 338
<b>Total</b>	<b>344 626</b>	<b>416 504</b>	<b>451 054</b>

(a) Retirement savings accounts were valued at \$404m at 30 June 2001 (APRA).

Source: Australian National Accounts: Financial Accounts (5232.0).

**Other insurance corporations**

This sector includes all corporations that provide insurance other than life insurance. Included are general, fire, accident, employer liability, household, health and consumer credit insurers.

Private health insurers are regulated by the Private Health Insurance Administration Council (PHIAC) under the *National Health Act 1959*. At 30 June 2001 there were 44 private health insurers, including health benefit funds of friendly societies. Other private insurers are supervised by APRA under the *Insurance Act 1973*. At 30 June 2001 there were 154 insurers supervised by APRA. In addition, there were 13 public sector insurers at 30 June 2001.

Table 26.9 sets out the financial assets and liabilities of Other insurance corporations at 30 June 2001 and the preceding two years.

**Central borrowing authorities**

Central borrowing authorities are institutions established by the State Governments and the Northern Territory Government primarily to provide finance for public corporations and quasi-corporations, and other units owned or controlled by those governments, and to arrange investment of the units' surplus funds. The central borrowing authorities borrow funds, mainly by issuing securities, and on-lend them to their public sector clientele. However, they also engage in other financial intermediation activity for investment purposes, and may engage in the financial management activities of the parent government.

Table 26.10 shows the financial assets and liabilities held by the central borrowing authorities at 30 June of the most recent three years.

**26.9 OTHER INSURANCE CORPORATIONS, Financial Assets and Liabilities**

	June 1999	June 2000	June 2001
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	5 752	5 408	5 323
Bills of exchange	1 924	1 811	1 910
One name paper	2 518	2 302	1 858
Bonds	18 013	18 795	21 928
Loans and placements	7 639	8 977	8 308
Equities	22 215	24 625	26 103
Other accounts receivable	8 202	9 104	9 873
<b>Total financial assets</b>	<b>66 263</b>	<b>71 022</b>	<b>75 303</b>
<b>LIABILITIES</b>			
Bonds on issue	429	588	362
Loans and placements	1 781	1 152	833
Listed shares and other equity	5 672	3 995	10 371
Unlisted shares and other equity	12 817	14 450	10 818
Prepayment of premiums	45 120	49 248	50 592
Other accounts receivable	9 649	10 495	10 902
<b>Total liabilities</b>	<b>75 468</b>	<b>79 928</b>	<b>83 878</b>

Source: Australian National Accounts: Financial Accounts (5232.0); APRA; PHIAC.

**26.10 CENTRAL BORROWING AUTHORITIES, Financial Assets and Liabilities**

	Amounts outstanding at 30 June		
	1999	2000	2001
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	2 897	1 378	1 236
Holdings of bills of exchange	7 682	6 239	6 238
One name paper	6 118	4 816	4 545
Bonds	2 779	3 272	5 268
Derivatives	2 795	3 736	3 703
Loans and placements	73 673	70 807	70 495
Other accounts receivable	1 025	1 075	830
<b>Total financial assets(a)</b>	<b>96 969</b>	<b>91 323</b>	<b>92 315</b>
<b>LIABILITIES</b>			
Drawings of bills of exchange	105	110	16
One name paper	7 702	6 514	7 346
Bonds	72 865	68 253	68 076
Derivatives	2 342	3 424	4 284
Loans and placements	8 699	7 261	8 557
Equity	209	30	30
Other accounts payable	1 827	1 531	1 373
<b>Total liabilities</b>	<b>93 749</b>	<b>87 113</b>	<b>89 682</b>

(a) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.).

Source: Australian National Accounts: Financial Accounts (5232.0).

## Financial intermediaries not elsewhere classified (n.e.c.)

This subsector comprises all institutions that meet the definition of a financial enterprise and have not been included elsewhere. It includes:

- economic development corporations owned by governments;
- cash, mortgage, equity and fixed interest common funds;
- mortgage, fixed interest, balanced and equity public unit trusts;
- wholesale trusts;
- securitisers;
- investment companies;
- cooperative housing societies;
- corporations registered in category J of the *Financial Corporations Act 1974*; and
- housing finance schemes established by State Governments to assist first home buyers.

In addition to enterprises which engage directly in intermediation, the subsector also includes enterprises which undertake activity closely associated with intermediation such as:

- fund managers;
- insurance brokers; and
- arrangers of hedging instruments such as swaps, options and futures.

Table 26.11 shows the financial assets of selected groups of financial intermediaries n.e.c.

*Economic development corporations* are owned by governments. As their name implies, these bodies are expected to finance infrastructure developments mainly in their home State or Territory.

*Common funds* are set up by trustee companies and are governed by State Trustee Acts. They allow the trustee companies to combine depositors' funds and other funds held in trust in an investment pool. They are categorised according to the main types of assets in the pool, for example, cash funds or equity funds.

**26.11 FINANCIAL INTERMEDIARIES N.E.C., Financial Assets**

	Amounts outstanding at 30 June		
	1999	2000	2001
	\$m	\$m	\$m
Public unit trusts(a)	68 100	80 971	97 721
Equity unit trusts	42 842	51 859	65 484
Other unit trusts	25 258	29 112	32 237
Common funds	7 592	7 502	8 135
Securitisers	45 447	64 867	83 770
Cooperative housing societies	1 030	987	n.y.a.
Other(b)	36 080	58 904	n.y.a.
<b>Total</b>	<b>158 249</b>	<b>213 231</b>	<b>226 037</b>

(a) Excludes property and trading trusts. (b) Includes investment companies, Category J financial institutions, economic development corporations, fund managers, insurance brokers, hedging instrument arrangers, wholesale trusts, and State government housing schemes.

Source: Australian National Accounts: Financial Accounts (5232.0); Managed Funds, Australia (5655.0); Annual Statistics on Financial Institutions (5661.0.40.001).

*Public unit trusts* are investment funds open to the Australian public. Their operations are governed by a trust deed which is administered by a management company. Under the *Managed Investments Act 1997*, the management company has become the single responsible entity for both investment strategy and custodial arrangements; the latter previously had been the responsibility of a trustee. These trusts allow their unit holders to dispose of their units relatively quickly.

They may sell them back to the manager if the trust is unlisted, or sell them on the Australian Stock Exchange if the trust is listed. Public unit trusts are categorised according to the main types of assets in the pool; for example, property or equity. Only those which invest primarily in financial assets — mortgages, fixed interest, futures or equity securities — are included here. While public unit trusts are not subject to supervision by APRA or registered under the *Financial Corporations Act 1974*, they are subject to the provisions of corporations law which includes having their prospectus registered with the Australian Securities and Investments Commission (ASIC).

*Wholesale trusts* are investment funds that are only open to institutional investors — life insurance corporations, superannuation funds, retail trusts, corporate clients, high net worth individuals — due to high entry levels (e.g. \$500,000 or above). They may issue a prospectus, but more commonly issue an information memorandum. Only those which invest in financial assets are included here.

*Securitisers* issue short and/or long term debt securities which are backed by specific assets. The most common assets bought by securitisation trusts/companies are residential mortgages. These mortgages are originated by financial institutions such as banks and building societies or specialist mortgage managers. Other assets can also be used to back these securities, such as credit card receivables and financial leases. Securitisers generally pool the assets and use the income on them to pay interest to the holders of the asset-backed securities.

*Investment companies* are similar to equity trusts in that they invest in the shares of other companies. However, investors in investment companies hold share assets, not unit assets.

*Co-operative housing societies* are similar to permanent building societies. In the past they were wound up after a set period, but now they too are continuing bodies. They raise money through loans from members (rather than deposits) and provide finance to members in the form of housing loans. Over recent years many cooperative housing societies have originated mortgages on behalf of securitisers.

Corporations registered in Category J of the *Financial Corporations Act 1974* are classified to this sector because their liabilities are not included in the Reserve Bank's definition of broad money.

Fund managers, insurance brokers and arrangers of hedging instruments are classified as financial auxiliaries as they engage primarily in activities closely related to financial intermediation, but they themselves do not perform an intermediation role. Auxiliaries primarily act as agents for their clients (usually other financial entities) on a fee for service basis, and as such the financial asset remains on the balance sheet of the client, not the auxiliary. However, a small portion of the activities of auxiliaries is brought to account on their own balance sheet, and these amounts are included in table 26.11.

## Financial markets

Financial markets are used by participants to either raise funds (for example, by issuing securities) or invest savings (by buying securities and other financial assets). The major markets in the Australian financial system include the share market, bond market and money market. Descriptions and tables indicating prices and activity in various financial markets are provided in this section.

A significant influence in financial markets is the participation of institutional investors controlling large pools of investment funds. These pools are accumulated by collective investment institutions and are often managed on a fee-for-service basis by investment managers. A summary of the activities of these institutions is also provided.

## Credit market

Credit may be defined broadly as funds provided to those seeking to borrow. However, analytically useful measures of credit usually exclude borrowings by financial enterprises because their main role is as an intermediary, i.e. they borrow in order to lend. Also, lending and borrowing between enterprises which have a special relationship, such as between companies in the same group or between government agencies, are often excluded from credit measures because transactions between these bodies frequently are of a non-market nature. Similarly, some types of financial instrument, such as trade debts, are not considered to be part of an organised market. All of these types of transactions are omitted from table 26.12, which presents a summary of the demand for credit in Australia by the non-financial sectors. It includes raisings by the issue of both debt and equity securities.

## Stock market

The Australian stock market provides a mechanism for trading equities (shares), units in trusts, options, and some fixed-interest securities through a network of computers with buyers and sellers located anywhere in the country.

It is operated nationally by Australian Stock Exchange Limited (ASX), which is responsible for the day-to-day running and surveillance of stock market trading. Trading is electronic, conducted using the Stock Exchange Automated Trading System.

ASX classifies listed companies according to their major activity and produces indexes based on these classifications. Table 26.13 summarises the performance of the major indexes over the last three financial years.

Table 26.14 shows the market value of Australian shares and units in trusts on issue — both listed and unlisted. It shows the amount on issue by sector of issuer and sector of holder of equities and units.

**26.12 DEMAND FOR CREDIT(a)**

	Net transactions during year		
	1998–99	1999–2000	2000–01
	\$m	\$m	\$m
Funds (including equity) raised on conventional credit markets by			
Private non-financial corporations	50 795	66 787	56 720
National public non-financial corporations	354	18 338	3 285
State and local public non-financial corporations	-446	941	2 878
National general government	-8 973	-10 951	-9 592
State and local general government	-3 149	-3 361	-3 915
Households	42 763	60 405	43 648
<b>Total</b>	<b>81 344</b>	<b>132 159</b>	<b>93 024</b>

(a) Positive numbers indicate an increase in raisings. Negative numbers indicate repayment or redemption.

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.13 AUSTRALIAN STOCK MARKET INDEXES(a)**

	1998–99	1999–2000	2000–01
All ordinarys			
Index(b)	2 963.0	3 115.9	3 352.4
High(c)	3 145.2	3 274.1	3 370.7
Low(c)	2 458.2	2 779.7	3 094.3
All industrials			
Index(b)	5 199.7	5 458.3	5 741.8
Hig (c)	5 583.6	5 823.0	5 789.8
Low(c)	4 271.2	4 786.3	5 293.3
All resources			
Index(b)	1 181.5	1 252.1	1 546.3
High(c)	1 267.2	1 470.6	1 645.4
Low(c)	902.4	1 122.2	1 288.0

(a) Base 31 December 1979 = 500. (b) Share prices on joint trading floors; average of daily figures for June. (c) Over a 12 month period.

Source: 'Shares' magazine (BRW Media); Reuters data service.

**26.14 THE EQUITY MARKET(a)**

	Amounts on issue at 30 June					
	1999		2000		2001	
	Listed	Unlisted	Listed	Unlisted	Listed	Unlisted
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Total equities and units in trusts</b>	<b>635 482</b>	<b>550 437</b>	<b>743 516</b>	<b>655 584</b>	<b>776 160</b>	<b>717 476</b>
ISSUED BY						
National public non-financial corporations	111 387	9 662	87 314	8 509	69 224	8 444
State and local non-financial corporations	—	105 699	—	103 145	—	98 782
Private corporate trading enterprises(b)	368 076	137 340	455 138	160 402	473 278	184 112
Central Bank(c)	—	10 913	—	10 446	—	12 265
Banks(b)	107 675	5 016	134 179	4	170 873	6 404
Other depository corporations	211	16 332	248	16 592	151	18 536
Life insurance corporations(b)	26 684	6 540	32 509	7 226	30 064	18 586
Central borrowing authorities	—	209	—	30	—	30
Other insurance corporations	5 672	12 817	3 995	14 648	10 371	11
Financial intermediaries	15 777	58 534	30 133	72 249	22 199	89 096
Rest of world	—	187 375	—	258 288	—	270 316
HELD BY						
National public non-financial corporations	—	815	—	1 852	—	5 373
State and local public non-financial corporations	—	69	13	70	—	71
Private non-financial corporations	12 201	102	14 059	144 343	14 033	146 133
Banks	6 176	41 654	14 659	48 637	8 779	59 825
Other depository corporations	—	6 119	—	5 977	—	9 928
Life insurance corporations	37 799	39 971	57 525	42 812	63 544	47 756
Other insurance corporations	4 357	17 860	3 885	20 938	4 067	22 123
Pension funds	86 727	69 728	104 391	94 531	118 926	103 064
Financial intermediaries	43 001	33 982	72 123	35 452	64 373	42 110
National general government	74 258	19 800	50 030	19 217	34 682	21
State and local general government	561	107 521	537	105 033	—	100 382
Households	140 164	53 767	168 233	66 398	189 007	84 873
Rest of world	230 260	56 648	258 056	70 305	278 743	74 760

(a) Includes units in trusts. (b) These estimated market values are considered to be of poor quality. They should be used cautiously.

(c) Net asset values.

Source: Australian National Accounts: Financial Accounts (5232.0).

## Money market

Liquidity management by Australian corporations, financial institutions and governments is conducted through an informally arranged market for deposits, loans and placements and by issuance, purchase and sale of short-term debt securities. Rates in the market at end June of the last three financial years are shown in table 26.15.

### 26.15 SHORT-TERM MONEY MARKET RATES

	June 1999	June 2000	June 2001
	% p.a.	% p.a.	% p.a.
11 a.m. call	4.80	6.01	5.00
Bank-accepted bills — 90 days	4.93	6.23	4.97

Source: Reserve Bank of Australia Bulletin.

Money market securities have an original term to maturity of less than one year, often 30, 90 or 180 days. They are issued by borrowers at a discount to face value and carry no income payment other than the repayment of face value at maturity. To enhance liquidity, money market securities conform to standardised attributes concerning risk and discount rates. Because of the standardisation, the securities of different issuers are often combined in the one parcel of securities for trading purposes. There are two types of securities: bills of exchange and one name paper (promissory notes, treasury notes, commercial paper and bank certificates of deposit), both of which are covered by the *Bills of Exchange Act 1909*. The risk of default of a bill of exchange is reduced by an acceptor or endorser adding their name to the security for a fee. Most bills of exchange traded in the market are bank-accepted bills. Promissory notes are issued by institutions whose credit worthiness is equal to or better than banks; they are not

accepted by a bank and unlike bills of exchange they are not endorsed by the parties which sell them in the market. The Commonwealth Government issues treasury notes, State Governments and large corporations issue commercial paper and banks issue negotiable certificates of deposit. Table 26.16 shows the amount on issue by sector of issuer and sector of holder of the various types of money market securities.

## Bond market

Bonds are issued with original terms to maturity of one or more years. Usually the investors are paid a set periodic interest, called a coupon, for the life of the bond and receive their initial investment back at maturity. Some bonds have variable interest rates, some have principal repayments indexed, and there are small amounts of zero-coupon or deep discount securities which are issued at a discount to face value. Governments, trading enterprises and financial institutions issue bonds to finance long-term requirements. For these entities, the bond market generally provides a cheaper source of funds than borrowing from banks and other financial institutions. Table 26.17 shows the market yields at end June of the last three financial years for a range of bonds.

The main issuers of bonds are the Commonwealth Government and State Governments, the latter through their central borrowing authorities. Corporate bonds are issued only by very large private trading and financial enterprises. In recent years banks and asset-backed security trusts have issued increasing amounts as government issuance has decreased. The amounts outstanding on bonds at end June of the last three financial years are shown in table 26.18.

**26.16 SHORT-TERM DEBT SECURITIES**

	Amounts outstanding at 30 June		
	1999	2000	2001
	\$m	\$m	\$m
<b>ISSUED BY</b>			
Private non-financial corporations	75 580	88 134	87 586
National public non-financial corporations	3 861	2 982	3 427
State and local public non-financial corporations	299	264	409
Banks	96 061	110 566	113 290
Other depository corporations	29 277	32 963	41 872
Central borrowing authorities	8 536	7 241	7 882
Financial intermediaries n.e.c.	19 771	17 998	20 896
National general government	7 714	5 800	5 100
Households	2 905	2 920	2 941
Rest of World	2 262	2 348	2 889
<b>Total</b>	<b>246 268</b>	<b>271 216</b>	<b>286 292</b>
<b>HELD BY</b>			
Private non-financial corporations	24 733	40 135	31 950
National public non-financial corporations	763	370	396
State and local public non-financial corporations	178	48	229
Central bank	2 769	1 257	146
Banks	33 155	42 652	43 854
Other depository corporations	22 718	28 164	31 784
Life insurance corporations	22 661	17 616	15 056
Pension funds	19 814	19 706	18 000
Other insurance corporations	4 848	4 113	3 768
Central borrowing authorities	14 505	11 682	11 303
Financial intermediaries n.e.c.	30 854	31 765	32 367
State and local general government	107	204	315
Households	6 371	4 535	2 816
Rest of world	62 792	68 969	94 308
<b>Total</b>	<b>246 268</b>	<b>271 216</b>	<b>286 292</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.17 BOND MARKET, Market Yields**

	June 1999	June 2000	June 2001
	% p.a.	% p.a.	% p.a.
<b>Treasury bonds</b>			
3 years	5.63	5.97	5.55
5 years	5.90	6.05	5.78
10 years	6.27	6.16	6.04
<b>New South Wales T-corp bonds</b>			
3 years	5.89	6.29	5.88
5 years	6.24	6.42	6.13
10 years	6.61	6.60	6.24
<b>Finance company debentures</b>			
2 years	5.10	6.30	5.20
3 years	5.45	6.40	5.45

Source: Reserve Bank of Australia Bulletin.

**26.18 BONDS, Amounts Outstanding**

	Amounts outstanding at 30 June		
	1999	2000	2001
	\$m	\$m	\$m
<b>ISSUED BY</b>			
Private non-financial corporations			
Issued in Australia	5 097	11 236	16 385
Issued offshore	27 198	31 485	32 161
National public non-financial corporations			
Issued in Australia	3 479	3 919	3 413
Issued offshore	2 988	4 565	9 290
State and local public non-financial corporations			
Issued in Australia	—	2	2
Issued offshore	—	—	100
Banks			
Issued in Australia	14 207	12 678	18 173
Issued offshore	44 139	59 917	67 218
Other depository corporations			
Issued in Australia	15 585	15 844	16 242
Issued offshore	8 375	10 943	12 773
Other insurance corporations			
Issued in Australia	112	116	123
Issued offshore	317	472	239
Life insurance corporations			
Issued offshore	—	1 187	1 172
Central borrowing authorities			
Issued in Australia	50 347	50 739	53 165
Issued offshore	28 032	23 114	19 627
Financial intermediaries n.e.c.			
Issued in Australia	20 032	24 888	30 002
Issued offshore	14 903	24 342	32 544
National general government			
Issued in Australia	86 260	76 617	68 082
Issued offshore	1 629	1 468	1 314
State and local general government			
Issued in Australia	244	424	430
Issued offshore	—	—	—
Rest of the world			
Issued in Australia	—	—	—
Issued offshore	35 853	42 246	54 547
<b>Total</b>	<b>358 797</b>	<b>396 202</b>	<b>437 002</b>
<b>HELD BY</b>			
Private non-financial corporations	1 992	2 164	3 404
National public non-financial corporations	50	22	1 457
State and local public non-financial corporations	328	192	168
Central bank	30 719	36 858	43 957
Banks	21 600	22 299	24 455
Other depository corporations	4 178	6 948	13 110
Life insurance corporations	43 742	45 321	41 147
Pension funds	33 684	35 979	35 605
Other insurance corporations	18 013	18 795	21 928
Central borrowing authorities	8 293	8 872	9 984
Financial intermediaries n.e.c.	18 979	19 445	25 071
State and local general government	82	154	274
National general government	—	—	—
Households	13 707	12 431	10 375
Rest of world	163 430	186 722	206 067
<b>Total</b>	<b>358 797</b>	<b>396 202</b>	<b>437 002</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

## Foreign exchange market

The foreign exchange market is the means whereby currencies of different countries can be bought and sold. In October 1983, the Commonwealth Government decided to float the Australian dollar, allowing its value to be determined by market forces with few exchange controls and little Reserve Bank intervention. Prior to 1983, the Australian dollar was pegged to a basket of currencies which were weighted according to their trading significance to Australia. Table 26.19 shows the value of the Australian dollar against major currencies at end June of the last three financial years.

### 26.19 VALUE OF AUSTRALIAN DOLLAR(a), Against Major Currencies

	At 30 June		
	1999	2000	2001
United States dollar	0.6547	0.5887	0.5180
United Kingdom pound	0.4094	0.3895	0.3686
German deutschmark	1.2336	1.2242	1.1871
Japanese yen	78.9705	62.9703	63.1775
Euro	0.6309	0.6261	0.6070

(a) Rate given is the midpoint between the buying and selling rates.

Source: Average of Daily Exchange Rates (5654.0).

Currencies are traded for many reasons: because of exporting or importing requirements, investing or borrowing overseas, arbitraging (i.e. taking advantage of short-term discrepancies in rates) or speculating on possible exchange rate movements with a view to making a profit. Table 26.20 shows daily averages of foreign exchange turnover against all currencies.

### 26.20 FOREIGN EXCHANGE TURNOVER AGAINST ALL CURRENCIES, Daily Averages(a)

	1998–99	1999–2000	2000–01
	\$m	\$m	\$m
Transactions by foreign exchange dealers(b)			
Outright spot(c)	32 540	22 753	27 281
Outright forward(d)	4 432	3 831	5 093
Swaps	37 903	36 620	41 865
Options	2 485	2 517	3 150
<b>Total</b>	<b>77 360</b>	<b>65 721</b>	<b>77 930</b>

(a) Figures given are the average daily turnover for the financial year. (b) Australian banks and non-bank financial intermediaries authorised to deal in foreign exchange.

(c) An outright spot transaction is one for receipt or delivery within two business days. (d) An outright forward transaction is one for receipt or delivery in more than two business days.

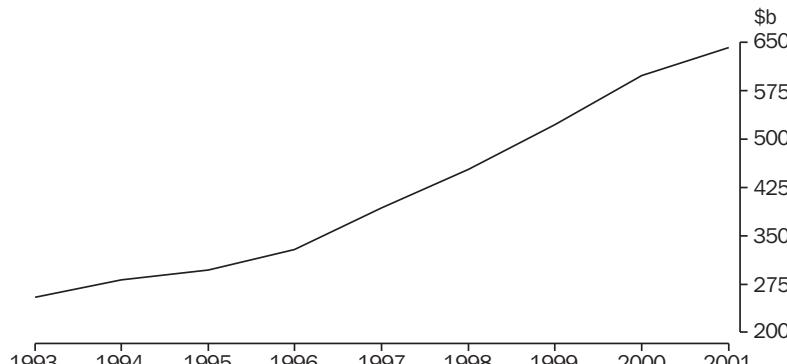
Source: Reserve Bank of Australia Bulletin.

## Managed funds

The term *managed funds* is used loosely in the financial community to embrace two broad types of institutions. The first are collective investment institutions (such as life insurance companies) which buy assets on their own account.

The second are investment or fund managers which act as investment agents for the collective investment institutions as well as others with substantial funds to invest. Investment managers have relatively small balance sheets because most of the assets they acquire are purchased on behalf of clients. The significant growth in managed funds (graph 26.21) has been a major development in the financial sector over the last decade.

### 26.21 MANAGED FUNDS, Consolidated Assets — At June



Source: Managed Funds, Australia (5655.0).

## Collective investment institutions

As the name implies, collective investment institutions pool the funds of many small investors and use them to buy a particular type or mix of assets. The asset profile can be structured to satisfy individual investor requirements regarding, for example, the degree of risk, the mix of capital growth and income, and the degree of asset diversification. Collective investment institutions comprise the following:

- life insurance corporations;
- pension and approved deposit funds;
- public unit trusts;
- friendly societies;
- common funds; and
- cash management trusts.

Funds of a speculative nature that do not offer redemption facilities — for example, agricultural and film trusts — are excluded.

To derive the total assets of collective investment institutions in Australia on a consolidated basis, it is necessary to eliminate the cross investment between the various types of institution. For example, investments by superannuation funds in public unit trusts are excluded from the assets of superannuation funds in a consolidated presentation.

Although statistics for each of these institutions were presented earlier in this chapter, the accompanying tables summarise their consolidated position (i.e. after the cross investment between the institutions has been eliminated). Table 26.22 shows their assets by type of institution and table 26.23 shows assets by type of investment.

## Investment managers

A further development within the managed funds industry is the emergence of specialist investment managers. They are employed on a fee-for-service basis to manage and invest in approved assets on their clients' behalf. They usually act for the smaller collective investment institutions such as public unit trusts. They are not accessible to the small investor. Investment managers provide a sophisticated level of service, matching assets and liabilities. They act in the main as the managers of pooled funds, but also manage clients' investments on an individual portfolio basis.

### 26.22 ASSETS OF MANAGED FUNDS, By Type of Collective Investment Institution — 30 June 2001

Type of institution	\$m	Cross invested	
		Total	Consolidated
Life insurance corporations(a)	197 814	22 348	175 465
Pension funds	354 713	55 796	298 917
Public unit trusts	143 806	18 748	125 058
Friendly societies	5 967	437	5 530
Common funds	8 203	77	8 126
Cash management trusts	28 693	—	28 693
<b>Total</b>	<b>739 195</b>	<b>97 407</b>	<b>641 789</b>

(a) Investments by pension funds which are held and administered by life insurance offices are included under life insurance offices.

Source: *Managed Funds, Australia* (5655.0).

### 26.23 MANAGED FUNDS, Consolidated Assets

Type of investment	\$m	30 June	30 June	30 June
		1999	2000	2001
Deposits, loans and placements	63 761	69 597	73 337	
Short-term debt securities	67 034	63 358	62 545	
Long-term debt securities	70 625	72 187	65 758	
Equities and units in trusts	152 199	194 105	230 561	
Land and buildings	56 754	63 713	69 102	
Overseas assets	90 769	115 115	119 142	
Other assets	20 150	21 014	21 344	
<b>Total</b>	<b>521 291</b>	<b>599 090</b>	<b>641 789</b>	

Source: *Managed Funds, Australia* (5655.0).

A considerable proportion of the assets of collective investment institutions, particularly the statutory funds of life insurance corporations and assets of pension funds, is channelled through investment managers. At 30 June 2001, \$483.3b (75% of the unconsolidated assets of collective investment institutions) were channelled through investment managers. Table 26.24 shows the total unconsolidated assets of each type of collective investment institution and the amount of these assets invested through investment managers.

Investment managers also accept money from investors other than collective investment institutions. At 30 June 2001, investment managers invested \$126.1b on behalf of government bodies, general insurers and other clients, including overseas clients.

**26.24 ASSETS OF MANAGED FUNDS,  
Invested through Investment  
Managers — 30 June 2001**

Type of fund	\$m	Assets invested with investment managers
Life insurance corporations(a)	197 814	146 535
Pension and approved deposit funds	354 713	197 590
Public unit trusts	143 806	102 205
Friendly societies	5 967	3 483
Common funds	8 203	5 463
Cash management trusts	28 693	28 039
<b>Total</b>	<b>739 195</b>	<b>483 315</b>

(a) Includes both superannuation and ordinary business.

Source: *Managed Funds, Australia* (5655.0).

**Lending by financial institutions**

The lending activities of financial institutions are grouped for statistical purposes into four major types of lending — housing, personal, commercial and leasing. Information regarding housing finance is presented in *Chapter 8, Housing*. Table 26.25 shows the size of commitments by financial institutions for the four types of lending. It should be noted that, although commitments are firm offers of finance made by institutions that have been accepted by borrowers, not all commitments are taken up by borrowers.

**26.25 FINANCIAL INSTITUTIONS,  
Lending Commitments**

	1998–99	1999–2000	2000–01
Type of lending activity	\$m	\$m	\$m
Housing finance	61 498	74 952	74 571
Personal finance	45 905	51 823	52 592
Commercial finance	172 058	168 923	183 460
Lease finance	9 517	7 900	6 022
<b>Total</b>	<b>288 978</b>	<b>303 598</b>	<b>316 645</b>

Source: *Lending Finance, Australia* (5671.0).

**Lease finance**

The statistics in tables 26.26 and 26.27 measure lease finance commitments made by significant lenders (banks, money market corporations, finance companies, general financiers, etc.) to trading and financial enterprises, non-profit organisations, governments, public authorities and individuals.

**26.26 LEASE FINANCE COMMITMENTS,  
By Type of Lessor**

Type of lessor	1998–99	1999–2000	2000–01
All banks	3 684	3 134	2 063
Finance companies	3 755	2 550	1 540
General financiers	1 691	1 472	1 590
Other(a)	386	742	830
<b>Total</b>	<b>9 517</b>	<b>7 900</b>	<b>6 022</b>

(a) Includes money market corporations.

Source: *Lending Finance, Australia* (5671.0).

**26.27 LEASE FINANCE COMMITMENTS,  
By Type of Goods Leased**

Type of good	1998–99	1999–2000	2000–01
Motor vehicles and other transport equipment	5 276	3 639	2 532
Construction and earth moving equipment	387	319	216
Agricultural machinery and equipment	586	328	208
Automatic data processing equipment and office machinery	1 625	1 996	1 924
Shop and office furniture, fittings and equipment	332	454	342
Other goods	1 309	1 163	802
<b>Total</b>	<b>9 517</b>	<b>7 900</b>	<b>6 022</b>

Source: *Lending Finance, Australia* (5671.0).

## Personal finance

Tables 26.28 and 26.29 present statistics of commitments made by significant lenders (banks, credit cooperatives, finance companies, etc.) to lend to individuals for their own personal (non-business) use. The revolving credit commitments provided in table 26.29 include commitments for overdrafts, credit cards and other personal revolving lines of credit.

### 26.28 PERSONAL FINANCE COMMITMENTS, By Type of Lender(a)

Type of lender	1998–99	1999–2000	2000–01
	\$m	\$m	\$m
All banks	33 825	39 866	40 178
Finance companies	7 267	6 907	6 761
Credit cooperatives	3 275	3 157	3 038
Other lenders(b)	1 538	1 891	2 616
<b>Total</b>	<b>45 905</b>	<b>51 823</b>	<b>52 592</b>

(a) Includes both fixed loan facilities and new and increased lending commitments under revolving credit facilities.

(b) Includes permanent building societies, general financiers and retailers.

Source: *Lending Finance, Australia* (5671.0).

### 26.29 PERSONAL FINANCE COMMITMENTS, By Type of Facility

Type of facility	1998–99	1999–2000	2000–01
	\$m	\$m	\$m
Fixed loan commitments	21 124	22 266	22 739
Revolving credit commitments			
New and increased credit limits	24 781	29 558	29 851
Cancellations and reductions in credit limits	7 433	9 126	11 012
Credit limits at 30 June			
Total	80 013	102 805	114 921
Used	34 683	46 665	54 805

Source: *Lending Finance, Australia* (5671.0).

### 26.30 COMMERCIAL FINANCE COMMITMENTS(a), By Type of Lender

Type of lender	1998–99	1999–2000	2000–01
	\$m	\$m	\$m
All banks	142 776	144 130	154 023
Finance companies	4 504	4 553	5 335
Money market corporations	16 468	12 324	12 591
Other lenders(b)	8 307	7 916	11 511
<b>Total</b>	<b>172 058</b>	<b>168 923</b>	<b>183 460</b>

(a) Includes both fixed loan facilities and new and increased lending commitments under revolving credit facilities.

(b) Includes permanent building societies, general financiers and pastoral finance companies.

Source: *Lending Finance, Australia* (5671.0).

### 26.31 FIXED COMMERCIAL FINANCE COMMITMENTS, By Purpose

Purpose	1998–99	1999–2000	2000–01
	\$m	\$m	\$m
Construction	8 024	9 373	8 002
Purchase of real property(a)	28 117	36 309	34 803
Purchase of plant and equipment	7 624	8 723	8 984
Refinancing	11 385	9 210	10 366
Other purposes	35 969	30 341	36 978
<b>Total</b>	<b>91 119</b>	<b>93 956</b>	<b>99 133</b>

(a) Purchase of real property includes those finance commitments to individuals for the purchase of dwellings for rental or resale.

Source: *Lending Finance, Australia* (5671.0).

## Commercial finance

The statistics in tables 26.30 and 26.31 measure commitments, made by significant lenders (banks, finance companies, money market corporations, etc.) to lend to government, private and public enterprises, non-profit organisations and individuals for investment and business purposes.

## Money and the payments system

The payments system supports trade and commerce in a market economy. Notes and coin are one means of payment. Liquid balances held at financial institutions are also available potentially for transactions needs, under cheque and other forms of transfer facilities, and thus add to the money supply.

From 1 July 1998 a new financial regulatory framework came into effect, in response to the recommendations of the Financial System Inquiry (the Wallis Committee). Under these arrangements the Reserve Bank has stronger regulatory powers in the payments system in accordance with the *Payments Systems (Regulations) Act 1998*, to be exercised by a Payments System Board within the Bank.

## Money

Australia has a decimal system of currency, the unit being the dollar, which is divided into 100 cents. Australian notes are issued in the denominations of \$5, \$10, \$20, \$50 and \$100 and coins in the denominations of 5c, 10c, 20c, 50c, \$1 and \$2. \$1 and \$2 notes were replaced by coins in 1984 and 1988 respectively, and 1c and 2c coins ceased to be issued from 1 February 1992. Table 26.32 shows the value of notes on issue at the last Wednesday of June in the last three financial years. Table 26.33 shows the value of coin on issue at the same time points.

**26.32 VALUE OF AUSTRALIAN NOTES ON ISSUE**

	Last Wednesday in June		
	1999	2000	2001
\$2	\$m	\$m	\$m
\$5	46	46	45
\$10	379	397	428
\$20	639	646	657
\$50	1 850	1 917	1 981
\$100	10 356	11 188	11 886
<b>Total</b>	<b>23 552</b>	<b>25 434</b>	<b>26 936</b>
Increase	%	%	%
	8.8	8.0	5.9

Source: Reserve Bank of Australia.

**26.33 VALUE OF AUSTRALIAN DECIMAL COIN ON ISSUE**

	Last Wednesday in June		
	1999	2000	2001
1c	\$m	\$m	\$m
2c	22	22	22
5c	30	29	29
10c	117	123	129
20c	107	114	120
50c	154	162	169
\$1	224	234	246
\$2	381	396	411
<b>Total</b>	<b>1 588</b>	<b>1 669</b>	<b>1 746</b>
Increase	%	%	%
	5.1	5.1	4.6

Source: Reserve Bank of Australia.

**Money supply measures**

The money supply, as measured and published by the Reserve Bank, refers to the amount of cash held by the public plus deposits with specified financial institutions. The measures range from the narrowest category, money base, through to the widest category, broad money, with other measures in between. The measures mainly used are as follows.

- *Money base*, which comprises holdings of notes and coin by the private sector, deposits of banks with the Reserve Bank, and other Reserve Bank liabilities to the private sector.
- *M3*, which is defined as currency plus bank deposits of the private non-bank sector.
- *Broad money*, which is defined as M3 plus borrowings from the private sector by non-bank financial intermediaries (including cash management trusts) less their holdings of currency and bank deposits.

The money supply under each of these measures at end June of the last three years is shown in table 26.34.

**26.34 MONEY SUPPLY MEASURES**

	June 1999	June 2000	June 2001
	\$m	\$m	\$m
Money base	31 752	28 085	29 607
M3	375 835	406 501	440 256
Broad money	451 524	480 135	518 193
Percentage change(a)	%	%	%
	11.3	6.3	7.9

(a) Of broad money, over level at end of preceding June.

Source: Reserve Bank of Australia.

**Payments system**

Following recommendations by the Financial System (Wallis) Inquiry, the Payments System Board was established within the Reserve Bank on 1 July 1998. The Payments System Board has responsibility for determining the Reserve Bank's payments system policy, under the powers set out in the *Payments Systems (Regulation) Act* 1998. The payments system has components for settling large amounts, and components for settling retail amounts.

The High Value Clearing System (HVCS) was implemented in August 1997. The HVCS allows all holders of Reserve Bank exchange settlement accounts to settle large value payments through a system designed to process a high volume of transactions. On 1 March 1999 the Payments System Board announced easing of restrictions on eligibility for holding exchange settlement accounts. APRA-supervised institutions and some institutions not supervised by APRA potentially now have access.

Initially, the settlement of payments was on a net deferred basis, where settlement of interbank obligations was not completed until 9 a.m. on the day following the sending of payment instructions. This was changed to a real-time gross settlement (RTGS) basis on 22 June 1998. This new settlement basis, where payments are settled immediately, contributes substantially to the reduction of settlement risk and systemic risk in the Australian payments system.

Additionally, the Board has declared the Reserve Bank Information and Transfer System (RITS) and the Austraclear System (FINTRACS) to be approved RTGS systems.

About 75% of the value exchanged in the payments system is cleared via the HCVS.

Table 26.35 shows the number of points of access to the payments system. Branches are access points staffed by employees of financial institutions. Agencies are staffed by other than employees of financial institutions such as postmasters or storekeepers, and exclude school agencies and giroPost agencies.

giroPost provides a limited range of services at Australia Post offices on behalf of participating financial institutions. Electronic points of access include ATM and electronic funds transfer at point of sale (EFTPOS) terminals.

### 26.35 POINTS OF ACCESS TO THE AUSTRALIAN PAYMENTS SYSTEM

	June 1999 no.	June 2000 no.	June 2001 no.
Branches			
Banks	5 358	5 003	n.y.a.
Building societies and credit unions	1 358	(a)1 208	n.y.a.
Agencies			
Banks	6 528	5 043	n.y.a.
Building societies and credit unions	1 417	(a)887	n.y.a.
giroPost	2 724	2 814	2 821
ATM	9 387	10 818	11 915
EFTPOS terminals	265 391	320 372	362 848

(a) Numbers are preliminary and subject to revision.

Source: Australian Payments Clearing Association,  
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## Introduction

The main functions of government are the provision of non-market services, the regulation of economic and social conditions, and the redistribution of income between sections of the community. These activities are primarily financed by taxation and are carried out by entities in the general government sector. In addition to this core activity, governments can also own or control enterprises that sell goods or services to the public and which operate largely on a commercial (or market) basis (public non-financial corporations) or engage in financial intermediation (public financial corporations).

The Australian system of Government Finance Statistics (GFS), which is used to derive the statistics presented in this chapter, is designed to provide statistical information on public sector entities in Australia classified in a uniform and systematic way. GFS enable policy makers and users to analyse the financial operations and financial position of the public sector at either the level of a specific government, institutional sector or set of transactions. The GFS system is based on international standards set out in the *System of National Accounts 1993* (SNA93) and the draft accrual version of the International Monetary Fund's *A Manual of Government Finance Statistics*.

The public sector comprises general government entities and public financial and public non-financial corporations. These entities are described in the next section. This is followed by an outline of the roles of the different levels of government and a description of the GFS classifications.

Until recently, GFS comprised only cash-based statistics for general government. Accrual-based data have always been compiled for public corporations. The most recent GFS publication containing accrual-based GFS, *Government Finance Statistics 1999–2000* (5512.0), was released in July 2001.

An article containing a guide to accrual-based GFS sets the scene for accrual-based statistics for the total public and general government sectors for 1999–2000 for:

- all governments combined;
- the State Governments; and
- the local governments.

The remainder of the chapter deals with taxation revenue. It presents, for the general government sector, the amount of tax collected in 1999–2000 by level of government and type of tax.

## Public sector

The public sector comprises all organisations owned or controlled by any of the four levels of government within the Australian political system:

- Commonwealth;
- State;
- local; and
- multi-jurisdictional.

The public sector can be divided into the institutional sectors described below, based on the characteristics of the organisations it comprises. These sectors are as follows:

- *General government*. The principal function of general government entities is to provide non-market goods and services (e.g. roads, hospitals, libraries) primarily financed by taxes, to regulate and influence economic activity, to maintain law and order, and to redistribute income by means of transfer payments.

This institutional sector covers the departments of the Commonwealth Government, State Governments and local government municipalities. It also includes agencies and government authorities under departmental administration which are engaged in the provision of public administration, defence, law enforcement, welfare, public education, and health. Also included are non-departmental bodies which independently perform the government functions of regulation (e.g. Nurses Registration Boards and the Maritime Safety Authority), provision of non-market services (e.g. the Australian Broadcasting Corporation), and redistribution of income (e.g. the Aboriginal and Torres Strait Islander Commission). Some of these bodies may be corporations, but they are still considered part of the general government sector if they perform general government functions. Universities are also considered part of the general government sector.

Unincorporated government enterprises which provide goods and services to their governments and to the public at prices that are not economically significant (such as cafeterias for government employees, and municipal swimming pools) are also included in this sector. In addition, government

quasi-corporations which sell their output exclusively to other government units, while not in open competition with other producers, are classified as general government units.

- *Public non-financial corporations.* The main function of public non-financial corporations (PNFCs) is to provide goods and services which are predominantly market, non-regulatory and non-financial in nature, and financed through sales to consumers of these goods and services.

Enterprises in the public non-financial corporations sector differ from those in the general government sector in that all or most of their production costs are recovered from consumers, rather than being financed from the general taxation revenue of government. Some enterprises, however, do receive subsidies to make up for shortfalls incurred as a result of government policy, for example in the provision of 'community service obligations' at concessional rates.

Public non-financial corporations vary in their degree of 'commercialism', from those which are quite heavily reliant on parent governments for subsidies, such as rail and bus transport undertakings, to those which are net contributors to government revenue.

Governments may exercise control over public non-financial corporations by either owning more than 50% of the voting stock or otherwise controlling more than half the shareholders' voting power, or through legislation, decree or regulation which empowers the government to determine corporate policy or to appoint the directors. Examples of public non-financial corporations are: Telstra, Australia Post, State Rail and local bus and transport operations.

- *Public financial corporations.* Public financial corporations (PFCs) are government owned or controlled enterprises which engage in financial intermediation (i.e. trade in financial assets and liabilities), such as central borrowing authorities, government banks and insurance offices, or home lending schemes. The inclusion of PFCs in Government Finance Statistics makes GFS consistent in scope with the Australian accounting standard for whole of government reporting *Australian Accounting Standard AAS31, Financial Reporting by Governments*.

## Levels of government

The statistics in this chapter are presented by level of government, i.e. Commonwealth, State, local and multi-jurisdictional.

## Commonwealth Government

The Commonwealth Government has exclusive responsibility under the Constitution for the administration of a wide range of functions including defence, foreign affairs and trade, and immigration. A distinctive feature of the Australian federal system is that the Commonwealth Government levies and collects all income tax, from individuals as well as from enterprises. It also collects a significant portion of other taxes, including taxes on the provision of goods and services. The Commonwealth distributes part of this revenue to other levels of government, principally the States.

## State Governments

State and Territory Governments (referred to as 'State' Governments in this chapter) perform the full range of government functions, other than those the Constitution deems the exclusive domain of the Commonwealth. The functions mainly administered by State Governments include public order, health, education, administration, transport and maintenance of infrastructure. The revenue base of State Governments is narrower than that of the Commonwealth and consists of taxes on property, on employers' payrolls, and on provision and use of goods and services. This revenue base is supplemented by grants from the Commonwealth.

## Local governments

Local government authorities govern areas typically described as cities, towns, shires, boroughs, municipalities and district councils. Although the range of functions undertaken by local governments varies between the different jurisdictions, their powers and responsibilities are generally similar and cover such matters as:

- the construction and maintenance of roads, streets and bridges;
- water, sewerage and drainage systems;
- health and sanitary services;
- the regulation of building standards; and
- the administration of regulations relating to items such as slaughtering, weights and measures, and registration of dogs.

Local governments also provide transport facilities, hospitals, charitable institutions, recreation grounds, parks, swimming pools, libraries, museums and other business undertakings.

Local governments' own-source revenue is derived mainly from property taxes. They also rely on grants from the Commonwealth and their parent State Governments. The Australian Capital Territory has no separate local government.

### **Multi-jurisdictional**

Universities are classified to a 'multi-jurisdictional' category, because of the combined role of the Commonwealth and State Governments in their financing and control. No other units are currently classified as multi-jurisdictional.

## **A guide to accrual-based Government Finance Statistics**

### **Introduction**

Starting with the financial year 1998–99, the ABS implemented accrual-based government finance statistics (GFS), replacing the previous predominantly cash-based GFS. The presentation format of the statistical tables has been changed and new analytical balances are derived. This article describes the main elements of these changes.

### **Purpose and nature of GFS**

The Australian system of GFS is designed to provide statistical information on Australian public sector entities (i.e. general government (GG), public non-financial corporations (PNFCs) and public financial corporations (PFCs)) classified in a uniform and systematic way. The system is based on international standards in the *System of National Accounts 1993* (SNA93) and the draft accrual version of the International Monetary Fund's *A Manual on Government Finance Statistics*.

For the various components of the Australian public sector, GFS shows:

- a consolidated operating statement containing details of transactions in GFS revenues, GFS expenses and the net acquisition of non-financial assets, which focuses on the economic impact and sustainability of the totality of the various jurisdictions' fiscal programs;
- a consolidated statement of stocks and flows of the Commonwealth and each State/Territory Government individually, and local governments in aggregate in each State and the Northern Territory, which can be used as indicators of their comparative standing; and
- the roles of the different levels of government in undertaking and financing their fiscal programs.

GFS reflects the needs of fiscal analysts and other technical users who may be interested in an analysis of government operations. Such operations tend to be different from those of the market-oriented sectors of the economy — the taxation and regulatory functions of general government for example. GFS enable policy makers and analysts to assess the financial operations and the financial position of the public sector for either a specific government, or a specific sector, or a particular set of transactions.

### **Understanding the GFS financial statements**

The GFS conceptual framework is divided into a number of separate statements, each of which is designed to draw out analytical aggregates or balances of particular economic significance (these balances are discussed in the next section) and which, taken together, provide for a thorough understanding of the financial positions of jurisdictions individually and collectively. These statements are the Operating Statement, Statement of Stocks and Flows, Balance Sheet and the Cash Flow Statement. An outline of the structure of these statements follows.

### **Operating Statement**

The Operating Statement (table 27.1) presents details of transactions in GFS revenues, GFS expenses and the net acquisition of non-financial assets for an accounting period. GFS revenues are broadly defined as transactions that increase net worth and GFS expenses as transactions that decrease net worth. Net acquisition of non-financial assets equals gross fixed capital formation, less depreciation, plus changes in inventories and plus other transactions in non-financial assets.

**27.1 OPERATING STATEMENT**

	\$m(a)
GFS Revenues	
less	
GFS Expenses	
equals	
GFS Net Operating Balance(b)	
less	
Net acquisition of non-financial assets	
equals	
<b>GFS Net Lending(+)/Borrowing(–)(c)</b>	

(a) Transactions only (excludes Revaluations and Other Changes in Volume of Assets). Transactions are changes to stocks that come about as a result of mutually agreed interactions between institutional units. Certain 'internal transactions' which do not involve interaction between units (e.g. depreciation) are also included in recognition of the fact that an institutional unit can act simultaneously in two capacities of economic interest. (b) Conceptually equivalent to Australian System of National Accounts (ASNA) Net Savings plus Capital Transfers, but in practice a reconciliation to the ASNA measure will be required to account for some differences in methodology and valuation used in the Australian GFS. (c) Conceptually equivalent to ASNA Net Lending/Borrowing, but in practice this measure will differ due to the different treatment and valuation of some component items.

**Statement of Stocks and Flows**

The Statement of Stocks and Flows (table 27.2) shows the opening balances of assets and liabilities, the related flows during the reporting period and the closing balances at the end of an accounting period. The preferred valuation basis

for all stocks and flows is current market prices, but where these are not observable a proxy indicator such as net present value is acceptable. Furthermore, assets or liabilities not regularly measured at current values are revalued just prior to their disposal and the revaluation recorded in the Statement of Stocks and Flows.

Assets represent instruments or entities over which ownership rights are enforced by institutional units and from which economic benefits may be derived by holding them, or using them, over a period of time. Liabilities represent obligations of institutional units to provide economic value to other institutional units. The classification of liabilities and financial assets needs to be symmetrical for consolidation purposes. This means that shares and other contributed capital of market entities such as PNFCs and PFCs are treated as if they were liabilities of these entities.

**Balance Sheet**

The Balance Sheet (table 27.3) shows stocks of assets, liabilities and GFS Net Worth (NW) and is similar in presentation to the first and last columns of the Statement of Stocks and Flows. The Balance Sheet, however, brings together several jurisdictions' data into a single statement to provide a comparative series.

**27.2 STATEMENT OF STOCKS AND FLOWS**

	Stocks(a)		Flows(b)		Stocks(a)	
	Opening balance sheet	Transaction flows	Revaluations(c)	Other changes in volume of assets(d)	Closing balance sheet	
				\$m	\$m	
<b>Assets(1)</b>						
Non-financial assets						
Financial assets						
<b>Liabilities(2)</b>						
Shares and other contributed capital(e)(3)						
<b>GFS Net Worth</b>						
<b>(1) — (2) — (3)</b>						

(a) Stocks refer to holdings of assets and liabilities, at a point in time, valued at market prices prevailing at that time. (b) Flows are economic events and other occurrences that cause changes in the value of stocks through the creation, transformation, exchange, transfer or extinction of value. Flows are recorded in the relevant period on an accrual basis. Thus, the stock of assets and liabilities recorded at the beginning of a period changes, as a result of flows during the period, to a new level of stocks at the end of the period. Stocks are therefore a 'point in time' concept while flows relate to a 'period of time'. (c) Revaluations are changes to stocks which arise as a result of price movements, including exchange rate movements. This item is combined with other changes in the volume of assets for publication purposes. (d) Other Changes in Volume of Assets are stock changes which are not the result of transactions or revaluations and which may be due to such things as the discovery of new assets and depletion or destruction of existing assets. This item is combined with revaluations for publication purposes. (e) This item is zero for the general government sector. For listed entities, it is equal to the market value of shares on issue. For unlisted entities, there is no market valuation of shares as such, so this item is set equal to assets minus liabilities.

### 27.3 BALANCE SHEET — At 30 June

\$m

Assets
Financial assets
Non-financial assets
<i>Total</i>
Liabilities
Shares and other contributed capital
Net debt(a)
<b>GFS Net Worth</b>
Net financial worth(b)

(a) Equals deposits held, advances received and borrowing less cash and deposits, advances paid, and investments, loans and placements. (b) Equals total financial assets less total liabilities less shares and other contributed capital.

### Cash Flow Statement

The Cash Flow Statement (table 27.4) identifies how cash is generated and applied in a single accounting period. ‘Cash’ means cash on hand (notes and coins held and deposits held at call with a bank or other financial institution) and cash equivalents (highly liquid investments which are readily convertible to cash on hand at the investor’s option and overdrafts considered integral to the cash management function).

The Cash Flow Statement reflects a cash basis of recording (the other statements are on an accruals accounting basis) where the information has been derived indirectly from underlying accrued transactions and movements in balances. This, in effect, means that transactions are captured when cash is received or when cash payments are made. Cash transactions are specially identified because they allow the compilation of the cash-based Surplus(+)/Deficit(–) measure and because the management of cash is often considered an integral function of accrual accounting.

### Understanding the GFS analytical balances

The ‘bottom line’ of each GFS financial statement is a GFS analytical balance. These balances are the GFS Net Operating Balance (NOB), GFS Net Lending(+) / Borrowing(–) (NLB), GFS NW and GFS Surplus(+) / Deficit(–). It is generally accepted that there is no single measure or balance that summarises the macroeconomic impact of a government’s operation, or the viability of its financial position. Rather, the analysis of a range of measures is required to gain a comprehensive understanding of a government’s finances and their economic impact.

### 27.4 CASH FLOW STATEMENT

\$m

Net cash flows from operating activities
Net cash flows from investments in non-financial assets
Net cash flows from investments in financial assets for policy purposes
Net cash flows from investments in financial assets for liquidity management purposes
Net cash flows from financing activities
<b>Net increase(+) / decrease(–) in cash held</b>
SURPLUS(+) / DEFICIT(–)
Net cash flows from operating activities plus
Net cash flows from investments in non-financial assets less
Distributions paid(a) less
Acquisitions of assets under finance leases and similar arrangements equals
<b>Surplus(+) / Deficit(–)</b>

(a) Applicable only to the public non-financial corporations (PNFC) and public financial corporations (PFC) sectors.

The following sections broadly describe how each analytical balance is calculated and what it indicates.

#### GFS Net Operating Balance

The GFS NOB is calculated as transactions in GFS revenues less transactions in GFS expenses. It measures (in accrual terms) the full cost of providing government services, including unfunded superannuation and non-cash items such as depreciation. The NOB is not affected by revaluations of existing assets, by acquisition or disposal of assets or by assets recognised in the Balance Sheet for the first time. This measure is conceptually equivalent to the ASNA concept of ‘Net Savings plus Capital Transfers’.<sup>1</sup>

When a government's NOB is positive, it indicates that surplus funds have been generated from current operations<sup>2</sup> and these have resulted in an increase in that government's Net Worth.<sup>3</sup> These surplus funds may be used to acquire assets and/or decrease liabilities. When a NOB is negative, it indicates that a shortfall has occurred on current operations and it has been necessary to incur liabilities and/or liquidate assets, but it does not necessarily indicate that a government is a net borrower. It can therefore be said that a government's NOB which is in an overall positive balance over a number of periods, say an economic cycle, is indicative of the ongoing sustainability of that government's operations. However, it should not be necessarily taken as an indicator of sustainability or otherwise of a government's future operations.

### **GFS Net Lending(+)/Borrowing(-)**

GFS NLB<sup>4</sup> is calculated as the NOB less net acquisition of non-financial assets (gross fixed capital formation less depreciation plus change in inventories plus other transactions in non-financial assets). It measures in accrual terms the gap between government savings plus net capital transfers and investment in non-financial assets. The GFS NLB is conceptually equivalent to the ASNA concept of 'Net Lending/Borrowing'.<sup>5</sup> As such, it measures the contribution of the sector to the balance on current and capital accounts in the balance of payments.

When NLB is positive, a government is placing financial resources at the disposal of other sectors in the domestic economy or overseas (i.e. it is lending). When NLB is negative, a government is using the financial resources of other sectors in the domestic economy or overseas (i.e. it is borrowing). Thus NLB can be viewed as a macro or global indicator of the financial impact of government operations on the rest of the economy.

### **GFS Net Worth**

GFS NW is defined as assets less liabilities less shares and other contributed capital. For the GG sector, NW is simply assets less liabilities as other institutional units do not hold shares or other equity capital in this sector.

For listed public corporations, NW is assets less liabilities less shares and other contributed capital. The shares for listed corporations are

recorded at the closing values prevailing in the stock exchange market at the reference date. These corporations therefore have a NW measure determined through the valuation implicit in the stock market mechanism.

A similar stock market valuation basis does not exist for unlisted corporations. The shares and other contributed capital for such corporations are therefore set equal to the value of assets less liabilities. This means that their NW is zero. However, in the balance sheet of the owner (i.e. the GG sector) the value of shares and other contributed capital of such entities (i.e. the difference between their assets and liabilities) is shown as an asset and therefore reflected in the NW of the owner.

The NW at two points in time can be differenced to obtain the change in NW, which is attributable to transaction flows (i.e. the NOB) and other flows (i.e. revaluations and other changes in the volume of assets).

The NW is an economic measure of wealth. It reflects the contribution of governments to the wealth of Australia.

### **GFS Surplus(+)/Deficit(-)**

The Surplus(+)/Deficit(−) is a cash-based measure and is calculated as:

Net cash flows from operating activities

<i>plus</i>	Net cash flows from investments in non-financial assets
<i>less</i>	Distributions paid
<i>less</i>	Acquisitions of assets acquired under finance leases and similar arrangements
<i>equals</i>	Surplus(+)/Deficit(−)

The Surplus(+)/Deficit(−) measure described here is conceptually the same as the Deficit(+)/Surplus(−) used in the former cash-based GFS system;<sup>6</sup> in practice, however, the Surplus(+)/Deficit(−) in the accrual-based GFS system has been derived using different methodologies which result in a break in the time series across the two systems. The Surplus(+)/Deficit(−) is the cash-based equivalent<sup>7</sup> of the GFS Net Lending/Borrowing described above.

The Surplus(+)Deficit(–) is a broad indicator of a sector's cash flow requirements. When this measure is positive (i.e. a surplus), it reflects the extent to which cash is available to government to either increase its financial assets or decrease its liabilities (assuming no revaluations and other changes occur). When this measure is negative (i.e. a deficit), it is a measure of the extent to which government requires cash, either by running down its financial assets or by drawing on the cash reserves of the domestic economy, or from overseas.

### **Endnotes**

1 In practice, a reconciliation of GFS NOB to ASNA Net Savings plus Capital Transfers will be required to account for some differences in methodology and valuation used in the Australian GFS.

2 Includes net capital transfers, i.e. capital transfers received less capital transfers paid on an accruals basis.

3 Price changes (referred to as revaluations) and other changes in volume of assets may also impact on government's NW.

4 The Commonwealth budget uses the term 'Fiscal Balance' when referring to the GFS NLB.

5 In practice, GFS NLB will differ from ASNA NLB due to the different treatment and valuation of some component items.

6 Note that there has been a reversal of the sign convention between the two systems. A 'surplus' in the accruals-based system is presented as a positive value.

7 Although the Surplus(+)Deficit(–) is a cash-based measure and does not capture non-cash items such as accruing unfunded superannuation or depreciation, it does, however, include some items of a non-cash nature to avoid a large break in the continuity of this measure.

## **Total public sector, all Australian governments combined**

This section sets out the Operating Statement, Cash Flow Statement and Balance Sheet for the total public sector for all Australian governments combined.

### **Operating Statement**

As table 27.5 shows, in 1999–2000 the GFS Net Operating Balance (NOB) for the total public sector was \$18,812m and GFS Net Lending was \$14,898m.

### **Cash Flow Statement**

Table 27.6 shows a surplus for the total public sector of \$13,706m in 1999–2000.

### **Balance Sheet**

Table 27.7 provides Balance Sheet results as at 30 June 2000. The consolidated GFS Net Worth (NW) for the total public sector was \$297,761m.

#### **27.5 ALL AUSTRALIAN GOVERNMENTS, Total Public Sector, Operating Statement — 1999–2000**

	Commonwealth	Multi-jurisdictional(a)	State	Local	All Australian governments(b)
	\$m	\$m	\$m	\$m	\$m
GFS Revenue	188 559	9 094	125 782	16 131	294 185
less					
GFS Expenses	176 274	8 785	119 565	14 839	275 373
equals					
<b>Net Operating Balance</b>	<b>12 284</b>	<b>308</b>	<b>6 216</b>	<b>1 292</b>	<b>18 812</b>
less					
Net acquisition of non-financial assets	838	334	1 577	1 153	3 913
equals					
<b>GFS Net Lending(+)Borrowing(–)</b>	<b>11 446</b>	<b>-25</b>	<b>4 639</b>	<b>139</b>	<b>14 898</b>

(a) The multi-jurisdictional sector currently contains only universities. (b) The sums of individual levels of government may not agree with for all Australian governments due to transfers between levels of government.

Source: *Government Finance Statistics, Australia, 1999–2000 (5512.0)*.

**27.6 ALL AUSTRALIAN GOVERNMENTS, Total Public Sector, Cash Flow Statement — 1999–2000**

	Commonwealth \$m	Multi- jurisdictional(a) \$m	State \$m	Local \$m	All Australian governments(b) \$m
CASH FLOW STATEMENT					
Cash receipts from operating activities	184 996	9 159	124 903	15 521	289 992
Cash payments for operating activities	-169 031	-8 288	-108 572	-11 400	-254 121
<i>Net cash flows from operating activities</i>	<i>15 965</i>	<i>872</i>	<i>16 330</i>	<i>4 122</i>	<i>35 871</i>
Net cash flows from investments in non-financial assets	-5 670	-971	-10 091	-4 040	-20 662
Net cash flows from investments in financial assets for policy purposes	9 577	-1	4 221	2	12 991
Net cash flows from investments in financial assets for liquidity purposes	-16 107	-137	637	32	-14 839
Net cash flows from financing activities	-3 848	-7	11 389	179	-13 694
<b>Net Increase(+) / Decrease(–) in Cash Held</b>	<b>-84</b>	<b>-244</b>	<b>-292</b>	<b>295</b>	<b>-333</b>
SURPLUS(+)/DEFICIT(–)					
<b>Surplus(+)/Deficit(–)</b>	<b>8 823</b>	<b>-101</b>	<b>6 222</b>	<b>69</b>	<b>13 706</b>

(a) The multi-jurisdictional sector currently contains only universities. (b) The sums of individual levels of government may not agree with totals for all Australian governments due to transfers between levels of government.

Note: Negative figures denote outflows.

Source: *Government Finance Statistics, Australia, 1999–2000* (5512.0).

**27.7 ALL AUSTRALIAN GOVERNMENTS, Total Public Sector, Balance Sheet — 30 June 2000**

	Commonwealth \$m	Multi- jurisdictional(a) \$m	State \$m	Local \$m	All Australian governments(b) \$m
Assets					
Financial assets	166 115	7 547	80 107	8 060	249 872
Non-financial assets	67 019	16 777	340 385	143 373	567 550
<i>Total</i>	<i>233 134</i>	<i>24 325</i>	<i>420 492</i>	<i>151 433</i>	<i>817 422</i>
Liabilities					
Shares and other contributed capital	261 231	5 259	173 690	8 953	437 323
<b>GFS Net Worth</b>	<b>-110 543</b>	<b>19 065</b>	<b>246 797</b>	<b>142 441</b>	<b>297 761</b>
Net debt(c)	51 277	-4 009	20 146	-607	66 807
Net financial worth(d)	-177 562	2 288	-93 588	-932	-269 789

(a) The multi-jurisdictional sector currently contains only universities. (b) The sums of individual levels of government may not agree with totals for all Australian governments due to assets and liabilities held between levels of government. (c) Equals deposits held, advances received, Reserve Bank notes on issue and borrowing less cash and deposits, advances paid, and investments, loans and placements. (d) Equals total financial assets less total liabilities less shares and other contributed capital.

Source: *Government Finance Statistics, Australia, 1999–2000* (5512.0)

## **General government, all Australian governments combined**

This section sets out the Operating Statement, Cash Flow Statement and Balance Sheet for the general government sector for all Australian governments combined.

### **Operating Statement**

Table 27.8 provides an Operating Statement for the general government sector for 1999–2000.

For 1999–2000 the GFS Net Operating Balance (NOB) for the general government sector for all Australian governments combined was \$16,782m. The two largest components of this figure were the NOBs for the Commonwealth Government and the State Governments, \$12,244m and \$4,498m respectively.

GFS Net Lending for the general government sector for all Australian governments combined was \$14,206m for 1999–2000. The Commonwealth Government and the State Governments contributed \$13,469m and \$1,819m respectively to this aggregate.

### **Cash Flow Statement**

Table 27.9 provides a Cash Flow Statement for 1999–2000 for the general government sector for all Australian governments combined.

The cash surplus for all Australian governments for 1999–2000 was \$14,155m, the result of a Commonwealth surplus of \$12,671m and a surplus of \$2,224m for State Governments. Local governments had a small surplus partly offset by a deficit for universities.

### **Balance Sheet**

Table 27.10 provides the Balance Sheet as at 30 June 2000 for the general government sector.

The consolidated GFS Net Worth as at 30 June 2000 for the general government sector for all Australian governments combined was \$373,395m. The major contributor to this result was land and fixed assets.

**27.8 ALL AUSTRALIAN GOVERNMENTS, General Government, Operating Statement — 1999–2000**

	Commonwealth	Multi-jurisdictional(a)	State	Local	All Australian governments(b)
	\$m	\$m	\$m	\$m	\$m
GFS Revenue					
Taxation revenue	152 576	—	37 820	6 002	196 224
Current grants and subsidies	—	4 312	33 612	2 051	71
Sales of goods and services	2 996	3 976	8 897	5 141	19 593
Interest from public non-financial corporations	61	..	185	1	247
Interest from public financial corporations	509	33	565	38	1 146
Interest from other	397	214	2 133	366	2 769
Dividend income	6 212	40	3 427	3	9 683
Other	3 865	519	8 881	2 528	12 710
Total	166 617	9 094	95 520	16 130	242 443
less					
GFS Expenses					
Gross operating expenses					
Depreciation	1 451	641	4 831	3 341	10 264
Employee expenses	17 864	5 053	38 523	4 359	65 786
Other operating expenses	27 532	2 746	24 127	6 531	60 634
Total	46 847	8 440	67 481	14 232	136 684
Nominal superannuation interest expenses	3 448	—	2 693	—	6 140
Other interest expenses	6 878	21	(c)3 217	424	(c)10 274
Other property expenses	—	—	—	—	—
Current transfers					
Grant expenses to State Governments	33 050	..	26	..	26
Grant expenses to the private sector	4 961	12	7 550	19	12 542
Grant expenses to universities	3 990	..	94	..	—
Grant expenses to local governments	205	..	1 642	..	—
Grant expenses n.e.c.	283	..	64	..	283
Subsidy expenses to public corporations	301	..	3 836	..	4 137
Subsidy expenses to other	1 849	7	533	..	2 376
Other current transfers	49 880	303	1 045	138	50 891
Capital transfers					
Grant expenses to public non-financial corporations	—	..	1 362	..	1 362
Grant expenses to public financial corporations	—	..	26	..	26
Grant expenses to other levels of government	2 431	..	775	..	—
Grant expenses n.e.c.	84	—	515	19	618
Other capital transfers	167	1	163	9	301
Total	154 373	8 785	91 022	14 841	225 661
equals					
<b>GFS Net Operating Balance</b>	<b>12 244</b>	<b>308</b>	<b>4 498</b>	<b>1 289</b>	<b>16 782</b>
less					
Net acquisition of non-financial assets					
Gross fixed capital formation	1 820	949	7 579	3 957	14 276
less Depreciation	1 451	641	4 831	3 341	10 264
plus Change in inventories	16	1	-10	8	16
plus Other transactions in non-financial assets	-1 611	25	-58	151	-1 452
Total	-1 225	334	2 680	776	2 576
equals					
<b>GFS Net Lending(+) / Borrowing(-)</b>	<b>13 469</b>	<b>-25</b>	<b>1 819</b>	<b>513</b>	<b>14 206</b>

(a) The multi-jurisdictional sector currently contains only universities. (b) The sums of individual levels of government may not agree with totals for all Australian governments due to transfers between levels of government. (c) Nominal superannuation interest expenses for the Australian Capital Territory are included in other interest expenses.

Source: *Government Finance Statistics, Australia, 1999–2000* (5512.0).

## 27.9 ALL AUSTRALIAN GOVERNMENTS, General Government, Cash Flow Statement — 1999–2000

	Commonwealth \$m	Multi- jurisdictional(a) \$m	State \$m	Local \$m	All Australian governments(b) \$m
CASH FLOW STATEMENT					
<b>Cash receipts from operating activities</b>					
Taxes received	150 695	—	37 673	5 898	194 212
Receipts from sales of goods and services	3 265	3 361	9 126	5 174	19 761
Grants and subsidies received	..	4 469	36 025	2 678	989
Interest received from public non-financial corporations	55	—	194	—	249
Interest received from public financial corporations	—	14	582	81	676
Interest from other	940	210	2 190	307	3 494
Other receipts	8 550	1 106	8 335	1 383	19 293
<i>Total</i>	<i>163 505</i>	<i>9 159</i>	<i>94 124</i>	<i>15 521</i>	<i>238 676</i>
<b>Cash payments for operating activities</b>					
Payments for goods and services	-43 637	-6 961	-64 580	-10 449	-125 061
Grants and subsidies paid to State Governments	-35 449	..	-17	..	..
Grants and subsidies paid to the private sector	-6 224	..	-8 367	-35	-14 627
Grants and subsidies paid to universities	-4 020	..	-64	..	..
Grants and subsidies paid to local governments	-206	..	-1 880	..	-51
Grants and subsidies paid to public corporations	-333	..	-5 201	..	-5 535
Interest paid	-7 321	-25	-3 116	-426	-10 642
Other payments	-53 182	-1 301	-1 132	-494	-55 978
<i>Total</i>	<i>-150 373</i>	<i>-8 288</i>	<i>-84 358</i>	<i>-11 403</i>	<i>-211 894</i>
<i>Net cash flows from operating activities</i>	<i>13 132</i>	<i>872</i>	<i>9 766</i>	<i>4 118</i>	<i>26 782</i>
<b>Net cash flows from investments in non-financial assets</b>					
Sales of non-financial assets	2 323	83	1 131	683	4 220
Purchases of new non-financial assets	-2 784	-1 054	-8 656	-4 332	-16 810
Purchases of secondhand non-financial assets	—	—	-6	-5	-11
<i>Total</i>	<i>-461</i>	<i>-971</i>	<i>-7 531</i>	<i>-3 654</i>	<i>-12 601</i>
<b>Net cash flows from investments in financial assets for policy purposes</b>	9 500	-1	4 843	-153	13 443
<b>Net cash flows from investments in financial assets for liquidity purposes</b>	-10 245	-137	-2 213	32	-11 950
<b>Net cash flows from financing activities</b>					
Advances received (net)	90	15	-642	20	79
Borrowing (net)	-10 179	28	-3 564	-57	-3 595
Deposits received (net)	-34	7	106	4	83
Other financing (net)	180	-57	-6	-27	-9 462
<i>Total</i>	<i>-9 943</i>	<i>-7</i>	<i>-4 107</i>	<i>-60</i>	<i>-12 895</i>
<b>Net Increase(+) / Decrease(-) in Cash Held</b>	<b>1 983</b>	<b>-244</b>	<b>758</b>	<b>282</b>	<b>2 779</b>
SURPLUS(+) / DEFICIT(-)					
Net cash flows from operating activities and net cash flows from investments in non-financial assets	12 671	-100	2 235	464	14 180
Acquisitions of assets under finance leases and similar arrangements	—	-1	-11	-13	-25
<b>Surplus(+) / Deficit(-)</b>	<b>12 671</b>	<b>-101</b>	<b>2 224</b>	<b>451</b>	<b>14 155</b>

(a) The multi-jurisdictional sector currently contains only universities. (b) The sums of individual levels of government may not agree with totals for all Australian governments due to transfers between levels of government.

Note: Negative figures denote outflows.

Source: *Government Finance Statistics, Australia, 1999–2000* (5512.0).

**27.10 ALL AUSTRALIAN GOVERNMENTS, General Government, Balance Sheet — 30 June 2000**

	Commonwealth	Multi-jurisdictional(a)	State	Local	All Australian governments(b)
	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>					
Financial Assets					
Cash and deposits	3 556	567	6 579	1 975	12 677
Advances paid	18 116	11	3 975	7	16 369
Investments, loans and placements	18 485	3 867	22 459	4 538	48 732
Other non-equity assets	15 511	2 713	10 438	1 497	28 298
Equity	61 811	391	115 650	416	178 268
<i>Total</i>	<i>117 479</i>	<i>7 547</i>	<i>159 101</i>	<i>8 434</i>	<i>284 344</i>
Non-financial assets					
Land and fixed assets	29 820	16 754	187 374	141 757	375 705
Other non-financial assets	1 852	24	2 356	917	5 148
<i>Total</i>	<i>31 672</i>	<i>16 777</i>	<i>189 730</i>	<i>142 674</i>	<i>380 854</i>
<b>Total</b>	<b>149 151</b>	<b>24 325</b>	<b>348 831</b>	<b>151 108</b>	<b>665 197</b>
<b>Liabilities</b>					
Deposits held	233	51	1 409	200	1 892
Advances received	—	45	4 636	43	—
Borrowing	89 133	339	35 461	5 429	128 729
Unfunded superannuation liability and other employee entitlements	81 816	3 740	47 730	1 447	134 733
Other provisions	1 307	21	470	82	1 881
Other non-equity liabilities	11 569	1 064	12 330	1 466	24 568
<i>Total</i>	<i>184 059</i>	<i>5 259</i>	<i>102 035</i>	<i>8 668</i>	<i>291 803</i>
<b>GFS Net Worth</b>	<b>-34 908</b>	<b>19 065</b>	<b>246 797</b>	<b>142 441</b>	<b>373 395</b>
Net debt(c)	49 209	-4 009	8 492	-848	52 843
Net financial worth(d)	-66 580	2 288	57 067	-234	-7 459

(a) The multi-jurisdictional sector currently contains only universities. (b) The sums of individual levels of government may not agree with totals for all Australian governments due to assets and liabilities held between levels of government. (c) Equals deposits held, advances received and borrowing less cash and deposits, advances paid and investments, loans and placements. (d) Equals total financial assets less total liabilities.

Source: *Government Finance Statistics, Australia, 1999-2000* (5512.0).

## Total public sector, State Governments

This section provides the Operating Statement, Cash Flow Statement and Balance Sheet for the total public sector for each of the State Governments.

### Operating Statement

Table 27.11 summarises the net operating results for the total public sector for each State Government for 1999–2000.

## Cash Flow Statement

Table 27.12 summarises the cash results for 1999–2000 for the total public sector for each State Government.

### Balance Sheet

Table 27.13 summarises the Balance Sheet results as at 30 June 2000 for the total public sector for each State Government.

**27.11 STATE GOVERNMENTS, Total Public Sector, Operating Statement — 1999–2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
GFS Revenue	40 829	27 369	23 866	10 480	15 361	3 595	2 430	2 202	125 782
less									
GFS Expenses	37 536	25 872	22 671	10 717	15 060	3 365	2 625	2 149	119 565
equals									
<b>Net Operating Balance</b>	<b>3 293</b>	<b>1 498</b>	<b>1 195</b>	<b>-237</b>	<b>301</b>	<b>231</b>	<b>-195</b>	<b>53</b>	<b>6 216</b>
less									
Net acquisition of non-financial assets	2 038	859	1 730	-3 506	531	-54	-8	-7	1 577
equals									
<b>GFS Net Lending(+) / Borrowing(-)</b>	<b>1 255</b>	<b>639</b>	<b>-536</b>	<b>3 269</b>	<b>-230</b>	<b>285</b>	<b>-187</b>	<b>60</b>	<b>4 639</b>

(a) The sums of all individual State jurisdictions may not agree with total State figures, due to transfers between jurisdictions.

Source: *Government Finance Statistics, Australia, 1999–2000* (5512.0).

**27.12 STATE GOVERNMENTS, Total Public Sector, Cash Flow Statement — 1999–2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
CASH FLOW STATEMENT									
Cash receipts from operating activities	40 992	27 135	23 491	10 540	14 886	3 686	2 325	2 155	124 903
Cash payments for operating activities	-34 629	-23 109	-21 047	-9 614	-13 569	-3 121	-2 195	-1 773	-108 572
<b>Net cash flows from operating activities</b>	<b>6 363</b>	<b>4 026</b>	<b>2 444</b>	<b>927</b>	<b>1 318</b>	<b>564</b>	<b>130</b>	<b>382</b>	<b>16 330</b>
Net cash flows from investments in non-financial assets	-4 592	-2 026	-4 326	2 938	-1 511	-230	-177	-176	-10 091
Net cash flows from investments in financial assets for policy purposes	-90	-441	-158	7	14	158	3	-34	4 221
Net cash flows from investments in financial assets for liquidity purposes	889	-429	1 994	-1 298	-44	-7	-28	-466	637
Net cash flows from financing activities	-3 327	-1 162	-188	-2 392	752	-480	72	295	-11 389
<b>Net Increase(+) / Decrease(–) in Cash Held</b>	<b>-756</b>	<b>-32</b>	<b>-234</b>	<b>181</b>	<b>529</b>	<b>5</b>	<b>1</b>	<b>—</b>	<b>-292</b>
SURPLUS(+) / DEFICIT(–)									
<b>Surplus(+) / Deficit(–)</b>	<b>1 771</b>	<b>2 000</b>	<b>-1 886</b>	<b>3 864</b>	<b>-196</b>	<b>334</b>	<b>-49</b>	<b>197</b>	<b>6 222</b>

(a) The sums of individual State jurisdictions may not agree with total State figures, due to transfers between jurisdictions.

Note: Negative figures denote outflows.

Source: *Government Finance Statistics, Australia, 1999–2000* (5512.0).

**27.13 STATE GOVERNMENTS, Total Public Sector, Balance Sheet — 30 June 2000**

	NSW	Vic.	Qld.	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>									
Financial assets	13 208	23 321	18 358	11 927	9 328	2 885	1 267	1 582	80 107
Non-financial assets	124 170	59 727	65 159	21 601	44 140	11 099	6 246	8 248	340 385
<i>Total</i>	<i>137 377</i>	<i>83 048</i>	<i>83 516</i>	<i>33 528</i>	<i>53 468</i>	<i>13 984</i>	<i>7 514</i>	<i>9 829</i>	<i>420 492</i>
<b>Liabilities</b>									
<b>GFS Net Worth</b>	<b>88 050</b>	<b>40 363</b>	<b>57 658</b>	<b>12 468</b>	<b>31 691</b>	<b>6 029</b>	<b>3 534</b>	<b>7 040</b>	<b>246 797</b>
Net debt(b)	19 627	-5 975	-4 262	2 442	4 974	2 053	1 108	120	20 146
Net financial worth(c)	-36 120	-19 364	-7 501	-9 133	-12 449	-5 070	-2 712	-1 207	-93 588

(a) The sums of individual State jurisdictions may not agree with total State figures, due to assets and liabilities held between jurisdictions. (b) Equals deposits held, advances received and borrowing less cash and deposits, advances paid and investments, loans and placements. (c) Equals total financial assets less total liabilities less shares and other contributed capital.

Source: *Government Finance Statistics, Australia, 1999–2000* (5512.0).

## General government, State Governments

This section sets out the Operating Statement, Cash Flow Statement and Balance Sheet for the general government sector for each State Government.

## Operating Statement

Table 27.14 summarises the net operating results for the general government sector for each State Government for 1999–2000.

**27.14 STATE GOVERNMENTS, General Government, Operating Statement — 1999–2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>GFS Revenue</b>									
Taxation revenue	15 191	9 708	5 053	2 708	3 422	698	349	690	37 820
Current grants and subsidies	10 099	7 280	6 363	3 019	3 674	1 223	1 306	654	33 612
Sales of goods and services	2 777	2 099	1 695	687	1 048	333	83	231	8 897
Interest income	492	199	1 773	216	119	35	20	54	2 883
Other	3 340	2 740	2 979	1 013	1 431	331	186	290	12 309
<b>Total</b>	<b>31 899</b>	<b>22 027</b>	<b>17 862</b>	<b>7 644</b>	<b>9 693</b>	<b>2 620</b>	<b>1 943</b>	<b>1 920</b>	<b>95 520</b>
<i>less</i>									
<b>GFS Expenses</b>									
Gross operating expenses									
Depreciation	1 411	762	1 455	342	454	138	147	121	4 831
Employee expenses	12 814	8 499	6 993	3 288	4 177	1 090	867	796	38 523
Other operating expenses	8 303	6 255	3 252	2 097	2 573	654	537	560	24 127
<b>Total</b>	<b>22 528</b>	<b>15 515</b>	<b>11 700</b>	<b>5 726</b>	<b>7 203</b>	<b>1 883</b>	<b>1 552</b>	<b>1 477</b>	<b>67 481</b>
Nominal superannuation interest expenses	479	806	710	274	297	68	59	..	2 693
Other interest expenses	1 305	453	283	601	236	154	137	(b)49	(b)3 217
Other property expenses	—	—	—	—	—	—	—	—	—
Current transfers									
Grant expenses	2 784	1 808	2 252	691	1 256	218	146	223	9 375
Subsidy expenses	1 265	929	999	601	395	93	76	9	4 368
Other current transfers	407	270	81	9	69	10	126	73	1 045
Capital transfers									
Grants to local governments	185	30	493	3	97	1	6	—	817
Other capital transfers	911	508	279	68	170	37	47	6	2 025
<b>Total</b>	<b>29 865</b>	<b>20 321</b>	<b>16 799</b>	<b>7 973</b>	<b>9 723</b>	<b>2 463</b>	<b>2 148</b>	<b>1 838</b>	<b>91 022</b>
<i>equals</i>									
<b>GFS Net Operating Balance</b>	<b>2 033</b>	<b>1 706</b>	<b>1 064</b>	<b>-330</b>	<b>-30</b>	<b>156</b>	<b>-205</b>	<b>82</b>	<b>4 498</b>
<i>less</i>									
Net acquisition of non-financial assets									
Gross fixed capital formation	2 112	1 262	2 645	479	732	98	124	126	7 579
less Depreciation	1 411	762	1 455	342	454	138	147	121	4 831
plus Change in inventories	-4	36	-26	2	-19	—	—	—	-10
plus Other transactions in non-financial assets	42	-103	20	-2	-16	4	-3	—	-58
<b>Total</b>	<b>738</b>	<b>435</b>	<b>1 184</b>	<b>137</b>	<b>243</b>	<b>-36</b>	<b>-26</b>	<b>5</b>	<b>2 680</b>
<i>equals</i>									
<b>GFS Net Lending(+)/Borrowing(–)</b>	<b>1 295</b>	<b>1 271</b>	<b>-121</b>	<b>-467</b>	<b>-273</b>	<b>192</b>	<b>-179</b>	<b>78</b>	<b>1 819</b>

(a) The sums of all individual State jurisdictions may not agree with total State figures, due to transfers between jurisdictions.

(b) Nominal superannuation interest expenses for the Australian Capital Territory are included in other interest expenses.

Source: *Government Finance Statistics, Australia, 1999–2000* (5512.0).

## Cash Flow Statement

Table 27.15 summarises the cash results for 1999–2000 for the general government sector for each State Government.

## Balance Sheet

Table 27.16 summarises the Balance Sheet results as at 30 June 2000 for the general government sector for each State Government.

**27.15 STATE GOVERNMENTS, General Government, Cash Flow Statement — 1999–2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
CASH FLOW STATEMENT									
Cash receipts from operating activities									
Taxes received	15 185	9 667	5 043	2 707	3 332	691	348	699	37 673
Receipts from sales of goods and services	2 799	1 982	1 924	687	1 133	298	73	251	9 126
Grants and subsidies received	10 979	7 733	6 839	3 234	3 811	1 386	1 370	679	36 025
Other receipts	2 805	2 449	3 324	1 007	1 187	179	133	239	11 300
<i>Total</i>	31 768	21 831	17 131	7 634	9 464	2 554	1 924	1 869	94 124
Cash payments for operating activities									
Payments for goods and services	-20 990	-15 067	-12 278	-5 380	-6 818	-1 736	-1 269	-1 143	-64 580
Grants and subsidies paid	-5 262	-3 167	-2 906	-1 359	-1 941	-356	-250	-292	-15 529
Interest paid	-1 254	-450	-244	-601	-227	-154	-135	-50	-3 116
Other payments	-251	-109	-280	-63	-122	-10	-236	-61	-1 132
<i>Total</i>	-27 757	-18 793	-15 708	-7 403	-9 108	-2 257	-1 890	-1 546	-84 358
Net cash flows from operating activities	4 011	3 038	1 423	231	356	296	34	323	9 766
Net cash flows from investments in non-financial assets									
Sales of non-financial assets	378	187	289	41	100	71	42	24	1 131
Purchases of new non-financial assets	-2 521	-1 330	-2 992	-511	-832	-159	-162	-150	-8 656
Purchases of secondhand non-financial assets	—	—	—	—	—	-5	-1	—	-6
<i>Total</i>	-2 143	-1 143	-2 703	-470	-738	-89	-120	-126	-7 531
Net cash flows from investments in financial assets for policy purposes	-64	107	510	3 739	280	271	50	-51	4 843
Net cash flows from investments in financial assets for liquidity purposes	-244	-1 163	-183	-141	-4	-4	-4	-470	-2 213
Net cash flows from financing activities									
Advances received (net)	-132	-1	7	-173	-202	-140	-1	—	-642
Borrowing (net)	-1 973	-755	536	-2 020	287	-110	90	381	-3 564
Deposits received (net)	2	12	—	93	—	—	-2	—	106
Other financing (net)	14	76	-1	-11	49	-21	—	-57	-6
<i>Total</i>	-2 090	-667	542	-2 111	134	-271	87	325	-4 107
<b>Net Increase(+) / Decrease(-) in Cash Held</b>	<b>-530</b>	<b>172</b>	<b>-411</b>	<b>1 248</b>	<b>28</b>	<b>204</b>	<b>46</b>	<b>—</b>	<b>758</b>
SURPLUS(+) / DEFICIT(-)									
Net cash flows from operating activities and net cash flows from investments in non-financial assets	1 868	1 895	-1 279	-239	-382	208	-86	197	2 235
Acquisitions of assets under finance leases and similar arrangements	—	—	-1	—	—	—	-1	-9	-11
<b>Surplus(+) / Deficit(-)</b>	<b>1 868</b>	<b>1 895</b>	<b>-1 280</b>	<b>-239</b>	<b>-382</b>	<b>208</b>	<b>-88</b>	<b>188</b>	<b>2 224</b>

(a) The sums of all individual State jurisdictions may not agree with total State figures, due to transfers between jurisdictions.

Note: Negative figures denote outflows.

Source: *Government Finance Statistics, Australia, 1999-2000* (5512.0).

**27.16 STATE GOVERNMENTS, General Government, Balance Sheet — 30 June 2000**

	NSW	Vic.	Qld.	SA	WA	Tas.	NT	ACT	Total(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>									
Financial Assets									
Cash and deposits	418	894	753	3 187	227	660	58	382	6 579
Advances paid	1 693	410	161	47	858	112	48	646	3 975
Investments, loans and placements	3 859	2 432	12 835	1 561	1 094	49	517	333	22 459
Other non-equity assets	3 701	681	4 585	360	767	75	73	205	10 438
Equity	46 542	23 791	12 966	9 934	14 758	3 521	1 373	2 765	115 650
<i>Total</i>	<i>56 214</i>	<i>28 208</i>	<i>31 300</i>	<i>15 088</i>	<i>17 705</i>	<i>4 416</i>	<i>2 068</i>	<i>4 332</i>	<i>159 101</i>
Non-financial assets									
Land and fixed assets	64 230	33 531	41 833	9 270	23 260	5 566	4 534	5 150	187 374
Other non-financial assets	754	978	—	191	163	2	—	267	2 356
<i>Total</i>	<i>64 984</i>	<i>34 510</i>	<i>41 833</i>	<i>9 462</i>	<i>23 423</i>	<i>5 568</i>	<i>4 534</i>	<i>5 417</i>	<i>189 730</i>
<i>Total assets</i>	<i>121 197</i>	<i>62 718</i>	<i>73 134</i>	<i>24 550</i>	<i>41 127</i>	<i>9 985</i>	<i>6 602</i>	<i>9 749</i>	<i>348 831</i>
<b>Liabilities</b>									
Deposits held	64	331	—	640	151	20	145	57	1 409
Advances received	2 142	9	13	935	732	485	1	317	4 636
Borrowing	14 961	6 373	3 614	5 140	2 023	1 448	1 493	631	35 461
Unfunded superannuation liability and other employee entitlements	9 631	14 414	8 508	4 374	6 045	1 905	1 294	1 558	47 730
Other provisions	34	134	226	—	—	—	72	3	470
Other non-equity liabilities	6 350	1 094	3 115	994	485	98	62	141	12 330
<i>Total</i>	<i>33 182</i>	<i>22 355</i>	<i>15 477</i>	<i>12 083</i>	<i>9 436</i>	<i>3 955</i>	<i>3 067</i>	<i>2 708</i>	<i>102 035</i>
<b>GFS Net Worth</b>	<b>88 015</b>	<b>40 363</b>	<b>57 657</b>	<b>12 467</b>	<b>31 691</b>	<b>6 029</b>	<b>3 534</b>	<b>7 040</b>	<b>246 797</b>
Net debt(b)	11 197	2 977	-10 122	1 920	726	1 132	1 017	-355	8 492
Net financial worth(c)	23 031	5 853	15 824	3 006	8 268	461	-1 000	1 623	57 067

(a) The sums of all individual State jurisdictions may not agree with total State figures, due to assets and liabilities held between jurisdictions. (b) Equals deposits held, advances received and borrowing less cash and deposits, advances paid, and investments, loans and placements. (c) Equals total financial assets less total liabilities.

Source: *Government Finance Statistics, Australia, 1999-2000 (5512.0)*.

## Total public sector, local governments

This section sets out the Operating Statement, Cash Flow Statement and Balance Sheet for the total public sector for local governments

### Operating Statement

Table 27.17 summarises the net operating results for the total public sector for local governments for 1999–2000.

### Cash Flow Statement

Table 27.18 summarises the cash results for 1999–2000 for the total public sector for local governments.

### Balance Sheet

Table 27.19 summarises the Balance Sheet results as at 30 June 2000 for the total public sector for local governments.

**27.17 LOCAL GOVERNMENTS, Total Public Sector, Operating Statement — 1999–2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(a)	Total(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>GFS Revenue</b>									
Taxation revenue	2 080	1 427	1 162	510	629	150	43	..	6 002
Sales of goods and services	551	561	404	121	254	71	88	..	2 052
Current grants and subsidies	1 848	697	1 824	189	347	189	49	..	5 144
Interest income	190	52	95	17	40	9	3	..	406
Other	960	386	890	70	155	18	50	..	2 528
<i>Total</i>	5 629	3 123	4 374	908	1 425	438	233	..	16 131
<i>less</i>									
<b>GFS Expenses</b>									
Gross operating expenses									
Depreciation	1 145	608	859	218	359	123	39	..	3 350
Employee expenses	1 854	978	1 048	287	—	135	61	..	4 364
Other operating expenses	1 893	1 543	1 429	380	989	152	120	..	6 507
<i>Total</i>	4 892	3 129	3 336	886	1 348	410	221	..	14 221
Property expenses									
Other interest expenses	108	46	221	26	13	15	2	..	432
Current transfers									
Grant expenses	—	—	—	7	11	2	—	..	20
Tax expenses	5	—	10	—	5	1	—	..	21
Other current transfers	95	—	3	4	7	9	—	..	117
Capital transfers									
Grant expenses	—	—	19	—	—	—	—	..	19
Other capital transfers	—	—	8	1	—	—	—	..	9
<i>Total</i>	5 100	3 175	3 597	923	1 384	437	222	..	14 839
<i>equals</i>									
<b>GFS Net Operating Balance</b>									
	529	-52	777	-16	41	1	11	..	1 292
<i>less</i>									
Net acquisition of non-financial assets									
Gross fixed capital formation	1 330	546	1 616	211	429	108	44	..	4 284
less Depreciation	1 145	608	859	218	359	123	39	..	3 350
plus Change in inventories	3	—	4	—	—	1	—	..	8
plus Other transactions in non-financial assets	74	-20	160	8	-14	2	—	..	210
<i>Total</i>	262	-81	921	2	56	-12	5	..	1 153
<i>equals</i>									
<b>GFS Net Lending(+) / Borrowing(-)</b>									
	267	30	-144	-18	-15	14	6	..	139

(a) The ACT has no separate local government. (b) The sums of all individual State jurisdictions may not agree with total State figures, due to transfers between jurisdictions.

Source: *Government Finance Statistics, Australia, 1999-2000* (5512.0).

**27.18 LOCAL GOVERNMENTS, Total Public Sector, Cash Flow Statement — 1999–2000**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(a)	Total(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>CASH FLOW STATEMENT</b>									
<b>Cash receipts from operating activities</b>									
Taxes received	2 003	1 427	1 137	512	625	151	43	..	5 898
Receipts from sales of goods and services	1 954	699	1 600	204	436	185	98	..	5 175
Grants and subsidies received	616	626	818	146	306	78	88	..	2 678
Other receipts	729	372	590	26	38	14	3	..	1 771
<i>Total</i>	5 301	3 123	4 144	887	1 405	429	232	..	15 521
<b>Cash payments for operating activities</b>									
Payments for goods and services	-3 771	-2 521	-2 530	-663	-481	-295	-178	..	-10 441
Grants and subsidies paid	—	-2	—	-8	-24	-2	—	..	-35
Interest paid	-110	-46	-215	-29	-13	-15	-2	..	-431
Other payments	—	—	—	-9	-476	-9	—	..	-494
<i>Total</i>	-3 880	-2 569	-2 745	-710	-994	-321	-180	..	-11 400
<b>Net cash flows from operating activities</b>	<b>1 420</b>	<b>554</b>	<b>1 399</b>	<b>177</b>	<b>411</b>	<b>107</b>	<b>52</b>	..	<b>4 122</b>
<b>Net cash flows from investments in non-financial assets</b>									
Sales of non-financial assets	309	128	109	41	79	11	5	..	684
Purchases of new non-financial assets	-1 503	-654	-1 356	-227	-493	-114	-49	..	-4 397
Purchases of secondhand non-financial assets	—	—	-321	-3	-2	—	—	..	-326
<i>Total</i>	-1 194	-526	-1 568	-188	-416	-103	-44	..	-4 040
<b>Net cash flows from investments in financial assets for policy purposes</b>	<b>—</b>	<b>—</b>	<b>1</b>	<b>4</b>	<b>-3</b>	<b>—</b>	<b>—</b>	..	<b>2</b>
<b>Net cash flows from investments in financial assets for liquidity purposes</b>	<b>16</b>	<b>—</b>	<b>-11</b>	<b>23</b>	<b>8</b>	<b>-4</b>	<b>—</b>	..	<b>32</b>
<b>Net cash flows from financing activities</b>									
Advances received (net)	-7	-1	39	29	—	-1	—	..	59
Borrowing (net)	-57	24	172	-48	47	-6	2	..	134
Deposits received (net)	—	—	—	—	—	4	—	..	4
Other financing (net)	—	-51	42	9	-13	4	-10	..	-18
<i>Total</i>	-64	-28	254	-9	35	—	-8	..	179
<b>Net Increase(+) / Decrease(-) in Cash Held</b>	<b>178</b>	<b>—</b>	<b>75</b>	<b>7</b>	<b>35</b>	<b>—</b>	<b>—</b>	..	<b>295</b>
<b>SURPLUS(+)/DEFICIT(-)</b>									
Net cash flows from operating activities and net cash flows from investments in non-financial assets	226	28	-169	-11	-4	4	7	..	82
Acquisitions of assets under finance leases and similar arrangements	-12	—	—	-1	—	-1	—	..	-13
<b>Surplus(+)/Deficit(-)</b>	<b>215</b>	<b>28</b>	<b>-169</b>	<b>-12</b>	<b>-4</b>	<b>4</b>	<b>7</b>	..	<b>69</b>

(a) The ACT has no separate local government. (b) The sums of all individual State jurisdictions may not agree with total State figures, due to transfers between jurisdictions.

Note: Negative figures denote outflows.

Source: *Government Finance Statistics, Australia, 1999-2000 (5512.0)*.

**27.19 LOCAL GOVERNMENTS, Total Public Sector, Balance Sheet — 30 June 2000**

	NSW	Vic.	Qld.	SA	WA	Tas.	NT	ACT(a)	Total(b)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Assets</b>									
Financial Assets									
Cash and deposits	324	420	971	11	165	67	34	..	1 992
Advances paid	—	4	—	—	—	3	—	..	8
Investments, loans and placements	2 940	603	402	55	460	73	7	..	4 540
Other non-equity assets	510	422	314	84	127	48	4	..	1 508
Equity	—	—	1	11	—	—	—	..	11
<i>Total</i>	<i>3 774</i>	<i>1 450</i>	<i>1 688</i>	<i>161</i>	<i>752</i>	<i>192</i>	<i>44</i>	..	<i>8 060</i>
Non-financial assets									
Land and fixed assets	63 557	27 354	29 934	7 487	10 136	3 817	167	..	142 452
Other non-financial assets	896	—	—	—	12	8	5	..	921
<i>Total</i>	<i>64 453</i>	<i>27 354</i>	<i>29 934</i>	<i>7 487</i>	<i>10 148</i>	<i>3 826</i>	<i>171</i>	..	<i>143 373</i>
<i>Total</i>	<i>68 227</i>	<i>28 804</i>	<i>31 622</i>	<i>7 648</i>	<i>10 900</i>	<i>4 017</i>	<i>216</i>	..	<i>151 433</i>
<b>Liabilities</b>									
Deposits held	—	48	—	150	—	2	—	..	200
Advances received	27	6	—	9	—	1	—	..	43
Borrowing	1 464	647	3 025	120	209	224	2	..	5 691
Unfunded superannuation liability and other employee entitlements	679	258	336	69	73	35	3	..	1 453
Other provisions	65	—	2	11	6	5	—	..	89
Other non-equity liabilities	552	329	307	69	173	37	12	..	1 477
<i>Total</i>	<i>2 786</i>	<i>1 288</i>	<i>3 670</i>	<i>429</i>	<i>461</i>	<i>304</i>	<i>16</i>	..	<i>8 953</i>
Shares and other contributed capital	—	—	39	—	—	—	—	..	39
<b>GFS Net Worth</b>	<b>65 440</b>	<b>27 516</b>	<b>27 913</b>	<b>7 219</b>	<b>10 439</b>	<b>3 714</b>	<b>199</b>	..	<b>142 441</b>
Net debt(c)	-1 773	-326	1 652	213	-416	83	-39	..	-607
Net financial worth(d)	987	162	-2 021	-268	291	-112	28	..	-932

(a) The ACT has no separate local government. (b) The sums of all individual State jurisdictions may not agree with total State figures, due to assets and liabilities held between jurisdictions. (c) Equals deposits held, advances received and borrowing less cash and deposits, advances paid, and investments, loans and placements. (d) Equals total financial assets less total liabilities less shares and other contributed capital.

Source: *Government Finance Statistics, Australia, 1999-2000 (5512.0)*.

## Taxation revenue

Table 27.20 shows, for the general government sector, the amount of taxation revenue collected in Australia during 1999–2000 by level of government and by type of tax. Total taxation revenue collected in Australia during the period was \$196,224m, which was 81% of total revenue. Commonwealth government taxation revenue

was \$152,576m and accounted for 78% of total taxation revenue. Total State and local government taxation revenue was \$43,813m, some 22% of total taxation revenue. The largest component of taxation revenue for the Commonwealth Government was income taxes; for State and local governments the largest component was property taxes.

**27.20 TAXATION REVENUE, General Government, All Levels of Government — 1999–2000**

Type of tax	Commonwealth	State and local	All Australian governments
	\$m	\$m	\$m
<b>Taxes on income</b>			
Income taxes levied on individuals	83 710	—	83 710
Income taxes levied on enterprises	29 516	—	29 516
Income taxes levied on non-residents	1 276	—	1 276
<i>Total</i>	114 503	—	114 503
<b>Employers' payroll taxes(a)</b>			
General taxes (payroll tax)	—	8 937	8 821
Other employers' labour force taxes	3 434	—	3 385
<i>Total</i>	3 434	8 937	12 206
<b>Taxes on property</b>			
Taxes on immovable property(a)	—	8 428	8 428
Taxes on financial and capital transactions	10	9 657	9 666
<i>Total</i>	10	18 085	18 095
<b>Taxes on provision of goods and services</b>			
General taxes (sales tax)	15 644	—	15 644
<b>Excise and levies</b>			
Crude oil and liquid petroleum gas (LPG)	11 447	—	11 447
Other excises	2 645	—	2 644
Agricultural production taxes	551	—	551
Levies on statutory corporations	—	17	17
<i>Total</i>	14 642	17	14 660
Taxes on international trade	3 799	—	3 799
Taxes on gambling	6	4 421	4 427
Taxes on insurance	—	2 138	2 138
<i>Total</i>	34 091	6 577	40 667
<b>Taxes on use of goods and performance of activities</b>			
Motor vehicle taxes	—	3 898	3 918
Franchise taxes	—	5 922	5 922
Other	538	396	914
<i>Total</i>	538	10 215	10 753
<b>Total taxes</b>	<b>152 576</b>	<b>43 813</b>	<b>196 224</b>

(a) The sum of individual levels of government may not agree with totals for all levels of government, due to intergovernmental taxes.

Source: *Taxation Revenue, Australia* (5506.0).

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Commonwealth Department of Finance and Administration, <http://www.finance.gov.au>

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## Introduction

Prices are a key factor in the operation of an economy. Price indexes, which provide summary measures of the movements in various categories of prices, are used extensively to analyse and monitor price behaviour, and to adjust government payments such as pensions.

This chapter provides an outline of the major price indexes, their history, and their underlying concepts and methodology. More detailed information is contained in the source publications referred to throughout the chapter and in the Bibliography.

## Consumer Price Index

The description of the CPI commonly adopted by users is in terms of its perceived uses; hence the frequent references to the CPI as a measure of inflation, a measure of changes in purchasing power, or a measure of changes in the cost of living. In practice, the CPI is a measure of changes, over time, in prices of a constant basket of goods and services acquired by metropolitan households in Australia. As such, the CPI has been designed as a general measure of price inflation for the household sector in Australia.

The simplest way of thinking about the CPI is to imagine a basket of goods and services of the kind acquired by Australian households. As prices vary, the total cost of this basket will also vary. The CPI is simply a measure of the changes in the cost of this basket as the prices of items in it change.

The price of the CPI basket in the base period is assigned a value of 100.0 and the prices in other periods are expressed as percentages of the price in the base period. For example, if the price of the basket had increased by 35% since the base year, then the index would read 135.0. Similarly, if the price had fallen by 5% since the base year, the index would stand at 95.0.

For practical reasons, the CPI basket cannot include every item bought by households, but it does include all the important kinds of items. It is not necessary to include every item that people buy since many related items are subject to similar price changes. The idea is to select representative items so that the index reflects price changes for a much wider range of goods and services than is actually priced.

From the September quarter 2000 onwards, the total basket is divided into the following eleven major commodity groups: food; alcohol and tobacco; clothing and footwear; housing; household furnishings, supplies and services; health; transportation; communication; recreation; education; and miscellaneous. These groups are divided in turn into 34 subgroups, and the subgroups into 89 expenditure classes. For more information see *A Guide to the Consumer Price Index, 14th Series* (6440.0).

In addition to the aggregate 'All groups' index, indexes are also compiled and published for each of the groups, subgroups and expenditure classes for each State capital city, Darwin and Canberra. National indexes are constructed as the weighted average of the indexes compiled for each of the eight capital cities.

The 14th Series CPI is the latest of a number of retail price indexes which have been constructed for various purposes by the ABS. The history of retail price indexes in Australia is published in *Year Book Australia 1995*.

### Index population

The CPI measures price changes relating to the spending pattern of metropolitan private households. This group is termed the CPI population group. 'Metropolitan' is defined as the State capital cities, together with Darwin and Canberra.

This population group differs from that applying to CPIs calculated and published prior to the September quarter 1998. For more information see the article *Outcomes of the 13th Series Australian Consumer Price Index Review* in *Year Book Australia 1999*.

### Conceptual basis

The CPI is a quarterly measure of the change in average price levels. It provides a method of comparing the average price level for a quarter with the average price level of other periods such as the reference base year, or other quarters. Changes in the average price level between periods can be calculated from their respective index levels.

The CPI aims to measure only pure price changes. In other words, it is concerned with isolating and measuring only that element of price change which is not caused by any change to either the quantity or the quality of the goods or services concerned (i.e. it aims to measure, each quarter, the change in the cost of acquiring an identical basket of goods and services). This involves evaluating any changes in the quality of goods and services included in the index and removing the effects of such changes from the prices used to construct the index.

The CPI measures changes in the prices actually paid by consumers for the goods and services they buy. It is not concerned with nominal, recommended or list prices (unless they are the prices consumers actually pay).

The CPI basket includes goods and services ranging from steak to motor cars and from dental fillings to restaurant meals. The items are chosen not only because they represent the spending habits of the CPI population group, but also because the items are those for which the prices can be associated with identifiable and specific commodities and services. While government taxes and charges which are associated with the use of specific goods and services (such as excise and customs duties, goods and services taxes, local government rates, etc.) are included, income taxes and the income-related Medicare levy are excluded because they cannot be clearly associated with the purchase or use of a specific quantity of any good or service.

Items are not excluded from the CPI basket on the basis of moral or social judgements. For example, some people may regard the use of tobacco and alcohol as socially undesirable, but these commodities are included in the CPI basket because they are significant items of household expenditure and their prices can be accurately measured. However, to assist in understanding the effect that major item groups have on the CPI, the ABS publishes a range of supplementary indexes which exclude, in turn, each of the eleven major commodity groups. These supplementary indexes can also be used in their own right for evaluating price changes, or for indexation purposes.

## **Periodic reviews of the CPI**

Like any other long-standing and important statistical series, the CPI is reviewed from time to time to ensure that it continues to be relevant to current conditions. Over time, household spending habits change, as does the range of available goods and services. The CPI needs to be updated to take account of these changes. Regular reviews also provide an opportunity to reassess the scope and coverage of the index and other methodological issues.

The CPI was first compiled in 1960, with index numbers backcast to 1948. Since its inception in its current form in 1960, reviews of the CPI have usually been carried out at about five-yearly intervals. Following each review, which involves revising the list of items and their weights, the new series are linked to the old to form continuous series. This linking is carried out in such a way that the resulting continuous series reflects only price changes and not differences in the composition of the old and new baskets.

The current (14th series) CPI reflects expenditure patterns derived mainly from the 1998–99 Household Expenditure Survey and has a reference base of 1989–90. It was introduced in the September quarter 2000.

In addition to revising weights to reflect new expenditure patterns, the 14th Series CPI introduced a new utility-based commodity classification to better address possible consumer substitution between commodities in response to relative price changes arising from The New Tax System. For more information see *Information Paper: Price Indexes and The New Tax System* (6425.0) and *Information Paper: Introduction of the 14th Series Australian Consumer Price Index* (6456.0).

## **Weighting pattern**

The composition of the CPI basket is based on the pattern of household expenditure in the 'weighting base period', which is 1998–99 for the 14th series CPI. Measures of expenditure are obtained primarily from the ABS's Household Expenditure Survey (HES). The HES data, modified for known instances of under-reporting (the most notable being for alcohol and tobacco), are then used to derive a weight for each of the 89 expenditure classes. The weights for the 14th series groups and subgroups based on June quarter 2000 prices are shown in table 28.1.

**28.1 CONSUMER PRICE INDEX, Weighted Average of Capital Cities(a)(b)**

Groups and subgroups	Weight in CPI basket
Food	
Dairy and related products	1.51
Bread and cereal products	2.20
Meat and seafoods	2.62
Fruit and vegetables	2.30
Non-alcoholic drinks and snack food	2.48
Meals out and take away foods	4.93
Other food	1.69
Total	17.72
Alcohol and tobacco	
Alcoholic drinks	5.14
Tobacco	2.27
Total	7.41
Clothing and footwear	
Men's clothing	0.98
Women's clothing	1.80
Children's and infants' clothing	0.47
Footwear	0.83
Clothing accessories, supplies and services	1.10
Total	5.19
Housing	
Rents	5.60
Utilities	3.23
Other housing	10.91
Total	19.75
Household furnishings, supplies and services	
Furniture and furnishings	3.58
Household appliances, utensils and tools	1.98
Household supplies	1.91
Household services	0.62
Total	8.09
Health	
Health services	3.55
Pharmaceuticals	1.14
Total	4.69
Transportation	
Private motoring	14.40
Urban transport fares	0.85
Total	15.25
Communication	
Communication	2.88
Total	2.88
Recreation	
Audio, visual and computing	2.70
Books, newspapers and magazines	1.08
Sport and other recreation	4.16
Holiday travel and accommodation	4.35
Total	12.29

For footnotes see end of table.

...continued

**28.1 CONSUMER PRICE INDEX, Weighted Average of Capital Cities(a)(b) — continued**

Groups and subgroups	Weight in CPI basket
Education	
Education	2.69
Total	2.69
Miscellaneous	
Insurance services	1.46
Personal care	2.14
Childcare	0.44
Total	4.04
<b>Total All groups</b>	<b>100.00</b>

(a) Percentages may not add due to rounding. (b) Weights shown are those applicable from the June quarter 2000 onwards.

Source: *Information Paper: A Guide to the Consumer Price Index, 14th Series (6440.0)*.

**Price collection**

Since the CPI is designed to measure the impact of changing prices on metropolitan private households, information about prices is collected in the kinds of retail outlets or other places where these households normally purchase goods and services. Prices are collected from many sources, including supermarkets, department stores, footwear stores, restaurants, motor vehicle dealers and service stations, dental surgeries, hotels and clubs, schools, hairdressers, telephone carriers, travel agents and airlines, bus operators, electricians and plumbers. Items like rail fares, electricity, gas and water and sewerage charges, and property rates and charges are collected from the authorities concerned. Information on rents is obtained from property management companies and from government housing commissions. In total, around 100,000 separate price quotations are collected each quarter.

The collection of prices in each capital city is carried out by trained ABS field staff.

The prices used in the CPI are those that any member of the public would have to pay to purchase the specified good or service, including any taxes, excise and customs duties, etc. relating to goods and services. Sale prices, discount prices and 'specials' are reflected in the CPI so long as the items concerned are of normal quality (that is, not damaged or shop-soiled), and are offered for sale in reasonable quantities. To ensure that the price movements reflect the buying experience of the bulk of the metropolitan population, the brands and the varieties of the items priced are generally those which sell in greatest volume.

## Price movements by city

Table 28.2 presents All groups index numbers for each of the eight capital cities and for the weighted average of the eight capital cities, together with percentage changes.

The capital city indexes measure price movements over time in each city individually. They do not measure differences in price levels between cities. For example, the index for Adelaide in 2000–01 of 133.5, compared with the corresponding index for Perth of 129.6, does not mean that prices in Adelaide are higher than

those in Perth. It simply means that, since the base period (1989–90), prices in Adelaide have increased by a greater percentage than those in Perth (33.5% compared with 29.6%).

## Price movements by broad commodity group

Table 28.3 presents, for the weighted average of the eight capital cities, index numbers for each of the eleven major commodity groups of the 14th Series CPI and for All groups, together with percentage changes.

**28.2 CONSUMER PRICE INDEX, All Groups Index Numbers(a)(b)**

Year	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra	Darwin	Weighted average of eight capital cities
INDEX NO.(c)									
1994–95	113.0	114.1	114.7	116.9	112.3	115.2	115.1	114.7	113.9
1995–96	118.7	118.4	119.1	121.2	116.7	119.6	120.3	119.5	118.7
1996–97	120.4	119.9	121.0	122.3	118.3	121.4	121.2	121.6	120.3
1997–98	120.5	119.8	121.6	121.6	118.0	121.3	120.4	121.3	120.3
1998–99	122.5	120.9	122.9	123.2	120.1	122.5	121.5	122.4	121.8
1999–2000	125.4	124.1	125.0	126.3	122.9	124.8	124.2	124.2	124.7
2000–01(d)	133.2	131.6	132.4	133.5	129.6	132.0	130.9	131.9	132.2
CHANGE FROM PREVIOUS YEAR (%)									
1994–95	3.5	2.7	3.7	3.1	3.5	3.1	3.3	2.9	3.2
1995–96	5.0	3.8	3.8	3.7	3.9	3.8	4.5	4.2	4.2
1996–97	1.4	1.3	1.6	0.9	1.4	1.5	0.7	1.8	1.3
1997–98	0.1	-0.1	0.5	-0.6	-0.3	-0.1	-0.7	-0.2	0.0
1998–99	1.7	0.9	1.1	1.3	1.8	1.0	0.9	0.9	1.2
1999–2000	2.4	2.6	1.7	2.5	2.3	1.9	2.2	1.5	2.4
2000–01(d)	6.2	6.0	5.9	5.7	5.5	5.8	5.4	6.2	6.0

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities. (c) Index numbers for financial years are calculated as the simple arithmetic averages of the quarterly index numbers. (d) The 2000–01 data were affected by the introduction of The New Tax System, in particular, the introduction of the Goods and Services Tax (GST) from 1 July 2000.

Source: Consumer Price Index, Australia (6401.0).

**28.3 CONSUMER PRICE INDEX, Group Index Numbers — Weighted Average of Capital Cities(a)(b)**

Year	Food	Alcohol and tobacco	Clothing and footwear	Housing	Household furnishings supplies and services								All groups
					Health	Transportation	Communication	Recreation	Education	Miscellaneous			
INDEX NO.(c)													
1994–95	112.1	141.0	106.7	100.0	109.2	142.7	117.5	107.6	111.7	139.9	120.7	113.9	
1995–96	116.0	156.1	107.0	105.9	111.7	150.2	122.6	107.3	114.2	147.0	128.0	118.7	
1996–97	119.7	161.4	107.3	101.6	113.5	159.7	124.3	106.5	115.0	156.0	133.4	120.3	
1997–98	121.8	164.6	107.4	94.5	113.8	165.4	123.5	106.6	117.8	165.6	138.5	120.3	
1998–99	126.5	168.7	106.7	95.8	113.7	163.4	122.1	102.9	119.4	174.1	143.5	121.8	
1999–00	129.2	175.2	105.5	99.9	113.3	158.7	128.9	97.8	120.4	182.4	153.2	124.7	
2000–01(d)	135.6	194.7	112.5	107.9	117.3	164.3	137.0	104.7	124.6	191.4	166.0	132.2	
CHANGE FROM PREVIOUS YEAR (%)													
1994–95	2.5	5.5	0.0	6.2	1.3	5.9	3.3	1.3	2.1	4.0	4.8	3.2	
1995–96	3.5	10.7	0.3	5.9	2.3	5.3	4.3	-0.3	2.2	5.1	6.0	4.2	
1996–97	3.2	3.4	0.3	-4.1	1.6	6.3	1.4	-0.7	0.7	6.1	4.2	1.3	
1997–98	1.8	2.0	0.1	-7.0	0.3	3.6	-0.6	0.1	2.4	6.2	3.8	0.0	
1998–99	3.9	2.5	-0.7	1.4	-0.1	-1.2	-1.1	-3.5	1.4	5.1	3.6	1.2	
1999–00	2.1	3.9	-1.1	4.3	-0.4	-2.9	5.6	-5.0	0.8	4.8	6.8	2.4	
2000–01(d)	5.0	11.1	6.6	8.0	3.5	3.5	6.3	7.1	3.5	4.9	8.4	6.0	

(a) Groups based on 14th Series CPI structure. (b) Reference base year 1989–90 = 100.0. (c) Index numbers for financial years are calculated as the simple arithmetic averages of the quarterly index numbers. (d) The 2000–01 data were affected by the introduction of The New Tax System, in particular, the introduction of the Goods and Services Tax (GST) from 1 July 2000.

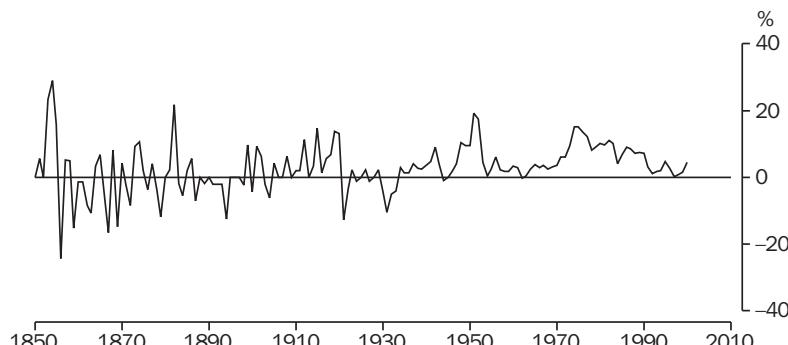
Source: Consumer Price Index, Australia (6401.0).

**Long-term price series**

Although the CPI has only been compiled from 1948, an approximate long-term measure of retail price change has been constructed by linking together other selected retail price index series (see graph 28.4 and table 28.5). The index numbers are expressed on a reference base 1945 = 100.0, which was the end of a period of relative price stability during World War II. The successive series linked together to produce this long-term series of index numbers are:

- from 1850 to 1901, Sydney Retail Price Index;
- from 1901 to 1914, the A Series Index;
- from 1914 to 1946–47, the C Series Index;
- from 1946–47 to 1948–49, a combination of the C Series Index (excluding rent) and the housing group of the CPI; and
- from 1948–49 onwards, the CPI.

For more information about these series see *Year Book Australia 1995* (1301.0).

**28.4 RETAIL PRICE INDEX, Percentage Change from Previous Year**

Source: ABS data available on request, Consumer Price Index.

**28.5 RETAIL PRICE INDEX NUMBERS(a)(b) — 1850 to 2000**

Year	Index no.										
1850	53	1880	45	1910	52	1940	85	1970	313	2000	2 289
1851	56	1881	46	1911	53	1941	89	1971	332	—	—
1852	56	1882	56	1912	59	1942	97	1972	352	—	—
1853	69	1883	55	1913	59	1943	101	1973	385	—	—
1854	89	1884	52	1914	61	1944	100	1974	443	—	—
1855	103	1885	53	1915	70	1945	100	1975	510	—	—
1856	78	1886	56	1916	71	1946	102	1976	579	—	—
1857	82	1887	52	1917	75	1947	106	1977	650	—	—
1858	86	1888	52	1918	80	1948	117	1978	702	—	—
1859	73	1889	51	1919	91	1949	128	1979	766	—	—
1860	72	1890	51	1920	103	1950	140	1980	844	—	—
1861	71	1891	50	1921	90	1951	167	1981	926	—	—
1862	65	1892	49	1922	87	1952	196	1982	1 028	—	—
1863	58	1893	48	1923	89	1953	205	1983	1 132	—	—
1864	60	1894	42	1924	88	1954	206	1984	1 177	—	—
1865	64	1895	42	1925	88	1955	211	1985	1 257	—	—
1866	60	1896	42	1926	90	1956	224	1986	1 370	—	—
1867	50	1897	42	1927	89	1957	229	1987	1 487	—	—
1868	54	1898	41	1928	89	1958	233	1988	1 594	—	—
1869	46	1899	45	1929	91	1959	237	1989	1 714	—	—
1870	48	1900	43	1930	87	1960	245	1990	1 839	—	—
1871	47	1901	47	1931	78	1961	252	1991	1 898	—	—
1872	43	1902	50	1932	74	1962	251	1992	1 917	—	—
1873	47	1903	49	1933	71	1963	252	1993	1 952	—	—
1874	52	1904	46	1934	73	1964	258	1994	1 989	—	—
1875	53	1905	48	1935	74	1965	268	1995	2 082	—	—
1876	51	1906	48	1936	75	1966	276	1996	2 136	—	—
1877	53	1907	48	1937	78	1967	286	1997	2 141	—	—
1878	51	1908	51	1938	80	1968	293	1998	2 159	—	—
1879	45	1909	51	1939	82	1969	302	1999	2 191	—	—

(a) Reference base year 1945 = 100.0. (b) The index numbers relate to Sydney from 1850 to 1900; from 1901 to 1980 they relate to the weighted average of six State capital cities; and from 1981 to the weighted average of eight capital cities. Index numbers are for calendar years.

Source: ABS data available on request, Consumer Price Index.

## International comparisons

In analysing price movements in Australia, an important consideration is Australia's performance relative to other countries. However, due to the many differences in the structure of the housing sector in different countries and in the way that housing is treated in their CPIs, a simple comparison of All groups (or headline) CPIs is often inappropriate. In order to provide a better basis for international comparisons, the

Fourteenth International Conference of Labour Statisticians adopted a resolution which called for countries to "provide for dissemination at the international level of an index which excludes shelter, in addition to the all items index".

Table 28.6 presents indexes for selected countries on a basis consistent with the above resolution and broadly comparable with the Australian series 'All groups excluding Housing'.

**28.6 CONSUMER PRICE INDEX, International Comparisons(a)(b)**

	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	INDEX NO.						
<b>Australia(c)</b>	<b>116.5</b>	<b>121.1</b>	<b>123.9</b>	<b>125.4</b>	<b>126.9</b>	<b>129.4</b>	<b>136.4</b>
New Zealand	110.5	111.9	113.7	114.9	116.9	118.7	123.5
Hong Kong (SAR of China)	151.4	160.3	167.6	173.9	172.0	166.6	164.8
Indonesia	150.3	163.7	174.1	232.7	368.3	367.1	402.6
Japan	107.8	107.3	108.2	112.4	112.4	111.6	111.0
Republic of Korea	138.0	144.4	151.3	162.1	169.0	172.1	179.2
Singapore	114.5	116.0	118.1	119.4	118.5	120.7	122.9
Taiwan	119.1	122.5	125.7	127.2	128.2	129.3	130.9
Canada	113.4	116.0	118.8	120.6	122.0	125.0	128.1
United States of America	118.0	120.9	124.3	125.8	127.2	130.9	135.3
Germany	115.8	117.0	118.2	120.3	120.7	121.8	124.2
United Kingdom	124.8	128.3	131.5	134.6	137.2	139.3	141.4
CHANGE SINCE PREVIOUS YEAR (%)							
<b>Australia(c)</b>	<b>2.6</b>	<b>3.9</b>	<b>2.3</b>	<b>1.2</b>	<b>1.2</b>	<b>2.0</b>	<b>5.4</b>
New Zealand	1.0	1.3	1.6	1.1	1.7	1.5	4.0
Hong Kong (SAR of China)	8.1	5.9	4.6	3.8	-1.1	-3.1	-1.1
Indonesia	9.1	8.9	6.4	33.7	58.3	-0.3	9.7
Japan	-0.1	-0.5	0.8	3.9	0.0	-0.7	-0.5
Republic of Korea	5.8	4.6	4.8	7.1	4.3	1.8	4.1
Singapore	3.2	1.3	1.8	1.2	-0.8	1.9	1.8
Taiwan	4.3	2.9	2.6	1.2	0.8	0.9	1.2
Canada	1.3	2.3	2.4	1.5	1.2	2.5	2.5
United States of America	2.8	2.5	2.8	1.2	1.1	2.9	3.4
Germany	1.8	1.0	1.0	1.8	0.3	0.9	2.0
United Kingdom	2.3	2.8	2.5	2.4	1.9	1.5	1.5

(a) Reference base year 1989–90 = 100.0. (b) All groups excluding housing. (c) The 2000–01 data for Australia were affected by the introduction of The New Tax System, in particular, the introduction of the Goods and Services Tax (GST) from 1 July 2000.

Source: *Consumer Price Index, Australia* (6401.0).

## Producer price indexes

The producer price indexes measure changes in prices received, or paid, by producers of commodities. In Australia they generally relate to prices for goods and services as they affect businesses, for example the input and output price of goods for the manufacturing sector, the input price of materials used in the building industry and, more recently, the output price of property and business services and transport (freight) and storage services. This contrasts with the Consumer Price Index which measures changes in the retail prices paid by consumers, as explained earlier in this chapter.

## Long-term price series

Table 28.7 presents a set of producer price indexes for the years 1861 to 2000–01. The indexes comprise the linked wholesale price indexes from 1861 to 1967–68, the producer price index for manufacturing outputs from 1968–69 to 1999–2000, and the final stage of production index for all commodities in 2000–01.

The first price index of this kind, compiled by the Commonwealth Bureau of Census and Statistics, was the Melbourne Wholesale Price Index, which was introduced in 1912 with index numbers compiled back to 1861 using prices extracted from newspapers and trade publications. Index numbers were compiled up to 1961. The index related chiefly to basic materials and foods weighted in accordance with consumption in about the year 1910.

The next index published was the Wholesale Price (Basic Materials and Foodstuffs) Index which was introduced in 1939; index numbers are available for the period 1928 to 1970. The index related to commodities in their basic or primary form, and prices were obtained as near as possible to the point where they made their first effective impact on the local price structure. With few exceptions, prices were obtained from Melbourne sources.

The present range of producer price indexes was developed and produced progressively from the 1960s. Until recently, the range of indexes was restricted to the measurement of prices for goods used in or purchased by the building industry, manufacturing industry, and (not included in this chapter) the mining industry, as well as outputs of the manufacturing industry.

As part of a long term program, the ABS is expanding the coverage of the producer price indexes to include the measurement of price changes for the output of the service industries and the construction industry (see the section *Services output price indexes*). In parallel with this expansion in coverage, an economy wide 'stage of production' framework has been implemented for the producer price indexes, to supplement the current industry sector approach (see the section *Stage of production producer price indexes*). The Stage of Production final commodities index is now the headline producer price index.

### 28.7 PRODUCER AND WHOLESALE PRICE INDEXES(a)

	Index no.
Melbourne Wholesale Price Index (All groups)	
1861	24.2
1871	19.3
1881	17.6
1891	14.9
1901	15.3
1911	15.7
1921	30.0
1925–26	29.7
Wholesale Price (Basic Materials and Foodstuffs) Index (All groups)	
1930–31	25.4
1935–36	23.9
1940–41	29.3
1945–46	36.5
1950–51	62.7
1955–56	85.9
1960–61	92.5
1961–62	86.4
1962–63	87.4
1963–64	90.0
1964–65	91.3
1965–66	95.4
1966–67	98.4
1967–68	99.7

For footnotes see end of table.

...continued

### 28.7 PRODUCER AND WHOLESALE PRICE INDEXES(a) — continued

	Index no.
Price Index of Articles Produced by Manufacturing Industry	
1968–69	100.0
1969–70	103.9
1970–71	108.5
1971–72	113.9
1972–73	120.7
1973–74	134.6
1974–75	158.1
1975–76	177.8
1976–77	196.9
1977–78	213.8
1978–79	237.4
1979–80	274.9
1980–81	305.2
1981–82	328.9
1982–83	360.2
1983–84	382.8
1984–85	404.8
1985–86	430.3
1986–87	458.5
1987–88	492.1
1988–89	526.0
1989–90	559.9
1990–91	584.6
1991–92	586.7
1992–93	600.9
1993–94	607.3
1994–95	620.9
1995–96	636.7
1996–97	639.9
1997–98	648.3
1998–99	646.7
1999–2000	674.5
Stage of Production — Final	
2000–01	703.4

(a) Reference base year 1968–69 = 100.0.

Source: Labour Report; Price Indexes of Articles Produced by Manufacturing Industry, Australia (6412.0); Producer Price Indexes, Australia (6427.0).

### Stage of Production producer price indexes

These indexes are compiled using the Stage of Production concept. Under this concept, flows of commodities are categorised according to their economic destination on a sequential basis along the production chain. The basis for the categorisation is the 1994–95 Australian Input-Output tables. The primary categorisation is between final commodities (i.e. commodities destined for final consumption, capital formation or export) and non-final commodities (i.e. commodities that flow into intermediate consumption for further processing).

This initial breakdown of the commodity flows into final and non-final represents a useful economic dissection of producers' transactions. However, the non-final commodities can flow into the production of both final and other non-final commodities. Therefore, to aid analysis, the non-final commodity flows have been divided on a sequential basis between Stage 1 (or preliminary) commodities and Stage 2 (or intermediate) commodities. This approach results in three separate stages of production.

In order to avoid multiple counting of transactions, the three stages are not aggregated.

Under this framework, preliminary (Stage 1) commodities are used in the production of intermediate (Stage 2) commodities; in turn intermediate (Stage 2) commodities flow into the production of final (Stage 3) commodities.

The framework allows for analyses of price change as commodities flow through production processes. Price changes for earlier stages of production may be indicators of possible future price changes for later stages.

### **Transaction flow approach**

The ABS has adopted a market transactions approach in disaggregating commodity supply into the various production stages. Under this approach, the individual transactions in a given commodity are assigned to the relevant stage. Therefore, a particular 'commodity', within the index classification system, can be assigned to more than one stage, on the basis of the usage pattern of that commodity in the Input-Output tables.

### **Index coverage**

In concept, the scope of the Stage of Production indexes is economy-wide, relating to the output of all the goods and services industries. However, there are limits on the availability of price indexes for service industries, and coverage is currently restricted to the output of the Transport (freight) and Storage, and Property and Business Services sectors. Similarly, coverage of the Construction sector is confined to indexes for the output of the following industries: House construction, Residential building construction n.e.c., Non-residential building construction, and Road and bridge construction. Coverage of the Stage of Production index will be progressively extended as additional service and construction industry collections are established. Table 28.8 shows stage of production producer price indexes for 1998–99, 1999–2000 and 2000–01.

**28.8 STAGE OF PRODUCTION PRODUCER PRICE INDEXES, Index Numbers by Stage and Source**

Year	Preliminary			Intermediate			Final (excluding exports)		
	Domestic	Imports	Total	Domestic	Imports	Total	Domestic	Imports	Total
1998–99	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1999–2000	104.1	107.1	104.5	103.4	104.4	103.6	104.3	95.7	102.6
2000–01	110.3	126.1	112.4	108.9	119.7	110.3	107.7	104.0	107.0

Source: Producer Price Indexes, Australia (6427.0).

## Recent developments in producer and international trade price indexes

Over the last year a number of major developments have occurred in producer price indexes and international trade price indexes. The major ones have been:

- the development of economy-wide price indexes;
- the introduction of annual reweighting of international trade price indexes; and
- the rationalisation of the range of publications produced.

### Development of economy-wide price indexes

As part of a long-term development program to extend the measures available to support the study of inflation, the ABS has developed two new economy-wide price index measures. The basis for these developments is the statistical framework discussed in *Information Paper: An Analytical Framework for Price Indexes in Australia* (6421.0). The new measures cover prices of both goods and services, and are released on a quarterly basis. Separate price measures are being developed to record price changes from the perspectives of producers and purchasers.

The first results from this program were published in March 1999 as experimental indexes in *Information Paper: Producer Price Index Developments* (6422.0). The Stage of Production indexes discussed in that paper have been further developed after consultation with users, and are now being released on a regular quarterly basis (see the section *Stage of Production producer price indexes*).

A further measure entitled the Price Index of Domestic Final Purchases has also been developed. The concepts underlying this measure are discussed in *Information Paper: Price Index of Domestic Final Purchases, Australia, 2001* (6428.0). Publication of this new index is due to commence in early 2002.

### Annual reweighting of international trade price indexes

Following the 2000 review of the Import and Export Price Indexes (see *Information Paper: Review of the Import Price Index and Export*

*Price Index* (6424.0)) the ABS decided to introduce the practice of annually updating the weighting patterns of these two indexes. The first of these annual reweights will occur in respect of the September quarter 2001.

The annual reweighting of the indexes will allow them to reflect shifts in the composition of imports and exports on a timely basis, and thereby to minimise 'item substitution' bias.

### Rationalisation of publications

Historically, the approach to publishing the producer and international trade price indexes was highly fragmented, with each of the partial indicators being released in a separate quarterly publication. With the development in recent years of publications for service industry indexes and the stage of production (SOP) indexes, this resulted in ten quarterly titles. This large range of publications made it difficult for users to analyse the data produced and to place them within a broader framework.

To resolve these problems, a rationalisation of the PPI publications was undertaken in 2001. The previous ten quarterly titles were integrated into two ongoing quarterly publications, commencing in the June quarter 2001. One publication (*International Trade Price Indexes, Australia* (6457.0)) contains the international trade price indexes, while the other (*Producer Price Indexes, Australia* (6427.0)) contains the remaining producer price indexes, focusing on the economy-wide SOP indexes as the headline indicator.

### Other developments

The ABS has continued work on developing price indexes for service industries and for the output of the construction industry. Publication of price indexes for the output of the building construction industry commenced with the June quarter 2001.

Indexes are published for articles produced by the Manufacturing Industry as a whole and for each of 15 separate Manufacturing sectors (defined in terms of ANZSIC subdivisions or ANZSIC groups).

## Manufacturing price indexes

### Price Indexes of Articles Produced by Manufacturing Industries

These indexes measure movements in the prices of articles produced by establishments classified to the Manufacturing Division of the *Australian and New Zealand Standard Industrial Classification (ANZSIC)*, 1993 edition.

The indexes are constructed on a net sector basis. This approach means that the All Manufacturing Industry Index represents price movements of goods which are produced by establishments in the Manufacturing Division, for sale or transfer to establishments outside the Manufacturing Division, for export, or for use as capital equipment. Articles which are sold or transferred to other establishments within manufacturing industry, for further processing or for use as inputs, are excluded.

The composition and weighting pattern have recently been updated; they are now based on the value of production in 1993–94 and have a reference base of 1989–90 = 100.0.

The indexes were first published in June 1976 on a reference base of 1968–69 = 100.0, with indexes compiled retrospectively to July 1968. The composition and weighting patterns of the indexes were based on the value of production in 1971–72.

Table 28.9 sets out a summary index for articles produced. More detailed index numbers are contained in table 19.20 of *Chapter 19, Manufacturing*.

#### 28.9 PRICE INDEXES OF ARTICLES PRODUCED BY MANUFACTURING INDUSTRIES(a)(b)

Year	Manufacturing Division Index
1993–94	108.5
1994–95	110.9
1995–96	113.7
1996–97	114.3
1997–98	115.9
1998–99	115.6
1999–2000	120.6
2000–01	128.5

(a) Reference base year 1989–90 = 100.0. (b) For a full description of Division C, Manufacturing and the subdivisions within the Manufacturing Division, see the *Australian and New Zealand Standard Industrial Classification (ANZSIC)* (1292.0).

Source: *Producer Price Indexes, Australia* (6427.0).

## Price Indexes of Materials Used in Manufacturing Industries

These indexes measure changes in prices of materials used by establishments classified to the Manufacturing Division of the *Australian and New Zealand Standard Industrial Classification (ANZSIC)*, 1993 edition.

Indexes are published for materials used in the Manufacturing Industry as a whole (split into imported and domestic materials) and for each of 17 separate Manufacturing sectors (defined in terms of ANZSIC subdivisions or ANZSIC groups). Indexes are also published for materials sourced domestically and those that are imported.

The indexes are compiled and published on a net sector basis. That is, each index includes only those materials which are used in the defined sector of Australian manufacturing industry and which have been produced by establishments outside that sector.

The current index series were introduced in July 1996 on a reference base of 1989–90 = 100.0. The items included in the indexes were allocated weights in accordance with the estimated value of manufacturing usage in 1989–90.

The indexes were first compiled on a reference base of 1968–69 = 100.0, using a weighting pattern derived from estimated manufacturing usage in 1971–72. Index numbers for this first series are available for the period July 1968 to November 1985.

A rebased series was introduced in December 1985 on a reference base of 1984–85 = 100.0 using a weighting pattern based on estimated manufacturing usage in 1977–78.

Table 28.10 shows summary indexes for materials used. More detailed index numbers are contained in table 19.19 of *Chapter 19, Manufacturing*.

### 28.10 PRICE INDEXES OF MATERIALS USED IN MANUFACTURING INDUSTRIES(a)

Year	Imported materials	Domestic materials	All materials
1993–94	108.8	102.5	<b>104.7</b>
1994–95	112.7	104.9	<b>107.6</b>
1995–96	117.6	106.0	<b>110.1</b>
1996–97	109.4	104.2	<b>106.0</b>
1997–98	112.2	104.1	<b>107.0</b>
1998–99	113.5	101.5	<b>105.9</b>
1999–2000	118.8	114.5	<b>115.8</b>
2000–01	134.0	131.9	<b>132.4</b>

(a) Reference base year 1989–90 = 100.0.

Source: *Producer Price Indexes, Australia* (6427.0).

introduced in December 1995 on a reference base of 1989–90 = 100.0 and were linked to previous series. The items and weights for the current series are based on estimated materials usage in a sample of representative houses constructed in the three years ending 1992–93.

The index was first compiled on a reference base of 1966–67 = 100.0, using a weighting pattern derived from estimated materials usage in 1968–69. Index numbers on a 1966–67 = 100.0 reference base are available for the period July 1966 to September 1986.

A rebased series of indexes, linked to the previous series, were introduced in October 1986 on a reference base of 1985–86 = 100.0. The items in the rebased series were selected and allocated weights on the basis of the estimated values of each material used in a sample of representative houses constructed in 1985–86.

Table 28.12 shows price index series for the eight years 1993–94 to 2000–2001, for the weighted average of the six State capital cities and for the individual cities. The movements in the index are discussed in *Chapter 20, Construction*.

### Price Indexes of Materials Used in Building Other than House Building

The Price Index of Materials Used in Building Other than House Building measures changes in prices of selected materials used in the construction of buildings other than houses in the Statistical Division containing each State capital city. The types of building directly represented in the index are: flats and other dwellings; hotels, motels and hostels; shops; factories; offices; other business premises; education buildings; health buildings; and other non-residential buildings.

The current index series were introduced in October 1993 on a reference base of 1989–90 = 100.0. The composition of these indexes reflects the usage of materials in the five years ending June 1992.

The index was first compiled on a reference base of 1966–67 = 100.0 using a weighting pattern derived from estimated materials usage in 1966–67. Rebased indexes for the six State capital cities were introduced in February 1981 on a reference base of 1979–80 = 100.0. The composition of these indexes reflected the usage of materials in the three years ending June 1977.

### 28.11 PRICE INDEX OF THE OUTPUT OF THE BUILDING INDUSTRY

Year	Index numbers
1997–98	97.0
1998–99	100.0
1999–2000	104.9
2000–01	106.5

(a) Reference base year 1989–90 = 100.0.

Source: *Producer Price Indexes, Australia* (6427.0).

### Price Indexes of Materials Used House Building

The Price Index of Materials Used in House Building measures changes in prices of selected materials used in the construction of houses in the Statistical Division containing each State capital city. The current index series were

**28.12 PRICE INDEXES OF MATERIALS USED IN HOUSE BUILDING, Six State Capital Cities(a)(b)**

Year	Weighted average of six State capital cities	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart
1993–94	112.0	111.3	112.1	113.5	117.1	109.1	112.8
1994–95	115.4	115.0	115.9	115.9	118.8	112.7	117.3
1995–96	115.7	115.9	115.4	115.1	118.2	114.8	120.7
1996–97	116.1	116.3	115.3	115.3	120.6	115.3	120.1
1997–98	118.2	119.7	117.1	117.1	123.3	115.9	121.0
1998–99	119.5	121.6	118.0	118.2	125.0	116.1	122.2
1999–2000	122.8	126.8	121.7	120.8	127.2	117.7	123.8
2000–01	124.4	130.0	123.1	120.6	129.6	118.8	126.0

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movement within each city individually. They do not compare price levels between cities.

Source: *Producer Price Indexes, Australia* (6427.0).

Table 28.13 shows price index series for the eight years 1993–94 to 2000–01 for the weighted average of the six State capital cities and for the individual cities. The movements in the index are discussed in *Chapter 20, Construction*.

More detailed information in respect of individual building materials is contained in table 20.19 of that chapter.

**28.13 PRICE INDEXES OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING, Six State Capital Cities(a)(b)**

Year	Weighted average of six State capital cities	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart
1993–94	107.5	107.0	106.7	110.1	107.9	107.1	110.1
1994–95	110.4	110.3	108.9	112.9	110.9	110.1	112.2
1995–96	112.7	112.6	111.1	115.0	112.7	113.2	115.1
1996–97	113.2	113.1	110.9	115.9	114.1	114.6	116.3
1997–98	114.2	114.4	111.4	117.2	115.1	114.6	117.4
1998–99	115.2	115.2	113.2	118.4	115.5	114.1	118.5
1999–2000	116.1	116.0	114.4	119.3	116.1	115.4	119.0
2000–01	116.4	116.1	115.4	119.1	116.8	115.6	119.3

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities.

Source: *Producer Price Indexes, Australia* (6427.0).

## Services output price indexes

In recognition of the increasing contribution of service industries to the Australian economy, the ABS has been undertaking a program to progressively extend the scope of the producer price indexes into the service sectors of the economy. This program is an important part of a broader ABS plan to provide a range of statistics that will improve the measurement of service industries in the Australian economy. Similar initiatives are also being undertaken by statistical agencies in several other countries.

Since April 2000, the ABS has been publishing quarterly producer price indexes for the output of the Transport (freight) and Storage Division, and the Property and Business Services Division of the *Australian and New Zealand Standard Industrial Classification (ANZSIC)*. The Transport (freight) and Storage Division index contains important freight transport industries such as road, rail, sea and air. The Property and Business Services Division index contains services such as real estate agents and the hire and lease of machinery and equipment; and a diverse range of business services including surveying, computer services, accounting services,

market research and cleaning services. The index numbers are calculated on the reference base 1998–99 = 100.0. From the June quarter 2001 these indexes have been released in a new publication, *Producer Price Indexes, Australia* (6427.0).

Indexes for additional service industries will be released in the publication as they are developed.

The services price indexes aim to:

- assist in improving the quality of the national accounts by providing a wider range of deflators for deriving real measures of economic growth;
- contribute to the development of new measures of inflation by expanding the coverage of the indexes compiled under the economy-wide Stage of Production price indexes (see the section *Stage of Production producer price indexes*); and
- be of use in their own right for industry analysis.

Tables 28.14 and 28.15 provide broad level, summary index series. More detailed indexes are presented in 6427.0.

**28.14 PRODUCER PRICE INDEXES FOR SELECTED SERVICE INDUSTRIES, Transport (Freight) and Storage(a)**

Year	Transport (freight) & storage division	Road transport	Rail transport	Water transport	Air and space transport	Services to transport	Storage
1996–97	n.a.	n.a.	109.8	n.a.	n.a.	n.a.	95.9
1997–98	n.a.	98.8	105.1	n.a.	n.a.	n.a.	99.4
1998–99	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1999–2000	100.2	101.0	94.4	103.8	99.1	97.2	100.9
2000–01	102.3	103.1	95.3	109.8	102.7	97.2	102.1

a) Reference base year 1998–99 = 100.0.

Source: *Producer Price Indexes, Australia* (6427.0).

**28.15 PRODUCER PRICE INDEXES FOR SELECTED SERVICE INDUSTRIES, Property and Business Services(a)**

Year	Property and business services	Property services	Business services
1998–99	100.0	100.0	100.0
1999–2000	105.6	106.9	103.8
2000–01	112.0	115.8	106.9

(a) Reference base year 1998–99 = 100.0.

Source: *Producer Price Indexes, Australia* (6427.0).

## International trade price indexes

### Import Price Index

The Import Price Index measures changes in the prices of imports of merchandise landed in Australia using free-on-board prices in the country of origin. The index numbers for each quarter relate to prices of imports landed in Australia during the period.

The first Import Price Index produced by the ABS covered the period from the September quarter 1981 to the June quarter 1991 on a reference base of  $1981-82 = 100.0$ . This index replaced an index previously published by the Reserve Bank of Australia on a reference base of  $1966-67 = 100.0$ .

The Reserve Bank's import price index was published from 1928 until September 1982.

A new Import Price Index series was introduced in December 1991 with monthly index numbers compiled from April 1991 until June 1997 when the index moved to a quarterly cycle. The current index has a reference base of  $1989-90 = 100.0$  and was reviewed and reweighted in September quarter 2000 using 1999–2000 international trade data. The plan is to update the index weights each year using the latest trade data.

To give a broad indication of changes over the whole of the last century, table 28.16 draws on the available international trade indexes. Import Price Index numbers based on the *Standard International Trade Classification Revision 3 (SITC Rev. 3)* are contained in table 30.34 of *Chapter 30, International accounts and trade*.

### Export Price Index

The Export Price Index measures changes in prices of exports of merchandise from Australia. The index numbers for each month relate to prices of exports actually shipped during the period.

The first index of export prices was compiled annually from 1901 to 1916–17 as a current-weighted unit value index.

The method of calculation was changed in 1918 to incorporate fixed weights, applied to the average unit values of each export in successive years. This index was published for the years 1897 to 1929–30.

Two new series of monthly export price indexes were published in 1937, compiled back to 1928.

One index used fixed weights and the other used changing weights. The methodology was changed and actual export prices were used instead of unit values. The indexes were compiled until 1962.

In 1962 a fixed weighted index on the reference base of  $1959-60 = 100.0$  was introduced. In July 1969 a new interim series was linked to this index, still with a reference base of  $1959-60 = 100.0$ , but with updated weights. The interim index was replaced in 1979 by an index on a reference base of 1974–75. The current index, which was changed from a monthly to a quarterly basis after June 1997, has a reference base of  $1989-90 = 100.0$ . It was reviewed and reweighted in September quarter 2000 using 1998–99 and 1999–2000 international trade data. The plan is to update the index weights each year using the latest trade data.

Index numbers based on the *Australian Harmonised Export Commodity Classification (AHECC)* are contained in table 30.33 of *Chapter 30, International accounts and trade*. The export price index for all groups is provided for the whole of the last century in table 28.16.

**28.16 INTERNATIONAL TRADE PRICE INDEXES(a)**

Year	Export Price Index (All groups)	Import Price Index (All groups)
1901	15	..
1911	17	..
1921–22	25	..
1931–32	18	22
1936–37	29	21
1941–42	27	35
1946–47	53	51
1951–52	123	92
1956–57	115	91
1960–61	93	95
1961–62	94	94
1962–63	99	94
1963–64	112	96
1964–65	103	97
1965–66	105	99
1966–67	103	100
1967–68	98	99
1968–69	100	100
1969–70	101	103
1970–71	99	108
1971–72	102	114
1972–73	131	113
1973–74	157	131
1974–75	177	189
1975–76	193	214
1976–77	216	246
1977–78	227	278
1978–79	256	307
1979–80	309	403
1980–81	328	450
1981–82	332	458
1982–83	360	506
1983–84	369	524
1984–85	396	580
1985–86	417	659
1986–87	430	731
1987–88	469	742
1988–89	501	694
1989–90	527	729
1990–91	501	752
1991–92	472	749
1992–93	493	817
1993–94	484	843
1994–95	501	837
1995–96	508	838
1996–97	488	791
1997–98	522	841
1998–99	505	874
1999–2000	517	876
2000–01	606	979

(a) Reference base year 1968–69 = 100.0.

Source: The sources used for the Import Price Index are the Reserve Bank of Australia Bulletin up to and including 1981–82, and the ABS Import Price Index, Australia (6414.0) to 1999–2000. The source used for the Export Price Index to 1999–2000 is the ABS Export Price Index, Australia (6405.0). From 2000–01 the source used for both Import and Export Price Indexes is International Trade Price Indexes, Australia (6457.0).

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# Analytical indexes measuring the price impacts on the living costs of selected Australian household types

## Summary

This article presents analytical price indexes designed specifically to measure the impact of changes in prices on the out-of-pocket living costs experienced by four categories of Australian households. The indexes have been constructed to cover the period from June quarter 1998 up to and including the December quarter 2000.

Using the principal source of household income to categorise households, the four household types for which these indexes have been constructed are: Employee households, Age pensioner households, Other government transfer recipient households, and Self-funded retiree households.

These indexes represent the conceptually preferred measures for assessing the impact of changes in prices on the disposable incomes of households. In other words, these indexes are particularly suited for assessing whether or not the disposable incomes of households have kept pace with price changes. The Australian Consumer Price Index (CPI), on the other hand, is designed specifically to measure price inflation for the household sector as a whole and, as such, is not the conceptually ideal measure for assessing the impact of price changes on the disposable incomes of households.

The differences between indexes designed to measure price inflation and indexes designed to measure changes in living costs lie only in the item coverage. The item coverage of living cost indexes is determined by reference to all those amounts actually paid by households to gain access to consumer goods and services, while the item coverage of inflation indexes is defined as all

those goods and services actually acquired by households in monetary transactions. The most notable differences are that living cost indexes include interest charges but do not include house purchases, while inflation indexes do not include interest charges but do include house purchases.

Over the two and a half years covered by these indexes, changes in living costs ranged from a low of 7.5% (experienced by Self-funded retiree households) to a high of 8.7% (experienced by Other government transfer recipient households). The CPI increased by 8.5% over the same period.

Feedback on these indexes is welcome. The ABS will update the indexes annually, around May of each year.

## Background

There is no single correct way to construct a consumer price index — at least three widely accepted alternative approaches are used by national statistical agencies. As these different approaches are best suited to answering different questions, the selection of approach is tied most closely to the principal use to be made of the index.

Historically, the principal use of the Australian CPI was as an input to wage and salary determination processes. Consistent with this requirement, the CPI was designed to measure changes in the living costs of wage and salary earner households.

To ensure that the Australian CPI continues to meet community needs, the ABS maintains a program of periodic public reviews. During the course of the last such review in 1997, it became clear that the principal requirement of the CPI had moved away from an input to wage and salary determination processes to a general measure of price inflation. Accordingly, commencing with the September quarter 1998, the CPI has been designed specifically to measure price inflation for the household sector as a whole.

During the consultations leading up to the decision to alter the design objective of the CPI, various users argued that there was a continuing need for a measure of changes in living costs. In fact, some argued that there were grounds for believing that different household types experienced significantly different rates of change in living costs and therefore there was a need for several living cost indexes. In response, the ABS decided that

... in recognition of the widespread interest in the extent to which rates of change in the cost of living vary across different groups in the community, the ABS will compile and publish analytical indexes specifically designed to measure changes in living costs for a range of population subgroups. These indexes, which will be constructed using the outlays approach, will be published at approximately annual intervals." (*Information Paper: Outcome of the 13th Series Australian Consumer Price Index Review* (6453.0), paragraph 26, p.7.)

## The population subgroups

Principal source of income<sup>1</sup> is considered to be the best means of defining household types in order to meet the requirements for living cost indexes. Four household types have been identified as being appropriate for the construction of these indexes, namely:

- Employee households (i.e. those households whose principal source of income is from wages and salaries<sup>2</sup>);
- Age pensioner households (i.e. those households whose principal source of income is the age pension or veterans affairs pension<sup>3</sup>);

- Other government transfer recipient households (i.e. those households whose principal source of income is a government pension or benefit other than the age pension or veterans' affairs pension); and
- Self-funded retiree households (i.e. those households whose principal source of income is superannuation or property income and where the Household Expenditure Survey (HES) defined reference person is 'retired' (not in the labour force and over 55 years of age)).

The estimated number of households in each of these household types and their relative significance based on the 1998–99 HES is shown in table S6.1.

**S6.1 POPULATION SUBGROUPS, Number of Households**

Population subgroup	Households	
	'000	% of total
Employee	4 095.4	57.5
Age pensioner	1 028.9	14.4
Other government transfer recipient	992.5	13.9
Self-funded retiree	318.1	4.5
Other households(a)	688.0	9.7
<b>Total</b>	<b>7 122.8</b>	<b>100.0</b>

(a) Includes self employed, income indeterminate and parent supported students.

Source: ABS data available on request, Household Expenditure Survey, 1998–99.

## Differences between 'living cost' and 'inflation indexes'

The differences between indexes designed to measure price inflation and indexes designed to measure changes in living costs lie only in the item coverage.

A living cost index is intended to be used to assess changes over time in the purchasing power of the after-tax incomes of households. It is therefore concerned with measuring the impact of changes in prices on the out-of-pocket expenses incurred by households to gain access to consumer goods and services. The item coverage of such an index is determined by reference to the actual money outlays of households on all but investment items. On the other hand, an inflation index is defined to cover all those goods and services actually acquired by households in monetary transactions.

The most notable differences are that living cost indexes include interest charges but do not include house purchases, while inflation indexes like the current CPI do not include interest charges but do include house purchases.

Insurance (other than health insurance) is also treated differently in the living cost indexes. The weight for insurance in the CPI relates to the net value of the service provided by the insurance company (in simple terms, the amount of premiums paid by households less the amounts reimbursed by way of claims<sup>4</sup>). In the living cost indexes, the weight relates to the gross value of insurance premiums paid by households.

## Methodology

Construction of the living cost indexes was essentially undertaken in three stages. Stage one was concerned with calculating weights representative of the expenditure patterns of the defined household types. Stage two involved identifying appropriate measures of price change for each of the expenditure weights. The third and final stage was to use the weights to aggregate or average the price change measures.

Item weights for the population subgroups were derived mainly from the HES.<sup>5</sup> However, unlike the CPI where weights are calculated separately for each of the eight capital cities, population subgroup weights were calculated at the national level only. This was necessary because the subgroup sample sizes at the capital city level were simply too small, for at least some groups, to produce reliable estimates at the capital city level. For this reason it is not possible to produce living cost indexes at the individual city level.

The measures of price change, with the exception of those for interest charges, were sourced from the CPI. Price measures for interest charges have been maintained separately by the ABS on a basis comparable with those employed in the CPI prior to September quarter 1998.

While most item price indexes were constructed by direct reference to the equivalent CPI expenditure class indexes, some were constructed by reference to lower level CPI price data. The exceptions relate to those items where it is known that different household types face different prices, such as subsidised public transport fares for senior citizens.

Over time the ABS will progressively refine the methodology used to construct these indexes to better reflect other differences in prices that may be faced by different household types. An example is making allowances for the possibility that different household types make purchases at different outlet types.

## Weights

The indexes presented in this article were constructed using two sets of weights. The first set, based on the 1993–94 Household Expenditure Survey (HES), was used to construct the indexes from June quarter 1998 to June quarter 2000. The second set of weights, based on the 1998–99 HES, was used to construct the indexes from June quarter 2000 to December quarter 2000. In other words, all indexes are linked at June quarter 2000.

For ease of exposition, the discussion of weights is restricted to those used from June quarter 2000 (i.e. those based on the 1998–99 HES). Table S6.2 shows per household average weekly expenditure during 1998–99 for each of the four population subgroups, at June quarter 2000 prices. The commodity grouping used corresponds to the commodity groups used for the current (14th series) CPI.

Table S6.2 illustrates significant differences in expenditures, both in total and at the individual commodity group level. Although differences in incomes could largely account for these differences, other factors such as the demographic makeup of the households and dwelling tenure would also play a part. For example, Age pensioner households have on average the lowest number of persons per household, being mostly one or two person households without children, while Employee and Other government transfer recipient households are more likely to include dependent

children. In addition, the higher rate of outright home ownership among certain subgroups, such as Self-funded retiree and Age pensioner households, would also influence the nature of expenditures.

For purposes of constructing price indexes over time it is not the absolute expenditure levels but rather the expenditure shares (or weights) that matter. Table S6.3 presents the same data in expenditure share (or weight) form.

**S6.2 ESTIMATED AVERAGE WEEKLY EXPENDITURE DURING 1998–99, By Commodity Group and Population Subgroup — June Quarter 2000 Prices**

Commodity group	Population subgroup			
	Employee	Age pensioner	Other government transfer recipient	Self-funded retiree
AVERAGE WEEKLY EXPENDITURE PER HOUSEHOLD (\$)				
Food	155.26	73.79	95.53	109.27
Alcohol and tobacco	74.16	25.31	41.58	44.17
Clothing and footwear	47.12	21.79	26.49	34.16
Housing	96.30	48.47	88.76	69.41
Household furnishings, supplies and services	71.47	36.45	34.12	75.30
Health	38.68	23.38	12.26	56.36
Transportation	139.00	38.54	58.11	87.87
Communication	24.20	10.30	18.66	15.57
Recreation	109.46	38.90	48.09	105.12
Education	22.78	0.48	10.10	1.53
Miscellaneous(a)	113.81	23.95	37.89	42.62
Total	892.25	341.35	471.61	641.39
NUMBER ('000)				
Number of households	4 095.4	1 028.9	992.5	318.1
NUMBER				
Persons/household	2.94	1.55	2.68	1.6

(a) Includes interest charges and general insurance.

Source: ABS data available on request, Household Expenditure Survey, 1998-99.

**S6.3 EXPENDITURE WEIGHTS, By Commodity Group and Population Subgroup — at June Quarter 2000 Prices**

Commodity group(a)	Population subgroup			
	Employee	Age pensioner	Other government transfer recipient	Self-funded retiree
	PROPORTION OF TOTAL EXPENDITURE (%)			
Food	17.40	21.62	20.26	17.04
Alcohol and tobacco	8.31	7.42	8.82	6.89
Clothing and footwear	5.28	6.38	5.62	5.33
Housing	10.79	14.20	18.82	10.82
Household furnishings, supplies and services	8.01	10.68	7.24	11.74
Health	4.33	6.85	2.60	8.79
Transportation	15.58	11.29	12.32	13.70
Communication	2.71	3.02	3.96	2.43
Recreation	12.27	11.39	10.20	16.39
Education	2.55	0.14	2.14	0.24
Miscellaneous(b)	12.76	7.02	8.03	6.65
Total	100.00	100.00	100.00	100.00

(a) Figures may not add due to rounding. (b) Includes interest charges and general insurance.

Source: ABS data available on request, Household Expenditure Survey, 1998-99.

There are notable differences in the expenditure weights across the population subgroups. For example the proportion of expenditure allocated to Food is highest for Age pensioner households, closely followed by Other government transfer recipient households. Employee households allocate a higher proportion of their expenditures to Transportation, Education and Miscellaneous (which includes interest charges) than the other household groups. Other government transfer recipients allocate higher proportions of their expenditures to Housing and Alcohol and tobacco than the other population subgroups. Self-funded retirees allocate higher proportions of their expenditures to Transportation,

Household furnishings and supplies, Health and Recreation than the other population subgroups.

Further insight into the differences in expenditure patterns is provided in table S6.4. This table shows weights at the equivalent of the 14th series CPI expenditure class level for those expenditure classes where the differences in weights are most pronounced. The differences across the population subgroups again highlight the demographic and other differences among the population subgroups, some of which have been noted above.

**S6.4 EXPENDITURE WEIGHTS, Selected Expenditure Classes — at June Quarter 2000 Prices**

Expenditure class	Population subgroup			
	CPI	Employee	Age pensioner	Other government transfer recipient
	PROPORTION OF TOTAL EXPENDITURE(%)			
Rents	5.60	5.15	4.00	12.82
Interest charges(a)	—	6.58	0.45	2.78
Hospital and medical services	2.71	2.48	3.89	1.00
Tobacco	2.27	2.45	2.37	4.88
Domestic holiday travel and accommodation	2.40	2.43	3.49	1.31
House repairs and maintenance	1.85	1.56	3.01	1.16
Motor vehicles	5.85	6.26	3.17	3.65
Overseas holiday travel and accommodation	1.95	1.67	1.35	0.84
House purchase(b)	7.86	..	..	..

(a) Not included in the CPI. (b) Not included in the population subgroup indexes.

Source: ABS data available on request, Household Expenditure Survey, 1998-99.

When comparing differences in the behaviour of the aggregate indexes, the role played by differences in weights increases as the dispersion in the rates of price change increases. Over the period for which these indexes have been compiled there is substantial dispersion in the price movements of the expenditure classes. For example the CPI index for Hospital and medical services declined by 10.1% between the June quarter 1998 and the December quarter 2000, while the index for Tobacco increased by 28.2% over the same period.

## Results

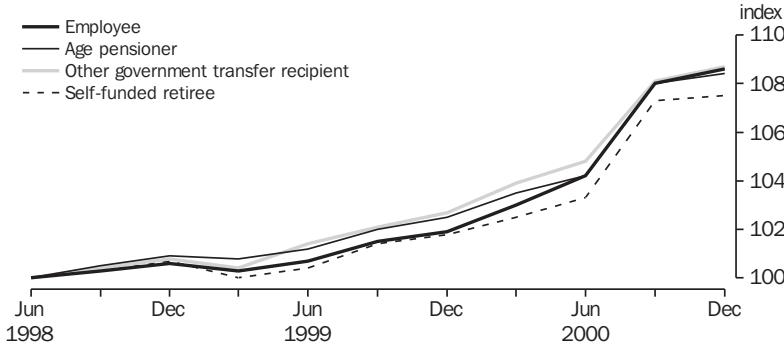
The index series for the various population subgroups from the June quarter 1998 to the June quarter 2000 are shown in graph S6.5, and quarterly percentage changes in the indexes in graph S6.6. The data on which the charts are based are provided in table S6.7.

Differences in movements in the aggregate indexes reflect both differences in the prices of items and differences in expenditure patterns across the population subgroups. If prices of all

items showed the same movement then differences in expenditure patterns would have no effect on the indexes. As noted earlier, the greater the dispersion in price movements between items, the more important differences in the weights become.

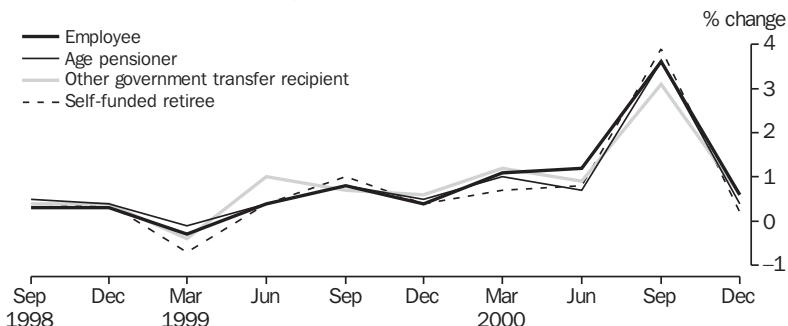
Some of these differences in prices and weights are observable in the profile of the analytical indexes. For example, the drop in the indexes in the March quarter 1999 coincides with the introduction of the rebate on health insurance. This would in part contribute to the larger decline in the index for Self-funded retiree households than in those for other population subgroups, as these households have greater proportional expenditure on health insurance. Rises in mortgage interest charges from the December quarter 1999 had a greater impact on the Employee households index than on the other indexes, due to a greater proportional expenditure on mortgage interest by that subgroup.

**S6.5 INDEX NUMBERS, By Population Subgroup (June quarter 1998 = 100.0)**



Source: ABS data available on request, derived from selected CPI expenditure weights and price movements.

**S6.6 PERCENTAGE CHANGE (FROM PREVIOUS QUARTER) IN INDEXES,  
By Population Subgroup**



Source: ABS data available on request, derived from selected CPI expenditure weights and price movements.

**S6.7 POPULATION SUBGROUP INDEXES AND PERCENTAGE CHANGES**

Quarter	Employee(a)	Age pensioner(a)	Other government transfer recipient(a)	Self-funded retiree(a)	CPI(a)(b)(c)
INDEX NUMBERS					
1998					
June	100.0	100.0	100.0	100.0	121.0
September	100.3	100.5	100.4	100.3	121.3
December	100.6	100.9	100.8	100.7	121.9
1999					
March	100.3	100.8	100.4	100.0	121.8
June	100.7	101.2	101.4	100.4	122.3
September	101.5	102.0	102.1	101.4	123.4
December	101.9	102.5	102.7	101.8	124.1
2000					
March	103.0	103.5	103.9	102.5	125.2
June	104.2	104.2	104.8	103.3	126.2
September	108.0	108.0	108.1	107.3	130.9
December	108.6	108.4	108.7	107.5	131.3
% CHANGE ON PREVIOUS PERIOD					
1998					
September	0.3	0.5	0.4	0.3	0.2
December	0.3	0.4	0.4	0.4	0.5
1999					
March	-0.3	-0.1	-0.4	-0.7	-0.1
June	0.4	0.4	1.0	0.4	0.4
September	0.8	0.8	0.7	1.0	0.9
December	0.4	0.5	0.6	0.4	0.6
2000					
March	1.1	1.0	1.2	0.7	0.9
June	1.2	0.7	0.9	0.8	0.8
September	3.6	3.6	3.1	3.9	3.7
December	0.6	0.4	0.6	0.2	0.3
% CHANGE JUNE QUARTER 1998 TO DECEMBER QUARTER 2000					
	8.6	8.4	8.7	7.5	8.5

(a) June quarter 1998 = 100.0. (b) The CPI is designed to measure price inflation for the household sector and not changes in living costs. (c) 1989-90 = 100.0.

Source: ABS data available on request, derived from selected CPI expenditure weights and price movements.

All the indexes record an increase between the June and September quarters 2000, which is mainly attributable to the introduction of The New Tax System (TNTS). The population subgroup indexes rose by between 3.1% (Other government transfer recipient households) and 3.9% (Self-funded retiree households) while the CPI increased by 3.7%. However, it should be noted that these indexes are only concerned with measuring changes in prices of goods and services, and do not take into account any increases in disposable incomes flowing from reductions in income taxes and increases in social security benefits arising from the introduction of TNTS.

Between the December quarters 1999 and 2000 the increases in the population subgroup indexes ranged from 5.6% for Self-funded retiree households to 6.6% for Employee households. The increase in the CPI over the same period was 5.8%.

## Conclusions

These analytical indexes have been designed specifically to answer the question:

"By how much would after-tax money incomes need to change to allow households to purchase the same quantity of consumer goods and services as purchased in the base period?"

## Endnotes

1 A household's principal source of income is defined as that income source which accounts for the largest proportion of total income. It is not necessary that the principal source accounts for a majority of household income. For example, if a household's income can be sourced 40% from wages and salaries, 35% from property income and 25% from an age pension, it would be classified as an Employee household.

2 The definition of Employee households used in this article does not correspond to that for wage and salary earner households used to construct the CPI prior to the September quarter 1998.

Over the two and a half years covered by these indexes, the answers would appear to be broadly similar across the different household types; ranging from a low of 7.5% (for Self-funded retiree households) to a high of 8.7% (for Other government transfer recipient households). The CPI recorded an increase of 8.5% over the same period; therefore, even though not specifically designed to do so, it provided a reasonable estimate of changes in living costs for the population as a whole. However, these results might not hold over all time periods.

In considering these results it is important to recognise that these indexes have been constructed to reflect the experiences of population groups as a whole, and they may not reflect the experiences of any individual household. In this regard it is particularly important to note that no such index can be expected to reflect the changes in living costs experienced by households as a direct consequence of their moving through the life cycle (e.g. as a result of family formation and ageing). These indexes measure the changes in living costs that would be experienced by a group of households with fixed characteristics (e.g. fixed numbers of persons, of fixed age etc).

3 The definition of Age pensioner households used in compiling the indexes in this article is broader than that used in previous studies of a similar nature; in particular, income cut-offs have not been applied.

4 For more detail refer to Keith Woolford, "Treatment of Insurance Services in the Australian Consumer Price Index", in *Australian Economic Indicators*, October 2000 (1350.0).

5 As is the case in deriving weights for the CPI, HES data are adjusted where necessary, for example to account for known under-reporting of expenditure on items like alcohol and tobacco.



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## Introduction

A wide range of economic data is available to analyse the performance of various components of the Australian economy over time. For example, data are regularly published on the number of houses being built, the number of cars produced, whether employment is rising or falling, the composition of exports and imports and so on. While these and other statistical series are important in their own right, none of them in isolation can provide an overall picture of the state of the economy.

National accounts are designed to provide a systematic summary of national economic activity, and have been developed to assist in the practical application of economic theory. The system of national accounts includes national income, expenditure and product accounts, financial accounts, the national balance sheet and input-output tables. At their summary level, the national income, expenditure and product accounts reflect key economic flows: production, the distribution of incomes, consumption, saving and investment. At their more detailed level, they are designed to present a statistical picture of the structure of the economy and the detailed processes that make up domestic production and its distribution. The financial accounts show the financial assets and liabilities of the nation and of each institutional sector, the market for financial instruments and inter-sectoral financial transactions. The balance sheet is a comprehensive statement of produced and non-produced assets, liabilities to the rest of the world and net worth. Input-output tables show which goods and services are produced by each industry and how they are used.

The national accounts include many detailed classifications (e.g. by industry, by purpose, by commodity, by State and Territory, and by asset type) relating to major economic aggregates.

The main output from the national accounts is a measure of the overall value of economic production in Australia in a given period, but without any double counting of the goods and services being produced. Many goods and services are bought by businesses for use in their

own productive activities (e.g. steel is bought by car manufacturers). If the value of all goods and services produced were simply added together there would be serious duplication because some goods and services would be added in several times at various stages of production. The overall measure of production, excluding double counting, is called 'gross domestic product', which is commonly referred to as GDP. It is formally defined as:

"the total market value of goods and services produced in Australia after deducting the cost of goods and services used up (intermediate consumption) in the process of production, but before deducting allowances for the consumption of fixed capital (depreciation)".

The performance of the economy is represented in the national accounts by such measures as growth in GDP. While movements in the chain volume measure of GDP (from which the direct effects of price changes have been removed) are an important indicator of economic growth, there is no single measure which can describe all aspects of the wellbeing of a country's citizens.

There are significant aspects of the quality of life which cannot be comprehended in a system of economic accounts, just as there are significant aspects of an individual's wellbeing which are not measured in the conventional concept (or any other concept) of that individual's income.

Notwithstanding their limitations, especially in relation to uses for which they were never designed, the national accounts provide vital information for a range of important purposes. The system of national accounts also provides a framework or structure which can be, and has been, adapted and extended to facilitate the examination of other economic and social policy issues.

A detailed presentation of the concepts underlying the national accounts is provided in the ABS publication *Australian National Accounts: Concepts, Sources and Methods* (5216.0). An updated version, reflecting the latest international standards, was released in 2000 as part of the Statistical Concepts Library on the ABS Internet site at <http://www.abs.gov.au>

## Measuring GDP

There are three ways of measuring GDP:

- *the income approach*, which measures GDP by summing the incomes accruing from production: compensation of employees (wages and salaries, and employers' social contributions); gross operating surplus (profits); gross mixed income (income from unincorporated businesses, including a return to the owners of these businesses for their labour); and taxes less subsidies on production and imports;
- *the expenditure approach*, which involves summing all final expenditures on goods and services (i.e. those goods and services which are not processed any further), adding on the contributions of changes in inventories and the value of exports, and deducting the value of imports. Final expenditures consist of final consumption expenditure and gross fixed capital formation. Exports are included in GDP because they are part of Australian production even though they are sold to overseas purchasers. Imports are deducted because, although they are included in final expenditures (e.g. when someone buys an imported video recorder its value is included as part of household final consumption expenditure), they are not part of Australian production; and
- *the production approach*, which calculates GDP by taking the value of goods and services produced by an industry (its output at basic values, which implicitly includes taxes less subsidies on production) and deducting the cost of goods and services used up by the industry in the productive process (intermediate consumption), which leaves the value added by the industry. GDP is then obtained by summing value added across all industries, and adding taxes less subsidies on products.

While each approach should, conceptually, deliver the same estimate of GDP, if the three measures are compiled independently using different data sources then different estimates of GDP result. However, the Australian national income, expenditure and product estimates have been integrated with annual balanced supply and use tables which are available for 1994–95 to 1998–99. Integration with balanced supply and use tables ensures that the same estimate of GDP is obtained from the three approaches, so that annual estimates using the income, expenditure and production approaches are identical for the years for which supply and use tables are available.

Prior to 1994–95, and for 1999–2000, the estimates using each approach are based on independent sources, and there are usually differences between the income, expenditure and production estimates. Nevertheless, for these periods, a single estimate of GDP has been compiled. Table 29.1 shows time series of chain volume measures for GDP, and GDP per capita, from 1973–74 to 1999–2000. (For a discussion of chain volume measures, see the section *Chain volume or 'real' GDP*).

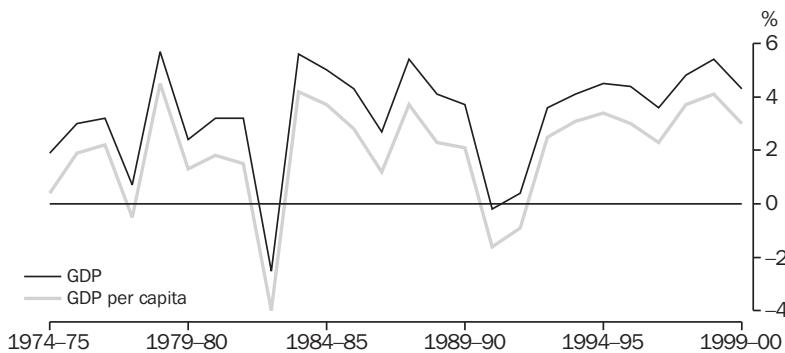
The chain volume measure of GDP increased by 4.3% in 1999–2000, following an increase of 5.4% in 1998–99. For some analytical purposes, it is important to allow for the impact of population growth on movements in GDP. Annual growth in GDP per capita has been about one to two percentage points lower than that for GDP since the mid-1970s and was negative in 1977–78, 1982–83, 1990–91 and 1991–92 (graph 29.2). In 1999–2000 GDP per capita increased by 3.0%.

**29.1 GROSS DOMESTIC PRODUCT, CHAIN VOLUME MEASURES (a)**

Year	GDP \$m	GDP per capita \$
1973–74	266 549	19 582
1975–75	271 547	19 651
1975–76	279 738	20 030
1976–77	288 811	20 467
1977–78	290 865	20 368
1978–79	307 300	21 286
1979–80	314 754	21 556
1980–81	324 871	21 936
1981–82	335 197	22 265
1982–83	326 818	21 373
1983–84	345 021	22 281
1984–85	362 179	23 095
1985–86	377 670	23 751
1986–87	387 944	24 037
1987–88	408 831	24 930
1988–89	425 722	25 514
1989–90	441 385	26 058
1990–91	440 389	25 638
1991–92	442 021	25 411
1992–93	457 984	26 040
1993–93	476 986	26 848
1994–95	498 550	27 757
1995–96	520 261	28 594
1996–97	539 088	29 257
1997–98	565 126	30 338
1998–99	595 417	31 581
<u>1999–2000</u>	<u>620 963</u>	<u>32 539</u>

(a) Reference year 1998–99.

Source: Australian System of National Accounts (5204.0).

**29.2 GDP AND GDP PER CAPITA**

Source: Australian System of National Accounts (5204.0).

## Chain volume or 'real' GDP

Chain volume measures were introduced into the Australian national accounts in 1998. They were first presented as experimental measures for the expenditure components of GDP in the December quarter 1997 issue of *Australian National Accounts: National Income, Expenditure and Product* (5206.0), and were an addition to the long-standing constant price estimates which were still the 'official' volume estimates. Subsequently, in the September quarter 1998 issue of 5206.0, the constant price estimates of both the expenditure and production components of GDP were replaced with chain volume measures from the September quarter 1986, and they became the ABS's 'official' volume estimates.

The reason for having either chain volume or constant price estimates in the national accounts is to provide time series of expenditure and production aggregates which are free of the direct effects of price change. All the current price aggregates of expenditure and production appearing in the national accounts are estimates of the sums of the values of individual transactions. Each of these transactions has two components: a price and a quantity. From one period to another the quantities and prices comprising the transactions change. This means that when the current price value of an aggregate, such as GDP, in one period is compared with the current price value in another period the difference between them usually reflects both changes in quantity and changes in price of the constituent transactions. In order to estimate by how much the 'volume' of GDP has changed between the two periods we need to measure the value of GDP in each period using the same unit prices.

For many years the ABS derived constant price estimates as a means of measuring changes in the volumes of aggregates. Constant price estimates are derived by fixing the unit prices of goods and services to those of some base year. These base year unit prices are effectively the weights used to combine the quantities of the different goods and services purchased or produced. The unit prices

of different goods and services tend to grow at different rates — some at dramatically different rates, e.g. the prices of computer equipment are estimated to have declined by about 85% between 1989–90 and 1999–2000, while the prices of most other goods and services have increased. Therefore, over time, the price relativities of some goods and services change appreciably. This adversely affects the usefulness of constant price estimates for periods distant from the base year, and implies that the base year used to derive constant price estimates needs to be changed from time to time. It was ABS practice, in common with many other national statistical agencies, to change the base year every five years. However, it has been found that rebasing every five years is commonly insufficient, and SNA93 recommends rebasing every year and linking the resulting indexes to form annually reweighted chain volume measures. ABS analysis of Australian data has confirmed the need to adopt annually reweighted chain volume measures.

Chain volume estimates are not generally additive. In other words, in general, component chain volume estimates do not sum to a total in the way original current price components do. In order to minimise the impact of this property, the ABS is using the latest base year as the reference year (i.e. the year when the annual chain volume estimate equals the current price value). Re-referencing changes the level of the chain volume estimates, but does not of itself change the growth rates. By adopting this approach, non-additivity does not apply to the reference year and the following year.

The decision to replace all of the ABS's constant price estimates with chain volume measures was announced in March 1998 in *Information Paper: Introduction of Chain Volume Measures in the Australian National Accounts* (5248.0). That paper describes what chain volume measures are, their advantages and disadvantages with respect to constant price estimates, the advantages and disadvantages of different chain volume formulae, and the results of an empirical analysis.

## New volume estimates for health and education

Historically, the measurement of non-market service industry volumes has presented national accountants both here and abroad with a number of difficulties. Non-market services include the provision of health and education services, policing and defence services, and general government administration. In recent years a major research effort undertaken within the ABS to investigate the measurement of non-market output and productivity has led to the development of improved methods for the measurement of health and education volumes which will be implemented in the next edition of the annual national accounts.<sup>1</sup> Australia will be one of the first countries to implement output indicators in the national accounts for a major component of the non-market sector. It is expected that a number of other countries will do so in the near future.

More often than not, growth in input volumes has tended to be used as a proxy for growth in volumes of non-market service industry output and value added. Hours worked or costs deflated by wage and other input price indexes have been primary components of these input-based methods. The main disadvantage of using input methods is that they do not reflect changes in output resulting from increased productivity. For this reason, international standards recommend using direct output measures for measuring the volume of output, in particular for health and education services which are consumed individually. However, it is recognised that for a number of industries where non-market producers are predominant, appropriate output volume indicators are difficult to construct. This is particularly so for industries where services are consumed collectively, such as government administration and defence. For this reason, some input-based estimates are likely to remain, even in the longer term.

It is important to note that the objective is to measure the quantities of services actually delivered to households, not the benefits derived from those services by society. For example, in the case of education, the services consist of the volume of teaching provided by producers of education services to students. It should not be measured by the level of knowledge or skills possessed by members of the community as that can be affected by a host of factors out of the control of the education establishment — such as degree of parental support, work undertaken outside of school, etc.

Health and education comprise around 10% of GDP, and government expenditure on health and education services represents around 45% of total government final consumption expenditure. Components of the health industry in particular have been subject to substantial technological change in recent years. The expectation that input methods were more than likely understating the rate of volume growth — for health output in particular — and the availability of suitable output data made these two industries an obvious starting point for investigations of alternative methods for non-market services.

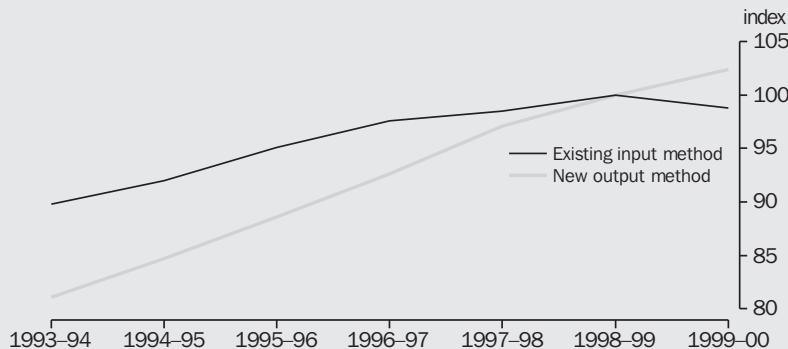
### Volume estimates for health services

Health services are composed of services provided in hospitals and nursing homes; medical services provided by general practitioners and medical specialists; dental; optometry and optical dispensing; community health services; paramedical; veterinary and ambulance services. Over 55% of health services are supplied by hospitals and nursing homes, the majority being provided by the government sector. The estimation of the volume of health services involves establishing volume indicators for each type of health service and weighting these indicators using data on the cost of providing the services.

Data to estimate volume indicators have been collected from a range of sources. For hospital services, data from the Department of Health and Aged Care are used which detail treatments provided by all government and private acute care hospitals in accordance with the *Australian National Diagnostic Related Groups Classification (AN-DRGs)*. The current version of the classification consists of over 660 separate diagnostic related groups. The volume of services is represented by the number of episodes (separations) for each group. For nursing homes, the number of patient days categorised by level of care is used. For medical services, detailed data are available from the Medicare system. For general practitioners and medical specialists (e.g. in obstetrics, anaesthetics, diagnostic imaging and surgical operations), output is measured by the numbers of attendances weighted together by fees charged. In the case of pathologists, the number of tests has been used as the output volume indicator. Estimates on the new basis will be carried back to 1993–94, with earlier years backcast using the previously published growth rates based on input costs.

The effect of the change from the existing input-based method to the method outlined above is demonstrated in graph 29.3. It shows an average growth in the chain volume measure of the gross value added of health and community services between the years 1993–94 to 1999–2000 of 4.0% per annum, compared to 1.6% under the existing method. The ABS believes that the new method is a significant advance on the existing input-based method. It captures much of the anticipated increased productivity that one would expect from technological improvements in the industry. A shortcoming is the degree to which it can capture all quality change in the services provided, but using a fine level of detail helps to capture compositional quality changes, namely any shift to new and more advanced medical treatments being offered.

### 29.3 HEALTH & COMMUNITY SERVICES, Gross Value Added



Source: Australian National Accounts: National Income, Expenditure and Product (5206.0), March quarter 2001, p. 16.

## Volume estimates for education services

The new volume estimates of education output are based mainly on annual student enrolments. Enrolments for each level of education are weighted together by the cost of providing those services. Student numbers for primary schools and secondary schools are converted to full-time equivalents (part-time students are counted as 0.5 of a full-time student). Module hours are available for vocational education and are used in preference to student numbers. For universities, full-time equivalent student numbers enrolled in each of eleven discipline groups are used as the output indicators for the tuition component. The university research component is estimated by weighting together data for the number of publications and student research completions.

In the main, the new output indicators simply capture changes in the number of students enrolled adjusted for compositional change between the various levels of education, and subjects in the case of universities. They do not capture any quality change over time in the education services provided. A number of national statistical offices and international agencies, including the ABS, have investigated ways of incorporating quality adjustment factors into the education output measure. For example, class sizes and public examination results have been considered as indicators of change in the quality of the education service.

Adjusting for class size has been widely rejected on the grounds that there does not appear to be an observable relationship — certainly not a linear one — between class size and the quality of services provided. Public examination results are useless unless the same test standards are maintained over time, and while results from standardised tests provide a better prospect, changes in scores over time could also reflect external factors — such as changes in the quality of home life — as well as changes in the quality of education services. Nevertheless, once a sufficient time series of such data becomes available and after taking into account external factors, it may be possible to at least discern the direction of change in quality.

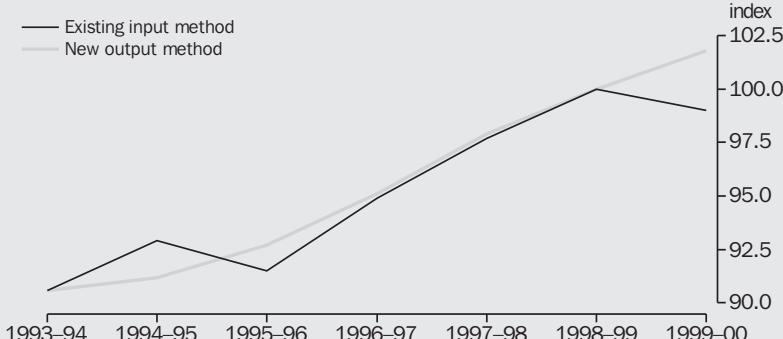
Despite this shortcoming, the ABS is of the view that the output indicator method is conceptually superior to the existing input-based method, and yields more plausible results for Australia. It is also consistent with how output would generally be measured if education were predominantly provided in the market. In that case the volume of output would be based either on the number of fee paying students adjusted for changes in the quality of the service provided, or equivalently, current price output deflated by a constant-quality price index.

A comparison of results for gross value added under the new and existing methods is shown in graph 29.4. It shows an average annual growth in education gross value added between the years 1993–94 to 1999–2000 of 1.9% per annum, compared with 1.5% under the existing method. While this does not result in a significant change in the growth rates it does provide a more stable pattern of growth than under the existing method.

## Future developments

The ABS plans to continue to seek improvements to the methods which it uses to measure the output of non-market services industries. A detailed study has already been undertaken into measuring the output of public order and safety and justice services, the results of which have been published in the ABS Discussion Paper *Experimental Output Measures for the Australian Justice Sector*. While satisfactory results were obtained for some of these industries, they are too small to justify the incorporation of the new estimates into the accounts on their own. It was not possible to compile satisfactory estimates for police services, the largest industry in this group, but there are hopeful prospects for the future. It is also planned to investigate the use of administrative data to derive output measures for various government agencies. The ABS will continue to monitor international developments in relation to potential quality adjustment indicators.

#### 29.4 EDUCATION SERVICES, Gross Value Added



Source: Australian National Accounts: National Income, Expenditure and Product, March Quarter 2001 (5206.0).

#### Endnote

1 This article is a summary of a longer feature article 'New Chain Volume Estimates for the Services Sector' published in the March quarter

2001 release of *Australian National Accounts: National Income, Expenditure and Product* (5206.0) available on the ABS website <http://www.abs.gov.au>

#### Chain price indexes and implicit price deflators

A by-product of the calculation of chain volume measures is the Implicit Price Deflator (IPD). An IPD is the price index obtained when a current price estimate is divided by the corresponding chain volume measure. The ABS publishes a time series of IPDs for each of the expenditure components of GDP (excluding the changes in inventories).

Chain price indexes are also published for the major expenditure aggregates. They are the prices analogue of chain volume estimates. Quarterly chain price indexes are generally superior to IPDs for measuring price change, because the quarter-to-quarter growth rates calculated from the IPDs reflect changes in composition of the expenditure aggregate as well as pure price change. For example, it is possible for an IPD to increase or decrease from one quarter to another without there being any change in price. Changes in chain price indexes, on the other hand, only reflect pure price change.

#### National income, expenditure and product accounts

The Australian national income, expenditure and product accounts are compiled and published in some detail every quarter, in *Australian National Accounts: National Income, Expenditure and Product* (5206.0), and in greater detail once a year, in *Australian System of National Accounts* (5204.0).

#### Gross domestic product account

The gross domestic product account indicates changes in Australian production over time. Tables 29.5 and 29.6 show the gross domestic product account in current prices for a number of years between 1965-66 and 1999-2000; table 29.5 shows a series of snapshots at five-yearly intervals to 1990-91, while table 29.6 shows annual time series from 1991-92 to 1999-2000. Table 29.7 shows expenditure on GDP in real or chain volume terms.

In real terms (i.e. after the effects of price change are removed from the dollar value of Australia's production), there was a fall in production during the 1990–91 financial year. However, the nine years since the recession in 1990–91 have all shown growth in GDP. Although growth in 1991–92 was relatively low (0.4%), by 1994–95 it had accelerated to 4.5%, a growth rate which has generally been maintained since, except for a slowing in 1996–97.

The gross domestic product account can also be used to show changes in the share of income accruing to labour (i.e. compensation of employees) compared with the share accruing to capital (i.e. profits, defined as the gross operating surplus of non-financial and financial corporations). Graphs 29.8 and 29.9 show how the shares of total factor income accruing to wages and to profits have changed since 1965–66. (Total factor income is equal to the sum of compensation of employees, gross operating surplus and gross mixed income.)

### 29.5 DOMESTIC PRODUCTION ACCOUNT, Current Prices — Five-Yearly

	1965–66 \$m	1970–71 \$m	1975–76 \$m	1980–81 \$m	1985–86 \$m	1990–91 \$m
Final consumption expenditure						
General government	3 089	5 498	15 177	27 374	50 249	74 776
Households	13 401	21 011	44 681	82 877	143 070	232 411
<i>Total final consumption expenditure</i>	<b>16 490</b>	<b>26 509</b>	<b>59 858</b>	<b>110 251</b>	<b>193 319</b>	<b>307 187</b>
Gross fixed capital formation						
Private	4 284	7 353	12 450	27 996	44 699	65 950
Public	2 005	2 838	6 478	9 789	19 039	23 041
<i>Total gross fixed capital formation</i>	<b>6 289</b>	<b>10 191</b>	<b>18 928</b>	<b>37 785</b>	<b>63 738</b>	<b>88 991</b>
Changes in inventories	84	586	180	406	833	-1 530
Gross national expenditure	22 863	37 286	78 966	148 442	257 890	394 649
Exports of goods and services	3 136	5 086	11 225	22 604	38 948	66 259
less Imports of goods and services	3 683	5 214	11 163	25 530	47 199	66 948
Statistical discrepancy (expenditure-based)	107	12	-185	-504	-1 805	2 724
<b>Gross domestic product</b>	<b>22 423</b>	<b>37 170</b>	<b>78 843</b>	<b>145 012</b>	<b>247 834</b>	<b>396 684</b>
Compensation of employees	11 329	19 320	43 919	75 044	123 434	191 491
Gross operating surplus	5 131	9 253	17 359	36 267	68 950	118 891
Gross mixed income	3 919	5 421	9 867	18 745	27 578	40 847
<i>Total factor income</i>	<b>20 379</b>	<b>33 994</b>	<b>71 145</b>	<b>130 056</b>	<b>219 962</b>	<b>351 229</b>
Taxes less subsidies on production and imports	2 087	3 163	7 872	14 733	27 801	43 357
Statistical discrepancy (income-based)	-43	13	-174	223	71	2 098
<b>Gross domestic product</b>	<b>22 423</b>	<b>37 170</b>	<b>78 843</b>	<b>145 012</b>	<b>247 834</b>	<b>396 684</b>

Source: Australian System of National Accounts (5204.0).

**29.6 GROSS DOMESTIC PRODUCT ACCOUNT, Current Prices — Annual**

	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m								
Final consumption expenditure									
General government	79 729	82 877	85 010	88 021	93 362	96 226	101 291	108 733	117 773
Households	244 211	255 330	266 278	282 800	301 776	315 235	335 049	353 757	373 313
<i>Total final consumption expenditure</i>	323 940	338 207	351 288	370 821	395 138	411 461	436 340	462 490	491 086
Gross fixed capital formation									
Private	62 100	69 850	77 476	86 794	90 254	97 544	111 592	117 535	127 493
Public	22 747	22 193	21 465	23 858	23 403	22 575	20 769	24 695	23 611
<i>Total gross fixed capital formation</i>	84 847	92 044	98 941	110 652	113 657	120 119	132 361	142 230	151 103
Changes in inventories	-2 414	312	1 799	1 908	163	-980	690	5 307	2 062
Gross national expenditure	406 372	430 562	452 028	483 381	508 958	530 600	569 391	610 027	644 251
Exports of goods and services	70 080	76 899	83 015	87 654	99 095	105 160	113 744	111 843	125 774
less Imports of goods and services	69 269	79 077	85 396	97 654	101 078	103 590	118 482	126 453	140 954
Statistical discrepancy (expenditure-based)	-1 222	-1 638	-231	—	—	—	—	—	2 739
<b>Gross domestic product</b>	<b>405 961</b>	<b>426 746</b>	<b>449 416</b>	<b>473 381</b>	<b>506 975</b>	<b>532 170</b>	<b>564 653</b>	<b>595 417</b>	<b>631 810</b>
Compensation of employees	194 718	201 085	210 744	225 462	240 835	257 193	268 646	286 761	303 134
Gross operating surplus	124 536	133 602	141 949	148 066	158 161	164 150	178 091	182 585	197 430
Gross mixed income	40 482	43 437	44 094	45 104	49 228	49 384	53 016	55 715	59 485
<i>Total factor income</i>	359 736	378 124	396 787	418 632	448 224	470 727	499 753	525 061	560 048
Taxes less subsidies on production and imports	42 751	44 181	49 424	54 749	58 751	61 443	64 900	70 356	72 093
Statistical discrepancy (income-based)	3 474	4 441	3 205	—	—	—	—	—	-331
<b>Gross domestic product</b>	<b>405 961</b>	<b>426 746</b>	<b>449 416</b>	<b>473 381</b>	<b>506 975</b>	<b>532 170</b>	<b>564 653</b>	<b>595 417</b>	<b>631 810</b>

Source: Australian System of National Accounts (5204.0).

**29.7 EXPENDITURE ON GDP, Chain Volume Measures(a) — Annual**

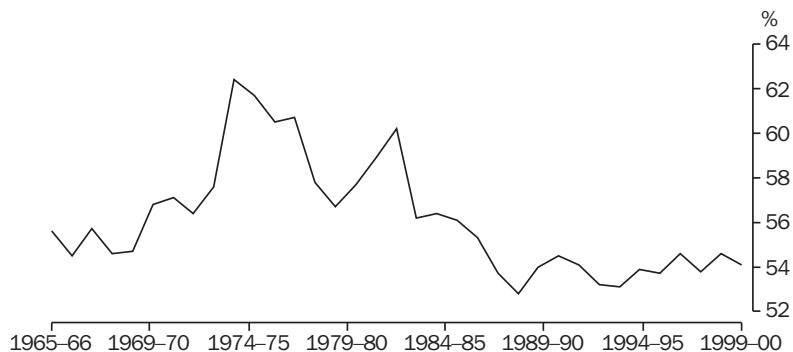
	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m								
Final consumption expenditure									
General government	90 026	91 144	92 554	95 243	99 061	100 285	103 644	108 733	115 556
Households	273 059	278 871	285 547	300 310	312 909	321 383	336 880	353 757	369 517
<i>Total final consumption expenditure</i>	363 012	369 946	378 035	395 507	411 922	421 643	440 523	462 490	485 073
Gross fixed capital formation									
Private	64 512	70 770	77 213	86 388	88 984	98 977	112 814	117 535	127 282
Public	22 257	21 677	21 001	23 502	22 963	22 553	20 695	24 696	23 830
<i>Total gross fixed capital formation</i>	88 183	93 817	99 583	111 416	113 486	122 909	134 420	142 230	151 112
Domestic final demand	448 913	461 674	475 688	505 274	523 579	543 187	574 049	604 720	636 185
Changes in inventories	-2 657	755	1 467	3 024	331	-908	697	5 307	2 379
Gross national expenditure	445 180	461 315	476 446	507 126	523 830	542 294	574 922	610 027	638 564
Exports of goods and services	70 784	75 514	82 845	86 879	95 837	105 850	109 749	111 843	122 365
less Imports of goods and services	72 822	77 402	82 583	96 250	100 091	109 916	120 528	126 453	142 630
Statistical discrepancy (expenditure-based)	-1 336	-1 766	-251	—	—	—	—	—	2 663
<b>Gross domestic product</b>	<b>442 021</b>	<b>457 984</b>	<b>476 986</b>	<b>498 550</b>	<b>520 261</b>	<b>539 088</b>	<b>565 126</b>	<b>595 417</b>	<b>620 963</b>

(a) Reference year for chain volume measures is 1998–99.

Source: Australian System of National Accounts (5204.0).

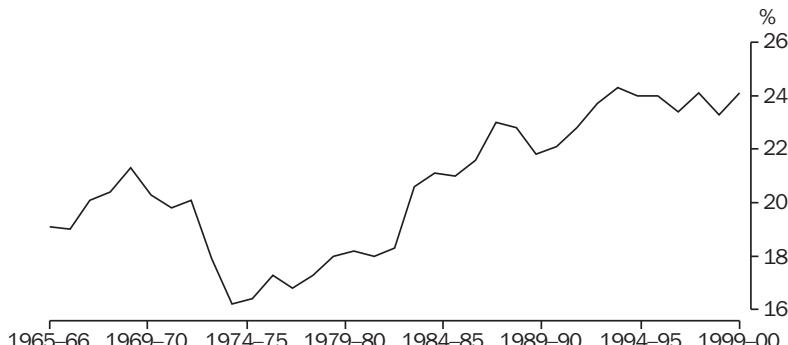
The highest recorded value of the wages share of total factor income was 62.4% in 1974–75. The wages share has recovered somewhat from its low value of 52.8% in 1988–89, but remains below the level recorded for most of the 1970s and early

1980s. In 1999–2000, the profits share of total factor income of 24.1% was slightly lower than its highest share of 24.3%, recorded in 1993–94, but remains at a relatively high level compared with earlier periods.

**29.8 WAGES SHARE OF TOTAL FACTOR INCOME**

Source: Australian System of National Accounts (5204.0).

## 29.9 PROFITS SHARE OF TOTAL FACTOR INCOME



Source: Australian System of National Accounts (5204.0).

**National income account**

The national income account shows the sources of national income and how much of this income is spent on final consumption. That part of income which is not spent in this way is saving. Tables 29.10 and 29.11 show the income account for a number of years between 1965–66 and 1999–2000; table 29.10 shows a series of snapshots at five-yearly intervals to 1990–91, while table 29.11 shows annual time series from 1991–92 to 1999–2000.

Graph 29.12 shows net saving by institutional sector as a proportion of GDP for the years 1965–66 to 1999–2000. Household net saving as

a percentage of GDP generally rose between 1965–66 and 1974–75, but has fallen subsequently from its high of 12.1% in 1974–75 to just 1.5% in 1999–2000 (\$9.7b). General government net saving was negative from 1974–75 to 1996–97 (except for 1988–89 and 1989–90). In 1999–2000 it was 1.1% of GDP (\$7.1b). In 1999–2000 net saving of non-financial corporations was 0.8% of GDP (\$5.0b). Net saving of financial corporations was negative from 1982–83 to 1986–87, the only period for which this sector has recorded negative net saving. In 1999–2000 net saving of financial corporations was 0.5% of GDP (\$3.2b).

## 29.10 NATIONAL INCOME ACCOUNT, Current Prices — Five-Yearly

	1965–66	1970–71	1975–76	1980–81	1985–86	1990–91
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Income</b>						
Compensation of employees	11 329	19 320	43 919	75 044	123 434	191 491
Gross operating surplus	5 131	9 253	17 359	36 267	68 950	118 891
Gross mixed income	3 919	5 421	9 867	18 745	27 578	40 847
Taxes less subsidies on production and imports	2 087	3 163	7 872	14 733	27 801	43 357
Net primary income from non-residents	-308	-600	-1 202	-2 397	-6 853	-17 222
<i>Gross national income</i>	<i>22 158</i>	<i>36 557</i>	<i>77 815</i>	<i>142 392</i>	<i>240 910</i>	<i>377 364</i>
Net secondary income from non-residents	-63	-25	-133	-164	313	222
<b>Gross disposable income</b>	<b>22 068</b>	<b>36 447</b>	<b>77 528</b>	<b>141 951</b>	<b>240 526</b>	<b>377 586</b>
<b>Use of gross disposable income</b>						
Final consumption expenditure						
General government	3 089	5 498	15 177	27 374	50 249	74 776
Households	13 401	21 011	44 681	82 877	143 070	232 411
<i>Total final consumption expenditure</i>	<i>16 490</i>	<i>26 509</i>	<i>59 858</i>	<i>110 251</i>	<i>193 319</i>	<i>307 187</i>
Net saving(a)	2 461	4 674	6 645	10 746	8 884	8 121
Consumption of fixed capital	3 117	5 264	11 025	20 954	38 323	62 278
<b>Total use of gross disposable income</b>	<b>22 068</b>	<b>36 447</b>	<b>77 528</b>	<b>141 951</b>	<b>240 526</b>	<b>377 586</b>

(a) Net saving is derived as a balancing item.

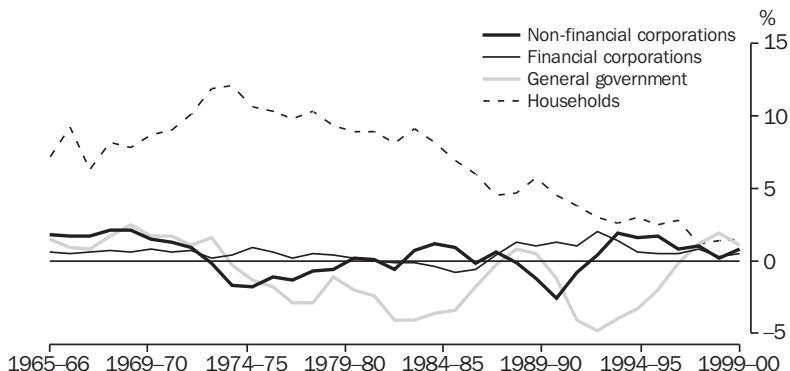
Source: Australian System of National Accounts (5204.0).

**29.11 NATIONAL INCOME ACCOUNT, Current Prices — Annual**

	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m								
<b>Income</b>									
Compensation of employees	194 718	201 085	210 744	225 462	240 835	257 193	268 646	286 761	303 134
Gross operating surplus	124 536	133 602	141 949	148 066	158 161	164 150	178 091	182 585	197 430
Gross mixed income	40 482	43 437	44 094	45 104	49 228	49 384	53 016	55 715	59 485
Taxes less subsidies on production and imports	42 751	44 181	49 424	54 749	58 751	61 443	64 900	70 356	72 093
Net primary income from non-residents	-14 054	-12 682	-13 534	-18 118	-19 533	-19 307	-18 005	-18 328	-18 591
<i>Gross national income</i>	388 433	409 623	432 677	455 263	487 442	512 863	546 648	577 089	613 550
Net secondary income from non-residents	-134	-350	-339	-528	-171	-177	-75	-778	94
<b>Gross disposable income</b>	<b>388 299</b>	<b>409 273</b>	<b>432 338</b>	<b>454 735</b>	<b>487 271</b>	<b>512 686</b>	<b>546 573</b>	<b>576 311</b>	<b>613 644</b>
<b>Use of gross disposable income</b>									
Final consumption expenditure									
General government	79 729	82 877	85 010	88 021	93 362	96 226	101 291	108 733	117 773
Households	244 211	255 330	266 278	282 800	301 776	315 235	335 049	353 757	373 313
Total final consumption expenditure	323 940	338 207	351 288	370 821	395 138	411 461	436 340	462 490	491 086
Net saving(a)	-297	2 752	8 717	9 034	13 638	20 957	24 367	22 312	25 027
Consumption of fixed capital	64 656	68 314	72 333	74 880	78 495	80 268	85 866	91 509	97 531
<b>Total use of gross disposable income</b>	<b>388 299</b>	<b>409 273</b>	<b>432 338</b>	<b>454 735</b>	<b>487 271</b>	<b>512 686</b>	<b>546 573</b>	<b>576 311</b>	<b>613 644</b>

(a) Net saving is derived as a balancing item.

Source: Australian System of National Accounts (5204.0).

**29.12 NET SAVING, By Sector — Share of GDP**

Source: Australian System of National Accounts (5204.0).

## National capital account

The national capital account shows how the saving from the national income account and consumption of fixed capital (depreciation) are used to finance gross fixed capital formation. If, as is currently the case for Australia, the nation's saving and consumption of fixed capital are not sufficient to pay for all the fixed capital needed for Australian production, the shortfall must be borrowed from overseas. The amount borrowed from overseas is shown in the national capital account as a negative entry for net lending to non-residents.

Tables 29.13 and 29.14 show the national capital account for a number of years between 1965–66 and 1999–2000; table 29.13 shows a series of snapshots at five-yearly intervals to 1990–91, while table 29.14 shows annual time series from 1991–92 to 1999–2000.

Graph 29.15 shows gross fixed capital formation (investment) by institutional sector as a proportion of GDP. For non-financial corporations this proportion generally fell during the 1970s, then rose to a peak of 13.2% in 1981–82. It has subsequently been above 10% except for the years 1991–92 and 1992–93, and was 10.9% in 1999–2000. Household investment as a proportion of GDP was 9.6% in 1999–2000. General government investment as a proportion of GDP peaked at 4.6% in 1965–66. It has generally fallen since then and was 2.4% of GDP in 1999–2000. Financial corporations investment peaked in 1988–89 and 1989–90 at 1.9% of GDP. It has generally fallen since then and was 1.1% of GDP in 1999–2000.

**29.13 NATIONAL CAPITAL ACCOUNT, Current Prices — Five-Yearly**

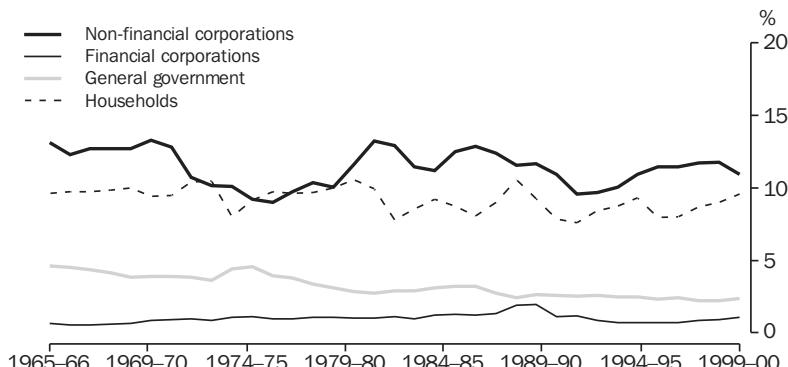
	1965–66	1970–71	1975–76	1980–81	1985–86	1990–91
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Net saving</b>						
Non-financial corporations	394	549	-1 400	355	2 203	-10 138
Financial corporations	132	279	732	304	-1 880	5 046
General government	345	626	-1 052	-2 835	-8 447	-4 789
Households	1 590	3 220	8 365	12 922	17 008	18 002
<i>Total net saving</i>	2 461	4 674	6 645	10 746	8 884	8 121
Consumption of fixed capital	3 117	5 264	11 025	20 954	38 323	62 278
Net capital transfers receivable from non-residents	46	56	-27	167	830	2 071
<b>Gross saving and capital transfers</b>	<b>5 624</b>	<b>9 994</b>	<b>17 643</b>	<b>31 867</b>	<b>48 037</b>	<b>72 470</b>
Gross fixed capital formation						
Private	4 284	7 353	12 450	27 996	44 699	65 950
Public corporations	966	1 401	2 883	5 640	11 033	12 731
General government	1 039	1 437	3 595	4 149	8 006	10 310
<i>Total gross fixed capital formation</i>	6 289	10 191	18 928	37 785	63 738	88 991
Changes in inventories						
Private non-farm	143	358	74	144	838	-1 136
Farm and public authorities	-59	228	106	262	-5	-394
<i>Total changes in inventories</i>	84	586	180	406	833	-1 530
Acquisitions less disposals of non-produced non-financial assets	—	—	—	—	—	-7
Statistical discrepancy	150	-1	-11	-727	-1 876	626
Net lending to non-residents	-899	-782	-1 454	-5 597	-14 658	-15 611
<b>Total capital accumulation and net lending</b>	<b>5 624</b>	<b>9 994</b>	<b>17 643</b>	<b>31 867</b>	<b>48 037</b>	<b>72 470</b>

Source: Australian System of National Accounts (5204.0).

**29.14 NATIONAL CAPITAL ACCOUNT, Current Prices — Annual**

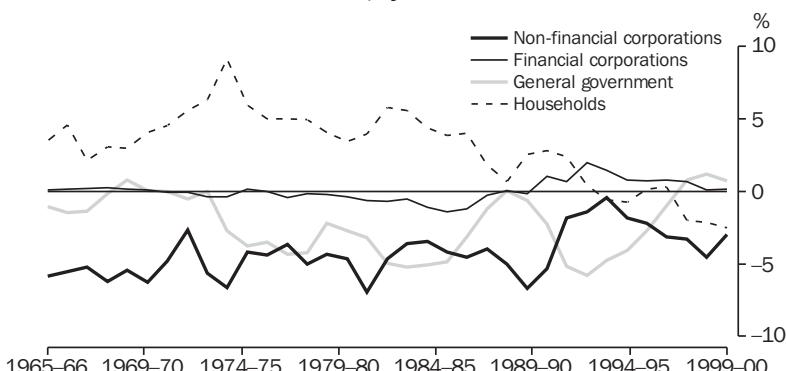
	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Net saving									
Non-financial corporations	–3 376	1 721	8 547	7 372	8 604	4 390	5 904	1 121	5 005
Financial corporations	4 212	8 638	6 190	3 071	2 738	2 682	4 728	1 672	3 161
General government	–16 714	–20 553	–17 875	–15 648	–10 342	–1 156	6 689	11 230	7 149
Households	15 581	12 946	11 855	14 239	12 638	15 041	7 046	8 289	9 712
Total net saving	–297	2 752	8 717	9 034	13 638	20 957	24 367	22 312	25 027
Consumption of fixed capital	64 656	68 314	72 333	74 880	78 495	80 268	85 866	91 509	97 531
Net capital transfers receivable from non-residents	2 079	604	300	540	1 049	1 323	1 097	1 186	1 183
<b>Gross saving and capital transfers</b>	<b>66 438</b>	<b>71 670</b>	<b>81 350</b>	<b>84 454</b>	<b>93 182</b>	<b>102 548</b>	<b>111 330</b>	<b>115 007</b>	<b>123 741</b>
Gross fixed capital formation									
Private	62 100	69 850	77 476	86 794	90 254	97 544	111 592	117 535	127 493
Public corporations	12 382	11 086	10 346	12 202	11 638	9 792	8 342	11 450	8 514
General government	10 365	11 107	11 119	11 656	11 765	12 783	12 427	13 245	15 097
Total gross fixed capital formation	84 847	92 044	98 941	110 652	113 657	120 119	132 361	142 230	151 103
Changes in inventories									
Private non-farm	–2 219	1 003	1 414	1 529	874	1 670	–59	5 343	2 300
Farm and public authorities	–195	–691	385	379	–711	–2 650	749	–36	–238
Total changes in inventories	–2 414	312	1 799	1 908	163	–980	690	5 307	2 062
Acquisitions less disposals of non-produced non-financial assets	—	33	–17	–32	–25	6	–30	19	64
Statistical discrepancy	–4 696	–6 079	–3 436	—	—	—	—	—	3 070
Net lending to non-residents	–11 298	–14 639	–15 937	–28 074	–20 613	–16 597	–21 691	–32 549	–32 558
<b>Total capital accumulation and net lending</b>	<b>66 438</b>	<b>71 670</b>	<b>81 350</b>	<b>84 454</b>	<b>93 182</b>	<b>102 548</b>	<b>111 330</b>	<b>115 007</b>	<b>123 741</b>

Source: Australian System of National Accounts (5204.0).

**29.15 GROSS FIXED CAPITAL FORMATION, By Sector — Share of GDP**

Source: Australian System of National Accounts (5204.0).

## 29.16 NET LENDING, By Sector — Share of GDP



Source: Australian System of National Accounts (5204.0).

Graph 29.16 shows net lending by institutional sector as a proportion of GDP. A positive percentage for a sector indicates that it is a net lender to other sectors; a negative percentage indicates that it is a net borrower. The household sector has been a net lender for most years. As a proportion of GDP, net lending by households peaked in 1974–75 at 9.1%. Since then it has trended downwards, and in five of the last seven years the household sector has been a net borrower. Non-financial corporations have been net borrowers over the whole period from 1965–66 to 1999–2000, and the amounts borrowed have fluctuated significantly from year to year. As a proportion of GDP, their net borrowing was 3.0% in 1999–2000. After being a net borrower throughout the 1980s, the financial corporations sector returned to being a net lender in 1990–91 and has remained so since then. In 1999–2000 financial corporations net lending represented 0.2% of GDP. After recording a record level of borrowing in 1992–93 as a proportion of GDP (5.8%), general government borrowing has steadily declined, and from

1997–98 this sector became a net lender. In 1999–2000 general government net lending represented 0.7% of GDP.

### External account

The external account is derived from the detailed balance of payments current and capital accounts (see *Chapter 30, International accounts and trade*). It shows Australia's exports and imports, incomes and transfers received by Australian residents from non-residents, and incomes and transfers payable to non-residents by Australian residents. The balance on the external account is net lending to non-residents. This is the same as the balance in the national capital account.

Tables 29.17 and 29.18 show the external account for a number of years between 1965–66 and 1999–2000; table 29.17 shows a series of snapshots at five-yearly intervals to 1990–91, while table 29.18 shows annual time series from 1991–92 to 1999–2000.

**29.17 EXTERNAL ACCOUNT, Current Prices — Five-Yearly**

	1965–66	1970–71	1975–76	1980–81	1985–86	1990–91
	\$m	\$m	\$m	\$m	\$m	\$m
Imports of goods and services	3 683	5 214	11 163	25 530	47 199	66 948
Primary income receivable						
Compensation of employees	11	17	44	110	164	429
Property income	400	760	1 587	3 147	8 879	20 552
Total primary income receivable	411	777	1 631	3 257	9 043	20 981
Secondary income receivable	169	358	773	1 264	1 797	2 653
Capital transfers to non-residents	40	78	203	320	486	653
Acquisitions less disposals of non-produced non-financial assets	—	—	—	—	—	-7
Net lending	-899	-782	-1 454	-5 597	-14 658	-15 611
<b>Resources provided by non-residents</b>	<b>3 404</b>	<b>5 645</b>	<b>12 316</b>	<b>24 774</b>	<b>43 867</b>	<b>75 615</b>
Exports of goods and services	3 136	5 086	11 225	22 604	38 948	66 259
Primary income payable						
Compensation of employees	10	13	59	119	165	432
Property income	93	164	370	741	2 025	3 325
Total primary income payable	103	177	429	860	2 190	3 757
Secondary income payable	79	248	486	823	1 413	2 875
Capital transfers from non-residents	86	134	176	487	1 316	2 724
<b>Resources provided to non-residents</b>	<b>3 404</b>	<b>5 645</b>	<b>12 316</b>	<b>24 774</b>	<b>43 867</b>	<b>75 615</b>

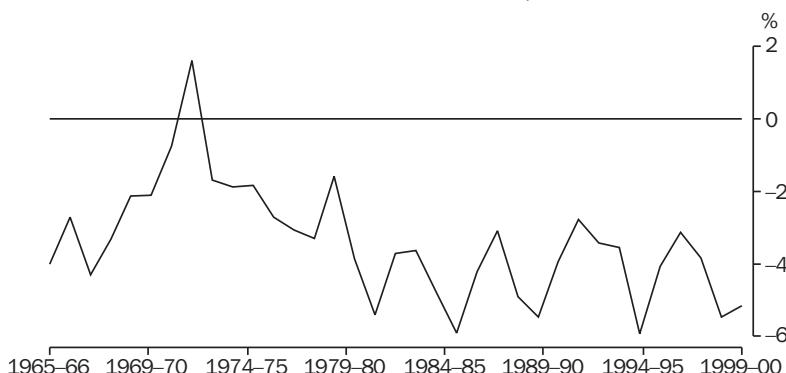
Source: Australian System of National Accounts (5204.0).

**29.18 EXTERNAL ACCOUNT, Current Prices — Annual**

	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Imports of goods and services	69 269	79 077	85 396	97 654	101 078	103 590	118 482	126 453	140 954
Primary income receivable									
Compensation of employees	326	311	283	389	458	539	792	854	941
Property income	18 179	18 452	19 031	24 669	26 215	27 331	27 597	27 472	30 394
Total primary income receivable	18 505	18 763	19 314	25 058	26 673	27 870	28 389	28 326	31 335
Secondary income receivable	2 898	3 423	3 451	3 554	3 463	3 674	4 051	5 377	4 558
Capital transfers to non-residents	695	743	758	843	907	877	971	1 011	1 230
Acquisitions less disposals of non-produced non-financial assets	—	33	-17	-32	-25	6	-30	19	64
Net lending	-11 298	-14 639	-15 937	-28 074	-20 613	-16 597	-21 691	-32 549	-32 558
<b>Resources provided by non-residents</b>	<b>80 069</b>	<b>87 399</b>	<b>92 965</b>	<b>99 004</b>	<b>111 483</b>	<b>119 420</b>	<b>130 172</b>	<b>128 637</b>	<b>145 583</b>
Exports of goods and services	70 080	76 899	83 015	87 654	99 095	105 160	113 744	111 843	125 774
Primary income payable									
Compensation of employees	455	497	511	551	610	678	747	797	817
Property income	3 996	5 583	5 269	6 390	6 530	7 885	9 637	9 201	11 927
Total primary income payable	4 451	6 080	5 780	6 941	7 140	8 563	10 384	9 998	12 744
Secondary income payable	2 764	3 073	3 112	3 026	3 292	3 497	3 976	4 599	4 652
Capital transfers from non-residents	2 774	1 347	1 058	1 383	1 956	2 200	2 068	2 197	2 413
<b>Resources provided to non-residents</b>	<b>80 069</b>	<b>87 399</b>	<b>92 965</b>	<b>99 004</b>	<b>111 483</b>	<b>119 420</b>	<b>130 172</b>	<b>128 637</b>	<b>145 583</b>

Source: Australian System of National Accounts (5204.0).

29.19 NET LENDING TO NON-RESIDENTS, Share of GDP



Source: Australian System of National Accounts (5204.0).

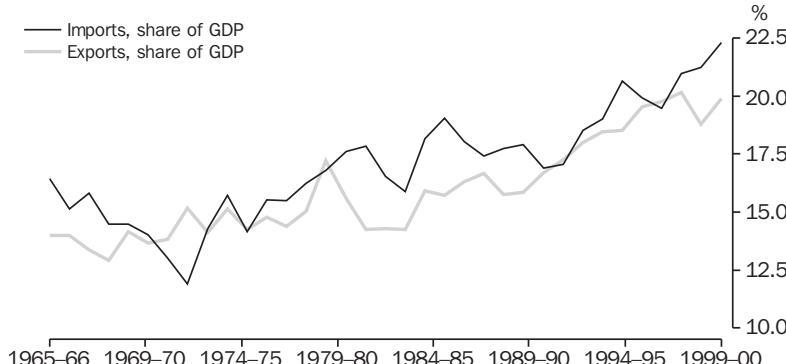
Australia has generally been a net borrower of funds from overseas. In the national accounts, this situation is reflected by a negative value for net lending to non-residents. The only exception to this pattern was in 1972–73 when Australia was a net lender to non-residents. Net borrowing from non-residents (i.e. negative net lending to non-residents), expressed as a proportion of GDP, increased significantly during the early 1980s and has remained at relatively high levels since then. Graph 29.19 shows net lending to non-residents as a proportion of GDP since 1965–66.

The importance of foreign trade to the Australian economy is illustrated by graph 29.20, which shows the ratios of exports and imports of goods and services to GDP for the financial years 1965–66 to 1999–2000. In 1999–2000 the import ratio was 22.3% and the export ratio was 19.9%.

## State accounts

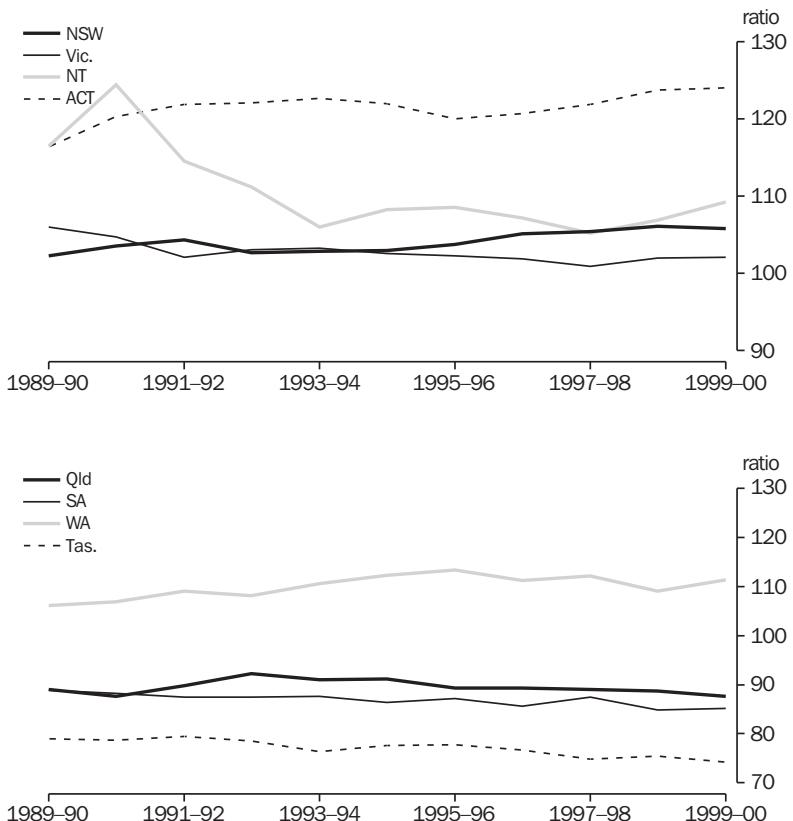
As well as Australia's national accounts, the ABS produces annual accounts for each of Australia's States and Territories. These provide estimates of gross State product (GSP) and State final demand. GSP is produced by summing the incomes generated in the production process (the income approach to measuring total production). State final demand is equal to the sum of government and household final consumption expenditure and government and private gross fixed capital formation. Estimates of State final demand and GSP are available in both current price and chain volume terms. The chain volume GSP estimates are experimental.

29.20 EXPORTS AND IMPORTS, Share of GDP



Source: Australian System of National Accounts (5204.0).

**29.21 GROSS STATE PRODUCT PER HEAD OF MEAN POPULATION(a),  
Ratio to GDP per Head**



(a) Aust. = 100.0.

Source: Australian National Accounts: State Accounts (5220.0).

An important use of State accounts is to compare the performance of each State and Territory. Graph 29.21 shows the ratio of GSP, in current prices, per head of mean population for each State and Territory to the Australian value (GDP per head of mean population) since 1989–90. For New South Wales, Victoria, Western Australia, the Northern Territory and the Australian Capital Territory, GSP per head of mean population has been above the national average. For Queensland, South Australia and Tasmania, GSP per head of mean population has been below the national average.

and services are produced by each industry and how they are used (e.g. some goods, such as cars, are sold to final consumers while others, such as steel, are used as inputs by other industries in producing more goods and services). The tables are based on the principle that the value of the output of each industry can be expressed as the sum of the values of all the inputs to that industry plus any profits made from production plus any taxes on production paid less any subsidies received. All the goods and services produced in a period are identified as being used as inputs by industries in their production process, being sold to final users of the goods and services (either in Australia, or overseas as exports), or contributing to the changes in inventories (an increase in inventories if more goods are produced than purchased, or a run-down in inventories if purchases exceed production). For the production system as a whole, the sum of all outputs must equal the sum of all inputs and, for the economy as

## Input-output tables

### Basic structure

Input-output (I-O) tables show the structure of a country's entire production system for a particular period, usually one year. They show which goods

a whole, total supply must equal total use (inventories provide the mechanism which balances supply and use).

## Relationship to the national income and expenditure accounts

I-O tables are directly related to the gross domestic product account. The income side of the gross domestic product account shows the amount of income generated in the economy accruing to labour (in the form of compensation of employees) and to capital (as profits or, in national accounting terms, gross operating surplus and gross mixed income — the latter including some return to owners of businesses for their labour). The expenditure side of the account shows the value of goods and services entering into the various categories of final uses.

The I-O tables provide a much more detailed disaggregation of the gross domestic product account than is available in the national income, expenditure and product accounts. The latter only shows details of the end results of economic activity, whereas the I-O tables show the flows of goods and services through the production process. The extra detail provided by the I-O tables is essential for many analyses.

## Input-output table for seven industry sectors

Table 29.22 and diagram 29.23 show the flows of goods and services in respect of 1996–97.

The links between the table and the diagram are explained by working through the following formulas.

*Total intermediate use* (\$482,483m) in the diagram is derived by summing from column 8 of the table: intermediate use (\$412,134m); Taxes on products, net (\$13,378m); competing imports (\$56,890m); and complementary imports (\$81m).

*Domestic final use* (\$530,600m) in the diagram is derived from the table by subtracting total exports (\$105,160m), column 12, from total final uses (\$635,760m), column 13.

*Imports* (\$103,590m) is derived by summing from column 14 of the table: competing imports (\$103,257m); and complementary imports (\$333m). In the diagram it is dissected into imports for intermediate uses (\$56,971m); and imports for final uses (\$46,619m).

*Exports* (\$105,160m) in the diagram is total exports, column 12 in the table.

*Total use* (\$1,118,243m), which equals total supply, is the sum of domestic final use (\$530,600m); total intermediate use (\$482,483m); and exports (\$105,160m).

*Gross value added* (\$493,377m) in the diagram is derived by summing from column 14 of the table: compensation of employees (\$257,193m); gross operating surplus and mixed income (\$213,534m); and other taxes on production (net) (\$22,650m).

*Gross Domestic Product (Income measure)* (\$532,170m) in the diagram is derived by summing from column 14 of the table: compensation of employees (\$257,193m); gross operating surplus and mixed income (\$213,534m); taxes on products (net) (\$38,793m); and other taxes on production (net) (\$22,650m).

*Gross Domestic Product (Expenditure measure)* (\$532,170m) in the diagram is derived by summing domestic final use (\$530,600m); and exports (\$105,160m); and subtracting imports (\$103,590m).

## Financial accounts

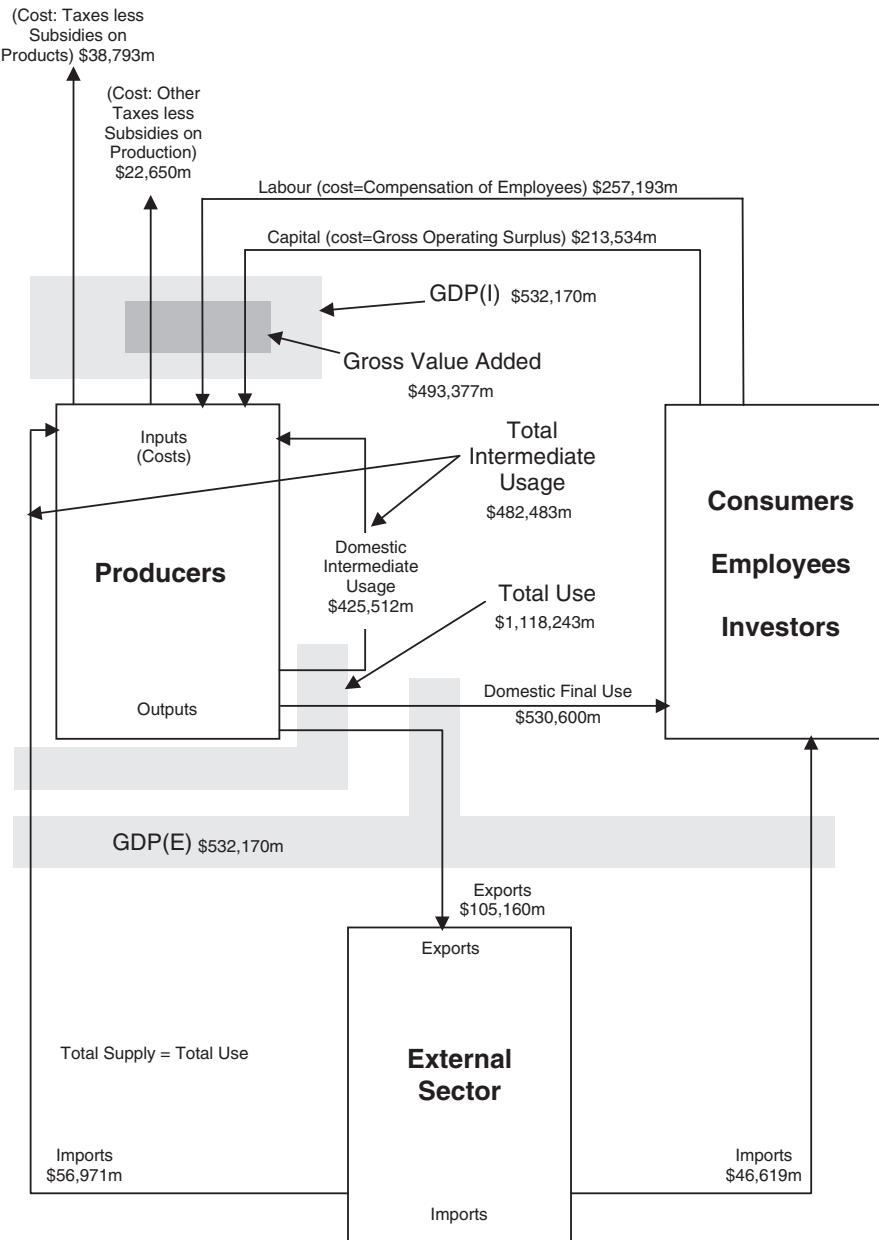
In addition to the national accounts, the ABS produces quarterly information on the levels of financial assets and liabilities of each institutional sector of the economy, the market for financial instruments, and inter-sectoral transactions in financial assets and liabilities classified by financial instrument (see *Chapter 26, Financial system*). National and sectoral financial accounts, which show major financial aggregates, are published in *Australian System of National Accounts* (5204.0).

**29.22 INDUSTRY BY INDUSTRY FLOW TABLE, Basic Values — 1996–97**

	1	2	3	4	5	6	7
	Agriculture	Mining	Manufacturing	Construction	Trade and transport	Service industries	Public admin. and defence
Supply	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Agriculture	4 071	16	13 710	123	283	1 304	52
Mining	42	3 851	9 719	651	238	2 897	96
Manufacturing	4 369	4 043	49 326	16 658	16 182	20 627	3 497
Construction	177	224	48	70	439	1 948	675
Trade and transportation	2 819	3 020	21 356	4 084	18 559	15 873	1 818
Service Industries	3 192	4 991	22 429	7 994	45 697	91 487	7 637
Public admin. and defence	53	226	578	120	1 260	1 100	2 505
Intermediate use	14 722	16 371	117 166	29 699	82 658	135 237	16 280
Compensation of employees	3 967	5 887	36 147	13 812	51 263	127 132	18 985
Gross operating surplus and gross mixed income	12 699	16 788	27 262	15 351	19 715	118 860	2 859
Taxes on products (net)	464	207	1 752	715	4 347	5 643	250
Other taxes on production (net)	588	499	2 505	700	4 053	11 054	29
Competing imports	1 641	2 015	28 646	3 406	5 793	13 548	1 842
Complementary imports	0	0	81	0	0	0	0
<b>Australian production</b>	<b>34 081</b>	<b>41 767</b>	<b>213 558</b>	<b>63 683</b>	<b>167 829</b>	<b>411 474</b>	<b>40 245</b>
	8	9	10	11	12	13	14
	Intermediate usage = Sum (1 to 7)	Final consumption expenditure	Gross fixed capital formation	Changes in inventories	Exports	Final demand = Sum (9 to 12)	Total supply = Sum (8+13)
Supply	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Agriculture	19 560	4 719	1 024	369	8 409	14 522	34 081
Mining	17 493	598	2 268	-2 428	23 835	24 274	41 767
Manufacturing	114 702	47 087	14 046	-495	38 219	98 856	213 558
Construction	3 581	2 964	57 048	-5	96	60 102	63 683
Trade and transportation	67 530	70 463	11 901	40	17 896	100 299	167 829
Service Industries	183 427	207 096	9 399	67	11 484	228 047	411 474
Government admin. and defence	5 842	33 847	405	—	151	34 403	40 245
Intermediate use	412 134	366 774	96 091	-2 452	100 090	560 503	972 637
Compensation of employees	257 193	—	—	—	—	—	257 193
Gross operating surplus and gross mixed income	213 534	—	—	—	—	—	213 534
Taxes on products (net)	13 378	20 262	3 352	158	1 643	25 415	38 793
Other taxes on production (net)	19 428	—	3 222	—	—	3 222	22 650
Competing imports	56 890	24 314	17 303	1 323	3 427	46 367	103 257
Complementary imports	81	111	151	-9	—	252	333
<b>Australian production</b>	<b>972 637</b>	<b>411 461</b>	<b>120 119</b>	<b>-980</b>	<b>105 160</b>	<b>635 760</b>	<b>1 608 397</b>
<b>Gross value added</b>	<b>490 155</b>	—	<b>3 222</b>	—	—	<b>3 222</b>	<b>493 377</b>
<b>Gross Domestic Product</b>	—	—	—	—	—	—	<b>532 170</b>

Source: Derived from Australian National Accounts: Input-Output Tables (5209.0).

## 29.23 THE AUSTRALIAN ECONOMY. Flow of Goods and Services (\$m)



## Notes:

- (1) Flows are based on 1996–97 input-output tables.
- (2) This diagram shows the flows between producers and the rest of the economy. In this context a producer can also be a consumer (e.g. own account capital expenditure) or an investor.
- (3) The shaded areas identify the components that make up the main aggregates. Flows passing through the shaded area are included in the calculation.

Source: Derived from Australian National Accounts: Input-Output Tables (5209.0).

## National Balance Sheet

The national balance sheet provides estimates of the value of Australia's produced, non-produced and financial assets, its liabilities to the rest of the world, and the net worth (defined as the difference between total assets and liabilities, including the value of equity in Australian enterprises owned by non-residents) of the total economy. The major national and sectoral balance sheet tables are published in *Australian System of National Accounts* (5204.0). Balance sheets are provided for each of the four domestic sectors: non-financial corporations, financial corporations, general government and households (including unincorporated enterprises and non-profit institutions serving households).

The non-produced assets included in the balance sheet cover experimental estimates of the value of some of Australia's natural resources: subsoil assets, timber available for log production and land. The monetary estimates of natural resources contained in the balance sheet are underpinned by physical estimates of particular natural resources. The monetary estimates of these natural resources should be considered in conjunction with the physical estimates. Valuation of natural resources is a difficult and contentious undertaking. The ABS continues to work with agencies, in Australia and abroad, to explore the best approaches to the measurement of the physical resources as well as the valuation of these resources, but it will be some time before there is an agreed approach. For this reason the estimates of natural resources presented in the balance sheet are considered to be experimental.

The natural resource estimates are used to monitor the availability and exploitation of these resources and to assist in the formulation of environmental policies. More generally, data on the level, composition and change in assets and liabilities shown in the balance sheet indicate the extent of economic resources available to and claims on a nation and each of its institutional sectors.

Sectoral balance sheets provide information necessary for analysing a number of topics; for example, the estimation of household liquidity; and the computation of widely used ratios, such

as assets to liabilities, net worth to total liabilities, non-financial to financial assets, and debt to income. In a period of concern about the level of saving in Australia, national and sector balance sheets provide additional information on the relationships between consumption, saving and wealth accumulation.

The ABS will continue to develop estimates of the value of Australia's assets for inclusion in national balance sheets as additional data become available. Estimation techniques will be refined as research in Australia and abroad explores issues relating to the valuation of natural resources. Development work is being undertaken on estimating non-produced intangible assets, such as patents and goodwill; they may be included in the national balance sheet in future years.

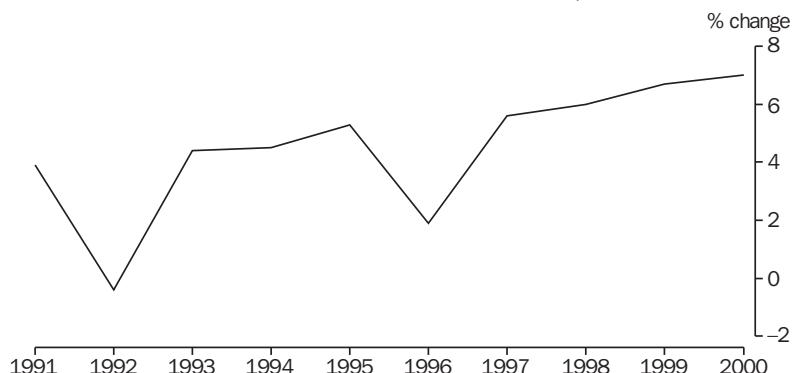
## Balance sheet estimates

Australia's net worth at 30 June 2000 is estimated at \$2,431.4b, an increase of \$159.8b (7.0%) since June 1999. Of the increase, \$22.5b was due to transactions (both capital and financial), and \$137.3b was due to revaluations and other flows (including discoveries of subsoil assets). The average annual rise over the period 30 June 1992 to 30 June 2000 was 5.2%. Net worth relative to annual GDP has fallen from 4.0:1 at the end of June 1992 to 3.8:1 at the end of June 1996, and has maintained this ratio since. Graph 29.24 shows that the net worth series exhibited the strongest growth during the years 1996–97 to 1999–2000 when annual rates of over 5% were achieved.

Total produced assets at 30 June 2000 are estimated at \$1,764.4b, an increase of 5.4% from the level at end of June 1999 (table 29.25).

The estimated value of produced assets rose at an average annual rate of 4.5% between 30 June 1992 and 30 June 2000, and consistently accounted for over 70% of net worth. Dwellings, other buildings and structures, and machinery and equipment represent about 90% of total produced assets. While computer software has consistently accounted for only 1% of total produced assets over the period, the series has exhibited by far the strongest growth of produced assets, with an average annual growth over the last eight years of 12.3%.

## 29.24 PERCENTAGE CHANGE IN TOTAL NET WORTH, As at 30 June



Source: Australian National Accounts: National Balance Sheet (5241.0.40.001).

## 29.25 CONSOLIDATED BALANCE SHEET, Australia — As at 30 June

	1992 \$b	1993 \$b	1994 \$b	1995 \$b	1996 \$b	1997 \$b	1998 \$b	1999 \$b	2000 \$b
<b>Total assets</b>	<b>1 949.5</b>	<b>2 053.4</b>	<b>2 161.0</b>	<b>2 299.3</b>	<b>2 369.0</b>	<b>2 529.5</b>	<b>2 711.7</b>	<b>2 899.2</b>	<b>3 138.7</b>
Non-financial assets	1 826.8	1 914.2	2 011.8	2 121.0	2 182.9	2 310.1	2 452.4	2 628.7	2 835.2
Produced assets	1 244.2	1 288.4	1 341.9	1 406.0	1 452.6	1 501.0	1 577.8	1 673.9	1 764.4
Fixed assets	1 161.2	1 202.3	1 251.4	1 311.2	1 357.8	1 405.4	1 480.3	1 572.1	1 656.1
Dwellings	384.2	400.8	424.3	450.0	468.4	484.5	508.5	546.6	589.5
Other buildings and structures	516.4	524.1	540.8	564.9	588.2	613.2	641.8	678.1	706.4
Machinery and equipment	239.7	253.2	259.3	268.8	273.4	279.5	299.3	312.9	321.8
Livestock — fixed assets	12.7	14.7	16.4	16.2	16.1	15.4	16.5	17.7	17.8
Computer software	7.9	9.2	10.2	10.9	11.3	12.3	13.7	16.2	20.0
Entertainment, literary or artistic originals	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.6
Inventories	83.0	86.1	90.5	94.8	94.8	95.6	97.5	101.8	108.3
Private non-farm(a)	63.7	66.2	68.8	73.0	73.2	74.2	74.7	78.8	85.2
Farm	6.0	5.6	6.1	6.6	6.6	6.4	6.7	6.3	6.4
Public authorities(b)	3.6	3.4	3.4	3.6	3.6	3.2	3.4	3.7	3.6
Livestock — inventories	5.2	5.6	6.0	5.7	5.3	5.0	5.1	5.2	5.1
Plantation standing timber	4.5	5.3	6.2	5.9	6.1	6.8	7.6	7.8	8.0
Non-produced assets	582.6	625.8	669.9	715.0	730.2	809.1	874.6	954.8	1 070.8
Land	525.3	557.5	597.5	625.3	643.3	710.2	768.9	835.2	916.7
Subsoil assets(c)	55.8	66.6	70.5	87.5	84.7	96.7	103.4	117.3	151.7
Native standing timber(c)	1.5	1.7	1.9	2.2	2.2	2.3	2.3	2.4	2.4
Financial assets with the rest of the world(d)	122.7	139.2	149.2	178.3	186.1	219.4	259.3	270.5	303.5
Monetary gold and SDRs	4.0	4.6	4.3	4.4	3.9	1.8	1.3	1.1	1.4
Currency and deposits	3.2	3.4	3.7	4.1	4.0	10.0	20.0	17.6	18.3
Securities other than shares	25.4	28.6	25.3	36.2	37.2	39.9	38.3	45.7	49.5
Loans and placements	17.7	20.9	22.9	24.8	26.9	30.2	38.7	40.5	41.9
Shares and other equity	65.2	73.4	85.1	100.1	104.7	125.4	146.9	152.6	177.6
Other accounts receivable	7.2	8.3	7.9	8.8	9.4	12.2	14.1	12.9	14.9

For footnotes see end of table.

...continued

**29.25 CONSOLIDATED BALANCE SHEET, Australia — As at 30 June — *continued***

	1992	1993	1994	1995	1996	1997	1998	1999	2000
	\$b								
<b>Liabilities to the rest of the world(d)</b>	<b>323.5</b>	<b>356.0</b>	<b>387.6</b>	<b>432.3</b>	<b>466.4</b>	<b>521.2</b>	<b>582.8</b>	<b>627.6</b>	<b>707.3</b>
Currency and deposits	7.9	8.4	10.2	17.9	17.9	21.9	34.3	40.1	42.9
Securities other than shares	138.3	152.7	148.8	179.5	199.8	224.9	246.7	242.5	268.9
Loans and placements	64.0	69.6	67.4	60.2	52.9	52.9	54.0	58.3	73.0
Shares and other equity	110.8	122.5	156.1	168.8	190.5	215.3	240.0	277.7	313.2
Other accounts payable	2.5	2.8	5.1	6.0	5.2	6.2	7.8	9.1	9.3
<b>Net worth</b>	<b>1 626.0</b>	<b>1 697.4</b>	<b>1 773.4</b>	<b>1 867.0</b>	<b>1 902.6</b>	<b>2 008.3</b>	<b>2 128.9</b>	<b>2 271.6</b>	<b>2 431.4</b>
MEMORANDUM ITEMS									
Consumer durables	97.1	101.5	105.1	109.8	113.1	111.8	115.3	117.6	120.0
Direct investment									
Foreign investment in Australia	104.9	114.3	119.3	123.4	137.2	148.7	155.0	171.6	193.2
Australian investment abroad	46.3	52.7	54.7	62.4	66.3	77.4	91.2	90.3	96.6
Non-rateable land	n.a.	26.9	28.3	30.2	30.2	37.9	38.2	38.2	39.9

(a) Includes for all periods the marketing authorities privatised in July 1999. (b) Includes for all periods the remaining public marketing authorities. (c) These estimates are regarded as experimental. (d) Series break at 30 June 1995. See Information Paper: Upgraded Australian National Accounts: Financial Accounts (5254.0).

Source: Australian System of National Accounts (5204.0).

## Balance sheet for Australia in real or volume terms

An experimental real/volume balance sheet for Australia was introduced in the March quarter 2001 issue of *Australian National Accounts: National Income, Expenditure and Product* (5206.0). National balance sheets in current prices have been included as part of the Australian system of national accounts for some time. The real/volume balance sheet is designed to remove the effect of price changes, in much the same way as for other real and volume estimates, and allow for comparisons of changes in the value of Australia's assets and liabilities over time free of the direct effects of inflation.

Volume estimates for the major categories of fixed asset stocks described as 'produced assets' — such as dwellings, other buildings and structures and machinery and equipment — have been available for many years in the Australian national accounts. However, volume estimates for stocks of non-produced, non-financial assets (land and other natural resources, etc.) and real estimates of financial assets, liabilities and net worth (wealth) have not been available previously. The calculation of volume and real estimates for some of these components is subject to some practical and conceptual difficulties, and therefore the term 'experimental' has been attached to these initial estimates.

The values of non-financial assets, such as dwellings, equipment and standing timber, can be decomposed into prices and volumes. Volume indexes, which measure the volume change of an aggregate between one period and another, can thus be derived by holding prices the same in the two periods. The ABS calculates an annual volume index of an aggregate by dividing its value in one year with its value in the previous year, using the prices of the earlier of the two years — termed the base year — to derive the values for both years. Chain volume indexes are then derived by multiplying successive annual volume indexes from a reference year to the current year. For example, starting with a year 1 reference year the chain volume index in year 3 is derived by multiplying the volume index for year 1 to year 2 by the volume index for year 2 to year 3. ABS practice is to re-reference the chain indexes to the current price value of the aggregate in the year of the latest base year.

Financial assets and liabilities cannot be decomposed into prices and volumes, and so it is impossible to derive volume indexes for them. The same is true of gross operating surplus and other income flows, and is the reason why chain volume estimates of GDP cannot be derived by aggregating volume indexes of its income components. However,

it is possible to deflate income flows, financial assets and liabilities by a price index in order to measure the purchasing power of the aggregate in question over a designated numeraire set of goods and services. Such measures are called 'real' estimates.

Real net worth has been derived by aggregating the chain volume estimates of the non-financial assets with the real estimates of financial assets less liabilities using the standard method of chain aggregation.

### Real/volume balance sheet estimates

Table 29.26 presents real/volume balance sheet data for Australia. The data show that Australia's real net worth (total assets less total liabilities to the rest of the world) grew by 12.7% between 30 June 1992 and 30 June 2000, compared with

an increase of 49.5% in current prices. This represents a real average annual growth rate of 1.5%.

Total assets, in real terms, grew by 25.8% during this period, driven mainly by increased volumes of dwellings (32%), machinery and equipment (28.8%), subsoil assets (49.5%), and real total financial assets with the rest of the world (120.3%). Real financial liabilities to the rest of the world increased by 94.8% between 30 June 1992 and 30 June 2000.

The ABS plans to publish both current and real/volume balance sheets in future editions of the *Australian System of National Accounts* (5204.0). There is also a program of research underway to further develop the balance sheet and to use it to derive alternative measures of income and saving to that used in the conventional national accounts.

**29.26 REAL/VOLUME BALANCE SHEET(a), Australia — As at 30 June**

	1992	1993	1994	1995	1996	1997	1998	1999	2000
	\$b								
<b>Total assets</b>	<b>2 326.1</b>	<b>2 381.5</b>	<b>2 432.4</b>	<b>2 510.9</b>	<b>2 560.5</b>	<b>2 643.2</b>	<b>2 744.7</b>	<b>2 824.4</b>	<b>2 925.8</b>
Non-financial assets	2 195.6	2 235.4	2 278.3	2 326.3	2 370.7	2 421.4	2 484.1	2 555.3	2 627.2
Produced assets	1 367.6	1 395.6	1 424.9	1 459.5	1 491	1 529.8	1 577.4	1 633.4	1 691.7
Fixed assets	1 288.1	1 315.4	1 343.5	1 377.5	1 410.8	1 450.1	1 497.5	1 549.6	1 603.4
Dwellings	421.2	435.4	451.5	468.7	482.7	496.6	513.8	533	555.9
Other buildings and structures	584.7	592.2	600	609.3	621	635.4	649.6	666.2	679
Machinery and equipment	254.6	256.6	259.5	269.4	279.1	290.4	304	315.4	327.9
Livestock — fixed assets	31.1	33.9	32.4	24.3	19.4	16.6	16.6	17.7	18.4
Computer software	5.4	6.7	7.9	8.9	9.8	11.2	13.3	16.7	21.5
Entertainment, literary or artistic originals	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Inventories	94.4	95.5	97	98	96.5	96.6	97.4	101.9	107
Private non-farm(b)	66.5	68.1	69.5	72.2	71.9	73.8	74.6	79	84.1
Farm	6	5.7	6.1	6.4	6.4	6.3	6.6	6.4	6.5
Public authorities(c)	6.9	6.5	6.6	6.8	6.2	3.9	3.4	3.7	3.6
Livestock — inventories	14.1	13	12	8.6	6.4	5.4	5.1	5.2	5.2
Plantation standing timber	6.2	6.7	6.8	6.3	6.7	7.3	7.8	7.6	7.6
Non-produced assets(d)	833	843.7	856.7	869.3	882	892.6	906.9	922	935.9
Land	753.3	760.2	767.6	775.4	782.3	789.3	797.5	806.3	815.9
Subsoil assets	78.8	82.7	87.7	92.4	97.6	101.2	107.1	113.4	117.7
Native standing timber	2.3	2.5	2.5	2.6	2.4	2.3	2.4	2.3	2.3
Financial assets with the rest of the world(d)	135.7	150.3	158	186.7	192	222.9	260.7	269.1	299
<b>Liabilities to the rest of the world(d)</b>	<b>357.7</b>	<b>384.4</b>	<b>410.5</b>	<b>452.6</b>	<b>481.3</b>	<b>529.5</b>	<b>585.9</b>	<b>624.4</b>	<b>696.7</b>
<b>Net worth(d)</b>	<b>1 979</b>	<b>2 005.9</b>	<b>2 029</b>	<b>2 063</b>	<b>2 082.9</b>	<b>2 115.7</b>	<b>2 159.1</b>	<b>2 200.2</b>	<b>2 230.2</b>

(a) Reference year for real/volume measures is 1998–99. (b) Includes for all periods the marketing authorities privatised in July 1999. (c) Includes for all periods the remaining public marketing authorities. (d) These estimates are regarded as experimental.

Source: Australian National Accounts: National Income, Expenditure and Product (5206.0), March quarter 2001, p.27.

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### Related internet sites

- Commonwealth Department of the Treasury, <http://www.treasury.gov.au>
- Reserve Bank of Australia, <http://www.rba.gov.au>



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## Introduction

This chapter presents statistics on Australia's international accounts, covering exports and imports of goods, international trade in services, international investment transactions, and the levels of Australia's foreign financial assets and liabilities.

These statistics are used by economic analysts and policy advisers to monitor, evaluate and forecast developments in Australia's external trade and external sector accounts for the purposes of domestic and international macroeconomic analysis and policy determination. They are also used by governments, government agencies, businesses, industry associations, research institutions and others to analyse patterns of trade and assess particular types of transactions and financial claims and liabilities between Australian residents and non-residents, for purposes such as trade promotion and negotiations and market and industry performance studies.

### International accounts

International accounts cover the closely related and integrated balance of payments and international investment position statistics. Diagram 30.1 presents the broad structure and relationship of these statistics.

Australia's balance of payments provides a statistical statement that systematically summarises the economic transactions between residents of Australia and residents of other countries. 'Residents', who may be people or businesses, need not be Australian nationals. Transactions cover the provision (changes in ownership) of goods, services, income, and financial claims on and liabilities to the rest of the world, and transfers (such as gifts) without anything provided in exchange.

Australia's international investment position is a balance sheet of the stock of foreign financial assets and liabilities of Australian residents.

International investment statistics integrate the balance sheet positions at two points in time with information on increases and decreases in the levels of these assets and liabilities as a result of the changes due to transactions (investment flows, including reinvestment of earnings) as shown in the financial account of the balance of payments, together with the other changes that affect either the value of the stock (price, exchange rate) or the volume (other adjustments) of the stock of financial assets and liabilities.

### Foreign ownership in Australia

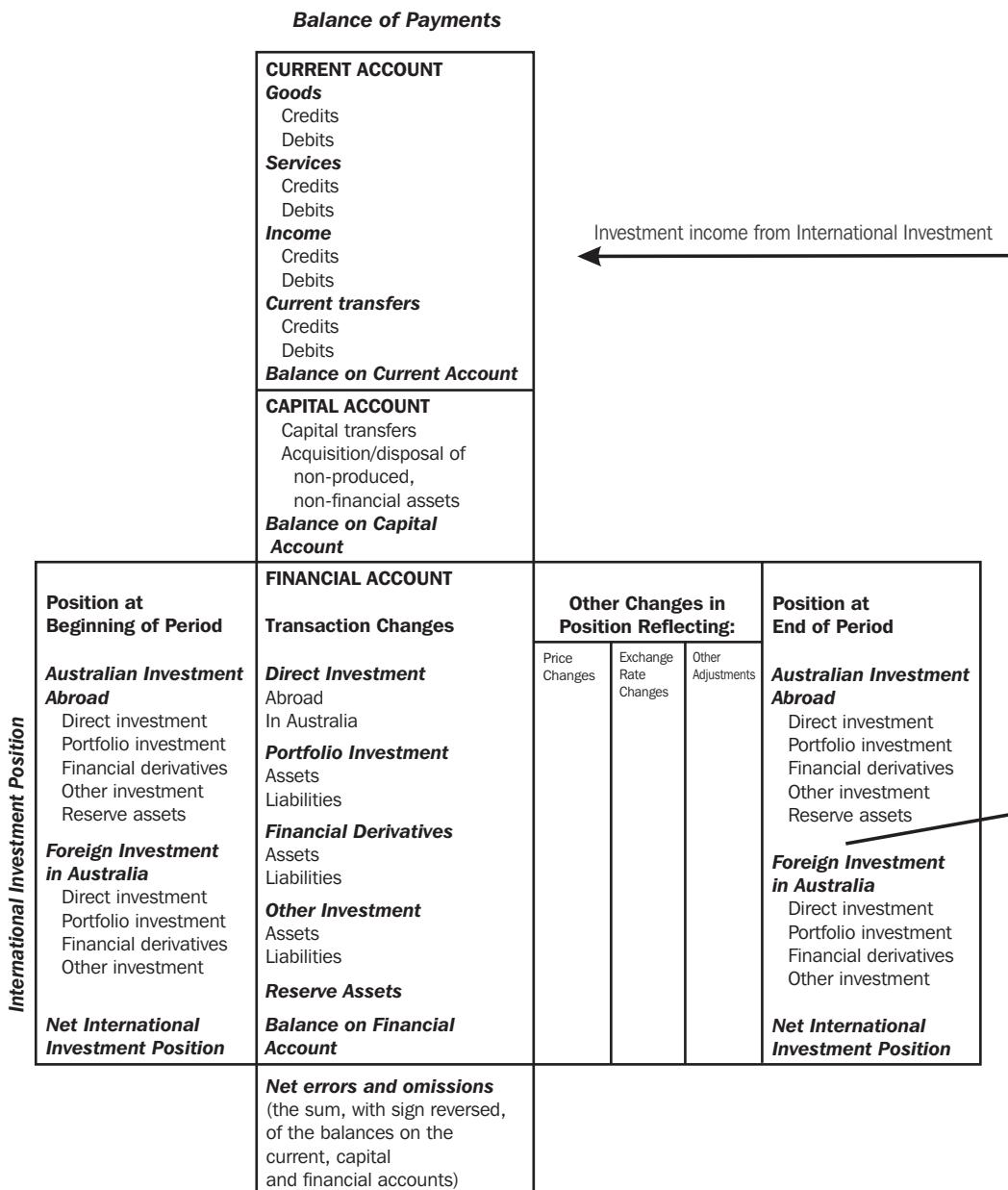
Statistics of foreign ownership in Australia presented in this chapter use levels data from Australia's international investment position to estimate the foreign ownership of equity in Australian enterprises.

### International merchandise trade

International merchandise trade statistics cover all movable goods which add to (imports) or subtract from (exports) Australia's stock of material resources. The statistics are compiled from information submitted by importers and exporters to the Australian Customs Service. Some goods are excluded for conceptual or practical reasons, for example those goods temporarily brought to Australia for subsequent forwarding to foreign destinations, and low-value imports and exports in the parcel post system.

The data about merchandise exports and imports are used in the compilation of the balance of payments. However, various adjustments relating to coverage, timing, classification and (for imports only) valuation are necessary before international merchandise trade statistics can be put on a balance of payments basis. Therefore, the merchandise exports and imports statistics, and the excess of exports (+) or imports (-), shown in the *International merchandise trade* section later in this chapter, will differ from those shown in the *International accounts* section.

### **30.1 RELATIONSHIP BETWEEN THE BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION STATEMENTS**



*Source: Balance of Payments and International Investment Position, Australia, 1999–2000 (5363.0).*

## International accounts

### Conceptual framework

Australia's international accounts statistics, which cover both the balance of payments and the international investment position, are compiled in accordance with international statistical standards. In this edition of Year Book Australia the data are compiled in accordance with the Fifth Edition of the International Monetary Fund's *Balance of Payments Manual (BPM5)*. The concepts of residency, transactions, valuation and time of recording are common to the balance of payments and international investment position statistics.

The balance of payments accounts, which present systematically the economic transactions between Australia and the rest of the world, incorporate four types of economic transactions. The first involves the provision of real resources, i.e. transactions in goods, services and income. The second involves the provision of financial resources, i.e. foreign financial assets and liabilities. The third covers those one sided transactions of a current nature (described as current transfers) that are offsets to transactions in current real or financial resources undertaken without an exchange. Current resources are not associated with, nor finance, fixed assets. For example, famine relief, whether in cash or in kind, would have its offset in current transfers. The fourth type is capital transfers that offset transactions undertaken, without exchange, in fixed assets or in their financing (such as development aid). For example, migrants' funds represent the shift of the migrants' net worth to or from Australia, and are classified as capital transfers.

The first and third of these types of transactions comprise the current account, while the second type comprises the financial account. The fourth type (capital transfers), together with a minor item for the acquisition and disposal of non-produced, non-financial assets (such as patents), comprises the capital account.

The double entry accounting system is used for recording balance of payments transactions. Under this system, credit entries, which are shown with no arithmetic sign, are used to record the provision of real or financial resources. Credit entries are therefore required for exports of goods and services, and for income earned by residents (a return for providing the use of financial capital

to non-residents, or for providing the labour of Australian residents). Credit entries are also required for providing financial resources to the rest of the world, either as new liabilities (such as issuing bonds), or through returning existing foreign assets (such as selling foreign equity securities to non-residents). Therefore, any credit entry in the financial account will reflect either an increase in Australia's foreign liabilities (more foreign debt or foreign ownership), or a decrease in Australia's foreign financial assets (such as a run-down in foreign exchange reserves).

Conversely, debit entries, which are identified by a minus sign (-), are used to record the provision by the rest of the world of real or financial resources to Australia, and are shown against imports of goods and services, income earned from Australia by non-residents, and financial transactions involving either an increase in foreign financial assets or a decrease in foreign liabilities.

Transactions in a double entry accounting system are reflected in pairs of equal credit and debit entries. For example, an export transaction for which payment is received through the banking system involves a credit entry for providing the good to a non-resident and a debit entry for being provided with foreign exchange assets due as payment for the export. Any entries that are not automatically paired in a transaction, i.e. for which there is no 'quid pro quo', are matched by special offsetting entries. Such offsetting entries are made in the categories 'current transfers' (when offsetting the provision of current resources such as food for famine relief) and 'capital transfers' (when offsetting the provision of capital resources such as development aid to build a new dam).

In principle, the net sum of all credit and debit entries is zero. In practice, some transactions are not measured accurately (errors), while others are not measured at all (omissions). Equality between the sums of the credit and debit entries is then brought about by the inclusion of a 'net errors and omissions' item which balances the accounts.

Transactions and other changes should be valued in the balance of payments at market prices. However, for practical reasons, transactions are generally valued in the statistics at transaction prices as this basis provides the closest practical approximation to the market price principle.

Transactions and other changes recorded in the balance of payments should be recorded at the time of change of ownership (either actual or imputed). For current account transactions, this occurs when ownership of goods changes, or services are provided. Investment income is recorded on a full accrual basis, that is, when it is earned. Reinvested earnings are calculated for the earnings of the period of account, using current replacement cost estimates of depreciation and excluding holding gains and losses. Current and capital transfers should be recorded when the goods, services, cash, etc., to which they are offsets, change ownership. Those transfers, such as taxes and fines, which are imposed by one party on another, should ideally be recorded at the time of the occurrence of the underlying transactions or other flows or events that give rise to the liability to pay. For the financial account transactions, the time of recording is at the change of ownership of the financial claims, which by convention is the time at which transactions are entered in the books of the transactors.

In practice, the nature of the available data sources is such that the time of recording of transactions will often differ from the time of change of ownership. Where practical, timing adjustments are made for transactions to ensure that they are recorded in the time period in which change of ownership occurs.

International investment position statistics provide information on the levels (stock) of Australia's foreign financial assets and liabilities. The investment position at the end of a period reflects the foreign financial asset and liability positions at the start of the period, and the financial transactions (investment flows) from the balance of payments which increase or decrease these assets and liabilities, together with the non-transaction changes due to exchange rate effects, other price effects and changes in the volume of these assets and liabilities that are not due to transactions (such as debt write-off).

While the international investment position statistics form an integral part of Australia's balance of payments (see diagram 30.1), they are also useful in their own right, for example in determining the impact of foreign investment policies and the level of Australia's foreign assets and liabilities, including foreign debt. They are also useful when analysing the behaviour of financial markets.

As with the balance of payments, market price is the principal method of valuation in international investment position statistics, and financial assets and liabilities are recognised on a change of

ownership basis, that is, at the time when the foreign financial asset or liability is acquired, sold, repaid or otherwise disposed of. By convention, this is generally taken to be the time at which the event is recorded in the books.

## Classifications

In the following tables, global estimates are presented of the current, capital and financial accounts of Australia's balance of payments. Current and capital account transactions are generally recorded gross. This means that, for each item in the current and capital accounts, the credit entries are recorded separately from the debit entries. For example, goods credits are shown separately from goods debits. For each item in the financial account, however, debit and credit transactions are combined to produce a single result for the item which may be either a net credit or a net debit. For example, in a given period, non-resident purchases of shares issued by companies in Australia (credit) are netted against sales of Australian shares to residents by non-residents (debit) and the net result is recorded in the financial account as either a net credit or a net debit.

The current account records transactions between Australian residents and non-residents in goods, services, income and current transfers. Goods are classified into five main components: general merchandise; goods for processing; goods procured in ports by carriers; repairs on goods; and non-monetary gold. Changes of ownership from residents to non-residents are recorded as credits (also referred to as exports), and changes from non-residents to residents are recorded as debits (also referred to as imports). Services, comprising 11 primary components, cover services provided by Australian residents to non-residents (credits) and by non-residents to residents (debits), together with transactions in a few types of goods (for example, goods purchased by travellers). Income, comprising investment income (for example, dividends and interest) and compensation of employees (for example, wages), covers income earned by Australian residents from non-residents (credits) or earned by non-residents from residents (debits). Current transfers cover the offsetting entries required when resources are provided, without something of economic value being received in return. When non-residents provide something to Australian residents, offsetting credits are required; when residents provide resources to non-residents, offsetting debits are required. General government transfers (for example, official foreign aid) are distinguished from transfers by other sectors.

The capital account covers capital transfers (such as migrants' funds), distinguished between general government and other sectors, and the acquisition/disposal of non-produced, non-financial assets.

The financial account shows transactions in foreign financial assets and liabilities. The primary split is by functional type of capital (direct investment, portfolio investment, financial derivatives, other investment and reserve assets) further split into assets and liabilities (where appropriate). Within the asset and liability categories, details are presented of instruments of investment and resident sectors (for other than direct investment), and in some cases the contractual maturity of the instruments used.

The primary distinction used in international investment position statistics is between assets and liabilities. Assets primarily represent Australian investment abroad, and liabilities represent foreign investment in Australia. The difference between the two represents the net international investment position (see graph 30.11 and table 30.12).

Australian investment abroad refers to the stock of foreign financial assets owned by Australian residents, after netting off any liabilities of Australian direct investors to their direct investment enterprises abroad. Conversely, foreign investment in Australia refers to the stock of financial assets in Australia owned by non-residents, after netting off any claims of Australian direct investment enterprises on their foreign direct investors. The first breakdown below this asset/liability dichotomy is by functional type of capital, with details of the instruments of investment (table 30.14), the resident sectors and contractual maturities involved.

While many types of instruments of investment can be identified, similar instruments are combined for analytical reasons and ease of reporting. Some of those instruments are:

- equity capital, which includes ordinary and participating preference shares, units in trusts and net equity in branches;
- reinvestment of earnings of direct investors, which refers to income retained within the enterprise from after-tax profits that is attributable to direct investors;

- debt securities, which include longer term, generally tradable security instruments such as bonds and debentures, with a contractual maturity of more than one year after issue, together with money market instruments (for example, bills, commercial finance paper, negotiable certificates of deposit) with a contractual maturity of one year or less;
- trade credits, which cover the direct extension by suppliers and buyers for goods and services, including advances for work in progress or to be undertaken;
- loans, which cover the direct lending of funds either without a security evidencing the transaction, or with non-negotiable documentation. They include financial leases;
- deposits, which comprise both transferable and other deposits; and
- other assets and liabilities, which consist of miscellaneous accounts in respect of interest, dividends, etc.

## Statistical overview

As shown in table 30.2, the balance on current account for 2000–01 is a deficit of \$18.7b, a decrease of \$14.8b (44%) on the previous year. The surplus on goods and services of \$0.7b is the first surplus since 1996–97. The main contributing factor is the increase of \$22.7b in exported goods, which outstripped the rise of \$9.6b in imported goods. The services surplus of \$0.6b is a turnaround of \$2.0b on the deficit of \$1.4b in 1999–2000, with the improvement mainly due to the direct effects of the Sydney Olympic Games. The net income deficit is little changed, rising \$0.2b (1%) on the previous year.

The surplus on capital account increased by \$22m (2%) to \$1.1b in 2000–01.

The balance on financial account recorded a net inflow of \$15.5b, down \$18.1b (54%) on the previous year. Direct investment recorded a net outflow of \$2.5b, a turnaround from the net inflow of \$9.8b in 1999–2000. A rise in the net outflow on Australian direct investment abroad of \$15.4b, was partly offset by the rise of \$3.2b in the inflow of direct investment into Australia. The net inflow on portfolio investment rose \$9.6b. Partly offsetting these movements is a fall of \$8.7b in the net inflow on other investment and a rise of \$6.3b in the net outflow on reserve assets.

**30.2 BALANCE OF PAYMENTS, Summary**

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Current account</b>	<b>-21 452</b>	<b>-17 602</b>	<b>-22 807</b>	<b>-33 366</b>	<b>-33 479</b>	<b>-18 686</b>
<i>Goods and services</i>	-1 983	1 570	-4 738	-14 428	-14 351	707
Credits	99 095	105 160	113 744	112 025	125 972	153 131
Debits	-101 078	-103 590	-118 482	-126 453	-140 323	-152 424
<i>Goods</i>	-1 583	1 496	-3 546	-12 644	-12 955	146
Credits	76 146	80 934	88 538	85 783	97 655	120 337
Debits	-77 729	-79 438	-92 084	-98 427	-110 610	-120 191
<i>Services</i>	-400	74	-1 192	-1 784	-1 396	561
Credits	22 949	24 226	25 206	26 242	28 317	32 794
Debits	-23 349	-24 152	-26 398	-28 026	-29 713	-32 233
<i>Income</i>	-19 533	-19 151	-18 091	-18 189	-19 346	-19 571
Credits	7 140	8 563	10 384	10 263	12 802	15 469
Debits	-26 673	-27 714	-28 475	-28 452	-32 148	-35 040
<i>Current transfers</i>	64	-21	22	-749	218	178
Credits	3 292	3 540	3 993	4 498	4 625	4 565
Debits	-3 228	-3 561	-3 971	-5 247	-4 407	-4 387
<b>Capital and financial account</b>	<b>18 885</b>	<b>18 870</b>	<b>25 769</b>	<b>30 613</b>	<b>34 597</b>	<b>16 560</b>
<i>Capital account</i>	1 070	1 317	1 127	1 167	1 053	1 075
<i>Capital transfers</i>	1 045	1 323	1 097	1 186	1 136	1 182
Credits	1 952	2 200	2 068	2 197	2 335	2 442
Debits	-907	-877	-971	-1 011	-1 199	-1 260
Net acquisition/disposal of non-produced, non-financial assets	25	-6	30	-19	-83	-107
<b>Financial account</b>	<b>17 815</b>	<b>17 553</b>	<b>24 642</b>	<b>29 446</b>	<b>33 544</b>	<b>15 485</b>
<i>Direct investment</i>	4 150	4 895	2 852	9 038	9 767	-2 510
Abroad	-8 340	-6 437	-7 435	-2 361	-1 935	-17 366
In Australia	12 490	11 332	10 287	11 399	11 702	14 856
Portfolio investment	21 622	15 192	21 164	6 527	13 832	23 409
Financial derivatives	-213	2 089	-2 828	2 748	362	5
Other investment	-6 927	580	2 996	11 527	12 205	3 461
Reserve assets	-817	5 203	458	-394	-2 622	-8 880
<b>Net errors and omissions</b>	<b>2 567</b>	<b>-1 268</b>	<b>-2 962</b>	<b>2 753</b>	<b>-1 118</b>	<b>2 126</b>

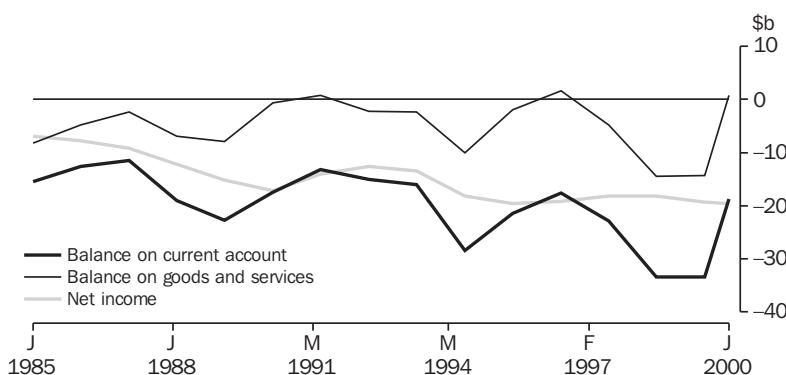
Source: Balance of Payments and International Investment Position, Australia (5302.0).

Graph 30.3 illustrates the differing influences of the trade balance and the net income deficit on the balance on current account. With both increasing levels of debt and higher interest rates in the late 1980s and early 1990s, the net income deficit rose from about \$7b in 1985–86 to \$18–19b each year from 1994–95 onwards. The underlying level of net income will continue to drive the level and direction of the current account deficit, as Australia continues to service its external liabilities.

However, the trade deficit has fluctuated quite significantly over the past 16 years. While the deficit has averaged about \$5b per year it has swung from surpluses of \$2b to deficits of \$14b.

Table 30.4 shows the annual levels of Australia's official reserve assets and both the end of year and period average exchange rates for the major currencies, special drawing rights, and the trade weighted index.

## 30.3 BALANCE ON CURRENT ACCOUNT COMPARED TO NET INCOME



Source: Balance of Payments and International Investment Position, Australia (5302.0).

## 30.4 RESERVE ASSETS AND EXCHANGE RATES

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
RESERVE ASSETS (\$m)						
<b>Total reserve assets</b>	<b>-19 059</b>	<b>-22 791</b>	<b>-24 260</b>	<b>-23 954</b>	<b>-27 948</b>	<b>-37 951</b>
Monetary gold	-3 826	-1 757	-1 236	-1 013	-1 233	-1 367
Special drawing rights	-57	-37	-25	-88	-141	-197
Reserve position in IMF	-615	-627	-1 449	-2 338	-2 225	-2 412
Foreign exchange	-14 562	-20 370	-21 550	-20 515	-24 349	-33 975
Currency and deposits	n.a.	-4 572	-11 675	-7 971	-9 148	-11 340
Securities	-14 562	-15 798	-9 875	-12 544	-15 143	-22 562
Financial derivatives (net)	n.a.	n.a.	n.a.	n.a.	-58	-73
EXCHANGE RATES						
End of period						
United States dollar	0.7890	0.7455	0.6135	0.6596	0.5986	0.5075
United Kingdom pound	0.5099	0.4482	0.3681	0.4188	0.3941	0.3603
Euro	..	..	..	0.6379	0.6282	0.6002
Japanese yen	86.48	85.20	86.16	79.66	63.19	62.94
Special drawing right	0.5476	0.5347	0.4617	0.4932	0.4481	0.4076
Period average(a)						
United States dollar	0.7593	0.7828	0.6808	0.6276	0.6289	0.5379
United Kingdom pound	0.4909	0.4851	0.4138	0.3824	0.3948	0.3704
Euro	..	..	..	..	0.6278	0.6023
Japanese yen	77.66	90.51	86.02	77.81	67.90	61.49
Special drawing right	0.5156	0.5521	0.5026	0.4589	0.4642	0.4177
TRADE-WEIGHTED INDEX OF VALUE OF THE AUSTRALIAN DOLLAR(b)						
End of period	58.1	56.7	57.9	58.4	53.3	49.7
Period average(a)	54.8	58.7	58.3	56.0	55.2	50.3

(a) These period average exchange rates and index numbers are derived by averaging figures for each trading day.

(b) May 1970 = 100.0. The Trade Weighted Index is reweighted annually and on special occasions as required.

Source: Reserve Bank of Australia for reserve assets, daily exchange rates and the trade-weighted index.

## International trade in goods and services (balance of payments basis)

Australia's international trade in goods and services for the six years to 2000–01 is shown in tables 30.5 (exports or credits) and 30.6 (imports or debits). The tables provide both current price and chain volume measures.

The components of merchandise goods shown in tables 30.5 and 30.6 are defined in terms of groupings of items in the United Nations *Standard International Trade Classification Revision 3 (SITC Rev. 3)* for credits, and the UN's *Classification of Broad Economic Categories* for debits.

Chain volume measures of exports and imports remove the effects of inflation. They provide measures, in dollar values, which indicate changes in the actual volume of exports and imports.

The current price value of a transaction may be expressed conceptually as the product of a price and quantity. The value of the transaction in chain volume measures may then be thought of as being derived by substituting, for the current price, the corresponding price in the chosen reference year.

There are, however, many transactions recorded in statistics of international trade in goods and services for which it is not possible to apply such an approach. In such cases it is necessary to make assumptions and approximations (e.g. revaluing by means of the price index which is considered to be most closely related to the commodity involved). The published chain volume measures should be viewed in this light. For more information on chain volume measures refer to *Information Paper: Australian National Accounts, Introduction of Chain Volume and Price Indexes* (5248.0).

The balance on goods and services recorded a surplus of \$0.7b in 2000–01, a turnaround of \$15.1b on the deficit recorded in 1999–2000.

Goods credits rose \$22.7b (23%) to \$120.3b, with the largest increases recorded in other mineral fuels (up \$4.4b), metal ores and minerals (up \$3.5b) and coal (up \$2.5b). All of these increases were mostly due to price rises.

Goods debits increased \$9.6b (9%) to \$120.2b. The most significant increase occurred in intermediate and other merchandise goods (up \$5.5b, mainly due to price rises), with fuels and lubricants (up \$2.8b) being the largest contributor to the increase. Consumption goods also rose strongly (up \$5.0b), with non-industrial transport equipment up \$1.9b, due to strong volume increases. Capital goods fell 5% to \$25.4b, with decreases recorded in industrial transport equipment (down \$1.2b) and civil aircraft (down \$0.8b).

Exports and imports of goods, on a recorded trade basis without adjustment for balance of payments purposes, are shown by country in table 30.29.

Table 30.7 presents various price indexes for Australia's trade in goods and services. The implicit price deflators (IPDs) are derived by dividing the current price measures by the corresponding chain volume measures. These IPDs reflect not only price change, but compositional effects from year to year.

Unlike implicit price deflators, chain price indexes measure only the impact of a price change. The chain Laspeyres price index for goods and services credits rose 14.2% in 2000–01 to 114.2. The rise resulted from increasing commodity prices in 2000–01 and a weaker Australian dollar. The chain Laspeyres price index for goods and services debits rose 10.8% in 2000–01 to 110.8.

Australia's terms of trade IPD (derived by dividing the IPD for credits by the IPD for debits) rose by 3.1% in 2000–01, resulting from a 13.5% rise in the IPD for goods and services credits, offset by a 10.2% rise in the IPD for goods and services debits (table 30.7).

**30.5 GOODS AND SERVICES CREDITS**

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	\$m	\$m	\$m	\$m	\$m	\$m
AT CURRENT PRICES						
<b>Goods and services credits</b>	<b>99 095</b>	<b>105 160</b>	<b>113 744</b>	<b>112 025</b>	<b>125 972</b>	<b>153 131</b>
Goods credits	76 146	80 934	88 538	85 783	97 655	120 337
General merchandise	69 609	73 379	80 571	78 323	90 100	112 932
Rural goods	19 588	21 045	22 130	21 862	23 617	28 467
Meat and meat preparations	3 292	2 957	3 731	4 008	4 467	5 777
Cereal grains and cereal preparations	4 926	5 954	5 094	5 046	4 941	5 333
Wool and sheepskins	3 664	3 744	4 020	2 583	2 963	3 892
Other rural	7 706	8 390	9 285	10 225	11 246	13 465
Non-rural goods	50 021	52 334	58 441	56 461	66 483	84 465
Metal ores and minerals	9 088	9 407	10 835	11 037	11 760	15 273
Coal, coke and briquettes	7 843	8 005	9 586	9 288	8 336	10 825
Other mineral fuels	4 165	5 154	5 309	4 461	9 082	13 443
Metals (excluding non-monetary gold)	6 799	6 054	7 185	6 984	8 810	10 153
Machinery	7 119	7 001	7 549	6 569	7 133	8 802
Transport equipment	2 500	3 649	3 412	3 343	4 597	5 046
Other manufactures	8 755	9 108	9 834	10 273	11 529	13 495
Other non-rural (including sugar)	3 752	3 956	4 731	4 506	5 236	7 428
Sugar, sugar preparations and honey	1 712	1 694	1 939	1 472	1 229	n.p.
Other	2 040	2 262	2 792	3 034	4 007	n.p.
Other goods	6 537	7 555	7 967	7 460	7 555	7 405
Services credits	22 949	24 226	25 206	26 242	28 317	32 794
CHAIN VOLUME MEASURES(a)(b)						
<b>Goods and services credits</b>	<b>98 591</b>	<b>108 926</b>	<b>112 950</b>	<b>115 255</b>	<b>125 972</b>	<b>134 863</b>
Goods credits	74 218	83 387	86 802	88 308	97 655	103 614
General merchandise	68 393	75 865	78 598	80 814	90 100	97 080
Rural goods	17 173	20 285	20 029	21 440	23 618	24 264
Meat and meat preparations	3 705	3 626	4 124	4 376	4 467	5 036
Cereal grains and cereal preparations	3 550	5 124	4 287	4 951	4 942	4 307
Wool and sheepskins	2 935	3 186	2 979	2 524	2 963	3 090
Other rural	7 033	8 055	8 580	9 643	11 246	11 832
Non-rural goods	51 386	55 553	58 640	59 356	66 482	72 815
Metal ores and minerals	10 459	11 051	11 201	11 500	11 761	12 915
Coal, coke and briquettes	6 627	6 931	7 691	7 962	8 337	9 121
Other mineral fuels	6 564	7 192	8 018	7 682	9 083	9 750
Metals (excluding non-monetary gold)	6 814	6 937	7 188	8 012	8 810	8 883
Machinery	6 040	6 416	6 991	6 309	7 133	8 609
Transport equipment	2 664	3 962	3 496	3 370	4 598	4 532
Other manufactures	8 497	9 204	9 629	10 045	11 529	12 633
Other non-rural (including sugar)	3 635	3 900	4 364	4 290	5 236	6 372
Sugar, sugar preparations and honey	1 218	1 260	1 347	1 136	1 229	n.p.
Other	2 254	2 490	2 881	3 113	4 007	n.p.
Other goods	5 930	7 499	8 171	7 414	7 555	6 533
Services credits	24 482	25 529	26 130	26 945	28 317	31 249

(a) Reference year for chain volume measures is 1999–2000. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: Balance of Payments and International Investment Position, Australia (5302.0).

## 30.6 GOODS AND SERVICES DEBITS

	1995–96 \$m	1996–97 \$m	1997–98 \$m	1998–99 \$m	1999–2000 \$m	2000–01 \$m
AT CURRENT PRICES						
<b>Goods and services debits</b>	<b>-101 078</b>	<b>-103 590</b>	<b>-118 482</b>	<b>-126 453</b>	<b>-140 323</b>	<b>-152 424</b>
Goods debits	-77 729	-79 438	-92 084	-98 427	-110 610	-120 191
General merchandise	-76 007	-77 205	-87 521	-94 389	-106 549	-115 782
Consumption goods	-19 860	-21 293	-25 899	-28 041	-30 781	-35 778
Food and beverages, mainly for consumption	-2 760	-2 879	-3 282	-3 606	-3 943	-4 483
Household electrical items	-1 766	-1 890	-2 062	-2 245	-2 456	-2 999
Non-industrial transport equipment	-4 436	-5 143	-7 102	-7 231	-7 735	-9 626
Textiles, clothing and footwear	-2 726	-2 880	-3 456	-3 739	-4 232	-4 811
Toys, books and leisure goods	-2 534	-2 567	-2 956	-3 184	-3 238	-3 361
Consumption goods n.e.s.	-5 638	-5 934	-7 041	-8 036	-9 177	-10 498
Capital goods	-19 183	-18 884	-21 168	-23 055	-26 695	-25 393
Machinery and industrial equipment	-8 326	-8 020	-8 862	-9 226	-8 912	-8 874
ADP equipment	-3 593	-3 719	-4 345	-4 496	-4 912	-5 258
Telecommunications equipment	-1 996	-1 748	-2 070	-2 812	-4 150	-4 378
Civil aircraft	-688	-784	-464	-649	-1 414	-609
Industrial transport equipment n.e.s.	-2 214	-2 178	-2 560	-2 860	-3 981	-2 753
Capital goods n.e.s.	-2 366	-2 435	-2 867	-3 012	-3 326	-3 521
Intermediate and other merchandise goods	-36 964	-37 028	-40 454	-43 293	-49 073	-54 611
Food and beverages, mainly for industry	-700	-641	-746	-758	-731	-593
Primary industrial supplies n.e.s.	-879	-839	-950	-882	-1 117	-1 139
Fuels and lubricants	-4 163	-5 004	-4 276	-4 428	-7 450	-10 290
Parts for transport equipment	-4 600	-4 609	-5 346	-6 085	-6 874	-7 090
Parts for ADP equipment	-1 857	-1 759	-1 993	-1 944	-1 936	-2 255
Other parts for capital goods	-6 393	-6 507	-7 193	-7 692	-8 008	-9 082
Organic and inorganic chemicals	-2 754	-2 743	-2 814	-3 139	-3 572	-3 774
Paper and paperboard	-1 868	-1 713	-1 901	-1 978	-2 207	-2 311
Textile yarn and fabrics	-1 922	-1 817	-2 005	-2 006	-1 987	-1 862
Iron and steel	-1 408	-1 297	-1 623	-1 470	-1 509	-1 437
Plastics	-1 685	-1 577	-1 814	-1 889	-2 037	-2 194
Processed industrial supplies n.e.s.	-8 398	-8 212	-9 431	-10 140	-10 772	-11 264
Other merchandise goods	-337	-310	-362	-882	-873	-1 320
Other goods	-1 722	-2 233	-4 563	-4 038	-4 061	-4 409
<b>Services debits</b>	<b>-23 349</b>	<b>-24 152</b>	<b>-26 398</b>	<b>-28 026</b>	<b>-29 713</b>	<b>-32 233</b>

For footnotes see end of table.

...continued

30.6 GOODS AND SERVICES DEBITS — *continued*

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	\$m	\$m	\$m	\$m	\$m	\$m
CHAIN VOLUME MEASURES(a)(b)						
<b>Goods and services debits</b>	<b>-98 667</b>	<b>-108 464</b>	<b>-119 010</b>	<b>-124 752</b>	<b>-140 323</b>	<b>-138 357</b>
Goods debits	-73 362	-81 464	-91 511	-96 984	-110 611	-109 339
General merchandise	-71 669	-79 162	-86 848	-93 008	-106 549	-105 449
Consumption goods	-20 270	-22 740	-26 437	-27 342	-30 781	-33 493
Food and beverages, mainly for consumption	-2 813	-2 985	-3 207	-3 527	-3 943	-4 307
Household electrical items	-1 703	-1 956	-2 042	-2 174	-2 456	-2 841
Non-industrial transport equipment	-4 478	-5 580	-7 460	-7 274	-7 735	-9 105
Textiles, clothing and footwear	-2 927	-3 140	-3 521	-3 614	-4 232	-4 390
Toys, books and leisure goods	-2 869	-2 978	-3 140	-3 062	-3 239	-3 042
Consumption goods n.e.s.	-5 550	-6 145	-7 119	-7 709	-9 176	-9 808
Capital goods	-15 315	-17 551	-19 372	-21 610	-26 695	-24 112
Machinery and industrial equipment	-8 979	-9 235	-9 388	-8 985	-8 912	-8 172
ADP equipment	-1 364	-1 956	-2 605	-3 524	-4 912	-5 251
Telecommunications equipment	-1 143	-1 439	-1 793	-2 686	-4 150	-4 309
Civil aircraft	-918	-1 075	-540	-647	-1 413	-550
Industrial transport equipment n.e.s.	-2 242	-2 416	-2 701	-2 862	-3 981	-2 596
Capital goods n.e.s.	-2 468	-2 674	-2 997	-3 018	-3 325	-3 236
Intermediate and other merchandise goods	-36 379	-39 062	-41 250	-44 186	-49 073	-47 844
Food and beverages, mainly for industry	-591	-598	-560	-589	-731	-684
Primary industrial supplies n.e.s.	-823	-820	-871	-834	-1 117	-1 043
Fuels and lubricants	-6 927	-7 390	-6 832	-7 813	-7 450	-7 291
Parts for transport equipment	-4 928	-5 366	-5 828	-6 113	-6 874	-6 545
Parts for ADP equipment	-710	-930	-1 203	-1 522	-1 936	-2 253
Other parts for capital goods	-5 856	-6 512	-6 780	-7 084	-8 008	-8 488
Organic and inorganic chemicals	-2 441	-2 616	-2 568	-2 900	-3 572	-3 300
Paper and paperboard	-1 786	-1 897	-2 026	-1 950	-2 208	-2 032
Textile yarn and fabrics	-1 602	-1 757	-1 859	-1 909	-1 987	-1 661
Iron and steel	-1 368	-1 353	-1 666	-1 471	-1 508	-1 387
Plastics	-1 588	-1 617	-1 753	-1 848	-2 036	-1 757
Processed industrial supplies n.e.s.	-8 586	-8 820	-9 493	-9 901	-10 772	-10 199
Other merchandise goods	-372	-325	-358	-842	-873	-1 201
Other goods	-1 748	-2 363	-4 667	-3 941	-4 061	-3 891
Services debits	25 652	27 248	27 556	27 776	29 713	29 020

(a) Reference year for chain volume measures is 1999–2000. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

**30.7 IMPLICIT PRICE DEFLATORS AND TERMS OF TRADE(a)**

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
Implicit price deflators(b)						
Goods and services credits	100.5	96.5	100.7	97.2	100.0	113.5
Goods credits	102.6	97.1	102.0	97.1	100.0	116.1
Services credits	93.7	94.9	96.5	97.4	100.0	104.9
Goods and services debits	102.4	95.5	99.6	101.4	100.0	110.2
Goods debits	106.0	97.5	100.6	101.5	100.0	109.9
Services debits	91.0	88.6	95.8	100.9	100.0	111.1
Chain Laspeyres price indexes						
Goods and services credits	99.9	96.5	100.9	97.6	100.0	114.2
Goods credits	101.9	97.1	102.3	97.6	100.0	116.9
Services credits	93.6	94.8	96.3	97.3	100.0	105.2
Goods and services debits	99.2	93.2	97.8	100.4	100.0	110.8
Goods debits	102.0	94.8	98.4	100.3	100.0	110.6
Services debits	90.5	88.1	95.6	100.8	100.0	111.6
Terms of trade(c)						
Goods and services	98.1	101.1	101.2	95.9	100.0	103.1
Goods	96.8	99.5	101.4	95.7	100.0	105.7
Services	103.0	107.1	100.7	96.5	100.0	94.5

(a) Reference year for price and terms of trade indexes is 1999–2000. (b) Derived by dividing the estimates at current prices in tables 30.5 and 30.6 by the chain volume measures in those tables. (c) Derived by dividing the IPDs for credits by the IPDs for debits.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

## International trade in services

In current price terms, net services for 2000–01 recorded a surplus of \$0.6b, a turnaround of \$2.0b on the deficit recorded in 1999–2000. Services credits increased by \$4.5b (16%) to \$32.8b, mainly due to increases in personal travel services. Services debits increased by \$2.5b (8%) to \$32.2b, mainly due to increases in transportation and personal travel services as a result of the Sydney Olympic Games. Table 30.8 provides details of the international trade in services.

As shown in table 30.9, the main destinations for services exports (credits) in 1999–2000 (the latest year available for regional data) were United States (16%), Japan (12%), United Kingdom (11%), New Zealand (7%) and Singapore (6%). Significant growth has been recorded since 1994–95 in services exports to each of these markets except Japan. The main source countries for services debits in 1999–2000, as shown in table 30.10, were United States (21%), United Kingdom (12%), Japan (7%), Singapore (6%), New Zealand (5%) and Hong Kong (4%).

**30.8 INTERNATIONAL TRADE IN SERVICES**

	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	CREDITS					
<b>Services credits</b>	<b>22 949</b>	<b>24 226</b>	<b>25 206</b>	<b>26 242</b>	<b>28 317</b>	<b>32 794</b>
Transportation services	6 526	6 648	6 611	6 803	6 865	8 073
Passenger	5 305	5 697	5 550	5 604	5 848	6 986
Freight	1 221	951	1 061	1 199	1 017	1 087
Other	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Travel services	11 252	11 756	11 540	11 944	13 139	15 344
Business	798	675	893	1 009	1 040	1 179
Personal	10 454	11 081	10 647	10 935	12 099	14 165
Communications services	896	947	1 361	1 239	1 475	1 520
Construction services	66	70	31	18	23	50
Insurance services	672	772	840	859	766	741
Financial services	577	634	713	716	747	747
Computer and information services	217	277	532	676	668	757
Royalties and licence fees	329	376	449	488	572	594
Other business services	1 613	1 882	2 224	2 552	2 852	2 936
Merchanting and other trade-related	331	436	481	586	501	506
Operational leasing	7	10	8	8	15	12
Miscellaneous business, professional and technical	1 275	1 436	1 735	1 958	2 336	2 418
Personal, cultural and recreational services	248	304	352	388	475	1 412
Government services n.e.i.	553	560	553	559	735	620
	DEBITS					
<b>Services debits</b>	<b>-23 349</b>	<b>-24 152</b>	<b>-26 398</b>	<b>-28 026</b>	<b>-29 713</b>	<b>-32 233</b>
Transportation services	-8 488	-8 439	-9 110	-9 367	-10 018	-11 371
Passenger	-2 928	-3 003	-3 224	-3 485	-3 876	-4 357
Freight	-4 405	-4 373	-5 013	-5 009	-5 257	-5 985
Other	-1 155	-1 063	-873	-873	-885	-1 029
Travel services	-6 988	-7 769	-8 372	-9 044	-9 836	-10 788
Business	-2 056	-2 286	-2 416	-2 239	-2 536	-2 838
Personal	-4 932	-5 483	-5 956	-6 805	-7 300	-7 950
Communications services	-1 060	-1 066	-1 407	-1 467	-1 664	-1 928
Construction services	—	—	—	—	—	—
Insurance services	-1 064	-1 012	-915	-922	-902	-902
Financial services	-472	-451	-442	-468	-527	-528
Computer and information services	-203	-253	-336	-424	-458	-432
Royalties and license fees	-1 304	-1 397	-1 519	-1 692	-1 805	-1 688
Other business services	-2 646	-2 699	-3 003	-3 253	-3 046	-3 151
Merchanting and other trade-related	-276	-362	-392	-329	-221	-246
Operational leasing	-1 032	-814	-864	-1 034	-942	-1 144
Miscellaneous business, professional and technical	-1 338	-1 523	-1 747	-1 890	-1 883	-1 761
Personal, cultural and recreational services	-555	-547	-702	-756	-808	-824
Government services n.e.i.	-569	-519	-592	-633	-649	-621

Source: Balance of Payments and International Investment Position, Australia (5302.0).

**30.9 SERVICES CREDITS, By Country and Country Group**

	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m	\$m	\$m	\$m	\$m	\$m
COUNTRIES						
Belgium and Luxembourg	47	64	105	125	107	100
Brunei Darussalam	23	25	22	21	22	20
Canada	240	281	309	359	384	401
Central America and Caribbean	12	11	15	13	18	12
Chile	5	7	5	5	4	5
China, People's Republic of	375	378	396	485	575	657
Fiji	80	72	62	117	154	202
France	197	169	207	192	223	249
Germany	591	576	665	724	733	774
Greece	42	52	49	47	31	78
Hong Kong (SAR of China)	863	1 072	1 054	1 032	972	995
Indonesia	840	971	1 029	922	845	839
Ireland, Republic of	61	69	77	96	126	164
Italy	177	184	244	250	294	268
Japan	3 425	3 658	3 688	3 489	3 280	3 353
Korea, Republic of	835	1 115	927	609	450	608
Malaysia	684	769	733	773	668	791
Mexico	9	4	4	4	15	6
Netherlands	192	163	211	254	272	297
New Zealand	1 254	1 418	1 666	1 793	1 799	2 046
Papua New Guinea	240	236	279	335	291	371
Philippines	161	182	189	192	168	185
Russian Federation	66	69	63	56	43	42
Singapore	1 277	1 241	1 256	1 181	1 337	1 660
South Africa	152	173	177	168	219	173
Sweden	80	94	99	106	172	182
Switzerland	259	261	261	278	308	325
Taiwan	679	702	570	535	460	428
Thailand	503	523	474	353	362	433
United Kingdom	1 922	2 040	2 171	2 470	2 864	3 114
United States of America	2 403	2 977	3 220	4 097	4 394	4 588
Africa n.e.s.	93	106	103	126	121	141
America n.e.s.	118	131	330	254	373	559
Asia n.e.s.	808	873	994	1 022	1 164	1 184
Europe n.e.s.	652	674	650	719	770	901
Oceania n.e.s.	260	264	274	191	223	254
International institutions	4	4	2	—	—	—
Unallocated	924	1 341	1 646	1 813	2 001	1 912
<b>Total all countries</b>	<b>20 553</b>	<b>22 949</b>	<b>24 226</b>	<b>25 206</b>	<b>26 242</b>	<b>28 317</b>
COUNTRY GROUPS						
APEC(a)	13 816	15 559	15 821	16 185	16 183	17 550
ASEAN(b)	3 529	3 814	3 834	3 564	3 541	4 050
EU(c)	3 606	3 706	4 199	4 699	5 288	5 737
OECD(d)	11 423	12 524	14 432	15 458	16 052	17 228

(a) APEC includes Brunei Darussalam, Canada, Chile, People's Republic of China, Hong Kong (SAR of China), Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russian Federation, Singapore, Taiwan, Thailand, United States of America and Viet Nam. Peru, Russian Federation and Viet Nam are included from 1998–99.

(b) ASEAN includes Brunei Darussalam, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Viet Nam. Burma and Laos are included from July 1997. Cambodia is included from April 1999. (c) EU includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom. (d) OECD includes Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Republic of Ireland, Italy, Japan, Republic of Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States of America. Czech Republic and Hungary are included from January 1996 and Republic of Korea and Poland are included from 1996–97.

Source: *Balance of Payments and International Investment Position, Australia* (5363.0).

**30.10 SERVICES DEBITS, By Country and Country Group**

	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
	\$m	\$m	\$m	\$m	\$m	\$m
COUNTRIES						
Belgium and Luxembourg	-107	-86	-68	-108	-71	-89
Brunei Darussalam	-9	-10	-7	-10	-11	-11
Canada	-301	-318	-319	-298	-320	-389
Central America and Caribbean	-202	-197	-163	-189	-212	-229
Chile	-16	-21	-18	-65	-19	-16
China, People's Republic of	-443	-458	-447	-592	-613	-621
Fiji	-176	-190	-178	-209	-323	-355
France	-270	-272	-290	-404	-347	-386
Germany	-507	-503	-530	-710	-851	-888
Greece	-237	-230	-217	-234	-239	-272
Hong Kong (SAR of China)	-999	-1 090	-1 266	-1 248	-1 186	-1 285
Indonesia	-485	-549	-706	-691	-587	-526
Ireland, Republic of	-97	-110	-142	-174	-150	-182
Italy	-385	-433	-541	-525	-498	-429
Japan	-1 714	-1 508	-1 545	-1 308	-1 690	-2 049
Korea, Republic of	-262	-303	-283	-257	-286	-207
Malaysia	-483	-524	-626	-694	-746	-743
Mexico	-11	-13	-16	-17	-22	-33
Netherlands	-538	-408	-411	-501	-518	-593
New Zealand	-950	-1 063	-1 149	-1 360	-1 451	-1 543
Papua New Guinea	-134	-162	-174	-222	-151	-162
Philippines	-111	-122	-144	-222	-164	-169
Russian Federation	-150	-116	-81	-61	-53	-40
Singapore	-1 196	-1 237	-1 200	-1 207	-1 694	-1 935
South Africa	-103	-118	-155	-193	-193	-168
Sweden	-166	-128	-100	-183	-90	-82
Switzerland	-462	-511	-569	-621	-738	-702
Taiwan	-142	-152	-155	-186	-122	-136
Thailand	-384	-435	-403	-501	-553	-625
United Kingdom	-3 560	-3 826	-3 874	-3 613	-3 240	-3 679
United States of America	-4 332	-4 590	-4 949	-5 521	-5 662	-6 248
Africa n.e.s.	-130	-149	-163	-183	-266	-340
America n.e.s.	-117	-154	-217	-228	-203	-195
Asia n.e.s.	-746	-622	-607	-821	-1 038	-1 123
Europe n.e.s.	-1 089	-1 084	-876	-1 066	-1 086	-925
Oceania n.e.s.	-158	-164	-155	-216	-214	-231
International institutions	0	0	0	0	-1	-1
Unallocated	-1 165	-1 493	-1 408	-1 760	-2 418	-2 106
<b>Total all countries</b>	<b>-22 337</b>	<b>-23 349</b>	<b>-24 152</b>	<b>-26 398</b>	<b>-28 026</b>	<b>-29 713</b>
COUNTRY GROUPS						
APEC(a)	-11 972	-12 555	-13 407	-14 399	-15 597	-16 957
ASEAN(b)	-2 791	-3 068	-3 293	-3 551	-4 066	-4 240
EU(c)	-6 154	-6 373	-6 448	-6 852	-6 417	-6 985
OECD(d)	-14 430	-14 767	-15 633	-16 634	-16 981	-18 370

(a) APEC includes Brunei Darussalam, Canada, Chile, People's Republic of China, Hong Kong (SAR of China), Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russian Federation, Singapore, Taiwan, Thailand, United States of America and Viet Nam. Peru, Russian Federation and Viet Nam are included from 1998–99.

(b) ASEAN includes Brunei Darussalam, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand and Viet Nam. Burma and Laos are included from July 1997. Cambodia is included from April 1999. (c) EU includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom. (d) OECD includes Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Republic of Ireland, Italy, Japan, Republic of Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States of America. Czech Republic and Hungary are included from January 1996 and Republic of Korea and Poland are included from 1996–97.

Source: *Balance of Payments and International Investment Position, Australia* (5363.0).

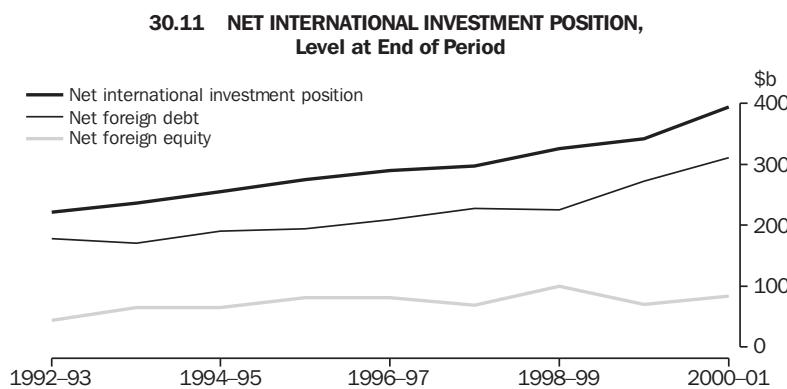
## International investment position

Australia's net international investment position is the difference between the levels of Australia's foreign financial liabilities and the levels of its foreign financial assets. Historically, Australia has had a net liability position with the rest of the world.

Australia's net international investment position at 30 June 2001 was a net foreign financial liability of \$394.1b. This was up \$52.0b (15%) on the position a year earlier and resulted from net increases of \$13.1b in the level of foreign equity and \$38.9b in the level of foreign debt.

Graph 30.11 shows the components of Australia's international investment position between 1992–93 and 2000–01. It shows that the increases in net foreign liabilities reflect increases in both net foreign debt and net foreign equity in most years.

Table 30.12 shows a reconciliation between opening and closing levels for foreign financial assets, foreign financial liabilities and Australia's net international investment position. Increases or decreases in these assets and liabilities are due to financial transactions (investment flows), price changes, exchange rate changes and other adjustments.



Source: Balance of Payments and International Investment Position, Australia (5302.0).

**30.12 INTERNATIONAL INVESTMENT POSITION**

	Position at beginning of period	Changes in position reflecting				Position at end of period
		Transactions	Price changes	Exchange rate changes	Other adjustments	
		\$m	\$m	\$m	\$m	
NET INTERNATIONAL INVESTMENT POSITION						
Total						
1998–99	296 938	29 447	–109	2 814	–3 720	325 371
1999–2000	325 371	33 542	–8 834	–7 378	–556	342 144
2000–01	342 144	15 487	38 619	–1 745	–367	394 138
Equity						
1998–99	69 156	20 044	3 904	7 516	–827	99 794
1999–2000	99 794	–3 229	–7 155	–19 220	–120	70 073
2000–01	70 073	–1 142	37 350	–23 271	178	83 186
Debt						
1998–99	227 782	9 403	–4 014	–4 702	–2 893	225 577
1999–2000	225 577	36 771	–1 679	11 840	–437	272 071
2000–01	272 071	16 629	1 269	21 526	–544	310 952
FOREIGN ASSETS(a)						
Total						
1998–99	–299 528	–17 423	–7 200	9 239	–1 030	–315 940
1999–2000	–315 940	–15 364	–40 574	–24 832	581	–396 130
2000–01	–396 130	–44 584	35 651	–36 501	1 606	–439 959
Equity						
1998–99	–180 339	–8 483	–7 056	7 516	–541	–188 902
1999–2000	–188 902	–10 749	–39 502	–19 219	84	–258 288
2000–01	–258 288	–26 279	37 516	–23 271	7	–270 317
Debt						
1998–99	–119 189	–8 939	–143	1 723	–491	–127 038
1999–2000	–127 038	–4 614	–1 073	–5 614	497	–137 842
2000–01	–137 842	–18 304	–1 865	–13 229	1 598	–169 642
FOREIGN LIABILITIES(b)						
Total						
1998–99	596 466	46 869	7 091	–6 425	–2 689	641 311
1999–2000	641 311	48 907	31 740	17 454	–1 136	738 274
2000–01	738 274	60 071	2 968	34 756	–1 972	834 097
Equity						
1998–99	249 495	28 527	10 961	—	–286	288 697
1999–2000	288 697	7 521	32 346	—	–203	328 361
2000–01	328 361	25 137	–166	—	170	353 503
Debt						
1998–99	346 971	18 342	–3 872	–6 424	–2 402	352 615
1999–2000	352 615	41 385	–606	17 454	–934	409 913
2000–01	409 913	34 932	3 135	34 754	–2 141	480 594

(a) Assets include claims of Australian direct investment enterprises on direct investors abroad, which are classified as part of direct investment in Australia. (b) Liabilities include liabilities of Australian direct investors to direct investment enterprises abroad, which are classified as part of direct investment abroad.

Source: *Balance of Payments and International Investment Position, Australia (5302.0)*.

## Foreign debt

Foreign debt is a subset of the financial obligations that comprise a country's international investment position. It includes all the non-equity components of the net international investment position, that is, all recorded assets and liabilities other than equity securities and direct investment equity capital, including reinvested earnings.

The level of borrowing and other non-equity liabilities by Australian residents at a particular date can be equated with Australia's foreign debt liabilities. The level of Australian lending abroad and other non-equity assets at the same date are deducted from the level of borrowing to arrive at Australia's net foreign debt.

The level of net foreign debt at 30 June 2001 was \$311.0b, up 14% on 30 June 2000. The increase during 2000–01 resulted from net financial transactions of \$16.6b, price changes of \$1.3b, exchange rate changes of \$21.5b and other adjustments of -\$0.5b (table 30.12).

At 30 June 2001, the net foreign debt of the public sector (general government plus public financial and non-financial corporations) was \$8.5b, which accounted for 3% of total net foreign debt. Net foreign debt levels of private financial corporations and private non-financial corporations were \$235.7b (76% of total net foreign debt) and \$66.7b (21%) respectively (table 30.13).

### 30.13 LEVELS OF FOREIGN DEBT — At 30 June

	1996 \$m	1997 \$m	1998 \$m	1999 \$m	2000 \$m	2001 \$m
<b>Foreign debt assets(a)</b>	<b>-81 661</b>	<b>-94 218</b>	<b>-119 189</b>	<b>-127 038</b>	<b>-137 842</b>	<b>-169 642</b>
Public sector	-31 100	-31 048	-41 329	-41 390	-46 424	-60 736
General government	-2 284	-2 836	-8 095	-9 378	-9 219	-10 338
Financial corporations	-28 144	-26 853	-32 196	-31 178	-36 811	-47 809
Reserve Bank	-18 445	-22 164	-23 998	-22 883	-27 184	-36 958
Central Borrowing Authorities	-11	-8	-179	-385	-1 090	-1 638
Other financial corporations	-9 688	-4 681	-8 019	-7 910	-8 538	-9 213
Non-financial corporations	-672	-1 359	-1 037	-835	-393	-2 589
Private sector	-50 561	-63 170	-77 860	-85 647	-91 418	-108 906
Financial corporations	-36 149	-45 619	-58 762	-63 445	-67 841	-80 216
Non-financial corporations	-14 412	-17 552	-19 098	-22 203	-23 577	-28 690
<b>Foreign debt liabilities(a)</b>	<b>275 533</b>	<b>302 846</b>	<b>346 971</b>	<b>352 615</b>	<b>409 913</b>	<b>480 594</b>
Public sector	101 269	96 278	86 721	75 279	63 445	69 226
General government	39 697	42 549	38 463	32 373	22 872	24 100
Financial corporations	56 472	48 213	41 392	37 284	34 001	32 605
Reserve Bank	51	72	48	40	34	49
Central Borrowing Authorities	41 388	40 203	36 571	32 772	29 060	27 886
Other financial corporations	15 032	7 938	4 774	4 473	4 907	4 670
Non-financial corporations	5 100	5 516	6 866	5 622	6 572	12 521
Private sector	174 264	206 568	260 250	277 335	346 468	411 368
Financial corporations	115 780	145 415	187 507	204 012	262 543	315 944
Non-financial corporations	58 484	61 153	72 742	73 324	83 925	95 425
<b>Net foreign debt</b>	<b>193 872</b>	<b>208 628</b>	<b>227 782</b>	<b>225 577</b>	<b>272 071</b>	<b>310 952</b>
Public sector	70 169	65 231	45 392	33 889	17 022	8 490
General government	37 413	39 713	30 368	22 995	13 652	13 762
Financial corporations	28 328	21 360	9 196	6 107	-2 810	-15 205
Reserve Bank	-18 394	-22 092	-23 950	-22 843	-27 150	-36 909
Central Borrowing Authorities	41 378	40 195	36 391	32 387	27 970	26 248
Other financial corporations	5 344	3 257	-3 245	-3 437	-3 630	-4 543
Non-financial corporations	4 428	4 157	5 828	4 787	6 179	9 932
Private sector	123 703	143 398	182 390	191 688	255 049	302 462
Financial corporations	79 630	99 796	128 746	140 567	194 702	235 728
Non-financial corporations	44 072	43 602	53 644	51 121	60 347	66 735

Source: Balance of Payments and International Investment Position, Australia (5302.0).

## Levels of foreign investment in Australia and Australian investment abroad

In table 30.14, levels of investment are categorised by direction (Australian investment abroad and foreign investment in Australia), type of investment (direct, portfolio, financial derivatives, other and reserve assets) and instrument.

Direct investment is a category of international investment that reflects the objective of obtaining a lasting interest by a resident in one economy in an enterprise in another economy, and implies a significant degree of influence by the investor in the management of the enterprise. A direct investment relationship is established when a direct investor, who is a resident in one economy, holds 10% or more of the ordinary shares or voting stock of an enterprise (direct investment enterprise) in another economy. The portfolio investment category covers investment in equity and debt securities (other than direct investment and reserve assets).

The items Australian investment abroad and Foreign investment in Australia in table 30.14 do not equate with foreign assets and liabilities respectively in table 30.12. The difference is due to netting of assets and liabilities in regard to direct investment, both abroad and in Australia. Claims by direct investment enterprises on their direct investors, separately identified in table 30.14, are netted off in that table against liabilities to direct investors. These items are not netted off in table 30.12.

At 30 June 2001, Australian investment abroad totalled \$419.3b, up 10% on the level a year earlier. This rise was the net effect of a \$5.4b increase in direct investment abroad, an \$11.5b increase in portfolio investment assets, a \$4.7b increase in financial derivative assets, a \$7.6b increase in other investment assets and a \$10.0b increase in reserve assets.

Foreign investment in Australia totalled \$813.5b at 30 June 2001, up 13% on June 2000. This rise was due to a \$14.4b increase in direct investment in Australia, a \$60.5b increase in portfolio investment liabilities, a \$2.1b increase in financial derivative liabilities and a \$14.2b increase in other investment liabilities. The increase in portfolio investment liabilities was attributable to significant increases in both equity (\$13.8b) and debt securities (\$46.7b).

## Ratios

Table 30.15 and graph 30.16 show that the ratio of the current account deficit to GDP was 2.8% in 2000–01, down significantly on the previous year, and well below the average for the last ten years (4.2%).

Graph 30.17 shows that the ratio of Australia's net foreign liabilities (Australia's net international investment position) to GDP has been rising for most years since 30 June 1988 and reached its highest level of nearly 59% at 30 June 2001. The ratio of net foreign debt to GDP was 46.4% at 30 June 2001, up strongly on the results for recent years. The ratio of net foreign equity to GDP was 12.4% at 30 June 2001, up on the ratio at 30 June 2000, but still below the average for the last ten years (13.4%).

Table 30.15 shows that the net investment income payable on net foreign debt as a percentage of goods and services credits was 9.2% in 2000–01, down on the previous year. The ratio of net investment income payable on equity to goods and services credits was 3.5% in 2000–01, down significantly on the ratio for the previous five years.

**30.14 LEVELS OF AUSTRALIAN INVESTMENT ABROAD AND FOREIGN INVESTMENT IN AUSTRALIA — At 30 June**

	1996	1997	1998	1999	2000	2001
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Levels of Australian investment abroad</b>	<b>-185 991</b>	<b>-221 545</b>	<b>-290 293</b>	<b>-304 050</b>	<b>-380 106</b>	<b>-419 318</b>
Direct investment abroad(a)	-74 156	-88 999	-125 580	-125 975	-174 109	-179 545
Equity capital and reinvested earnings	-74 260	-87 860	-124 085	-125 462	-175 993	-180 733
Other capital	104	-1 139	-1 494	-513	1 885	1 188
Claims on affiliated enterprises	-3 541	-4 620	-5 050	-5 556	-6 407	-8 790
Liabilities to affiliated enterprises	3 645	3 481	3 555	5 044	8 292	9 978
Portfolio investment assets	49 560	-61 164	-71 962	-81 709	-100 743	-112 206
Equity securities	-37 466	-47 691	-56 254	-63 440	-82 295	-89 584
Debt securities	-12 094	-13 474	-15 708	-18 269	-18 448	-22 622
Financial derivative assets	-10 179	-9 265	-14 357	-15 529	-18 833	-23 551
Other investment assets	-33 036	-39 326	-54 134	-56 883	-58 474	-66 065
Trade credits	-6 052	-8 188	-9 658	-10 084	-9 862	-9 413
Loans and other assets	-23 584	-26 293	-37 427	-39 568	-41 736	-47 009
Currency and deposits	-3 400	-4 844	-7 049	-7 231	-6 876	-9 642
Reserve assets	-19 060	-22 791	-24 260	-23 954	-27 948	-37 951
<b>Levels of foreign investment in Australia</b>	<b>461 302</b>	<b>511 700</b>	<b>587 231</b>	<b>629 421</b>	<b>722 250</b>	<b>813 456</b>
Direct investment in Australia(b)	140 001	150 827	162 371	177 754	199 399	213 760
Equity capital and reinvested earnings	119 918	130 190	138 943	156 182	175 423	186 735
Other capital	20 082	20 637	23 428	21 572	23 976	27 025
Claims on direct investors	-3 751	-4 743	-5 680	-6 847	-7 733	-10 663
Liabilities to direct investors	23 834	25 380	29 107	28 419	31 709	37 688
Portfolio investment liabilities	255 191	289 182	332 038	345 621	396 270	456 781
Equity securities	73 247	86 888	110 552	132 514	152 938	166 768
Debt securities	181 944	202 294	221 485	213 106	243 332	290 013
Financial derivative liabilities	9 551	10 221	15 040	17 826	21 432	23 529
Other investment liabilities	56 559	61 470	77 783	88 220	105 149	119 386
Trade credits	5 822	5 974	7 221	7 762	7 452	7 023
Loans	31 715	31 632	34 144	40 586	53 497	51 574
Currency and deposits	17 146	21 542	33 356	35 712	39 835	56 071
Other liabilities	1 875	2 322	3 061	4 161	4 365	4 718

(a) Net direct investment abroad, after deduction of liabilities to direct investment enterprises abroad. (b) Net direct investment in Australia, after deduction of claims of Australian direct investment enterprises on direct investors.

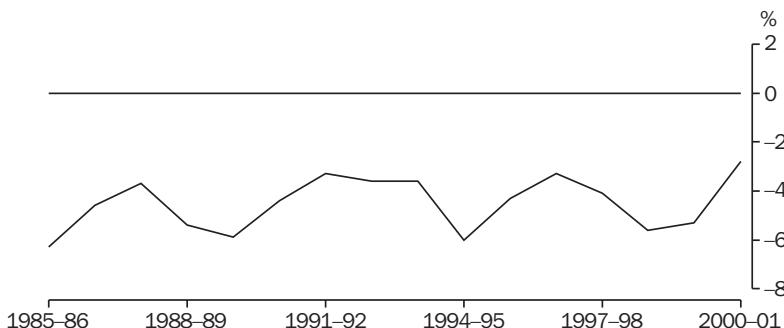
Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

**30.15 RATIOS**

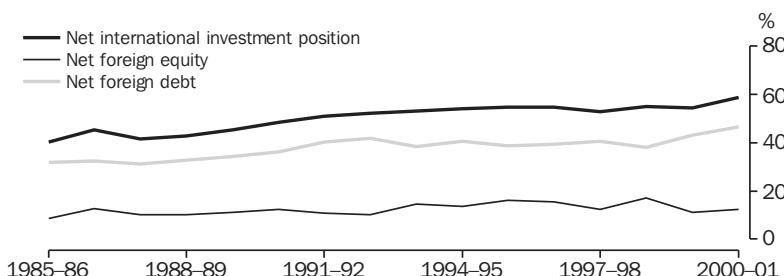
	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
	\$ MILLION					
GDP(a)	502 828	529 886	561 228	591 592	629 212	670 029
RATIOS TO GDP (%)						
Current account	-4.3	-3.3	-4.1	-5.6	-5.3	-2.8
Goods and services	-0.4	0.3	-0.8	-2.4	-2.3	0.1
Credits	19.7	19.8	20.3	18.9	20	22.9
Debits	-20.1	-19.5	-21.1	-21.4	-22.3	-22.7
Income	-3.9	-3.6	-3.2	-3.1	-3.1	-2.9
Net international investment position(b)	54.8	54.8	52.9	55	54.4	58.8
Net foreign equity	16.2	15.4	12.3	16.9	11.1	12.4
Net foreign debt	38.6	39.4	40.6	38.1	43.2	46.4
RATIOS TO GOODS AND SERVICES CREDITS (%)						
Net investment income	-19.9	-18.3	-15.9	-16.2	-15.2	-12.7
Net foreign equity	-8.4	-7.1	-6.2	-7.0	-5.1	-3.5
Net foreign debt	-11.5	-11.2	-9.7	-9.2	-10.2	-9.2

(a) GDP at current prices. (b) These ratios are derived by expressing net foreign liabilities at end of year as a percentage of GDP at current prices for that year.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0); *Australian National Accounts: National Income, Expenditure and Product* (5206.0).

**30.16 RATIO OF BALANCE ON CURRENT ACCOUNT TO GDP**

Source: *Balance of Payments and International Investment Position, Australia* (5302.0); *Australian National Accounts: National Income, Expenditure and Product* (5206.0).

**30.17 RATIOS(a) OF NET INTERNATIONAL INVESTMENT POSITION TO GDP**

(a) These ratios are derived by expressing net foreign liabilities at end of year as a percentage of GDP at current prices for that year.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0); *Australian National Accounts: National Income, Expenditure and Product* (5206.0).

## Foreign ownership in Australia

Table 30.18 shows that the value of equity on issue by Australian enterprise groups at 30 June 2001 stood at \$1,224b. Of this total, 68% related to shares or equivalent equity interests issued by corporate trading enterprises. Banks accounted for a further 14% of total equity issued, while lesser amounts were issued by non-bank deposit taking institutions (2% of the total), the central bank (1%) and other financial sub-sectors, including life offices and superannuation funds (15%).

Of the total equity on issue by Australian enterprise groups at 30 June 2001, non-residents held equity valued at \$354b (29%), while residents held \$870b (71%).

Although the proportion of equity held by non-residents has remained relatively stable, the total value of equity on issue has increased by 62%, from \$757b to \$1,224b, over the period from 30 June 1997 to 30 June 2001.

Analysed by sub-sector, at 30 June 2001 non-residents held 34% of the equity in corporate trading enterprises, which has changed little over recent years. The value of equity on issue by corporate trading enterprises at 30 June 2001 increased only marginally on the previous year (2%).

The amount issued by banks has increased by 92% over the period from 30 June 1997 to 30 June 2001, while the proportion of non-resident holdings of the total equity issued by banks has risen from 21% to 26% over the same period.

Although the value of equity issued by life offices, superannuation funds and other financial institutions has increased nearly 140% over the period from 30 June 1997 to 30 June 2001, the foreign ownership of this equity has fallen from 16% at 30 June 1997 to 12% at 30 June 2001.

Data for equity on issue by unlisted corporations are of lesser quality than the data supplied by the Australian Stock Exchange for listed corporations. Data for unlisted corporations are compiled from returns supplied in the ABS Survey of Financial Information, ABS Survey of International Investment, selected annual reports, and estimates synthesised from analysing residual items in demand and supply tables for the various share markets.

In terms of the analysis undertaken here, errors in the estimated market value of equity on issue will impact on the accuracy of estimates of the proportion of that equity owned by non-residents.

## International merchandise trade

### Conceptual framework

Australia's international merchandise trade statistics, relating to the exports and imports of goods, are compiled in broad agreement with the United Nations' (UN) recommendations for the compilation of international trade statistics. More information on the concepts, sources and methods used to produce Australia's trade statistics is included in *International Merchandise Trade, Australia: Concepts, Sources and Methods* (5489.0).

The UN recommendations state that merchandise trade covers all movable goods which add to (imports) or subtract from (exports) the stock of material resources of a country as a result of their movement into or out of the country.

### 30.18 FOREIGN OWNERSHIP OF EQUITY(a) — At 30 June

	Units	1997	1998	1999	2000	2001
ALL SECTORS COMBINED						
Amount issued	\$b	756.7	878.5	998.6	1 140.6	1 223.5
Amount held by rest of world	\$b	217.1	249.5	288.7	328.4	353.5
Percentage of foreign ownership	%	29.0	28.0	29.0	29.0	29.0
SUB-SECTORS						
Corporate trading enterprises(b)						
Amount issued(c)	\$b	562.9	608.5	732.2	814.4	833.9
Amount held by rest of world	\$b	181.0	201.8	240.6	275.6	281.6
Percentage of foreign ownership	%	32.0	33.0	33.0	34.0	34.0
Banks						
Amount issued(c)	\$b	92.5	103.6	112.8	138.2	177.3
Amount held by rest of world	\$b	19.2	25.1	28.3	31.2	45.7
Percentage of foreign ownership	%	21.0	24.0	25.0	23.0	26.0
Non-bank deposit taking institutions						
Amount issued(c)	\$b	15.9	15.8	16.5	16.8	18.7
Amount held by rest of world	\$b	4.5	4.3	4.0	3.7	4.0
Percentage of foreign ownership	%	29.0	28.0	24.0	22.0	21.0
Other financial sub-sectors(d)						
Amount issued(c)	\$b	75.7	138.0	126.2	160.8	181.3
Amount held by rest of world	\$b	12.3	18.2	15.8	17.9	22.3
Percentage of foreign ownership	%	16.0	13.0	12.0	11.0	12.0
Central bank						
Amount issued(e)(f)	\$b	9.7	12.6	10.9	10.4	12.3

(a) Equity includes units in trusts. (b) Includes private non-financial corporations, and Commonwealth, State and local public non-financial corporations. (c) These estimated market values are considered to be of poor quality. They should be used cautiously. (d) Includes life offices and superannuation funds, central borrowing authorities, and other financial institutions. (e) Net asset values. (f) There is no foreign ownership in this sub-sector.

Source: Australian National Accounts: Financial Accounts (5232.0); Balance of Payments and International Investment Position, Australia (5302.0).

The UN definition excludes:

- direct transit trade, i.e. goods being trans-shipped or moved through Australia for purposes of transport only;
- ships and aircraft moving through Australia while engaged in the transport of passengers or goods between Australia and other countries; and
- non-merchandise trade, consisting primarily of goods moving on a temporary basis (e.g. mobile equipment, goods under repair and goods for exhibition).

International merchandise trade statistics are compiled by the ABS from information submitted by exporters and importers or their agents to the Australian Customs Service.

The UN recommendations for the compilation of merchandise trade statistics recognise that the basic sources used by most compiling countries — customs records — will not be able to capture certain transactions. In Australia, the following types of goods, which fall within the scope of the UN definition of merchandise trade, are excluded because customs entries are not required:

- parcel post exports for values not exceeding \$2,000 and parcel post imports for values not exceeding \$1,000; and
- migrants' and passengers' effects exported or imported.

For exports only, other types of goods excluded are:

- fish and other sea products landed abroad directly from the high seas by Australian ships; and
- individual transaction lines (within an export consignment) where the value of the goods is less than \$500.

For imports only, other types of goods excluded are:

- bunkers, aviation fuel and stores supplied abroad to Australian ships and aircraft; and
- consignments screened free or entered on informal clearance documents for values not exceeding \$250. From July 1998 individual transaction lines (within a formally entered import consignment), where the value of goods is less than \$250, are not processed by the ABS and are also excluded.

## Classification

International merchandise trade is classified by commodity, by country of origin/destination, by Australian State of production/destination, and by industry of origin.

Export and import commodity statistics are available classified according to:

- the *Harmonized System*, a World Customs Organization (WCO) classification which groups goods according to their component materials, from raw materials through to processed and manufactured products;
- the United Nations *Standard International Trade Classification (SITC Rev. 3)* which groups goods according to the degree of processing they have undergone, from food and crude raw materials through to highly transformed manufactures; and
- the United Nations *Classification by Broad Economic Categories (BEC)* which classifies international trade for the purposes of general economic analysis according to the main end use of the commodities traded.

The WCO has recently revised the *Harmonized System*, with the new version of the classification to be introduced on 1 January 2002.

Commodity export and import statistics in this section are presented according to SITC Rev. 3.

## Valuation

For exports, the point of valuation adopted is free-on-board (f.o.b.) at the Australian port of shipment, while the basis of valuation is 'transactions value', that is, the actual price at which the goods are sold.

For imports, the point of valuation is the point of containerisation (in most cases), or f.o.b. at the customs frontier of the exporting country or the port of loading, whichever comes first. The basis of valuation is the customs value. For transactions between independent buyers and sellers, this will generally be the price actually payable. Where traders are not independent (for example if they are related or affiliated in some way), an appropriate customs value may be determined.

## Total merchandise exports and imports

In 2000–01, Australia's merchandise exports increased by 23% to \$119.6b and its merchandise imports increased by 7% to \$118.3b. Exports exceeded imports by \$1.3b, following a deficit of \$12.8b in 1999–2000. This is the first merchandise trade surplus since 1993–94 (table 30.19 and graph 30.20).

### 30.19 TOTAL MERCHANTISE EXPORTS AND IMPORTS

Financial year	Exports \$m	Imports \$m	Excess of exports or imports(a) \$m
1995–96	76 005	77 792	-1 787
1996–97	78 932	78 998	-66
1997–98	87 768	90 684	-2 916
1998–99	85 991	97 611	-11 620
1999–2000	97 286	110 078	-12 792
2000–01	119 602	118 264	1 338

(a) A negative sign indicates that imports exceed exports.

Source: *International Merchandise Trade, Australia* (5422.0).

## Merchandise exports and imports by commodity

The value of merchandise exports and imports by commodity for 1999–2000 and 2000–01, and their percentage contribution to total exports and imports for 2000–01, is shown in table 30.21. Tables 30.22 and 30.23 show a more detailed commodity breakdown of the top exports and imports for 2000–01.

For 2000–01, exports were \$119,602m, up \$22,316m (23%) on the previous year. Significant contributors to the increase were Petroleum, petroleum products and related materials, up \$3,723m (52%) to \$10,868m; Metalliferous ores and metal scrap, up \$3,447m (30%) to \$14,761m; and Coal, coke and briquettes, up \$2,503m (30%) to \$10,840m. These increases were partly offset by falls in Iron and steel, down \$669m (47%) to \$741m; and Transport equipment (excluding road vehicles), down \$475m (28%) to \$1,197m.

Australia's major commodity exports for 2000–01 and their principal markets were:

- Coal, \$10,825m — 9% of total exports: Japan (46% of total coal exports), the Republic of Korea (10%), India (8%), and Taiwan (6%);
- Crude petroleum products, \$7,610m — 6% of total exports: Singapore (23% of total crude petroleum product exports), Republic of Korea (19%), Taiwan (17%), Japan (16%), and United States of America (13%);
- Non-monetary gold, \$5,110m — 4% of total exports: Singapore (33% of total non-monetary gold exports), the Republic of Korea (18%), United Kingdom (14%), and Hong Kong (SAR of China) (11%). This comprises gold produced in Australia and gold previously imported for refining or manufacturing;
- Iron ore, \$4,912m — 4% of total exports: Japan (43% of total iron ore exports), China (25%), and the Republic of Korea (15%); and
- Aluminium, \$4,741m — 4% of total exports: Japan (40% of total aluminium exports), the Republic of Korea (14%), and Taiwan (13%).



Source: *International Merchandise Trade* (5422.0).

For 2000–01, imports were \$118,264m, up \$8,186m (7%) on the previous year. Significant contributors to the increase were Petroleum, petroleum products and related materials, up \$2,779m (37%) to \$10,295m; Road vehicles, up \$1,562m (12%) to \$14,346m; and Telecommunications and sound recording and reproducing apparatus and equipment, up \$1,165m (17%) to \$7,938m. These rises were partly offset by falls in Transport equipment (excluding road vehicles), down \$2,023m (37%) to \$3,409m; and Non-monetary gold, down \$709m (30%) to \$1,688m.

Australia's major commodity imports for 2000–01 and their principal sources were:

- Passenger motor vehicles, \$8,578m — 7% of total imports: Japan (58% of total passenger motor vehicle imports), Germany (15%), and the Republic of Korea (9%);
- Crude petroleum oils, \$8,205m — 7% of total imports: Viet Nam (26% of total crude petroleum imports), Indonesia (14%), United Arab Emirates (12%), Saudi Arabia (12%), and Papua New Guinea (12%);
- Telecommunications equipment, \$6,050m — 5% of total imports: the United States of America (24% of total telecommunications equipment imports), the Republic of Korea (16%), Japan (10%) and the United Kingdom (9%);
- Computing equipment, \$5,239m — 4% of total imports: the United States of America (17% of total computing equipment imports), Malaysia (16%), Singapore (13%), Japan (12%), Taiwan (12%) and China (10%); and
- Medicaments, \$3,508m — 3% of total imports: the United Kingdom (23% of total medicaments imports), the United States of America (21%), and Germany (10%).

**30.21 MERCHANTISE EXPORTS AND IMPORTS, By Commodity**

Standard International Trade Classification	Exports			Imports		
	1999–2000 \$m	2000–01 \$m	% contribution	1999–2000 \$m	2000–01 \$m	% contribution
<b>Food and live animals</b>						
Live animals other than fish, crustaceans, molluscs and aquatic invertebrates	734	871	0.7	128	61	0.1
Meat and meat preparations	4 467	5 772	4.8	155	131	0.1
Dairy products and birds' eggs	2 383	2 965	2.5	267	306	0.3
Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof(a)	1 538	1 714	1.4	781	871	0.7
Cereals and cereal preparations(a)	4 940	5 405	4.5	266	304	0.3
Vegetables and fruit(a)	1 305	1 505	1.3	736	775	0.7
Sugars, sugar preparations and honey(a)	173	218	0.2	110	126	0.1
Coffee, tea, cocoa, spices, and manufactures thereof	233	250	0.2	610	592	0.5
Feeding stuff for animals (excl. unmilled cereals)(a)	750	976	0.8	152	182	0.2
Miscellaneous edible products and preparations	369	439	0.4	749	887	0.8
<i>Total(a)</i>	<i>16 892</i>	<i>20 115</i>	<i>16.8</i>	<i>3 954</i>	<i>4 236</i>	<i>3.6</i>
<b>Beverages and tobacco</b>						
Beverages	1 515	1 931	1.6	542	680	0.6
Tobacco and tobacco manufactures	57	61	0.1	165	227	0.2
<i>Total</i>	<i>1 572</i>	<i>1 992</i>	<i>1.7</i>	<i>706</i>	<i>907</i>	<i>0.8</i>
<b>Crude materials, inedible, except fuels</b>						
Hides, skins and furskins, raw(a)	413	794	0.7	3	2	0.0
Oil seeds and oleaginous fruits	809	725	0.6	81	82	0.1
Crude rubber (incl. synthetic and reclaimed)	13	10	0.0	108	132	0.1
Cork and wood	777	888	0.7	618	494	0.4
Pulp and waste paper	42	44	0.0	232	329	0.3
Textile fibres and their wastes (not manufactured into yarn or fabric)(a)	4 299	5 590	4.7	151	140	0.1
Crude fertilisers and crude minerals (excl. coal, petroleum and precious stones)(a)(b)	443	507	0.4	170	197	0.2
Metalliferous ores and metal scrap(a)	11 314	14 761	12.3	203	279	0.2
Crude animal and vegetable materials, n.e.s.	272	273	0.2	283	269	0.2
<i>Total(a)(b)</i>	<i>18 381</i>	<i>23 592</i>	<i>19.7</i>	<i>1 848</i>	<i>1 922</i>	<i>1.6</i>
<b>Mineral fuels, lubricants and related materials</b>						
Coal, coke and briquettes	8 337	10 840	9.1	21	10	0.0
Petroleum, petroleum products and related materials(b)	7 145	10 868	9.1	7 516	10 295	8.7
Gas, natural and manufactured	2 601	3 504	2.9	117	167	0.1
<i>Total(b)</i>	<i>18 083</i>	<i>25 211</i>	<i>21.1</i>	<i>7 655</i>	<i>10 473</i>	<i>8.9</i>
<b>Animal and vegetable oils, fats and waxes</b>						
Animal oils and fats(a)	212	214	0.2	8	11	0.0
Fixed vegetable fats and oils, crude, refined or fractionated(a)	43	37	0.0	232	240	0.2
Fats and oils (processed), waxes and inedible mixtures or preparations, of animal or vegetable origin, n.e.s.	47	49	0.0	36	34	0.0
<i>Total(a)</i>	<i>303</i>	<i>300</i>	<i>0.3</i>	<i>277</i>	<i>285</i>	<i>0.2</i>

For footnotes see end of table.

...continued

**30.21 MERCHANTISE EXPORTS AND IMPORTS, By Commodity — continued**

Standard International Trade Classification	Exports			Imports		
	1999–2000 \$m	2000–01 \$m	% contribution	1999–2000 \$m	2000–01 \$m	% contribution
<b>Chemical and related products, n.e.s.</b>						
Organic chemicals(a)(b)	128	118	0.1	2 874	2 854	2.4
Inorganic chemicals(a)(b)	450	547	0.5	682	911	0.8
Dyeing, tanning and colouring materials	551	660	0.6	518	566	0.5
Medicinal and pharmaceutical products(a)	1 715	2 231	1.9	3 520	4 371	3.7
Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	346	396	0.3	915	1 070	0.9
Fertilisers (excl. crude)(a)	45	134	0.1	717	836	0.7
Plastics in primary forms(a)(b)	211	224	0.2	1 093	1 209	1.0
Plastics in non-primary forms	193	202	0.2	937	976	0.8
Chemical materials and products, n.e.s.	556	634	0.5	1 241	1 406	1.2
Total(a)(b)	4 195	5 146	4.3	12 497	14 200	12.0
<b>Manufactured goods classified chiefly by material</b>						
Leather, leather manufactures, and dressed furskins, n.e.s.	461	552	0.5	159	193	0.2
Rubber manufactures, n.e.s.(b)	170	172	0.1	1 255	1 412	1.2
Cork and wood manufactures (excl. furniture)(a)	138	219	0.2	568	521	0.4
Paper, paperboard, and articles of paper pulp, of paper or of paperboard(a)(b)	543	587	0.5	2 329	2 444	2.1
Textile yarn, fabrics, made-up articles, n.e.s., and related products	600	596	0.5	2 632	2 607	2.2
Non-metallic mineral manufactures, n.e.s.(a)	966	1 022	0.9	1 878	1 871	1.6
Iron and steel(a)(b)	1 410	741	0.6	1 505	1 430	1.2
Non-ferrous metals(b)	7 395	9 398	7.9	804	863	0.7
Manufactures of metals, n.e.s.(b)	644	724	0.6	2 522	2 714	2.3
Total(a)(b)	12 328	14 011	11.7	13 654	14 055	11.9
<b>Machinery and transport equipment</b>						
Power generating machinery and equipment	927	887	0.7	2 655	2 701	2.3
Machinery specialised for particular industries	1 112	1 339	1.1	4 153	3 835	3.2
Metal working machinery	243	206	0.2	445	436	0.4
General industrial machinery and equipment, n.e.s. and machine parts, n.e.s.(a)	1 040	1 215	1.0	5 398	5 729	4.8
Office machines and automatic data processing machines	1 312	1 557	1.3	7 589	8 317	7.0
Telecommunications and sound recording and reproducing apparatus and equipment	1 183	1 455	1.2	6 773	7 938	6.7
Electrical machinery, apparatus, appliances, parts (incl. non-electrical counterparts of electrical domestic equipment)(a)(b)	1 322	1 718	1.4	6 213	6 782	5.7
Road vehicles (incl. air-cushion vehicles)	2 808	3 833	3.2	12 784	14 346	12.1
Transport equipment (excl. road vehicles)	1 672	1 197	1.0	5 432	3 409	2.9
Total(a)(b)	11 619	13 408	11.2	51 442	53 492	45.2

For footnotes see end of table.

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**30.21 MERCHANTISE EXPORTS AND IMPORTS, By Commodity — *continued***

Standard International Trade Classification	Exports			Imports		
	1999–2000 \$m	2000–01 \$m	% contribution	1999–2000 \$m	2000–01 \$m	% contribution
<b>Miscellaneous manufactured articles</b>						
Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.(b)	77	88	0.1	359	378	0.3
Furniture, parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings	123	135	0.1	998	1 130	1.0
Travel goods, handbags and similar containers	13	14	0.0	410	477	0.4
Articles of apparel and clothing accessories	338	348	0.3	2 794	3 188	2.7
Footwear(a)	64	64	0.1	848	932	0.8
Professional, scientific and controlling instruments and apparatus, n.e.s.	1 061	1 250	1.0	2 593	2 740	2.3
Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks(b)	928	1 107	0.9	1 516	1 628	1.4
Miscellaneous manufactured articles, n.e.s.	1 220	1 448	1.2	5 962	6 332	5.4
<i>Total(a)(b)</i>	<i>3 826</i>	<i>4 455</i>	<i>3.7</i>	<i>15 479</i>	<i>16 804</i>	<i>14.2</i>
<b>Commodities and transactions not classified elsewhere in the SITC</b>						
Special transactions and commodities not classified according to kind	2 249	1 860	1.6	42	53	0.0
Gold coin whether or not legal tender, and other coin being legal tender	89	69	0.1	8	10	0.0
Coin (excl. gold coin), not being legal tender	9	3	0.0	7	1	0.0
Gold, non-monetary (excl. gold ores and concentrates)	5 031	5 110	4.3	2 397	1 688	1.4
Combined confidential items of trade(c)	2 709	4 330	3.6	112	137	0.1
<i>Total(c)</i>	<i>10 088</i>	<i>11 372</i>	<i>9.5</i>	<i>2 566</i>	<i>1 889</i>	<i>1.6</i>
<b>Total merchandise exports and imports</b>	<b>97 286</b>	<b>119 602</b>	<b>100.0</b>	<b>110 078</b>	<b>118 264</b>	<b>100.0</b>

(a) Excludes export commodities subject to a 'No commodity details' restriction. (b) Excludes import commodities subject to a 'No commodity details' restriction. (c) Includes commodities subject to a 'No commodity details' restriction.

Source: *International Merchandise Trade, Australia* (5422.0).

**30.22 MERCHANTISE EXPORTS OF MAJOR COMMODITIES(a) — 2000-01**

Commodity (SITC code)	\$m	%
Aircraft and associated equipment (792)	609	0.5
Alcoholic beverages (112)	1 904	1.6
Aluminium ores and concentrates (incl. alumina) (285)(b)	4 741	4.0
Aluminium (684)	4 388	3.7
Cheese and curd (024)	949	0.8
Coal, not agglomerated (321)	10 825	9.1
Copper ores and concentrates (283)	1 641	1.4
Copper (682)	1 048	0.9
Cotton (263)	1 959	1.6
Crustaceans, molluscs, aquatic invertebrates, live, chilled, frozen, dried or salted; crustaceans, cooked (036)	1 095	0.9
Feeding stuff for animals (excl. unmilled cereals) (081)	976	0.8
Fruit and nuts (excl. oil nuts), fresh or dried (057)	557	0.5
Gas, natural (343)	2 671	2.2
Gold, non-monetary (excl. gold ores and concentrates) (971)	5 110	4.3
Hides and skins (excl. furskins), raw (211)(b)	793	0.7
Internal combustion piston engines and parts thereof, n.e.s. (713)	590	0.5
Iron ore and concentrates (281)	4 912	4.1
Liquefied propane and butane (342)	830	0.7
Live animals (excl. fish, crustaceans, molluscs and aquatic invertebrates) (001)	871	0.7
Machinery and equipment specialised for particular industries and parts thereof (728)	606	0.5
Measuring, checking, analysing and controlling instruments and apparatus, n.e.s. (874)	754	0.6
Meat and edible meat offal (excl. bovine & preserved) fit for human consumption (012)	1 587	1.3
Meat of bovine animals, fresh, chilled or frozen (011)	4 108	3.4
Medicaments (incl. veterinary medicaments) (542)(b)	1 806	1.5
Milk, cream and milk products (excl. butter and cheese) (022)	1 723	1.4
Nickel ores and concentrates; intermediate products of nickel (284)(b)	1 470	1.2
Nickel (683)	564	0.5
Oil seeds & oleaginous fruits, used for extraction of 'soft' fixed vegetable oils (222)	711	0.6
Ores and concentrates of base metal (excl. iron, copper, nickel, aluminium, uranium and thorium) (287)(b)	1 917	1.6
Parts and accessories for office and automatic data processing machines (759)	1 193	1.0
Parts and accessories of the motor vehicles and tractors, n.e.s. (784)	881	0.7
Passenger motor vehicles (excl. public-transport type) (781)	2 735	2.3
Pearls, precious and semi-precious stones, unworked or worked (667)(b)	603	0.5
Petroleum oils and oils obtained from bituminous minerals, crude (333)	7 610	6.4
Petroleum oils and oils from bituminous minerals (excl. crude) (334)	3 227	2.7
Pigments, paints, varnishes and related materials (533)	639	0.5
Ships, boats (incl. hovercraft) and floating structures (793)	547	0.5
Special transactions and commodities not classified according to kind (931)	1 860	1.6
Telecommunications equipment, parts and accessories, n.e.s. (764)	1 417	1.2
Vegetables, fresh, chilled, frozen or simply preserved; roots n.e.s., fresh or dried (054)	705	0.6
Wheat and meslin, unmilled (041)	4 146	3.5
Wood in chips or particles and wood waste (246)	747	0.6
Wool and other animal hair (incl. wool tops) (268)(b)	3 590	3.0
Zinc (686)	909	0.8
<b>Total major commodities(b)</b>	<b>92 520</b>	<b>77.4</b>
Total of all other commodities	27 082	22.6
<b>Total merchandise exports</b>	<b>119 602</b>	<b>100.0</b>

(a) Major commodities are at SITC 3-digit level (b) Excludes commodities subject to a 'No commodity details' restriction or 'Broad commodity details' restriction.

Source: International Merchandise Trade, Australia (5422.0).

**30.23 MERCHANTISE IMPORTS OF MAJOR COMMODITIES(a) — 2000-01**

Commodity (SITC code)	\$m	%
Aircraft and associated equipment (792)	2 876	2.4
Articles of plastics, n.e.s. (893)	1 161	1.0
Automatic data processing machines and equipment (752)	5 239	4.4
Baby carriages, toys, games and sporting goods (894)	1 374	1.2
Civil engineering and contractors' plant and equipment (723)	974	0.8
Clothing, of textile fabrics (845)	986	0.8
Edible products and preparations, n.e.s. (098)	881	0.7
Electrical apparatus used in circuits; resistors; printed circuits; boards and panels (772)	1 070	0.9
Electrical machinery and apparatus, n.e.s. (778)	1 800	1.5
Fertilisers (excl. crude) (562)	836	0.7
Footwear (851)	932	0.8
Furniture and parts thereof; bedding, mattresses, mattress supports and cushions (821)	1 130	1.0
Gold, non-monetary (excl. gold ores and concentrates) (971)	1 688	1.4
Heating and cooling equipment, and parts thereof, n.e.s. (741)	1 117	0.9
Household type electrical and non-electrical equipment, n.e.s. (775)	1 185	1.0
Instruments and appliances for medical, surgical, dental or veterinary purposes (872)	814	0.7
Internal combustion piston engines and parts thereof, n.e.s. (713)	1 400	1.2
Machinery and equipment specialised for particular industries and parts thereof (728)	924	0.8
Manufactures of base metal, n.e.s. (699)	1 063	0.9
Measuring, checking, analysing and controlling instruments and apparatus, n.e.s. (874)	1 745	1.5
Mechanical handling equipment and parts thereof, n.e.s. (744)	803	0.7
Medicaments (incl. veterinary medicaments) (542)	3 509	3.0
Medicinal and pharmaceutical products (excl. medicaments of group 542) (541)	862	0.7
Miscellaneous manufactured articles, n.e.s. (899)	753	0.6
Motor vehicles for the transport of goods and special purpose motor vehicles (782)	2 193	1.9
Motorcycles and cycles, motorized and non-motorized; invalid carriages (785)	734	0.6
Musical instruments, parts and accessories thereof; records, tapes, etc. (898)	1 041	0.9
Non-electrical machinery, tools and mechanical apparatus and parts thereof, n.e.s. (745)	727	0.6
Organic-inorganic and heterocyclic compounds, nucleic acids and their salts (515)	1 421	1.2
Paper and paperboard (641)	1 884	1.6
Parts and accessories for office and automatic data processing machines (759)	2 577	2.2
Parts and accessories of the motor vehicles and tractors, n.e.s. (784)	2 421	2.0
Passenger motor vehicles (excl. public-transport type) (781)	8 578	7.3
Perfumery, cosmetics or toilet preparations (excl. soaps) (553)	689	0.6
Petroleum oils and oils obtained from bituminous minerals, crude (333)	8 206	6.9
Petroleum oils and oils from bituminous minerals (excl. crude) (334)	1 816	1.5
Plates, sheets, film, foil and strip, of plastics (582)	806	0.7
Printed matter (892)	1 014	0.9
Pumps for gas; ventilating hoods; centrifuges; purifying apparatus (743)	1 062	0.9
Rubber tyres, interchangeable tyre treads, tyre flaps and inner tubes for all wheels (625)	911	0.8
Telecommunications equipment, parts and accessories, n.e.s. (764)	6 050	5.1
Televisions, whether or not combined with radios, video recorders/reproducers (761)	797	0.7
Thermionic, cold or photo cathode valves & tubes, semi conductors etc. (776)	1 401	1.2
Women's or girls' clothing, of textile fabrics, not knitted or crocheted (842)	653	0.6
<b>Total major commodities(b)</b>	<b>80 108</b>	<b>67.7</b>
Total of all other commodities	38 156	32.3
<b>Total merchandise imports</b>	<b>118 264</b>	<b>100.0</b>

(a) Major commodities are at SITC 3-digit level (b) Excludes commodities subject to a 'No commodity details' restriction or 'Broad commodity details' restriction.

Source: International Merchandise Trade, Australia (5422.0).

## Merchandise exports and imports by country

For exports, country refers to the country to which the goods were consigned at the time of export. For imports, country refers to the country of origin of the goods, that is, where the majority of processing of the goods takes place. Where the country of consignment/origin is not known at the time of export/import, goods are recorded as Destination Unknown (exports) or Origin Unknown (imports).

Australia's merchandise trade balance moved from a deficit of \$12,792m in 1999–2000 to a surplus of \$1,338m in 2000–01, an improvement of \$14,130m. The main trading partner contributors were:

- a \$3,396m increase in the surplus with Japan as a result of a rise in exports of \$4,657m (mainly Coal, coke and briquettes; Combined confidential items of trade and commodities n.e.s.; and Metalliferous ores and scrap metal). This was partly offset by a rise in imports of \$1,261m (mainly Road vehicles including air-cushion vehicles);
- a \$2,831m decrease in the deficit with the United States of America. This was due to a rise in exports of \$2,051m (mainly Meat and meat preparations; Road vehicles including air-cushion vehicles; and Transport equipment excluding road vehicles) and a fall in imports of \$778m (mainly Transport equipment excluding road vehicles);
- a \$1,603m increase in the surplus with Singapore as a result of a rise in exports of \$1,142m (mainly Petroleum, petroleum products and related materials) and a fall in imports of \$460m (mainly Transport equipment excluding road vehicles);

- a \$1,195m increase in the surplus with the Republic of Korea as a result of a rise in exports of \$1,594m (mainly Petroleum, petroleum products and related materials; Coal, coke and briquettes; Metalliferous ores and scrap metal; and Non-monetary gold), partly offset by a rise in imports of \$399m (mainly Telecommunications and sound recording and reproducing apparatus and equipment); and
- a \$1,092m increase in the surplus with Taiwan as a result of a rise in exports of \$1,175m (mainly Petroleum, petroleum products and related materials; Coal, coke and briquettes; and Metalliferous ores and scrap metal).

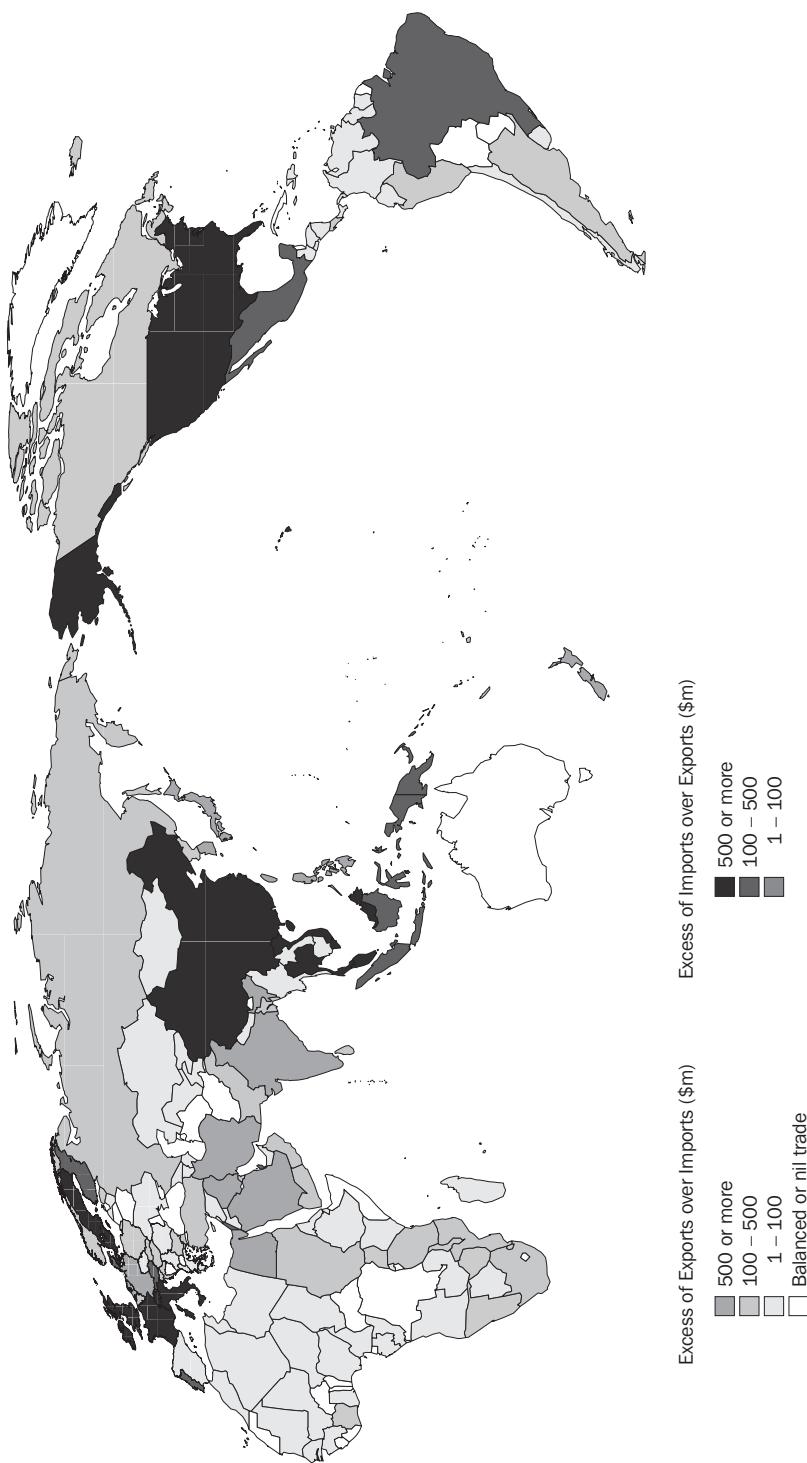
These improvements were partly offset by:

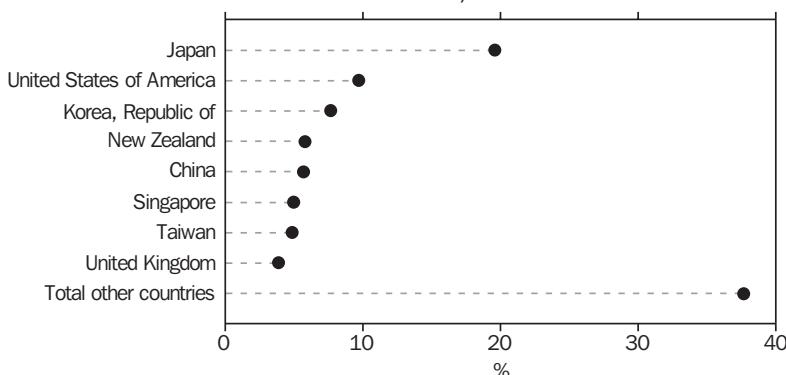
- a \$591m increase in the deficit with Viet Nam as a result of a rise in imports of \$706m, mainly Petroleum, petroleum products and related materials;
- a \$486m increase in the deficit with China as a result of a rise in imports of \$2,366m (mainly Articles of apparel and clothing accessories; Office machines and automatic data processing machines; and Miscellaneous manufactured articles, n.e.s.), partly offset by a rise in exports of \$1,879m (mainly Combined confidential items of trade and commodities n.e.s.; and Metalliferous ores and scrap); and
- a \$423m fall in the surplus with the United Arab Emirates as a result of a rise in imports of \$713m (mainly Petroleum, petroleum products and related materials), partly offset by a rise in exports of \$290m (mainly Road vehicles including air-cushion vehicles; and Combined confidential items of trade and commodities n.e.s.).

Map 30.24 shows Australia's net balance of trade with its partner countries in 2000–01.

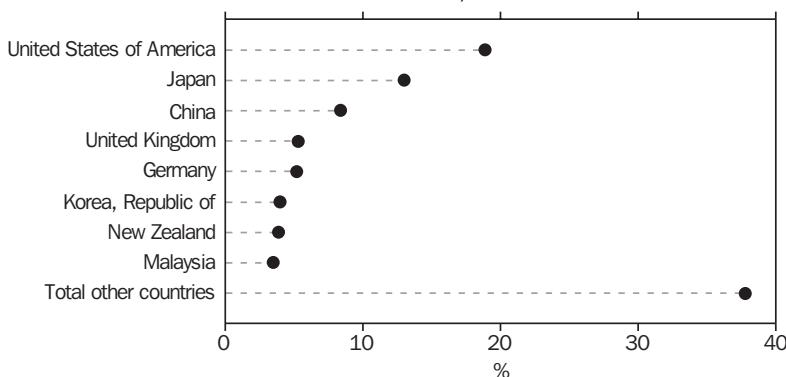
Graphs 30.25 and 30.26 show the percentage share of Australian merchandise exports and imports by value accounted for by Australia's top eight trading partners for exports and imports respectively.

30.24 AUSTRALIA'S NET BALANCE OF TRADE, Partner Countries — 2000–01



**30.25 AUSTRALIAN MERCHANTISE EXPORTS, Selected Countries — 2000-01**

Source: *International Merchandise Trade, Australia* (5422.0).

**30.26 AUSTRALIAN MERCHANTISE IMPORTS, Selected Countries — 2000-01**

Source: *International Merchandise Trade, Australia* (5422.0).

Tables 30.27 and 30.28 show, respectively, the value of exports to and imports from Australia's top eight trading partners by commodity (SITC Section). The largest value commodity exported to Japan, the Republic of Korea, Singapore and Taiwan was Mineral fuels, lubricants and related materials. About half the exports to China were Crude materials, inedible, except fuels. The largest value commodity exported to the United States of America was Machinery and transport equipment.

The largest value commodity imported from Germany, Japan, the Republic of Korea, United Kingdom and United States of America was Machinery and transport equipment. From China, the largest value commodity was Miscellaneous manufactured articles, and from New Zealand it was Manufactured goods classified chiefly by material.

Table 30.29 shows merchandise exports and imports for the last three financial years, classified by country.

## 30.27 MERCHANTISE EXPORTS, Selected Countries — 2000–01

	China	Japan	Korea, Republic of	New Zealand	Singapore	Taiwan	United Kingdom	United States of America	Total all countries
Commodity (SITC Section)	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Food and live animals(a)	341	4 183	474	604	537	642	219	2 138	20 115
Beverages and tobacco	2	65	5	141	41	3	742	504	1 992
Crude materials, inedible, except fuels(a)	3 441	3 846	1 748	88	53	679	238	418	23 592
Mineral fuels, lubricants and related materials(a)	536	7 084	2 587	692	2 173	1 959	393	1 189	25 211
Animal and vegetable oils, fats and waxes(a)	78	39	8	17	6	31	11	10	300
Chemical and related products, n.e.s.(a)	232	306	215	750	161	217	213	701	5 146
Manufactured goods classified chiefly by material(a)	493	2 350	1 002	1 036	293	1 235	304	1 219	14 011
Machinery and transport equipment(a)	236	461	495	1 935	582	171	416	2 677	13 408
Miscellaneous manufactured articles(a)	98	206	129	908	241	51	227	942	4 455
Commodities and transactions not classified elsewhere in the SITC(b)	1 388	4 938	2 545	699	1 910	882	1 877	1 857	11 372
<b>Total merchandise exports</b>	<b>6 846</b>	<b>23 479</b>	<b>9 209</b>	<b>6 872</b>	<b>5 997</b>	<b>5 871</b>	<b>4 639</b>	<b>11 654</b>	<b>119 602</b>

(a) Excludes export commodities subject to a 'No commodity details' restriction. (b) Includes commodities subject to a 'No commodity details' restriction.

Source: *International Merchandise Trade, Australia* (5422.0).

## 30.28 MERCHANTISE IMPORTS, Selected Countries — 2000–01

	China	Germany	Japan	Korea, Republic of	Malaysia	New Zealand	United Kingdom	United States of America	Total all countries
Commodity (SITC Section)	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Food and live animals(a)	152	55	78	34	86	817	141	438	4 236
Beverages and tobacco	17	10	5	1	2	136	196	182	907
Crude materials, inedible, except fuels(a)	68	28	54	34	94	410	48	280	1 922
Mineral fuels, lubricants and related materials(a)	139	6	114	65	774	389	4	254	10 473
Animal and vegetable oils, fats and waxes(a)	5	10	1	0	78	4	3	5	285
Chemical and related products, n.e.s.(a)	443	1 010	482	247	183	379	1 495	3 778	14 200
Manufactured goods classified chiefly by material(a)	1 531	734	1 229	737	300	996	523	1 637	14 055
Machinery and transport equipment(a)	2 586	3 555	12 270	2 850	2 185	710	2 889	11 785	53 492
Miscellaneous manufactured articles(a)	4 838	586	831	175	378	489	956	3 440	16 804
Commodities and transactions not classified elsewhere in the SITC(b)	103	180	307	566	95	237	67	556	1 889
<b>Total merchandise imports</b>	<b>9 881</b>	<b>6 174</b>	<b>15 371</b>	<b>4 710</b>	<b>4 177</b>	<b>4 565</b>	<b>6 321</b>	<b>22 356</b>	<b>118 264</b>

(a) Excludes import commodities subject to a 'No commodity details' restriction. (b) Includes commodities subject to a 'No commodity details' restriction.

Source: *International Merchandise Trade, Australia* (5422.0).

**30.29 MERCHANTISE EXPORTS AND IMPORTS, By Country**

	Exports			Imports		
	1998–99	1999–2000	2000–01	1998–99	1999–2000	2000–01
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Asia Pacific Economic Cooperation (APEC)</b>						
Australia (Re-imports)	..	..	..	333	463	448
Brunei Darussalam	49	40	44	11	211	351
Canada	1 274	1 175	1 768	1 547	1 848	1 866
Chile	212	129	132	68	61	79
China	3 948	4 966	6 846	6 106	7 515	9 881
Hong Kong (SAR of China)	3 071	3 211	3 904	1 228	1 280	1 367
Indonesia	2 199	2 408	3 119	3 275	2 701	3 277
Japan	16 566	18 822	23 479	13 587	14 110	15 371
Korea, Republic of	6 320	7 615	9 209	3 894	4 311	4 710
Malaysia	1 859	2 141	2 506	2 845	3 765	4 177
Mexico	314	254	368	365	382	583
New Zealand	5 838	6 739	6 872	3 950	4 372	4 565
Papua New Guinea	1 014	927	1 050	781	1 353	1 457
Peru	55	42	60	20	36	76
Philippines	1 207	1 304	1 495	405	457	513
Russian Federation	170	193	264	23	23	27
Singapore	3 417	4 855	5 997	2 944	4 359	3 898
Taiwan	4 203	4 696	5 871	2 978	3 244	3 327
Thailand	1 306	1 703	2 219	1 902	2 422	2 780
United States of America	7 984	9 602	11 654	20 893	23 135	22 356
Viet Nam	349	385	499	972	1 726	2 431
<i>Total</i>	61 355	71 210	87 353	68 128	77 773	83 540
<b>European Union (EU)</b>						
Austria	44	51	56	474	484	542
Belgium-Luxembourg	1 085	1 089	1 003	662	737	828
Denmark	77	140	108	459	542	535
Finland	191	371	477	601	668	721
France	914	871	1 079	2 202	2 228	2 478
Germany	1 409	1 245	1 490	6 082	5 791	6 174
Greece	55	102	161	101	97	109
Ireland	174	134	178	1 000	937	1 140
Italy	1 564	1 575	2 100	2 916	3 043	3 259
Netherlands	866	1 378	1 738	917	990	907
Portugal	54	41	34	141	168	162
Spain	562	714	713	653	659	710
Sweden	160	169	187	1 575	1 646	1 624
United Kingdom	4 473	4 158	4 639	5 545	6 350	6 321
<i>Total</i>	11 629	12 039	13 963	23 327	24 340	25 509
<b>Other countries</b>						
Algeria	58	49	67	..	5	1
Angola	2	2	4	..	..	..
Argentina	123	96	106	86	73	130
Bahamas	4	5	10	10	11	3
Bahrain(a)	75	69	102	25	58	29
Bangladesh	289	296	368	43	54	56
Barbados	5	7	8	1	..	1
Bolivia	1	1	1	2	3	1
Bosnia and Herzegovina	3	3	5	1	1	5
Brazil	447	470	546	342	441	647
Bulgaria	26	3	4	7	6	7
Cambodia	14	11	9	1	2	3
Christmas Island	13	17	16	9	9	7
Cocos (Keeling) Island	4	5	11	..	..	..
Colombia	19	26	29	19	18	18
Cook Islands	6	5	6	2	3	4

For footnotes see end of table.

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30.29 MERCHANTISE EXPORTS AND IMPORTS, By Country — *continued*

	Exports			Imports		
	1998–99	1999–2000	2000–01	1998–99	1999–2000	2000–01
				\$m	\$m	\$m
Other countries — (continued)						
Costa Rica	3	5	5	27	21	20
Cote d'Ivoire	1	7	2	13	11	12
Croatia	6	2	6	8	10	8
Cuba	3	2	6	4	5	6
Cyprus	14	12	15	3	4	5
Czech Republic	53	58	95	67	67	74
Dominican Republic	16	11	19	3	3	4
Ecuador	9	3	13	3	3	3
Egypt(a)	588	504	600	11	16	14
El Salvador	8	6	16	1	1	1
Ethiopia	20	7	12	2	2	2
Fiji	556	591	642	349	356	254
French Polynesia	102	172	242	8	6	4
Ghana	56	57	65	7	6	4
Guam	18	19	19	..	..	..
Guatemala	19	9	9	4	3	3
Honduras	6	2	7	1	1	3
Hungary	7	7	21	66	78	96
Iceland(a)	4	3	2	3	3	4
India	1 837	1 588	2 086	666	714	754
Iran	450	410	755	27	29	27
Iraq	267	456	734	143	74	96
Israel	159	192	248	386	442	441
Jamaica	19	46	32	1	1	2
Jordan	88	86	104	26	12	7
Kazakhstan	1	2	10	1	1	3
Kenya	78	54	102	21	16	18
Kiribati	28	27	33	1	..	..
Kuwait	274	299	402	54	106	163
Laos	4	2	14	..	1	1
Latvia	8	8	7	1	2	2
Lebanon	40	57	31	7	7	5
Libya	58	33	35	..	..	..
Lithuania	9	3	2	1	3	3
Macau (SAR of China)	15	16	32	7	7	7
Madagascar	7	4	9	1	1	3
Malawi	2	1	3	6	7	9
Maldives	6	7	15	..	..	..
Malta	13	13	14	4	5	6
Marianas, Northern	3	2	3	..	..	..
Marshall Islands	6	6	6	..	..	..
Mauritius	106	109	130	2	3	8
Micronesia, Federated States of	16	14	20	..	..	..
Morocco	29	13	58	26	27	33
Mozambique	21	36	164	..	..	..
Myanmar	13	17	21	12	17	19
Namibia	5	58	6	8	8	8
Nauru	17	23	26	6	7	9
Nepal	15	6	11	1	3	3
Netherlands Antilles	67	5	4	1	..	1
New Caledonia	184	200	243	46	48	51
Nigeria	14	19	25	12	61	..
Norfolk Island	17	18	19	1	1	..
Norway	159	111	128	206	149	214
Oman	131	203	179	16	86	26

For footnotes see end of table.

...continued

## 30.29 MERCHANTISE EXPORTS AND IMPORTS, By Country — continued

	Exports			Imports		
	1998–99	1999–2000	2000–01	1998–99	1999–2000	2000–01
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Other countries — (continued)</b>						
Pakistan	475	532	403	162	156	203
Palau	1	2	1	..	..	..
Panama	2	20	7	..	..	4
Poland	22	20	22	35	38	38
Puerto Rico	7	6	20	124	192	120
Qatar	67	68	98	74	170	211
Reunion	7	9	11	..	..	..
Romania	78	62	70	9	9	10
Samoa	31	42	58	56	58	76
Samoa (American)	14	45	102	4	3	4
Saudi Arabia	1 060	1 334	2 196	532	1 002	1 613
Seychelles	7	5	5	..	..	..
Slovak Republic	4	6	9	8	6	17
Slovenia	12	11	9	35	33	47
Solomon Islands	98	83	52	4	4	4
South Africa	944	1 039	1 296	537	749	877
Sri Lanka	242	221	345	75	76	87
Sudan	50	67	116	..	46	..
Switzerland	443	319	268	1 092	1 279	1 171
Syria	14	16	19	1	1	1
Tanzania	70	84	120	5	5	7
Tonga	17	16	15	1	1	1
Trinidad and Tobago	29	35	38	1	1	2
Tunisia	15	5	5	16	3	3
Turkey	349	231	309	114	134	152
Uganda	2	6	5	6	15	13
Ukraine	9	31	50	8	7	3
United Arab Emirates	835	872	1 162	201	401	1 114
United States Virgin Islands	1	1	..	1	1	2
Uruguay	11	11	15	6	4	7
Vanuatu	49	53	52	1	1	2
Venezuela	15	14	12	2	1	2
Wallis & Futuna Islands	8	7	6	..	..	..
Yemen	119	131	146	42	67	..
Zimbabwe	15	9	8	12	16	22
Zone of Co-op A — Timor Gap	25	28	17	41	64	..
Other countries	3 008	4 068	5 701	1 164	2 366	2 759
Destination or Origin Unknown	1	2	8	61	219	22
International Waters	125	626	595	..	..	..
No country details(a)(b)	412	440	710	..	..	..
Ships' stores	467	735	984	..	..	..
<b>Total</b>	<b>13 007</b>	<b>14 037</b>	<b>18 286</b>	<b>6 156</b>	<b>7 965</b>	<b>9 215</b>
<b>Total</b>	<b>85 991</b>	<b>97 286</b>	<b>119 602</b>	<b>97 611</b>	<b>110 078</b>	<b>118 264</b>

(a) Exports of alumina to Bahrain, Egypt and Iceland are excluded from country totals and included in the 'No country details' category. (b) Includes some exports for June 2001 which cannot yet be allocated by country.

Source: International Merchandise Trade, Australia (5422.0).

## Merchandise exports and imports by industry of origin

Table 30.30 shows Australia's merchandise trade statistics classified according to the *Australian and New Zealand Standard Industrial Classification (ANZSIC)*. The statistics are compiled by allocating international trade data for a commodity to an ANZSIC industry of origin category, based upon the industry which predominantly produces that commodity in Australia as defined by the ANZSIC.

The majority of exports were classified to Manufacturing, \$68,973m (58% of total exports) and Mining, \$31,942m (27% of total exports).

Exports increased in most ANZSIC subdivisions during 2000–01. The largest increases were in Oil and gas extraction, up \$3,635m (49%) to \$11,114m; Food, beverage and tobacco manufacturing, up \$3,209m (24%) to \$16,539m; Metal product manufacturing, up \$2,736m (15%) to \$21,027m; and Coal mining, up \$2,502m (30%) to \$10,829m.

The majority of imports were classified to Manufacturing, \$108,324m (92% of total imports).

Imports showed large increases during 2000–01 in Petroleum, coal, chemical and associated product manufacturing, up \$2,485m (15%) to \$19,291m; Machinery and equipment manufacturing, up \$2,453m (4%) to \$58,675m; and Oil and gas extraction, up \$2,337m (39%) to \$8,369m.

**30.30 MERCHANDISE EXPORTS AND IMPORTS, By Industry of Origin**

Industry of Origin	Exports			Imports		
	1998–99	1999–2000	2000–01	1998–99	1999–2000	2000–01
Agriculture, forestry, fishing & hunting	\$m	\$m	\$m	\$m	\$m	\$m
Agriculture	7 670	8 136	9 200	708	706	606
Services to agriculture; hunting and trapping	1 661	1 540	2 106	9	11	6
Forestry and logging	60	80	77	5	5	6
Commercial fishing	629	791	884	92	247	213
<i>Total</i>	10 019	10 547	12 267	814	969	831
Mining						
Coal mining	9 271	8 326	10 829	19	11	7
Oil and gas extraction	3 327	7 479	11 114	3 673	6 032	8 369
Metal ore mining	7 375	7 536	9 729	100	148	204
Other mining	198	237	270	173	153	180
<i>Total</i>	20 171	23 578	31 942	3 964	6 344	8 760
Manufacturing						
Food, beverage and tobacco	11 772	13 330	16 539	4 231	4 519	5 090
Textile, clothing, footwear and leather	2 540	2 588	2 926	6 353	6 852	7 394
Wood and paper products	1 184	1 401	1 633	3 018	3 546	3 578
Printing, publishing and recorded media	490	487	542	2 137	2 022	1 917
Petroleum, coal, chemical and associated products	5 584	6 881	8 898	14 973	16 806	19 291
Non-metallic mineral products	303	315	378	1 297	1 412	1 401
Metal products	17 262	18 291	21 027	7 650	7 906	7 445
Machinery and equipment	12 191	13 904	16 146	49 977	56 222	58 675
Other manufacturing	746	785	883	2 802	3 097	3 534
<i>Total</i>	52 073	57 982	68 973	92 437	102 382	108 324
Other(a)(b)	3 729	5 179	6 421	396	382	349
<b>Total</b>	<b>85 991</b>	<b>97 286</b>	<b>119 602</b>	<b>97 611</b>	<b>110 078</b>	<b>118 264</b>

(a) Includes some exports for June 2001 which cannot yet be allocated by industry of origin. (b) Includes commodities subject to a confidentiality restriction.

Source: International Merchandise Trade, Australia (5422.0).

## Merchandise exports and imports by mode of transport

In 2000–01, the predominant mode of transport for Australia's exports (table 30.31) was sea transport, with \$98,705m or 83% of total exports by value. Air transport accounted for \$20,750m or 17%, and parcel post \$147m or 0.1%. Australia exported 498.3 million tonnes of merchandise, the vast majority of which by weight was transported by sea (496.5 million tonnes).

The largest contributors to export values by sea transport were Mineral fuels, lubricants and related materials, \$24,450m (25% of total exports by sea); Crude materials, inedible, except fuels, \$23,451m (24%); Food and live animals, \$18,563m (19%); and Manufactured goods classified chiefly by material, \$12,738m (13%).

The largest contributors to export values by air transport were Commodities and transactions not classified elsewhere in the SITC, \$7,266m (35% of exports by air); Machinery and transport equipment, \$4,885m (24%); and Miscellaneous manufactured articles, \$2,741m (13%).

In 2000–01, the predominant mode of transport for Australia's imports (table 30.32) was also sea transport, with \$82,433m or 70% of total imports by value. Air transport accounted for \$35,749m or 30%, and parcel post \$82m or 0.1%. Australia imported 54.3 million tonnes of merchandise, considerably less than the tonnage of exports. Sea transport accounted for almost all of merchandise imports by weight (54.1 million tonnes).

The largest contributors to import values by sea transport were Machinery and transport equipment, \$33,452m (41% of imports by sea); Manufactured goods classified chiefly by material, \$12,240m (15%); Mineral fuels, lubricants and related materials, \$10,471m (13%); and Miscellaneous manufactured articles, \$10,391m (13%).

The largest contributors to import values by air transport were Machinery and transport equipment, \$20,022m (56% of imports by air); Miscellaneous manufactured articles, \$6,372m (18%); and Chemicals and related products, \$5,532m (15%).

**30.31 MERCHANDISE EXPORTS, By Mode of Transport — 2000–01**

Commodity	Air		Sea		Parcel post		Total \$m
	\$m	% <sup>(a)</sup>	\$m	% <sup>(a)</sup>	\$m	% <sup>(a)</sup>	
Food and live animals(b)	1 552	7.7	18 563	92.3	—	—	20 115
Beverages and tobacco	19	1.0	1 973	99.0	—	—	1 992
Crude materials, inedible, except fuels(b)	139	0.6	23 451	99.4	1	—	23 592
Mineral fuels, lubricants and related materials	761	3.0	24 450	97.0	—	—	25 211
Animal and vegetable oils, fats and waxes(b)	3	1.0	296	98.7	—	—	300
Chemical and related products, n.e.s.(b)	2 207	42.9	2 939	57.1	—	—	5 146
Manufactured goods classified chiefly by material(b)	1 177	8.4	12 738	90.9	97	0.7	14 011
Machinery and transport equipment(b)	4 885	36.4	8 520	63.5	3	—	13 408
Miscellaneous manufactured articles(b)	2 741	61.5	1 671	37.5	42	0.9	4 455
Commodities and transactions not classified elsewhere in the SITC(c)	7 266	63.9	4 103	36.1	3	—	11 372
<b>Total merchandise exports</b>	<b>20 750</b>	<b>17.3</b>	<b>98 705</b>	<b>82.5</b>	<b>147</b>	<b>0.1</b>	<b>119 602</b>

(a) Percentage of total commodity (SITC Section). (b) Excludes export commodities subject to a confidentiality restriction.

(c) Includes export commodities subject to a confidentiality restriction.

Source: *International Merchandise Trade, Australia* (5422.0).

**30.32 MERCHANTISE IMPORTS, By Mode of Transport — 2000–01**

Commodity	Air		Sea		Parcel post		Total \$m
	\$m	% <sup>(a)</sup>	\$m	% <sup>(a)</sup>	\$m	% <sup>(a)</sup>	
Food and live animals	182	4.3	4 053	95.7	—	—	4 236
Beverages and tobacco	16	1.8	891	98.2	—	—	907
Crude materials, inedible, except fuels <sup>(b)</sup>	86	4.5	1 835	95.5	1	0.1	1 922
Mineral fuels, lubricants and related materials <sup>(b)</sup>	1	—	10 471	100.0	—	—	10 473
Animal and vegetable oils, fats and waxes	3	1.1	283	99.3	—	—	—
Chemical and related products, n.e.s. <sup>(b)</sup>	5 532	39.0	8 666	61.0	2	—	14 200
Manufactured goods classified chiefly by material <sup>(b)</sup>	1 798	12.8	12 240	87.1	17	0.1	14 055
Machinery and transport equipment <sup>(b)</sup>	20 022	37.4	33 452	62.5	19	—	53 492
Miscellaneous manufactured articles <sup>(b)</sup>	6 372	37.9	10 391	61.8	42	0.2	16 804
Commodities and transactions not classified elsewhere in the SITC <sup>(c)</sup>	1 737	92.0	151	8.0	1	0.1	1 889
<b>Total merchandise imports</b>	<b>35 749</b>	<b>30.2</b>	<b>82 433</b>	<b>69.7</b>	<b>82</b>	<b>0.1</b>	<b>118 264</b>

(a) Percentage of total commodity (SITC Section). (b) Excludes import commodities subject to a confidentiality restriction.

(c) Includes import commodities subject to a confidentiality restriction.

Source: *International Merchandise Trade, Australia* (5422.0).

## Export price index

The export price index (all groups) increased by 17% in 2000–01 (table 30.33), with all commodity groups contributing to the increase. The largest increases were in Mineral fuels, lubricants and related materials (28%), Chemicals and related products, n.e.s. (17%), Crude materials, inedible, except fuels (16%), Manufactured goods classified chiefly by materials (16%), and Food and live animals (15%).

Between 1995–96 and 2000–01 the all groups index increased by 19%. The major contributors were Mineral fuels, lubricants and related materials (51%), Chemicals and related products, n.e.s. (32%), Beverages and tobacco (27%), and Manufactured goods classified chiefly by materials (20%).

## Import price index

The import price index (all groups) increased by 12% in 2000–01 (table 30.34), due largely to the effects of exchange rate movements, coupled with large increases in the import price of Mineral fuels, lubricants and other related materials (39%).

Between 1995–96 and 2000–01 the all groups index increased by 17%. The major contributors to the increase were Mineral fuels, lubricants and other related materials (109%) and Miscellaneous manufactured articles (27%).

**30.33 EXPORT PRICE INDEX(a), Index Numbers based on SITC**

Commodity (SITC)	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
Food and live animals	100.3	95.6	99.6	96.6	95.7	109.6
Beverages and tobacco	108.8	112.3	120.2	128.3	131.5	137.8
Crude materials, inedible, except fuels	83.4	81.8	90.3	84.0	82.6	95.7
Mineral fuels, lubricants and related materials	108.0	110.8	121.8	119.7	127.1	162.7
Chemicals and related products, n.e.s.	91.0	88.6	96.0	96.2	102.5	119.9
Manufactured goods classified chiefly by materials	97.4	86.5	93.7	86.8	101.0	116.7
Machinery and transport equipment	99.6	93.4	95.9	97.7	98.8	104.1
Miscellaneous manufactured articles	106.2	103.2	108.2	111.7	112.5	118.4
<b>All groups</b>	<b>96.1</b>	<b>92.4</b>	<b>98.9</b>	<b>95.7</b>	<b>98.0</b>	<b>114.8</b>

(a) Reference year 1989–90 = 100.

Source: *International Trade Price Indexes, Australia* (6457.0).**30.34 IMPORT PRICE INDEX(a), Index Numbers based on SITC**

Commodity (SITC)	1995–96	1996–97	1997–98	1998–99	1999–2000	2000–01
Food and live animals chiefly for food	115.9	112.8	129.0	125.1	116.9	121.4
Beverages and tobacco	109.8	114.3	126.0	130.5	127.0	128.5
Crude materials, inedible, except fuels	125.8	110.2	119.1	119.8	124.9	139.9
Mineral fuels, lubricants and other related materials	89.8	98.1	93.4	84.9	135.4	188.0
Animal and vegetable oils, fats and waxes	170.1	158.8	156.4	178.2	138.5	122.6
Chemicals and related products n.e.s.	115.1	107.5	112.9	114.2	111.0	128.1
Manufactured goods classified chiefly by material	115.7	109.6	116.7	122.6	120.2	131.3
Machinery and transport equipment	117.4	108.5	115.5	121.9	119.4	129.7
Miscellaneous manufactured articles	114.2	111.2	120.3	127.9	126.1	140.0
Commodities and transactions n.e.c.	103.7	93.6	90.5	91.9	89.8	99.6
<b>All groups</b>	<b>115.0</b>	<b>108.6</b>	<b>115.4</b>	<b>119.9</b>	<b>120.2</b>	<b>134.3</b>

(a) Reference year 1989–90 = 100.0.

Source: *International Trade Price Indexes, Australia* (6457.0).

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# Bilateral reconciliation studies of merchandise trade

## Introduction

Bilateral reconciliation studies compare the export and import statistics of one country with the reciprocal import and export statistics of a partner country. This is possible where the statistics are compiled on bases largely consistent with the UN recommendations for the presentation of trade statistics.

If identical concepts and definitions are applied by each country to both imports and exports, and there is no timing difference between the recording of the export by one country and the import by the other, Australian exports should be identical to other countries' imports from Australia, and vice versa. However, there are many reasons why partner country statistics may not fully reconcile; where this occurs, adjustments are applied to compensate for the differences.

The aim of a bilateral reconciliation study is to identify and quantify methodological and other differences between the statistics for the partner countries. At the level of broad aggregates, this can provide a useful indication of the accuracy of the statistics. The ABS has completed bilateral reconciliation studies during the past ten years with the USA, New Zealand, Japan and the European Union (EU).

## Inter-country differences

The main differences identified in these studies relate to:

- *the treatment of re-exports and re-imports* (goods originally imported/exported in one country, which are then exported/imported either in the same condition, or after undergoing repair or minor alterations which leave them essentially unchanged, such as blending, packaging or bottling);

- *timing*, to compensate for the time lag between a shipment departing from one country and arriving in another;
- *coverage*, if Customs entries are not required for low value or other goods;
- *valuation*, where this differs from the 'free on board' (f.o.b.) basis for exports, and the 'cost, insurance and freight' (c.i.f.) basis for imports; and
- *omissions* from one country's statistics.

Other differences can relate to the exchange rates and commodity classifications used, confidentiality restrictions which can affect the availability of the data, and data errors, such as reporting and processing errors.

## Results of the studies

The results of the bilateral reconciliation studies are summarised in table S7.1. The 'initial difference' shown in the table represents the gap between Australia's published exports and imports with the partner country, and the partner country's published imports and exports with Australia.

The 'residual discrepancy' is the remaining difference between the two sets of statistics after all known conceptual and methodological adjustments have been made. Possible reasons for the residual discrepancy include other valuation and timing differences, minor coverage differences, currency conversion practices, incorrect country attribution, and data errors.

**S7.1 SUMMARY OF BILATERAL RECONCILIATION STUDIES, Australia's Merchandise Exports and Imports**

Study	Year	Exports					Imports				
		Australia's merchandise exports \$m	Partner country's merchandise imports \$m	Initial difference %	Residual discrepancy %	Australia's merchandise imports \$m	Partner country's merchandise exports \$m	Initial difference %	Residual discrepancy %		
Australia/ USA	1991	5 369	5 242	-2.4	-4.2	11 897	10 792	-9.3	-2.5		
	1992	5 134	5 078	-1.1	-2.2	12 379	12 221	-1.3	-0.7		
	1993	5 071	4 876	-3.8	-3.9	13 187	12 239	-7.2	-2.5		
	1994	4 651	4 398	-5.4	-6.3	14 839	13 435	-9.5	-4.8		
Australia/ New Zealand	1993	3 691	2 814	-23.8	-6.1	3 035	3 116	2.7	-1.6		
	1994	4 390	3 244	-26.1	-7.7	3 382	3 564	5.4	-1.8		
	1998	5 691	4 120	-27.6	-5.6	3 823	4 018	5.1	-1.1		
Australia/ Japan	1994	15 992	18 794	17.5	-0.1	12 100	11 986	-0.9	0.6		
Australia/ EU	1992	7 711	8 721	13.1	3.1	12 698	12 758	0.5	(a)n.a.		
	1993	7 476	7 159	-4.2	-4.1	13 818	13 649	-1.2	(a)n.a.		
	1994	7 247	7 979	10.1	3.2	16 026	15 671	-2.2	(a)n.a.		
	1995	8 007	8 813	10.1	2.4	19 436	18 610	-4.2	(a)n.a.		
	1996	8 381	8 526	1.7	-3.2	19 482	18 761	-3.7	(a)n.a.		
	1997	8 678	9 570	10.3	-0.4	20 291	20 039	-1.2	(a)n.a.		

(a) The Australia/EU bilateral study was limited to an examination of Australia's exports to the EU and the EU's imports from Australia. The stability and small magnitude of the initial difference between Australia's imports from the EU and the EU's exports to Australia suggests that the data were likely to be relatively accurate.

Source: International Merchandise Trade, Australia (5422.0).

The main findings of the individual studies are set out below.

### United States of America

In each year, Australia's reported exports to the USA exceeded the USA's reported imports from Australia, and the residual discrepancy, after adjustment for explainable differences, was greater than the initial difference. A negative adjustment to take account of Australia's re-exports to the USA, of goods that were originally imported from third countries and the USA, was more than offset by positive adjustments to account for: Australian origin goods imported by the USA from third countries (USA indirect imports); USA re-imports (in the USA's statistics these are included as imports from Australia, but in Australia's statistics they are classified as re-exports); and differences in timing.

Australia's imports from the USA were higher than the USA's exports to Australia, due mainly to the different treatment of low value records (Australia excludes imports valued as less than \$250, while the USA excludes exports valued at

less than \$US2,501), and the inclusion of indirect imports in Australia's statistics. Indirect imports are Australia's imports of goods of USA origin which come from third countries, and are included in Australia's imports of good of USA origin. These goods are not generally included in the USA's exports to Australia, because the USA exported them to another country.

### New Zealand

Australia's exports to New Zealand were higher than New Zealand's imports from Australia in the three years studied. The main cause of the discrepancy was the inclusion, in Australia's export statistics, of goods originally produced in third countries (re-exports), which were not included in New Zealand's imports of goods of Australian origin. Similarly, the inclusion of re-exports in New Zealand exports to Australia contributed the most significant difference in the comparison between Australia's imports and New Zealand's exports.

## Japan

The main reason for the large initial difference between Australia's exports to Japan and Japan's imports from Australia was the basis of valuation. Australian exports are valued on a f.o.b. basis, while Japanese imports are valued on a c.i.f. basis. Adjustments to allow for this difference in valuation resulted in a minor residual discrepancy, indicating that the statistics between the partner countries were broadly comparable.

There were three main adjustments required to reconcile Australia's imports and Japan's exports. Japan's exports were adjusted to exclude re-exports, which were not included in Australia's imports from Japan. Adjustments were also applied for indirect imports of goods of Japanese origin in Australia's statistics, and for the treatment of low value trade.

## European Union

The basis of valuation was the main cause of the discrepancy between Australia's exports to the EU and EU imports from Australia. Australia's exports are valued on a f.o.b. basis, while EU imports are valued on a c.i.f. basis. However, after adjusting for the known differences, including re-exports and re-imports, the residual discrepancies were comparatively small. As the initial difference between Australia's imports from the EU and EU exports to Australia was relatively small over the period studied, further investigation was not a priority.

## Conclusion

The bilateral reconciliation studies have demonstrated that the main reasons for differences in the international merchandise trade statistics of Australia and its major trading partners were the conceptual and methodological factors underlying the compilation of the data. Actual data errors in the compilation process proved to be relatively insignificant in comparison.

The adjustments do not represent revisions to the official published statistics of either country, nor do they imply in general, errors in either country's published statistics.

The magnitude of the residual discrepancies encourages a reasonable level of confidence in the accuracy of Australia's international merchandise trade statistics (and those of the partner country), at least at the aggregate level. More detail on these bilateral reconciliation studies can be found in various issues of the quarterly publication *International Merchandise Trade, Australia* (5422.0) or on the ABS Internet site at <http://www.abs.gov.au> (by going to *Themes, International Trade*).



# List of Special Articles contained in previous issues

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