



# Australia's Service Sector: A Study in Diversity

Staff  
Research Paper

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# Abbreviations

ABS	Australian Bureau of Statistics
ACIRRT	Australian Centre for Industrial Relations Research and Training
ANZSIC	Australian and New Zealand Standard Industrial Classification
BIE	Bureau of Industry Economics
CoPs	Centre of Policy Studies
EPAC	Economic Planning Advisory Commission
EU	European Union
FDI	Foreign direct investment
GATS	General Agreement on Trade in Services
GDP	gross domestic product
IAC	Industries Assistance Commission
IC	Industry Commission
ICOP	International Comparisons of Output and Productivity
ICT	information and communication technologies
IMF	International Monetary Fund
ISIC	International Standard Industrial Classification
IT	information technology
OECD	Organisation for Economic Co-operation and Development
PC	Productivity Commission
PPPs	purchasing power parities
RBA	Reserve Bank of Australia
R&D	research and development
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organization



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# OVERVIEW

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## Key messages

- The service sector dominates economic activity in Australia, accounting for more than three-quarters of the economy's output and for four out of every five jobs. Virtually all industries rely on essential inputs provided by this sector.
- But the sector is not well understood. There are many myths surrounding services.
- Service jobs are often viewed as being poorly paid, low-skilled, mainly part-time or concentrated in urban areas. The reality is different.
  - Full-time service sector jobs are more highly paid than full-time jobs in the goods sector. Jobs in electricity, gas and water and finance and insurance are the highest paid service jobs, while the lowest paid are in retail trade and accommodation, cafes and restaurants.
  - The skills of service sector workers also compare favourably — 59 per cent of service sector employees work in high-skilled occupations compared with 55 per cent for the goods sector. Moreover, 54 per cent of service workers have post-secondary education qualifications compared with 47 per cent for the goods sector.
  - Over 70 per cent of service jobs are full-time. Indeed, since the mid 1980s, all the new (net) full-time jobs have been in services. However, a service worker is twice as likely to be part-time as a goods sector worker.
  - Just over 30 per cent of all service sector workers are employed in non-metropolitan regions. Over the past 15 years, service sector jobs have grown slightly faster in these regions than in metropolitan regions.
- Another myth is that services are non-tradeable. In fact, services are the fastest growing component of international trade. Trade in services is far broader than cross-border exchanges (that is, the way goods are mainly traded). It can involve the establishment of a commercial presence abroad, the movement of consumers (for example, tourism), or the temporary movement of workers (for example, consulting services).
- Services are commonly viewed as 'productivity laggards'. Australia's two outstanding performers, in terms of multifactor productivity growth over the period 1984-85 to 1999-00, were service industries — communications and electricity, gas and water. Other service industries, however, such as construction, cultural and recreational services, accommodation, cafes and restaurants, recorded relatively slow multifactor productivity growth.
- International comparisons of recent service productivity levels (based on preliminary data for the mid to late 1990s), suggest that there is scope for further productivity gains in some of Australia's service industries.

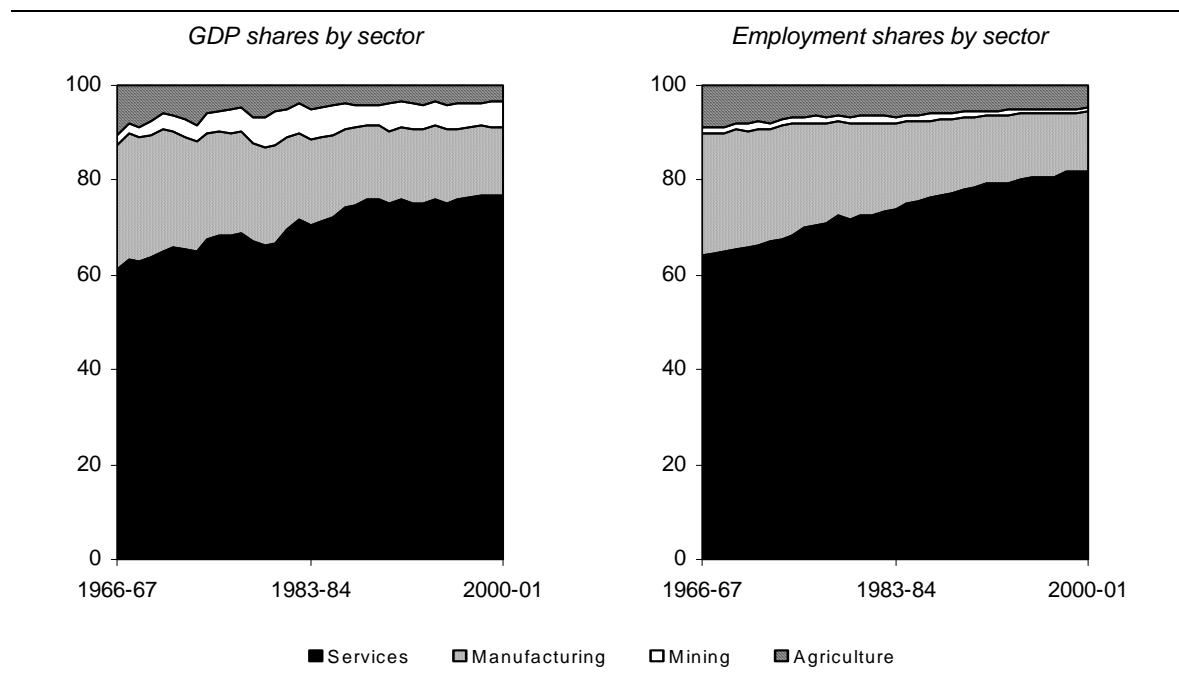
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# Overview

Services dominate economic activity in Australia. They account for more than three-quarters of national output and for four out of every five jobs (figure 1). Services also provide essential inputs, such as energy, communications and transport, into nearly everything that Australia produces.

Over the past few decades, service output and employment growth has outpaced that for the economy as a whole, so the relative importance of the sector has increased (figure 1). A snapshot of Australia's service sector is presented in box 1.

Figure 1. **Growth in service output and employment, 1966-67 to 2000-01**  
Per cent



Data source: RBA (1996), EconData (2001)

Services are also an important and growing part of the global economy, accounting for the dominant share of output and employment in most industrialised countries. Growth of services has outpaced overall economic growth in the OECD area for a number of decades, a trend that is predicted to continue.

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But despite its dominance, the sector is not well understood. Indeed, it has been described as the ‘Cinderella sector’ — largely because it has not attracted the research or policy attention given to agriculture and manufacturing.

**Box 1 A snapshot of Australia’s service sector**

Over the past four decades, the share of GDP accounted for by services increased by 17 percentage points, from 59 to 76 per cent. Growth in the sector’s share of employment has been even stronger — increasing by almost 20 percentage points from the mid 1960s.

- The **largest service industry**, in terms of output, is *property and business services*. In 2000-01, it accounted for 14 per cent of the economy’s output (roughly the same size as the manufacturing sector). The **smallest** was *cultural and recreational services*, accounting for 2 per cent of the economy’s output.
- The **biggest service employer**, and the economy’s largest employer, is *retail trade*. It accounted for 1.3 million or 15 per cent of the economy’s jobs in 2000-01. Other large service sector employers include *property and business services* (around 12 per cent of total employment), *health and community services* (10 per cent) and *construction* (8 per cent). *Electricity, gas and water* was the **smallest service employer**, accounting for less than 1 per cent of the economy’s jobs.
- The service sector’s **biggest export earner** was *travel services* (including business, education and tourism-related travel services). It accounted for just over 10 per cent of Australian exports in 2000-01.

Over the period 1974-75 to 2000-01, service sector output grew (in real terms) at a trend annual rate of 3.6 per cent (this compares with 2.3 per cent for agriculture, 5.0 per cent for mining and 1.7 per cent for manufacturing). All service industries grew over this period, although there was considerable variation in growth rates.

- The **fastest growing service industry** in terms of output was *communications*. It has grown at a trend annual rate of 8.4 per cent since the mid-1970s. This is almost four times faster than the **slowest growing service industry** — *construction* — although this industry displays marked inter-year variation in output growth.
- *Property and business services* exhibited the highest employment growth — 5.8 per cent a year since 1984-85, or around 663 000 new jobs. In contrast, *electricity, gas and water* registered a **decline** of around 5.4 per cent a year since 1984-85 — a loss of around 71 000 jobs.

Service output is expected to grow over the next 5-10 years at a rate similar to that experienced in recent decades. The high growth industries are expected to continue to include *communications, property and business services, finance and insurance, transport and storage*.

Sources: EconData (2001), ABS Cat. no’s. 5209.0, 6203.0, 5204.0, 5206.0, Access Economics (2001b), Centre of Policy Studies, Monash University.

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A poor appreciation of the diverse range of activities that make up the sector underlies a number of myths and misperceptions about the nature of service jobs, trade in services, the ‘value’ of services and the contribution of services to living standards and productivity improvements. It is important that public debate about the role of services in the economy is based on facts.

## **Services — what are they?**

There is no widely accepted definition of services, nor agreement on how they should be classified. In large part, this is because they are highly heterogeneous.

The traditional, and simplest way, of describing services is to define them by what they are not. In this context, services are commonly described as the *residual* sector — all those activities that aren’t agriculture, mining or manufacturing. But, this does not tell us anything about what services are.

Indeed, this description may have contributed to some of the negative perceptions about the value of services. In this context, Riddle (1986, p. 5), refers to:

... the unintended implication that services are not important in their own right, but only in relation to the extractive and manufacturing processes.

In addition, the term ‘residual’ has another more misleading implication — that of size. A ‘residual’ is usually thought of as that little bit which is left over. Nothing could be further from the truth in the case of the service sector.

An alternative way of defining services is to look for common features or ‘peculiarities’ that make them different from goods or other types of economic activities. Frequently cited distinguishing features include — their intangible or immaterial nature, the need for direct interaction between producers and consumers, nonstorability and non-transferability.

Many services share these features. But, there are also many exceptions. Some services, for example, have tangible outputs — photographers produce photographs. And, information and communication technologies now permit many services to be performed without the need for personal contact between customers and suppliers, for example, internet banking. Information based services are also becoming increasingly transferable — software programs, for instance, can be boxed and stored.

Because of the form in which economic data is collected, the commonly adopted definition of services is a residual one. For the purpose of this study, the service sector is defined as everything except agriculture, mining and manufacturing.

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Nevertheless, because there is such a diverse range of services, it is necessary to disaggregate them in order to trace through and analyse changes within the sector. While the traditional industry-based classification provides a starting point, alternative classifications can be useful tools for providing insights into key trends and developments within this sector. This report uses five sub-groups of service activities to analyse changes in service output and employment. They are:

- Distribution services — wholesale and retail trade, transport and storage, and communications;
- Social services — health and community services, education, and government administration and defence;
- Producer services — property and business services and finance and insurance;
- Personal services — accommodation, cafes and restaurants, personal and other services and cultural and recreational services; and
- Utilities and construction services — electricity, gas and water, and construction.

### **Dispelling some myths about service jobs**

The growth in service jobs has sparked concerns about the implications for the nature and quality of employment opportunities across the economy. It is not uncommon, for example, for service jobs to be viewed as being poorly paid, low-skilled, mainly part-time and/or concentrated in urban areas. A common perception is that the service sector largely employs ‘hairdressers’ and ‘pizza deliverers’. Indeed, the debate about the implications of the growth of service jobs is often couched in terms of a shift away from ‘good’ to ‘bad’ jobs.

#### *Myth: Service sector jobs are poorly paid*

In reality, service sector jobs are more highly paid than jobs in the goods sector (that is, jobs in agriculture, mining and manufacturing). In 2000, average full-time earnings in the service sector were around 4 per cent, or \$33 per week, higher than average earnings in the goods sector (table 1).

Average earnings do, however, vary significantly among service industries. But, service jobs are neither the highest nor the lowest paid — in 2000, the mining sector recorded the highest full-time average weekly earnings, while agriculture recorded the lowest.

Table 1 **Comparison of average full-time weekly earnings<sup>a</sup> by industry, August 2000**  
Current prices

	<i>\$ per week</i>	<i>% of national average wage</i>
<b>Distribution services</b>	<b>735</b>	<b>92</b>
Retail trade	583	73
Wholesale trade	770	96
Transport and storage	892	111
Communications	922	115
<b>Social services</b>	<b>813</b>	<b>101</b>
Health and community services	740	92
Education	858	107
Government admin & defence	854	107
<b>Producer services</b>	<b>939</b>	<b>117</b>
Property and business services	916	114
Finance and insurance	999	125
<b>Personal services</b>	<b>709</b>	<b>88</b>
Accom., cafes & restaurants	590	74
Personal and other services	737	92
Cultural & recreational services	865	108
<b>Utilities and construction services</b>	<b>836</b>	<b>104</b>
Electricity, gas and water	1003	125
Construction	809	101
<b>Services total</b>	<b>807</b>	<b>101</b>
Agriculture	563	70
Mining	1263	158
Manufacturing	767	96
<b>Goods total</b>	<b>774</b>	<b>97</b>
<b>Total economy</b>	<b>801</b>	<b>100</b>

<sup>a</sup> Weekly earnings from wage and salary jobs.

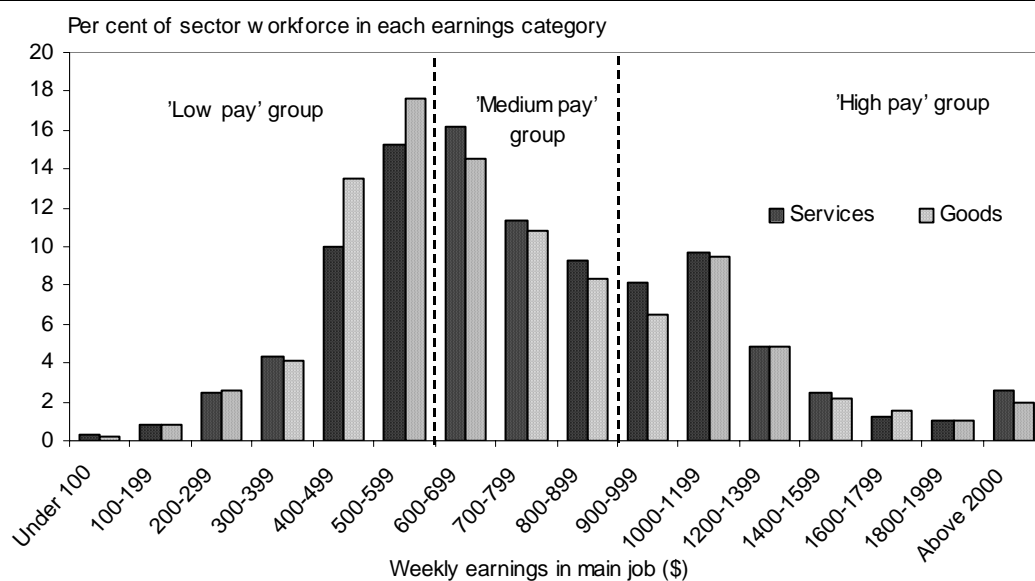
Source: ABS Cat. no. 6310.0.

Jobs in the electricity, gas and water and finance and insurance industries are the highest paid service jobs (25 per cent or around \$200 a week higher than the national average in 2000). Other highly paid service jobs include those in communications, property and business services, and transport and storage. The lowest paid service jobs are in retail trade and accommodation, cafes and restaurants (earning about 75 per cent of the national average).

Although there are some service industries with a high proportion of relatively low paid employees (for example, retail trade and accommodation, cafes and restaurants), the likelihood of a service sector worker earning a low income is considerably below that for the goods sector.

More specifically, in 2000, 33 per cent of all full-time service sector employees earned less than \$600 per week, compared with 39 per cent for full-time employees in the goods sector (figure 2). Service sector employees were more likely to fall into the ‘medium pay’ (\$600 to \$899 per week) and ‘high pay’ (above \$900 per week) brackets than were employees in the goods sector.

**Figure 2 Distribution of services and goods sector full-time employees by earnings category, August 2000**  
Current prices



Data source: ABS Cat. no. 6310.0.

For a broadly similar number of hours worked, the average part-time worker in the service sector, however, earned around 9 per cent less than their counterpart in the goods sector in 2000. The lower earnings for part-time service workers reflects the fact that a large proportion of these workers are employed in relatively low-pay industries such as retail trade and accommodation, cafes and restaurants.

### *Myth: Service sector jobs are low-skilled*

While there is no single measure for determining skill levels, proxies based on educational attainment and occupational classification are commonly used. Data on these proxies show that service sector jobs cannot be characterised as being low-skilled.

In 2000, 54 per cent of service sector workers had post-secondary education qualifications, compared with 47 per cent for the goods sector. On average, a service worker is twice as likely as a goods sector worker to hold a bachelor degree



or higher. By contrast, vocational qualifications are more prevalent in the goods sector.

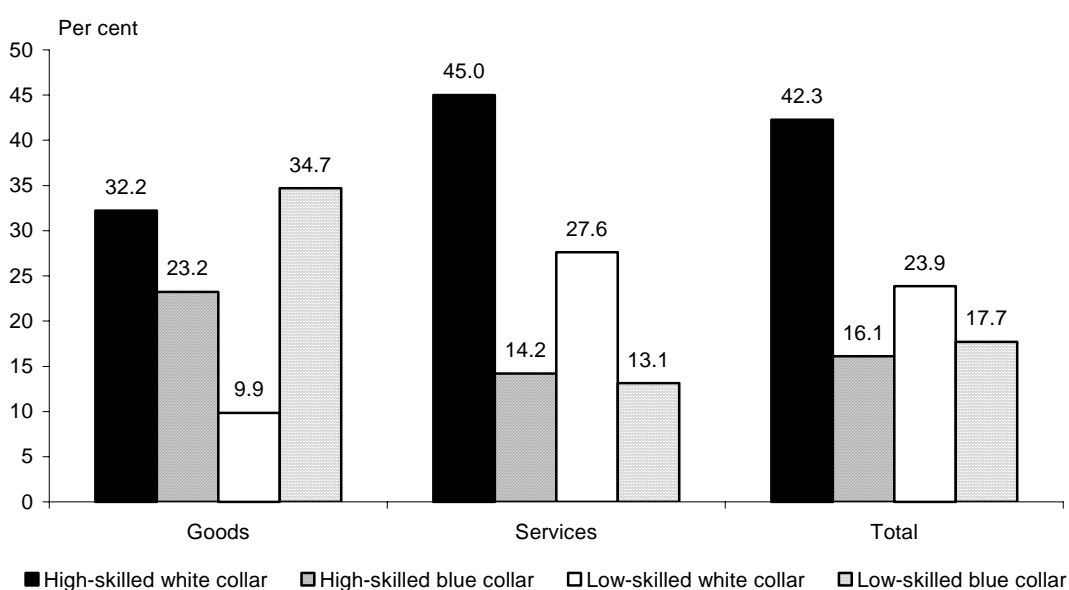
There are, however, considerable variations in the education profiles of the various service industry groups. Social and producer services have the highest proportions of degree holders (42 and 31 per cent, respectively), while distribution services and utilities and construction have the lowest shares (9 and 6 per cent, respectively).

Around 80 per cent of Australia's high-skilled employees — including high-skilled white collar (professionals, managers, etc) and high-skilled blue collar (tradespeople) — work in service industries. Service jobs account for 84 per cent of all high-skilled white collar employment and 69 per cent of high-skilled blue employment.

Sector shares convey a similar message. In 2000-01, 59 per cent of service sector employees worked in high-skilled occupations, compared with 55 per cent for the goods sector.

However, the composition of high-skilled employment varied markedly between sectors. Over three-quarters of high-skilled service employees worked in so-called white collar occupations, compared with less than 60 per cent for the goods sector. Similarly, over two-thirds of low-skilled service employees worked in white collar occupations. In contrast, over three-quarters of low-skilled goods sector employees worked in blue collar occupations (figure 3).

**Figure 3 Occupational skill composition by sector, 2001<sup>a</sup>**



<sup>a</sup> Data relate to number of *employees* only —and hence exclude employers and own account workers.

Data source: Estimates based on ABS Ausstats (2001), supplementary tables.

---

It is notable that the service sector accounted for all the net growth in high-skilled jobs in Australia between 1986 and 2001. Within the sector, the number of these jobs increased by just over 40 per cent, or by almost 900 000 jobs. Over the same period, high-skilled goods sector employment fell by 13 000.

On the other hand, the majority of low-skilled employees also worked in services (91 per cent of low-skilled white collar employees and 58 per cent of low-skilled blue collar employees in 2001). Services were also responsible for all of the net growth in low-skilled employment over the period, although this increase (150 000 employees) was substantially less than the 900 000 high-skilled jobs created in the sector.

In summary, while there are some lower skilled jobs in all service industries, overall, a service sector employee is ‘somewhat more likely’ to be highly skilled than is a goods sector employee. And, the service sector has been the major source of growth in high-skilled jobs in Australia since the mid-1980s.

*Myth: Service jobs are mainly part-time or casual*

The service sector has been a major contributor to the rising incidence of part-time and casual employment in Australia. Almost half of all new jobs created in Australia since the mid 1980s have been part-time, and 95 per cent of these have been in the service sector. In 2000-01, a service sector worker was twice as likely to be part-time as a goods sector worker (29.4 per cent of service employment compared with 13.5 per cent of goods sector employment).

These figures, however, need to be put into perspective. The majority of service sector workers — over 70 per cent — are full-time, and, all the net growth in full-time jobs in the economy since the mid-1980s has been in services. Hence, although there has been strong growth in part-time service jobs since the mid-1980s, the view that services create *mainly* part-time jobs is incorrect.

Services also dominate casual employment, accounting for over 85 per cent of Australia’s casual employees in 2000. However, casual jobs account for only 28 per cent of all service sector jobs (this compares with 19 per cent for the goods sector). The service industries with the highest shares of casual employees are accommodation, cafes and restaurants, retail trade and cultural and recreational services.

There are both supply and demand factors driving the growth in part-time and casual employment. On the demand side, there are cost and flexibility benefits for employers from casual and part-time employment. On the supply side, it can enable people to achieve a better balance between work and family responsibilities, study or leisure. The great diversity of employment opportunities within the service sector

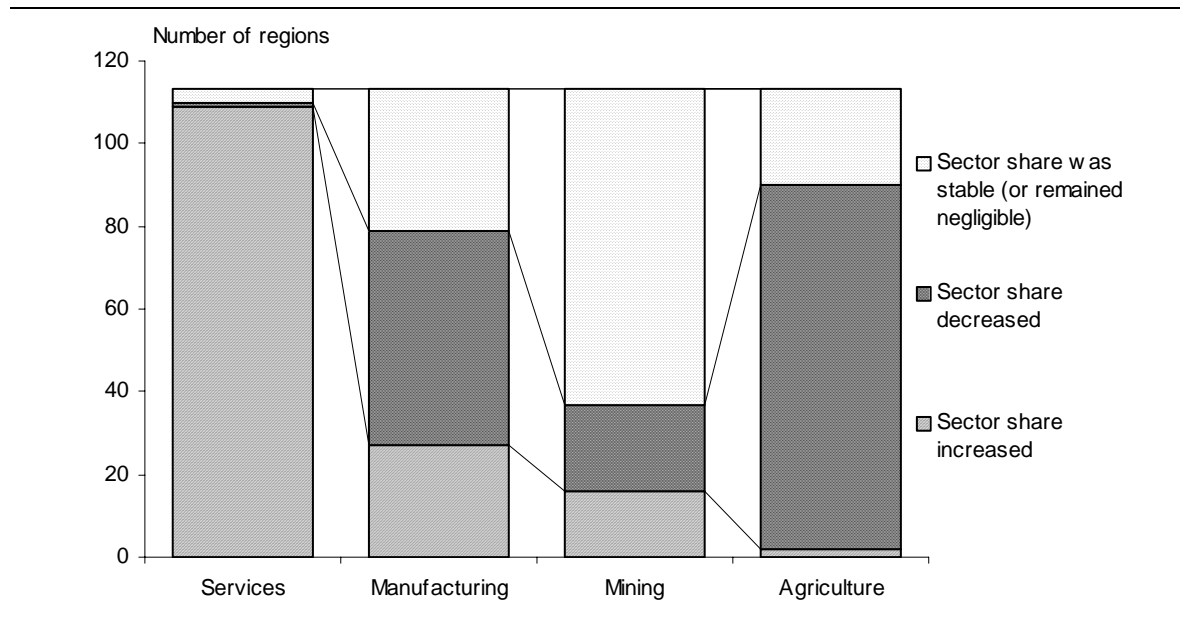
provides more options for people who find it difficult to fit in with the less flexible production processes in the goods sector. This is not to deny that, for some employees, full time employment would be a preferred option if it was available.

*Myth: Service job growth has been largely confined to metropolitan regions*

Differences in the concentration and nature of economic activity across Australia means that industry employment shares are not distributed evenly. Service jobs are concentrated in the capital cities. In 2000-01, over 85 per cent of the 6 million people employed in metropolitan regions worked in services. But service workers also dominate employment in non-metropolitan regions — accounting for 75 per cent, or 2.3 million, of the three million people employed in these regions in 2000-01. And, service jobs grew slightly faster in non-metropolitan regions — 2.4 per cent a year compared with 2.3 per cent for metropolitan regions between 1984-85 and 2000-01.

Growth in services was the key driver of regional employment growth across almost all regions over the period 1981 to 1996. Shares of service sector employment increased in all eight metropolitan regions, as well as 100 of Australia’s 105 non-metropolitan regions (figure 4). In contrast, the share for agriculture fell in 80 per cent of regions. While the direction of structural change for mining and manufacturing has varied somewhat, the importance of these sectors to regional employment has declined in more regions than it has risen.

**Figure 4 Sectoral employment shares — growth and decline across regions, 1981 to 1996**



Data source: PC (1998a, table 3.4).

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Overall, despite considerable regional variability and declines in some industries across non-metropolitan regions, the view that the employment benefits of the growth in the service economy have been confined to the capital cities is misplaced. Indeed, services have been key contributors to employment growth in most non-metropolitan regions.

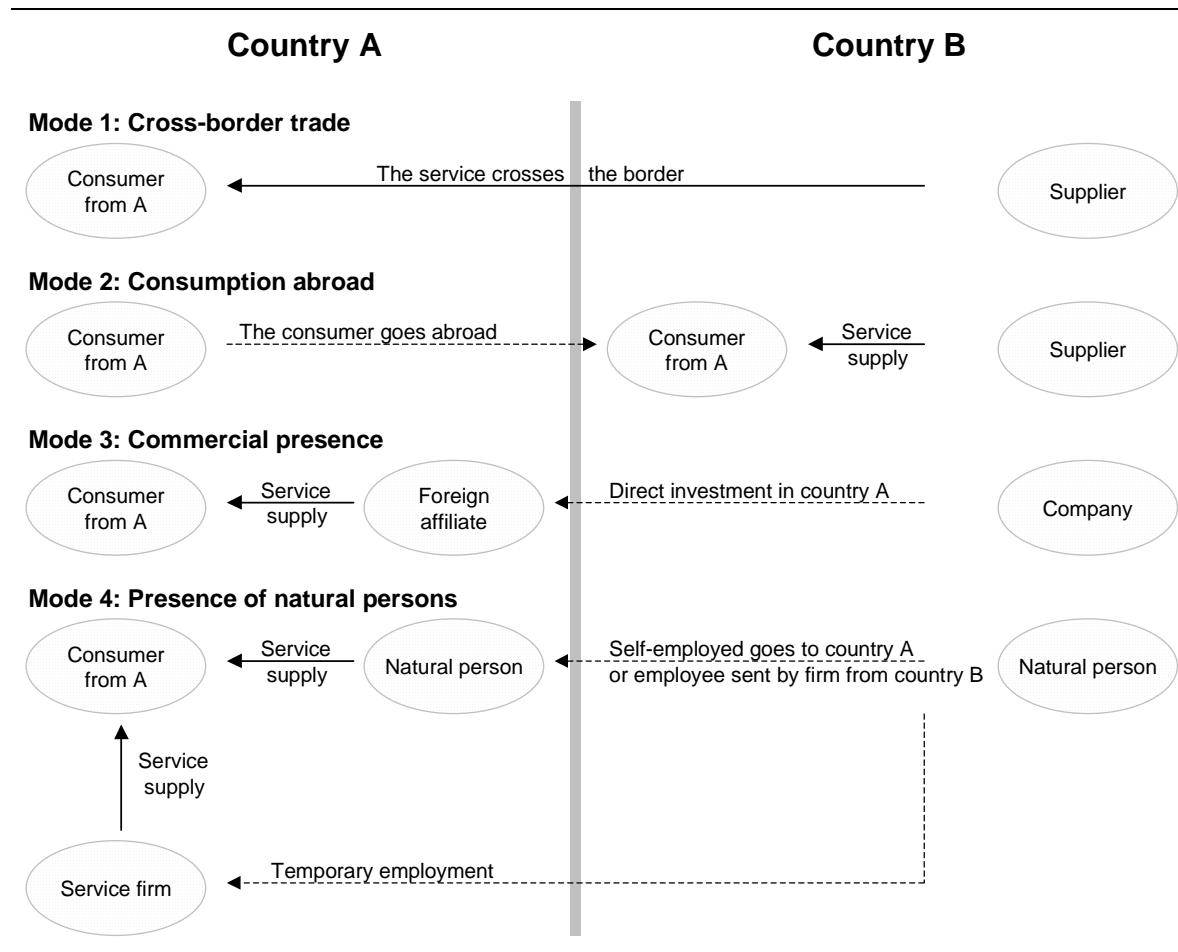
## **Facts about service trade**

Another myth is that services are non-tradeable. This is true for some services — for example, it makes little sense to fly overseas to have a haircut, buy groceries or see an accountant. However, many other services, such as transportation, communications and insurance services, are highly tradeable and can provide the means by which trade in goods and other services can take place. And many services are becoming increasingly tradeable as a consequence of developments in information and communication technologies and reductions in barriers to the movement of people and capital.

Part of the reason why services have commonly been viewed as ‘non-tradeable’ — or at least less transportable and tradeable than goods — is that when people think about international trade they think largely about cross-border exchanges (that is, the way goods are mainly traded). But trade in services is far broader. There are four modes through which services can be traded internationally (figure 5).

- *Cross-border trade.* This form of trade most closely resembles goods trade — the service itself crosses national frontiers. Examples include an architect sending design drawings to a consumer in a foreign country, or freight and insurance services.
- *Consumption abroad.* This typically involves the movement of consumers across borders, perhaps for tourism or to attend an educational establishment.
- *Commercial presence.* This involves a supplier establishing a foreign-based corporation, joint venture, partnership, or other arrangement to supply services to people in the host country. Examples include the establishment of branch offices or agencies to deliver services such as banking, insurance, legal advice or communications.
- *Presence of natural persons.* This involves an individual temporarily travelling abroad to provide a service, for example, consultancy services.

Figure 5 The four supply modes of international trade in services



Source: Adapted from OECD (2011d).

### International trade in services

Trade in services is the fastest growing component of international trade. Between 1985 and 2000, the value of world exports of services increased by just over 9 per cent a year, compared with around 8 per cent for goods exports.

Services (cross-border exports and consumption abroad) account for around 20 per cent of total world trade. The conventional statistics, however, understate international trade in services as they do not include the establishment of a commercial presence in a foreign market or individuals temporarily travelling abroad to provide a service (see figure 5). These modes of service trade are becoming increasingly important, particularly in retailing, banking, business services and telecommunications.

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Including all four modes, total measurable trade in services is estimated to have been around \$2.3 trillion in 2000. This represents around 7.6 per cent of world output and over a third of total trade in goods and services (OECD 2001b).

However, these figures also underestimate the significance of service trade because they fail to recognise the value of services ‘embodied’ in traded goods and services. For example, the export of a tonne of aluminium includes not only the alumina and other materials used to produce it, but also many services such as electricity, gas, water and transport. Analysts who have sought to take embodied exports into account have concluded that Australia’s service sector makes a much larger contribution to exports than its direct share — over 40 per cent of total exports, compared with a direct share of around 20 per cent.

Some facts on Australia’s service trade are presented in box 2.

**Box 2      Some facts on Australia’s service trade**

- In 2000, Australia accounted for 1.2 per cent of world exports of commercial services and was ranked the 20<sup>th</sup> largest service exporter. This compares with Australia’s 1 per cent share of goods exports.
- Service trade (cross-border and consumption abroad) accounted for around one-fifth of Australia’s total exports and imports in 2000-01.
- Almost half (47 per cent) of Australia’s service exports in 2000-01 were travel expenditures by foreigners in Australia. This is around 50 per cent higher as a share of total services exports in Australia than for the world as a whole. It reflects the attractiveness of Australia as a tourist destination and strong demand for Australia’s education services.
- 25 per cent of Australia’s service exports were transportation services.
- The remaining service exports (which have displayed strong export growth in recent years although their overall value remains relatively small), comprise business-related services, including finance and insurance, information technology and professional and technical services.
- Imports of transportation services accounted for almost one-fifth of Australia’s service imports in 2000-01. Imports of passenger transport services and expenditures by Australians on travel services overseas were less than exports, but imports of business and other services exceeded exports.
- Over the period 1985-86 to 2000-01, Australia’s service exports grew (in real terms) at 8.3 per cent a year, while goods exports grew at just over 7 per cent a year.

(Continued on next page)

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Box 2 (continued)

*Trading partners*

- Australia's trade in services is relatively concentrated among a few major markets. The top 5 export markets (United States, Japan, United Kingdom, New Zealand and Singapore) accounted for over half of our total services exports and imports in 1999-00.
- The United States is Australia's biggest service export market, accounting for 16 per cent of total service exports and 21 per cent of service imports in 1999-00. Along with Singapore, the relative importance of the US market has increased over the last decade.

*Foreign direct investment (FDI)*

- Services accounted for just over half of Australia's total inward FDI stock and 30 per cent of outward stock in 2000. Within the service sector, finance and insurance services and wholesale trade account for the highest share of FDI stocks.
- During the 1990s, services increased their share of total inward FDI stocks, while the sector's share of Australia's outward stock of FDI declined.

## **The value of services and their contribution to productivity growth**

Because services dominate economic activity and provide essential inputs into virtually every good and service produced, the performance of the sector has an important influence on the overall performance of the Australian economy and on the international competitiveness of our industries. Yet, compared with goods, services are commonly viewed as 'unproductive' or as 'productivity laggards'. This underlies concerns that an expanding service sector will impede overall productivity growth and improvements in living standards.

### *Service productivity — what the numbers say*

It is incorrect to label all services as 'productivity laggards' or to suggest that productivity growth is solely a goods sector phenomenon. In fact, some of Australia's service industries have experienced productivity growth rates considerably above those for the goods sector since the mid-1980s (table 2).

The two outstanding performers in the Australian economy, in terms of both labour and multifactor productivity growth, are service industries — communications and electricity, gas and water. Over the period 1984-85 to 1999-00, average annual multifactor productivity growth was 4.6 per cent for communications and 3.3 per cent for electricity, gas and water. Wholesale trade (1.9 per cent) also recorded growth in multifactor productivity above that recorded for manufacturing (1.5 per cent).

**Table 2 Labour, capital and multifactor productivity growth rates by sector and industry for Australia, 1984-85 to 1999-00**

<i>Sector/industry</i>	<i>Labour productivity</i>	<i>Capital productivity</i>	<i>Multifactor productivity</i>
	<i>Annual average growth (per cent)</i>		
Agriculture	2.3	2.5	<b>2.4</b>
Mining	5.4	1.2	<b>2.3</b>
Manufacturing	3.2	-1.1	<b>1.5</b>
Services			
Electricity, gas and water	7.3	1.4	<b>3.3</b>
Construction	0.6	-1.1	<b>0.2</b>
Wholesale trade	2.5	0.4	<b>1.9</b>
Retail trade	0.7	-2.9	<b>0.0</b>
Accommodation, cafes and restaurants	-0.1	-3.6	<b>-0.9</b>
Transport and storage	2.1	-0.4	<b>1.2</b>
Communications	7.3	1.6	<b>4.6</b>
Finance and insurance	3.6	-3.3	<b>0.9</b>
Cultural and recreational services	-1.1	-6.8	<b>-3.5</b>
<b>Market sector</b>	<b>2.1</b>	<b>-0.4</b>	<b>1.1</b>

*Source:* PC estimates based on ABS data.

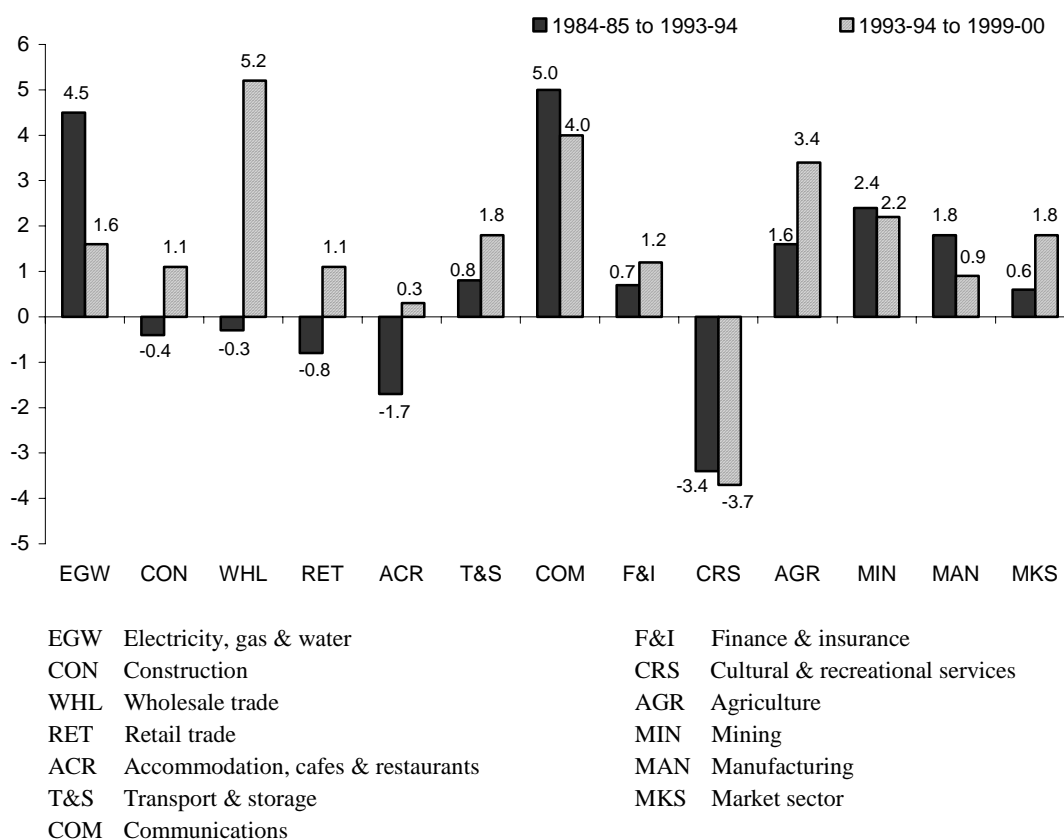
Some service industries have, however, recorded relatively slow or negative multifactor productivity growth. Service industries in this category include finance and insurance, construction, retail trade, accommodation, cafes and restaurants and cultural and recreational services.

Estimates for the period 1984-85 to 1999-00, however, mask the rapid productivity growth experienced by many service industries since the mid-1990's. Figure 6 shows that strong productivity growth for the market sector over the period 1993-94 to 1999-00 has been supported by relatively strong productivity growth in a number of service industries.

Wholesale trade stands out as a particularly strong performer over the period 1993-94 to 1999-00 (average annual growth of 5.2 per cent) and a significant contributor to overall productivity growth. Communications also recorded productivity growth well above the market sector average although at a slower rate than in the period 1984-85 to 1993-94. In contrast, construction, retail trade, accommodation, cafes and restaurants, transport and storage, and finance and insurance experienced stronger productivity growth over the period 1993-94 to 1999-00 than the earlier period.



**Figure 6 Multifactor productivity growth by industry and sector, 1984-85 to 1993-94 and 1993-94 to 1999-00**



Data source: PC estimates based on ABS data.

### *Making sense of the numbers*

Relatively low productivity growth recorded by some of the service industries may simply reflect difficulties in accounting for quality improvements and defining and measuring service output. For example, in the finance industry, the extra convenience to customers from automatic teller machines and online banking does not show up as an increase in output, even though customers benefit from such developments. Attempts to improve the measurement of output of various service industries have typically resulted in upward revisions to productivity estimates.

Many of the service industries experiencing slow productivity growth, such as accommodation, cafes and restaurants and cultural and recreational services, also have production processes that are less amenable to automation or technological improvements. For example, it is difficult to reduce the number of waiting staff required in a restaurant or the number of players in a string quartet or sports team.

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Variation in productivity growth rates between service industries may also reflect different operating environments. Traditionally, many service industries have been highly regulated. Much of the regulation was designed to deal with perceived market failures, such as natural monopolies and externalities. The level of government ownership has also been higher in services than in other sectors. These factors typically mean that there are weaker incentives for productivity improvements. This is consistent with some of the improvements in productivity growth in Australia's service sector coinciding with microeconomic reforms aimed at promoting competition and improving the design of regulation, for example, in the areas of electricity, gas and water, and communications.

### *International comparisons*

Comparing service sector productivity across countries is not easy. For many services, measuring productivity is difficult enough at the national level; an extra layer of difficulty is added when you try to compare performance across countries. And, largely because of the difficulties involved, it is an area where only a limited amount of work has been done.

Because work in this area is still in its infancy, caution needs to be exercised in interpreting differences in the productivity performance of service industries across countries.

Estimates based on comparisons of preliminary data contained in OECD's STAN Industrial Database and ABS data for Australia, suggest that Australia's labour productivity growth for the service sector as a whole over the period 1984 to 1998 is marginally above the OECD average and that recorded for the United States and other large OECD countries.

The Australian service industries that stand out as recording relatively high labour productivity growth over the period are electricity, gas and water, and transport, storage and communications. On the other hand, Australia's wholesale and retail trade, restaurants and hotels, recorded considerably lower productivity growth than the OECD average.

Productivity *growth* rates on their own, however, cannot tell the whole story as they do not take into account starting *levels*. Preliminary estimates, using the OECD's STAN Industrial Database and ABS data, suggest that Australia's labour productivity levels for the service sector as a whole were considerably below the United States and the OECD average in the late 1990s.

Australia's transport, storage and communications and construction industries were estimated to have labour productivity levels somewhat higher than the OECD

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average. On the other hand, Australia's electricity, gas and water industries, community, social, personal and other services, wholesale and retail trade, restaurants and hotels and finance and insurance and property and business services, were estimated to have labour productivity levels below the OECD average. These preliminary results suggest that some of Australia's service industries still have some way to go to catch up to other OECD countries and that there is scope for further productivity gains.

The International Comparisons of Output and Productivity (ICOP) project (University of Groningen), set up to undertake research on industry-of-origin comparisons of output and productivity, provides estimates of comparative productivity levels for two service industries — transport and communications and wholesale and retail trade (including hotels and restaurants). These estimates, which are based on industry purchasing power parities, suggest that in 1998 Australia had a considerably higher level of labour productivity for transport and communications than the United States and a number of other OECD and Asian countries. For wholesale and retail trade, however, Australia's labour productivity level was estimated to be well below the United States suggesting that there is considerable scope for improvement. However, the ICOP estimates are also preliminary and, according to the research team, there may not have been sufficient adjustments made for differences in the quality of the services provided in each of the countries.

Clearly, there is a need for further research and analysis in this area to improve the comparability of data bases and research methods and to identify the main sources of differences in productivity performance between Australia's service industries and their better performing international counterparts.



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# 1 Why study Australia's service sector?

Services dominate economic activity in Australia. This is not a new phenomenon — at the beginning of the 20<sup>th</sup> century the service sector accounted for more than half of the nation's gross domestic product (GDP) and over half the Australian workforce was employed in service activities. Over the past few decades, however, the relative importance of the sector has increased considerably. Today, services account for: over three-quarters of the nation's output; four out of every five jobs; around one-fifth of our exports and imports; and almost two-thirds of new private investment.

Services are also an important and growing part of the global economy, accounting for the majority of production and employment in most industrialised countries. Indeed, growth of services has outpaced overall economic growth in the OECD area for a number of decades, a trend that is predicted to continue. As the OECD (1999b, p. 2) said, 'the world economy is turning into a 'service economy''.

Despite services dominating economic activity and employment, the sector is not well understood. For example, Miles and Boden (2000, p. 1) describe services as the 'Cinderella sector', largely ignored by economists, industrial relations researchers and students of innovation. They argue, however, that as the share of services in national economies continues to grow, and the linkages between services and other sectors of the economy are extended, the tendency to overlook services becomes less tenable.

And, one of the conclusions reached by participants in a Business and Industry Policy Forum on *Realising the Potential for the Service Economy*, (OECD 2000d, p. 37) was that:

Services currently dominate our economies, and are likely to become even more important in the future. They do not, however, tend to command as much attention at the political level as they should. Despite declining to less than 20 per cent, manufacturing still seems to attract most of the attention when it comes to designing tax, trade and support policies. While this has not stopped the service sector from growing, the lack of attention has undoubtedly diminished the contribution that services could be making to our economies.

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Reasons for services not having received the research or policy attention paid to other sectors — such as agriculture and manufacturing — are not difficult to find. For example, Fuchs (1969, p. 1) suggests that:

They include the greater importance of primary and secondary employment at lower levels of real income per capita; the belief of some economists, notably Adam Smith, that only the primary and secondary sectors were ‘productive’; the difficulty of measuring service output; the difficulty of obtaining data because of the heterogeneity of activities and the small size of most firms in the service sector and the difficulty of analyzing their behaviour.

Many analysts have also noted the abundance of myths and misperceptions surrounding the service sector. Hauknes (1998b, p. iv), for example, said:

Services are myth-making stuff, it seems. The lantern that has shed light on our economies has left services residing in the dark night of the economy. It is a world of myths and legends: a residual world, ..... of the intangible and inexpressible.

## 1.1 Myths and misperceptions

The myths and misperceptions that surround the service sector perhaps stem from a poor appreciation of the diverse range of activities that make up the sector. As the OECD (1992, p. 110) observed:

It is still widely considered to be dominated by fast-food restaurants and barber shops when in reality in countries like the US the fastest growing segments of the economy are sophisticated transactional services like communications, business services, finance and insurance.

Service sector jobs are often viewed as being mainly part-time and low-skilled; the implication being that an expanding service sector means poor employment opportunities. As Gallouj (1998, p. 2) stated:

It is the world of those who are said to produce nothing (useful): in former times, that of priests and of servants, today that of pizza delivery services and ‘hot-air salesmen’, consultants ... and professors.

But, over 70 per cent of Australia’s service jobs are full-time and the skills of service sector workers compare favourably with those of goods sector workers.

Common misperceptions also exist about the ‘value’ of services, their contribution to living standards and productivity improvements. As implied in the above quote, one view is that services are ‘unproductive’ and that it is impossible to sustain productivity growth by making pizzas and cutting each other’s hair. Or, put another way, services are seen as ‘productivity laggards’ and, hence, a constraint on overall growth and living standards.

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It is true that, for some services, such as hairdressing, there is limited scope for productivity growth. However, productivity growth in other service industries, such as communications, has been rapid. But differences in productivity growth among industries should not necessarily be taken as an indicator of superior or inferior performance. What matters is that industries perform well relative to their productivity potential. Moreover, industries with lower productivity growth will continue to retain or attract resources if returns continue to exceed those that could be achieved if the resources were used elsewhere.

The *indirect* contribution that services make to productivity growth is also often overlooked. Services play an important intermediary role — many services are embedded in goods produced by other sectors; they also provide essential infrastructure to businesses and households. As Riddle (1986, p. 28) said:

Services are the glue that holds any economy together, the industries that facilitate all economic transactions, and the driving force that stimulates the production of goods.

The role services play in international trade is also often misunderstood. Many people consider services to be non-tradeable. This is true of some services. However, others are highly tradeable, and with the development of information and communication technologies, globalisation of industry and reductions in barriers to the movement of people and capital, many services have become tradeable or more tradeable. Indeed, in recent years, service trade has grown more rapidly than goods trade and the range of services traded internationally has expanded considerably.

In examining service sector issues, this study seeks to dispel some of the myths and misperceptions commonly harboured about the sector.

## **1.2 Objectives of the study**

The main objective of this study is to contribute to a better understanding of Australia's service sector and the important role it plays in the economy. The study seeks to shed some light on the sector by identifying and discussing key changes over the last 20 years or so, looking at:

- the relative performance of different service industries in terms of employment, productivity, trade and investment; and
- the shifting role of services in economic activity and the extent to which links between service industries and the rest of the economy have changed.

The study also explores: the underlying determinants of changes in the service sector; the notion of 'productivity drag'; the types of jobs created by the growth of

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services; what service trade means and why some services are becoming more tradeable.

### **1.3 Structure of the paper**

The paper comprises six chapters. The next chapter explores the nature of services and considers how they might be classified.

Chapter 3 outlines the important role that services play in the Australian economy. The sector's contribution to output, employment and trade, as well as its interrelationships with other sectors of the economy, are examined.

Chapter 4 looks at jobs in the service sector, in particular at patterns of employment growth across service industries and their implications for Australia's labour market.

Chapter 5 examines trade in services. It looks at what trade in services means, highlights the main trends in Australia's services trade (including the leading exports and imports of services relative to global trends), and discusses some policy-related issues.

Chapter 6 looks at the performance of Australia's service sector. It provides an assessment of the sector's productivity performance over time and compared with other OECD countries. Factors affecting the performance of the service are also examined.

Appendix A provides additional information on alternative approaches to classifying services.



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## 2 Defining and classifying services

**Although many have written on the subject, there is no widely accepted definition of services, nor agreement on how they should be classified. In large part, this is because services are highly heterogeneous. Irrespective of the definition adopted, this heterogeneity implies a need to split the sector into more homogenous groups to understand trends in services and the role different services play in the economy. Deciding on an appropriate classification system for analysing trends in services is influenced by the questions and issues being examined, as well as the form in which data are compiled.**

Defining and classifying services is a difficult task. Despite an extensive literature which explores possible definitions of services and how they might best be classified, there is little consensus on these issues. As Daniels (1993, p. 3) puts it: ‘... there are almost as many answers as there are researchers that have written on the subject’.

As the resolution of these issues has implications for the analysis in subsequent chapters of this study, this chapter briefly explores these issues. Further information on alternative approaches to classifying services is set out in appendix A.

### 2.1 What are services?

The traditional, and simplest way, of describing services is to define them by what they are not. In this context, services are commonly described as the *residual* sector, or as all those activities that aren’t agriculture, mining or manufacturing. As Clark (1940, p. 375), one of the founders of the primary, secondary and service (tertiary) sector classification of economic activity said:

There remains an important residual which we may describe for convenience as ‘service industries’.

The problem with defining services as a residual is that it does not tell us anything about what they are, only what they are not.

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As Miles and Boden (2000, p. 3) said:

For early commentators, the third great sector could simply be seen as the *residual sector*, and often it was discounted as an unproductive residuum. In any case, it warranted no great definitional effort. Because it counted for very little, it was seen as something which could be treated as homogeneous. Consequently, little attention was paid either to defining its common constitutive features, or to examining the variety within it.

Some have suggested that defining services as a residual may have contributed to some of the negative perceptions about the value of the sector. Riddle (1986, p. 5), for example, said:

... the unintended implication that services are not important in their own right, but only in relation to the extractive and manufacturing processes.

In addition, the term ‘residual’ has another more misleading implication — that of size. A ‘residual’ is usually thought of as that little bit which is left over. Nothing could be further from the truth in the case of the service sector.

An alternative way of defining services is to look for common features or ‘peculiarities’ that make services different from goods or other types of economic activity. But, what features are common to services? As Miles and Boden (2000, p. 5) said:

One of the challenges that face us is both recognising the specific features of the services sector, and taking full account of the great heterogeneity of activities that are lumped together in it.

Some frequently cited distinguishing features of services include:

- their intangible or immaterial nature. *The Economist*, for example, once described services as ‘anything sold in trade that could not be dropped on your foot’;
- non-storability and non-transferability — services such as air travel, medical advice and hair cuts cannot be stored or transferred. This contrasts with goods which are both storable and transferable; and
- direct interaction between the producer and the consumer. Many services are consumed as they are produced, for example, a restaurant meal or a visit to a museum or sporting match is consumed at the point of production. In contrast, the production of a good can usually be separated from the final consumer.

A more extensive list of features typically attributed to services is provided in table 2.1.

Many services share the features mentioned above. But, there are also many exceptions. Some service activities, for example, do have tangible outputs —

restaurants produce meals and photographers produce photographs. In this vein, Fuchs (1968, p. 15), commenting on intangibility as a distinguishing feature of services, said:

A dentist who makes a false tooth and places it in the patient's mouth is certainly delivering a tangible product, but dentistry is invariably classified as a service. It is difficult to make a sharp distinction between the activities of an auto assembly plant and those of an automobile repair shop, but the former is invariably classified in industry and the latter is usually regarded as a service.

**Table 2.1 Special features typically associated with services**

<i>Characteristics typical of services</i>	
<b>Service production</b>	
<i>Technology and plant</i>	Low levels of capital equipment; heavy investment in buildings.
<i>Labour</i>	Some services are highly professional (especially requiring interpersonal skills); others are relatively unskilled, often involving casual or part-time labour. Specialist knowledge may be important, but rarely technological skills.
<i>Features of production</i>	Production is often non-continuous and economies of scale are limited.
<i>Organisation of industry</i>	Often involve small-scale operations with a high preponderance of family firms and self-employed.
<b>Service product</b>	
<i>Nature of product</i>	Immaterial, often information-intensive. Hard to store or transport. Process and product hard to distinguish.
<i>Features of product</i>	Often customised to consumer requirements.
<i>Intellectual property</i>	Hard to protect (can rarely be patented, though copyright or design rights may be possible), easy to copy many service innovations. Reputation is often crucial.
<b>Service consumption</b>	
<i>Delivery of product</i>	Production and consumption coterminous in time and space; often client or supplier has to move to meet the other party.
<i>Role of consumer</i>	Services are 'consumer-intensive', requiring inputs from consumers in the design/production process. Often hard to separate production from consumption.

Source: Modified from Miles (1995).

Advances in technology have reduced the attraction of a definition based on distinguishing features. For example, new information and communication technologies now permit many services to be performed without the need for personal contact between customers and suppliers. Examples include internet banking, real estate, health care and distance education. Information-based services are also becoming increasingly transferable — software programs, for instance, can

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be boxed and stored in the same way as any good can be. As Miles and Boden (2000, p. 9) said:

There is good reason to believe that there is something of a ‘convergence’ of manufacturing and service sectors taking place: each grand sector is acquiring some of the characteristics deemed peculiar to the other.

Hill (1977, p. 318), however, identified two points which he suggested provide the key to the concept of a service:

A service may be defined as *a change in the condition of a person, or of a good belonging to some economic unit, which is brought about as the result of the activity of some other economic unit, with the prior agreement of the former person or economic unit.* (Original emphasis.)

Education, for example, changes the mental state of a student through the actions of a teacher and hairdressing services change the appearance of people through the actions of a hairdresser.

Miles and Boden (2000, pp. 6-7) suggest that rather than focussing on key features, it is more meaningful to characterise the service sector in terms analogous to those used for the primary and secondary sectors. Thus, they suggest that, while the primary sector is mainly concerned with extracting raw materials from the environment and the secondary sector involves transforming raw materials into goods, the tertiary sector can be seen as effecting *changes in the state of*:

- the *environment* (other than those concerned with extracting raw materials) such as waste management, pollution clean-up, park-keeping;
- *artefacts* produced by the secondary sector, such as installation, repair and maintenance, goods transport, building services, wholesale and retail trade;
- *people*, health and education services, hospitality and consumer services such as hairdressing, public transport; and
- *symbols* (that is, information), knowledge services (which bring intelligence to bear on any of the operations already mentioned); entertainment services; communication services such as broadcasting and telecommunications.

While there is no ‘accepted’ definition of services, for statistical purposes the residual definition is commonly adopted. Consequently, for the purpose of this study, services are defined as everything except agriculture, mining and manufacturing.

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## 2.2 Classifying services

The heterogeneous nature of the service sector means that, in order to trace through and analyse changes within the sector, it is necessary to disaggregate it in some way. As Miles (1996, p. 146) argued:

... the service sector is not one sector at all; it is comprised of extremely heterogeneous activities, which play very diverse roles in overall economic performance. Understanding the service sector is, in large part, a problem of gaining a better conceptual and empirical understanding of this complexity and its implications.

However, devising a useful classification system for a sector encompassing such a diverse range of activities presents a number of challenges. As Bryson & Daniels (1998, p. xv) said:

... the very heterogeneity of service activities has been a nightmare for analysts interested in classifying them.

### *The traditional approach*

The traditional classification is industry based. Broadly speaking, this involves grouping together economic entities that produce similar products. The United Nations International Standard Industrial Classification of All Economic Activities (ISIC) forms the basis upon which most countries collect and publish data on their economies.<sup>1</sup> The Australian and New Zealand Standard Industrial Classification (ANZSIC) contains agriculture, mining, manufacturing and fourteen other industry groups which are usually grouped together to form the 'service' sector. The fourteen service industry groups are summarised in table 2.2.

The traditional classification system, however, has been criticised by a number of analysts for its inadequacies when it comes to analysing trends in services and the role they play in the economy. For example, Marshall and Wood (1995, p. 28), said:

For services, whose products are by definition intangible, and can often be valued only when combined with other functions, ISIC based data are always likely to be unsatisfactory. As service functions have increased, product-based sectoral classifications are less able to give an adequate reflection of how economies function.

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<sup>1</sup> The definition of services that was established by the United Nations in Revision 3 of the International Standard Industrial Classification (ISIC Rev.3) includes eleven major divisions (G to Q) — wholesale and retail trade; health and restaurants; transport, storage and communication; financial intermediation; real estate, renting and business activities; public administration and defence; compulsory social security; education; health and social work; other community, social and personal service activities; private households with employed persons; extra-territorial organisations and bodies (United Nations 1990).

Over the years a number of alternative classification systems have been proposed, mainly to better reflect the heterogeneity of service sector activities. Some of the better known alternative classification systems are briefly discussed below. Additional information on these systems is provided in appendix A.

**Table 2.2 The traditional industry-based classification of services**

<i>Service industry group</i>	<i>Major activities</i>
Electricity, Gas & Water	Electricity and gas supply. Water supply, sewerage and drainage services.
Construction	Building and non-building construction. Also construction trade services — site preparation, building structure, installation, building completion and other construction services.
Wholesale Trade	Basic material wholesaling, machinery and motor vehicle wholesaling, personal and household good wholesaling.
Retail Trade	Food retailing, personal and household good retailing, motor vehicle retailing and services.
Accommodation, Cafes & Restaurants	Hospitality services including accommodation, pubs, taverns, bars, cafes, restaurants and clubs.
Transport & Storage	Road, rail, water, air, space and other transport. Services to transport and storage.
Communications Services	Postal, courier and telecommunication services.
Finance & Insurance	Finance, insurance and services to finance and insurance.
Property & Business Services	Property operators and developers, real estate agents, non-financial asset investors, machinery and equipment hiring and equipment. Scientific research, technical research, computer services, legal and accounting services, marketing and business management services, and other business services.
Government Administration & Defence	Central, state and local government administration, judicial authorities and commissions, representations of overseas governments, the Army, Navy and Air Defence forces and civilian units engaged in defence administration.
Education	Preschool, primary and secondary education; post-school education and other education.
Health & Community Services	Hospitals, nursing homes, medical and dental services, other health services, veterinary services, childcare services and community care services.
Cultural & Recreational Services	Motion pictures, radio and television services, libraries, museums and the arts, sport, recreation and gambling services.
Personal & Other Services	Personal and household goods hiring, other personal services, religious organisations, interest groups, public order and safety services, and private households employing staff.

Source: ABS (1993).

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### *Alternative classification systems*

One of the more common approaches to reclassifying services involves grouping them according to the markets they serve — that is, whether they meet final (consumer or household) or intermediate (producer) demand. Under such a classification, consumer services cover all services sold directly to consumers for their personal use — entertainment and recreational services and personal services such as hair and beauty treatments. Producer services cover all services provided to producers of goods and services and include, for example, office cleaning, computing, consulting and other business services.

This classification has intuitive appeal because it has the potential to better reflect changes going on within the service sector. But, some of the proposed categories are neither mutually exclusive (for example, some services, such as banking, insurance and transport fall into both final and intermediate demand), nor do they necessarily relate to the form in which economic data on services is collected.

One way around the problem of some services not being mutually exclusive is to create a third group of ‘mixed’ services. Another is to assign activities to consumer or producer services according to which type of output or employment predominates. But, such a solution overlooks the fact that the share of intermediate and final output of service industries can change over time and can vary between countries. And, as Allen (1988, p. 18) argues, some services, such as the ‘commercial and financial services which mediate and abbreviate the exchange process are neither producer nor consumer services’, but are ‘circulation services’ which should be classified separately.

Browning and Singelmann (1978), proposed a taxonomy which reflected a combination of the economic function performed by the service, the markets served and the dominance of private or public provision. They suggested splitting the sector into four sub-sectors — producer, distributive, personal and social services. Elfring (1988), building on this system, regrouped the service activities from the ISIC under the four sub-sectors (table 2.3). The OECD (2000a) now uses this system to analyse components of service sector employment. It is also the basis for the sub-groups used to analyse changes in service output and employment in this report (chapters 3 and 4).

Other systems for classifying services — such as those developed by Miles (1993) and Evangelista and Savona (1999) — can provide useful insights into the use of technology and process and product innovation within the service sector (see appendix A for additional information on these systems).

Table 2.3 **Market-based classification systems — Browning-Singelmann's and Elfring's suggestions**

<i>Sub-sectors</i>	<i>Browning and Singelmann's sub-groups</i>	<i>Elfring's sub-groups</i>
<b>Producer services</b>	<ul style="list-style-type: none"> <li>• Banking, credit and other financial services</li> <li>• Insurance</li> <li>• Real estate</li> <li>• Engineering and architectural services</li> <li>• Accounting and bookkeeping</li> <li>• Miscellaneous business services</li> <li>• Legal services</li> </ul>	<ul style="list-style-type: none"> <li>• Business and professional services</li> <li>• Financial services</li> <li>• Insurance services</li> <li>• Real estate services</li> </ul>
<b>Distributive services</b>	<ul style="list-style-type: none"> <li>• Transportation and storage</li> <li>• Communication</li> <li>• Wholesale trade</li> <li>• Retail trade (except eating and drinking places)</li> </ul>	<ul style="list-style-type: none"> <li>• Retail trade</li> <li>• Wholesale trade</li> <li>• Transport services</li> <li>• Communications</li> </ul>
<b>Personal services</b>	<ul style="list-style-type: none"> <li>• Domestic services</li> <li>• Hotels and lodging places</li> <li>• Eating and drinking places</li> <li>• Repair services</li> <li>• Laundry and dry cleaning</li> <li>• Barber and beauty shops</li> <li>• Entertainment and recreational services</li> <li>• Miscellaneous personal services</li> </ul>	<ul style="list-style-type: none"> <li>• Hotels, bars and restaurants</li> <li>• Recreation, amusements and cultural services</li> <li>• Domestic services</li> <li>• Other personal services</li> </ul>
<b>Social services</b>	<ul style="list-style-type: none"> <li>• Medical and health services</li> <li>• Hospitals</li> <li>• Education</li> <li>• Welfare and religious services</li> <li>• Non-profit organisations</li> <li>• Postal services</li> <li>• Government</li> <li>• Miscellaneous professional and social services</li> </ul>	<ul style="list-style-type: none"> <li>• Government proper (civil or military)</li> <li>• Health services</li> <li>• Education services</li> <li>• Miscellaneous social services</li> </ul>

Sources: Browning and Singelmann (1978) and Elfring (1988).

### *Summing up*

The service sector is a highly diversified sector. While the traditional industry-based classification system provides a starting point for analysing the sector, alternative classification systems can be useful tools for providing insights into key trends and developments within this sector. The choice of classification system will usually depend on the questions or issues being addressed and the form in which service sector data is collected.



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## 3 The role of services in the economy

**The service sector is an important and growing part of the Australian economy. It now accounts for more than three-quarters of total output and over 80 per cent of jobs. It also directly accounts for around one-fifth of our exports and plays an important intermediary role supporting businesses and trade. The shift towards services in Australia, which is consistent with the experiences of other developed economies, reflects higher consumer and business demand for services, greater use of outsourcing of business services, technological change and differences in productivity growth across sectors. The strength and enduring nature of these influences suggest that the trend towards increased service activity may well continue for the foreseeable future.**

This chapter looks at the role that the service sector plays in the Australian economy. In addition to canvassing the direct contribution of services to output, employment, trade and investment, the chapter examines linkages between services and the rest of the economy. Some of the reasons for the rapid growth of the sector in recent decades are explored, as is the question of how Australia's experience compares with other developed economies. The final section briefly examines the outlook for services.

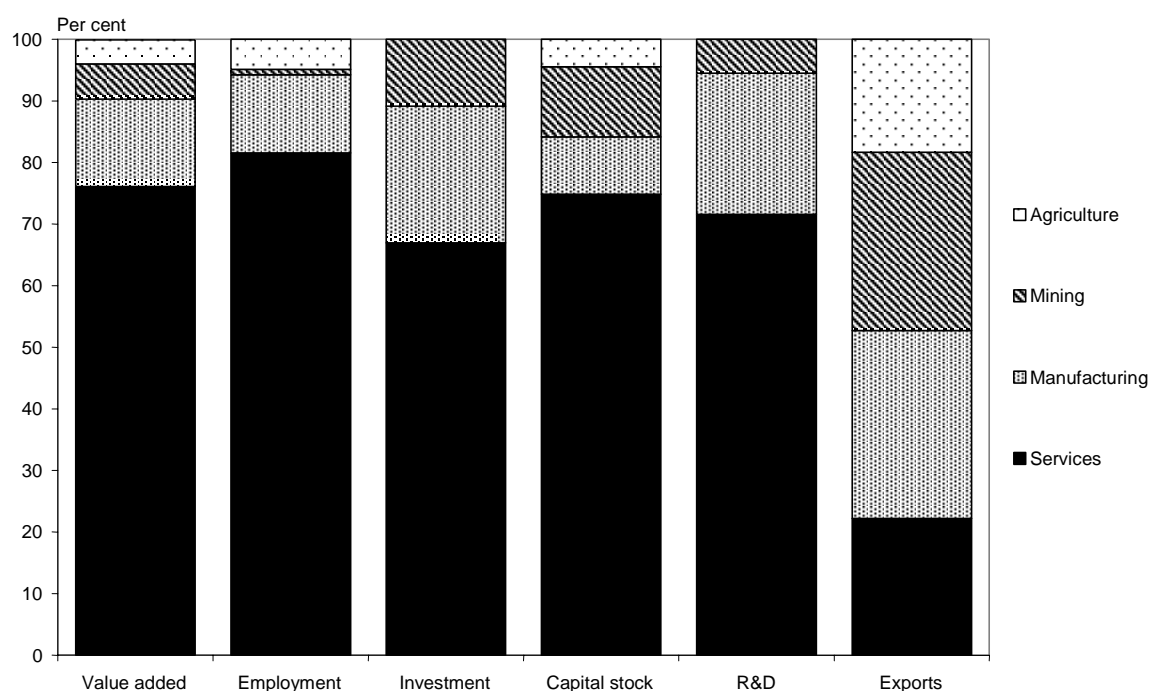
### 3.1 The importance of the service sector

Services dominate economic activity in Australia (figure 3.1). In 2000-01, the service sector accounted for more than three-quarters (\$419 billion) of the total output of the economy. The service sector is also the economy's largest employer. In 2000-01, of the 9 million people employed in Australia, 7.4 million, or four out of five, worked in the service sector.

Property and business services is the largest service industry. It includes scientific research, technical and computer services, legal and accounting services, and marketing and business management services. In 2000-01, it accounted for almost one-fifth of services output and 14 per cent of total national output (figure 3.2), making it broadly equivalent in size to total manufacturing. Finance and insurance, health and community services, and retail and wholesale trade are also large

contributors to the output of the service sector. These industries, together with property and business services, accounted for 53 per cent of the service sector's output and 40 per cent of the economy's output in 2000-01.

**Figure 3.1 Sector contributions to Australian economic activity, 2000-01<sup>a</sup>**  
Current prices

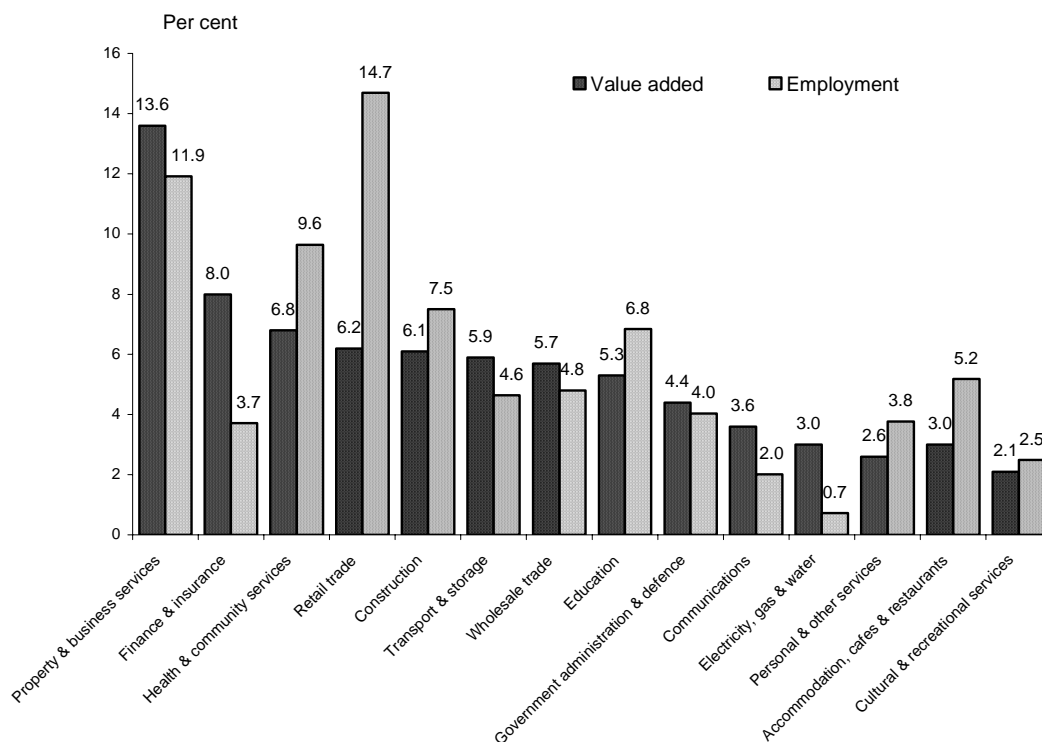


<sup>a</sup> 'Ownership of dwellings' is omitted to allow value added shares to sum to 100. R&D estimates relate to 2000 and represent aggregates of government, education and business R&D expenditures. Around 40 per cent of private business R&D was undertaken by service firms in 2000, with manufacturing firms contributing more than half in 2000. Agriculture is excluded from the R&D data due to lack of suitable data. Investment data also relate to 2000 and are drawn from the *ABS Private New Capital Expenditure Survey*, which excludes all second hand investment purchases, as well as all investment expenditures by the agricultural sector and all public expenditure.

Data source: EconData (2001), ABS (2001f).

Retail trade is the economy's largest employer (figure 3.2). In 2000-01, it employed 1.3 million people or 15 per cent of Australia's total workforce. Other large service sector employers include property and business services (around 12 per cent of total employment), health and community services (10 per cent) and construction (8 per cent).

**Figure 3.2 Service industry contributions to national output and employment, 2000-01**



Data sources: ABS Cat. no's. 5204.0 and 6203.0.

Service firms employ large quantities of capital equipment. Private service firms spent \$27.8 billion on new capital equipment in 2000 — \$19.9 billion on equipment, plant and machinery and \$7.9 billion on buildings and structures. These figures, however, understate the total contribution of services because they exclude investment expenditure by governments and publicly owned utilities. Overall, services account for around three-quarters of Australia's net stock of capital.<sup>1</sup> Also, over 70 per cent of total research and experimental development (R&D) activity in Australia is undertaken in the sector (figure 3.1).

Unlike the other measures illustrated in figure 3.1, service sector exports (cross-border exports and consumption abroad) are not commensurate with the size of the sector. Nevertheless, services directly accounted for around one-fifth of Australia's exports and imports in 2000-01. The main service exports are travel and transportation, accounting for 47 and 25 per cent, respectively, of total service

<sup>1</sup> This refers to the depreciated value of Australia's private and public stock of capital and includes all buildings, structures, machinery and equipment (ABS 20001d).

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exports in 2000-01. The remaining service exports largely comprised business-related services such as finance and insurance, information technology and professional and technical services (such as architectural and engineering services).

Cross-border trade statistics do not, however, fully capture the global nature of many services which frequently require a commercial presence to successfully deliver services internationally. The globalisation of the economy in recent decades has meant that services are increasingly associated with overseas investment by Australian firms and foreign direct investment into Australia. This development is discussed further in chapter 5.

### Linkages with other sectors

The measures presented above do not fully capture the role that services play in the Australian economy because they are only *direct* contribution measures. More specifically, the measures do not record indirect contributions — for example, the value of electricity embodied in manufacturing exports. As the OECD (1999a, p. 7) notes:

Services also play an important intermediary role that is not easily reflected in statistics. Well established financial, transportation and distribution systems, for example, are critical for the smooth functioning of all businesses and, for that matter, governments. In the field of international trade, although services themselves are not as widely traded as manufacturing goods, they are associated with, and support, every export and import transaction.

Studies that have sought to take into account both the direct and indirect contributions of various industries to total Australian exports show that the service sector is the largest contributor (see, for example, IC 1986, Ho 1994, LEK Partnership 1994).

Input-output data show that, in 1996-97 (the latest available year for such data), around 42 per cent of the total value of service output was used as intermediate inputs in either the goods or service sectors (figure 3.3). The remaining output was consumed by individuals and households (25 per cent) and governments (15 per cent) or allocated to capital expenditure (13 per cent) or exports (5 per cent).

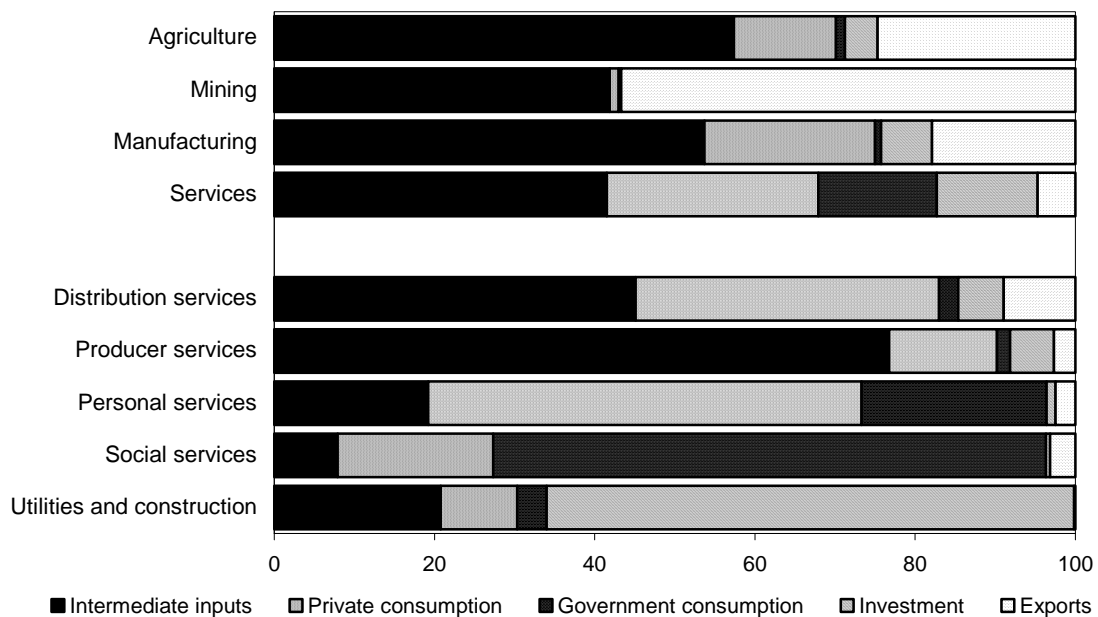
Grouping activities within the service sector into distribution, producer, personal, social, and utilities and construction services<sup>2</sup>, clearly shows that the major suppliers of intermediate inputs within the sector are producer and distribution

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<sup>2</sup> These groupings are based on the Browning and Singlemann (1978) and Elfring (1988) taxonomies. For this study, utilities and construction are included as part of the service sector subject to data availability. See chapter 2 and appendix A for further details.

services. In 1996-97, 77 per cent of producer services and 45 per cent of distribution services were used as intermediate inputs by other goods and services firms. In contrast, the majority of output of personal services was consumed by individuals and households.

**Figure 3.3 Disposition of goods and services output by demand category, 1996-97<sup>a</sup>**  
Per cent



<sup>a</sup> Distribution services comprise wholesale and retail trade, transport and storage, and communications. Producer services — finance and insurance, property and business services. Personal services — accommodation, cafes and restaurants, cultural and recreational services, personal and other services. Social services — government administration and defence, education, and health and community services. Utilities and construction — electricity, gas and water, and construction.

Source: Estimates based on ABS Cat. no. 5209.0.

Input-output data presented in table 3.1 show inputs as a percentage of output for the various service industry groupings and illustrate the importance of services to other industries. Reading down the first column in table 3.1 we see that, to produce \$100 of output in 1996-97, firms in the agricultural sector required, on average, \$43.20 worth of intermediate inputs, of which services accounted for \$18.30 or 42 per cent. The bulk of these service sector inputs came from distributive services, in particular, wholesale trade, transport and storage, finance and insurance and property and business services.

Services also contributed 20 per cent of the value of the output of the mining sector, just over half the sector's total intermediate inputs requirement. The key input

industries were broadly similar to agriculture, although the mining sector was a much heavier user of property and business services and electricity, gas and water.

Table 3.1 **Sector by sector direct requirement coefficients, 1996-97**

		... to the production of these sectors <sup>a</sup>			
		Agriculture	Mining	Manufacturing	Services
<i>These sectors provide inputs</i>	Agriculture	11.9	0.0	6.4	0.3
	Mining	0.1	9.2	4.6	0.6
...	Manufacturing	12.8	9.7	23.1	8.9
	<b>Services</b>	<b>18.3</b>	<b>20.3</b>	<b>20.8</b>	<b>31.1</b>
	<b>Distribution services</b>	<b>10.8</b>	<b>9.0</b>	<b>11.2</b>	<b>10.1</b>
	<i>Wholesale Trade</i>	4.5	3.2	4.7	2.5
	<i>Retail trade</i>	1.6	0.9	0.5	1.5
	<i>Transport &amp; storage</i>	3.8	4.0	5.2	3.8
	<i>Communications</i>	0.9	0.9	0.8	2.4
	<b>Producer services</b>	<b>4.8</b>	<b>6.4</b>	<b>5.6</b>	<b>16.1</b>
	<i>Finance &amp; insurance</i>	2.3	1.8	0.9	3.6
	<i>Property &amp; business services</i>	2.5	4.6	4.7	12.5
	<b>Personal services</b>	<b>1.0</b>	<b>1.3</b>	<b>1.5</b>	<b>2.1</b>
	<i>Accom. cafes &amp; restaurants</i>	0.9	0.9	1.1	1.2
	<i>Cultural &amp; rec. services</i>	0.0	0.0	0.1	0.6
	<i>Personal &amp; other services</i>	0.1	0.4	0.3	0.3
	<b>Social services</b>	<b>0.3</b>	<b>1.1</b>	<b>0.5</b>	<b>1.1</b>
	<i>Government admin &amp; defence</i>	0.2	0.5	0.3	0.8
	<i>Education</i>	0.0	0.1	0.1	0.2
	<i>Health &amp; community services</i>	0.2	0.5	0.1	0.1
	<b>Utilities and construction</b>	<b>1.5</b>	<b>2.5</b>	<b>2.0</b>	<b>1.7</b>
	<i>Electricity, gas &amp; water</i>	0.9	1.9	2.0	1.4
	<i>Construction</i>	0.5	0.5	0.0	0.3
	<b>Total intermediate</b>	<b>43.2</b>	<b>39.2</b>	<b>54.9</b>	<b>40.9</b>
	Total output	100.0	100.0	100.0	100.0

<sup>a</sup> Columns may not add due to rounding.

Source: Estimates based on ABS Cat. no. 5209.0.

Intermediate inputs as a proportion of output was highest for the manufacturing sector at almost 55 per cent. Inputs from service industries supplied around 38 per cent of this sectors inputs. The usage pattern of services by manufacturing closely matched that of the mining sector, albeit on a larger scale (table 3.1).

Unlike the other sectors, the bulk (over 75 per cent) of intermediate inputs required by the service sector was sourced from within the sector — mainly from suppliers of producer and distribution services. Property and business services were the biggest single supplier of intermediate inputs to service firms. The remaining inputs

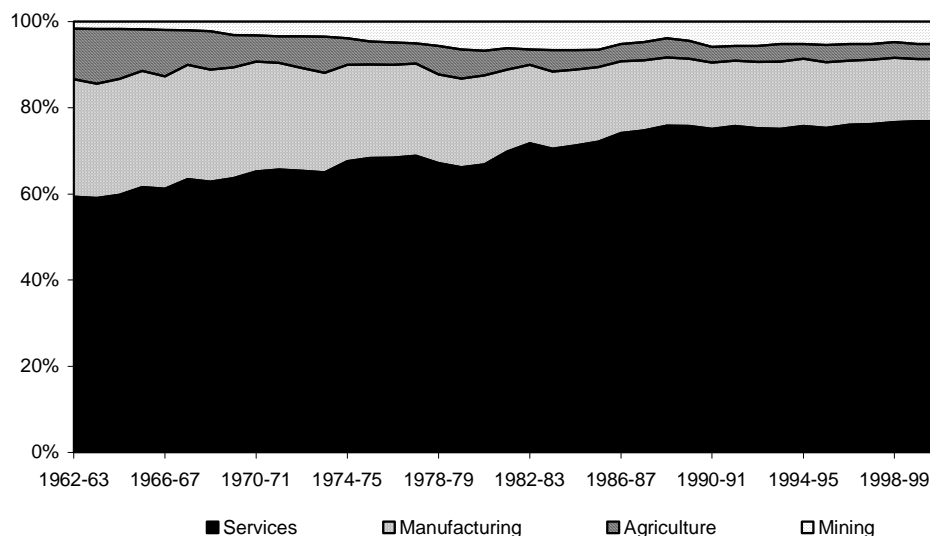
were mostly manufactured items, with \$100 of output by the service sector drawing on \$8.90 worth of manufactured inputs.

### 3.2 Growth of the service sector

The dominant role services play in the Australian economy is not a recent development. The service sector has been an important contributor to Australian economic activity throughout the 20<sup>th</sup> century. As far back as 1900-01, services accounted for a majority (around 54 per cent) of output (Butlin 1962).

In the first six decades of the 20<sup>th</sup> century, however, the growth in the importance of services was relatively modest, with the sector's share increasing by only 5 percentage points or so. The past four decades, however, have witnessed markedly stronger growth in services. Over this period, the share of GDP accounted for by services increased by 17 percentage points (figure 3.4).

Figure 3.4 **Sectoral shares of GDP, 1962-63 to 2000-01<sup>a</sup>**  
Current prices



<sup>a</sup> 1962-63 is the earliest year for which data are available on a comparable basis with recent data. Data from two sources have been spliced to form a continuous series — ASIC current price industry gross value added shares for the period 1962-63 to 1989-90 are drawn from RBA (1996), while shares from 1990-91 are based on ANZSIC current price industry gross value data in ABS Cat. no. 5204.0.

Data sources: RBA (1996) and EconData (2001).

This growth was due, in part, to a continuation of the long term decline in the relative importance of agricultural output (a trend which continued until it stabilised in the early- to mid-1980s). However, the increase in the relative importance of

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services has largely been at the expense of the manufacturing sector, which saw its share almost halve over the period (from over 27 per cent to around 14 per cent).<sup>3</sup>

Trends in sectoral shares of employment over the period reveal an even stronger shift towards services. The service sector's share of total employment increased by almost 20 percentage points between 1966-67 and 2000-01. Over the same period, the service sector's share of the nation's capital stock also increased, but only by around 5 percentage points.

Service trade has recorded mixed results. The value of direct exports of services has grown at well above the rate of goods exports in recent decades. Between 1962-63 and 2000-01, the service sector's share of total Australian exports increased from around 13 to just over 21 per cent. In contrast, imports of services fell from 22 to 21 per cent of total imports over the same period. Taken together, these outcomes have seen a substantial turnaround in the services trade balance. This development, as well as the indirect contribution of services to trade and investment flows, are examined further in chapter 5.

### *Trends in industry performance*

Over the period 1974-75 to 2000-01<sup>4</sup>, service sector output grew at a trend annual rate of 3.6 per cent. This compares with 2.3 per cent for agriculture, 5.0 per cent for mining, 1.7 per cent for manufacturing and 3.3 per cent for the economy as a whole. All service industries grew over this period, although there was considerable variation in growth rates.

Three service industries recorded average annual growth rates of around 5 per cent or higher, while others experienced quite modest growth. Communications was the fastest growing service industry with an average annual growth rate of 8.4 per cent. This was almost four times greater than the slowest growing service industry — construction (2.2 per cent) (figure 3.5).

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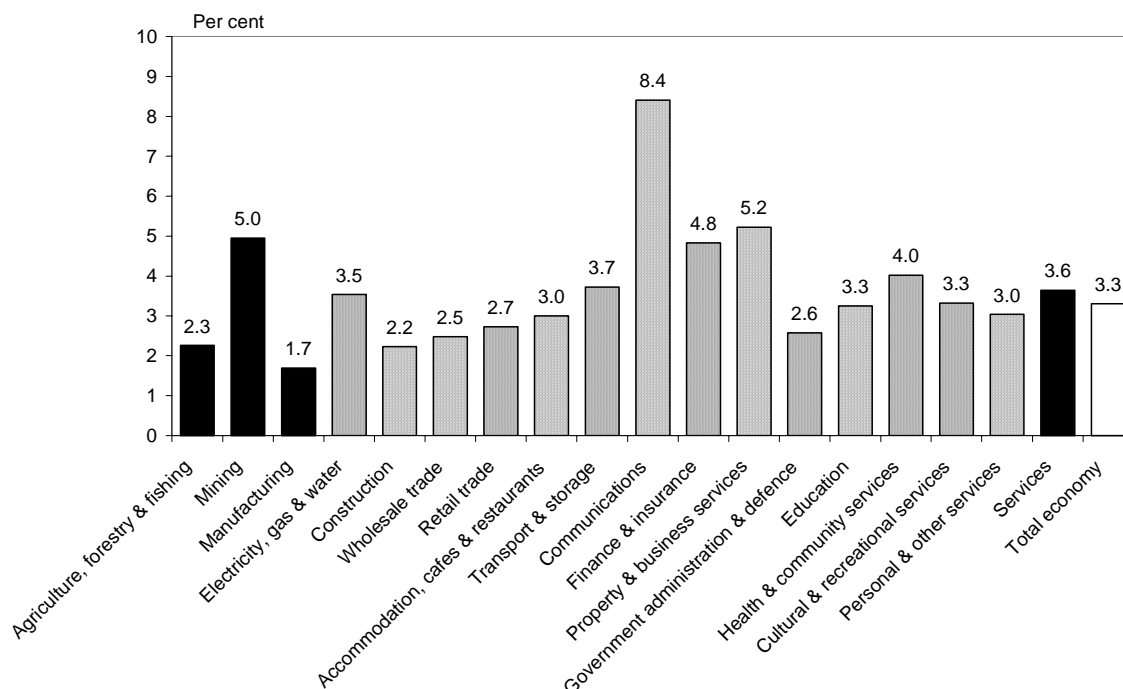
<sup>3</sup> Changes in sectoral shares reflect differences in growth rates over time. Hence, although manufacturing and agriculture have experienced sharp declines in their sectoral shares of GDP, their real output has increased. Indeed, between 1966-67 and 2000-01, manufacturing output increased by over 50 per cent in real terms and agricultural output doubled. Similarly, although their employment shares halved over the period, the actual number of people employed in manufacturing declined by only around 9 per cent, while agricultural employment actually increased slightly (RBA (1995), ABS Cat. no's, 6203.0 and 5204.0).

<sup>4</sup> The longest consistent time series for which detailed industry data are available (ABS 2001e).



**Figure 3.5 Annual average trend growth in Australian industries, 1974-75 to 2000-01<sup>a</sup>**

Constant 1999-00 prices



<sup>a</sup> Trend rates of growth presented here and elsewhere in this paper were estimated by fitting a log-liner trend line through the data series.

Data source: EconData (2001).

In terms of output growth rates for the 14 service industries (reported in figure 3.5), three broad groups can be identified:

- a high growth group of service industries. This group includes finance and insurance, property and business services, transport and storage, communications and health and community services. These five industries contributed over 60 per cent of service sector output growth over the period 1974-75 to 2000-01;
- a group that recorded growth rates broadly in line with the national average (3.3 per cent) — including education, cultural and recreational services, and electricity, gas and water; and
- a group of slower growth industries which declined in relative importance — notably government administration and defence, personal and other services, construction and wholesale and retail trade.

Further information on the performance of the various service industries is presented in box 3.1.

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### Box 3.1 Services at a glance

In 2000-01:

- The **largest service industry**, in terms of output, was *property and business services*, accounting for 14 per cent of the economy's output. The **smallest** was *cultural and recreational services*, accounting for 2 per cent of output.
- The **biggest service employer**, and the economy's largest employer, was *retail trade*. It accounted for 1.3 million or 15 per cent of the economy's jobs. *Electricity, gas and water* was the **smallest service industry employer**, accounting for less than 1 per cent of the economy's jobs.
- The service sector's **biggest export earner** was travel services (including business, education and tourism-related travel services). It accounted for just over 10 per cent of Australian exports.

The **fastest growing service industry** in terms of output is *communications*. It has grown at a trend annual growth rate of 8.4 per cent since the mid-1970's. This is almost four times faster than the **slowest growing service industry** — *construction* — which has grown by around 2.2 per cent a year over the past two and a half decades.

The **service industry exhibiting the highest employment growth** has been *property and business services* with annual growth of around 5.8 per cent a year since 1984-85<sup>a</sup>. This represents around 663 000 new jobs. *Electricity, gas and water* registered a **decline in employment** of around 5.4 per cent a year since 1984-85 — a loss of around 71 000 jobs.

<sup>a</sup> Due to classification changes, consistent employment data for all Australian industries are only available back to 1984-85.

Sources: EconData (2001), ABS Cat. no's. 5209.0, 6203.0, 5204.0, 5206.0.

Average annual growth of employment in services has also been higher than that for the economy over the period 1984-85 to 2000-01<sup>5</sup> — 2.3 per cent a year for services compared with 1.8 per cent a year for the overall economy. However, job growth has varied markedly between service industries. The industries in which there has been substantial employment growth include property and business services, retail trade and health and community services. On the other hand, government administration and defence and wholesale trade experienced low employment growth, while electricity, gas and water registered employment falls of around 5.4 per cent a year. Trends in service employment are examined in more detail in chapter 4.

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<sup>5</sup> Longest available employment time-series on a consistent industry basis (ABS 2001c).

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## Has the growth in services in Australia been atypical?

The rising share of economic activity accounted for by services is not unique to Australia — it is a familiar phenomenon among OECD countries. Indeed, growth in services has outpaced overall economic growth in the OECD area for a number of decades.

By the late 1990s, services accounted for around two-thirds of total economic activity in most OECD countries<sup>6</sup> and for more than 70 per cent in many, including Luxembourg, United States, France, Denmark and Belgium as well as Australia (figure 3.6).

For the OECD area, the average output share for the period 1975 to 1999, accounted for by services, increased by 12 percentage points — from 54 to 66 per cent. Although there was some variation in the rate of increase of service sector shares across OECD countries, all countries for which data are available recorded increases.

The rapid growth of output of producer services (including finance, insurance, property and business services) in Australia was also broadly in line with OECD trends. Between 1975 and 1999, producer services increased in a subset of 11 OECD countries by an average of 11 percentage points.<sup>7</sup> This compares with an increase in Australia of 12 percentage points over this period.

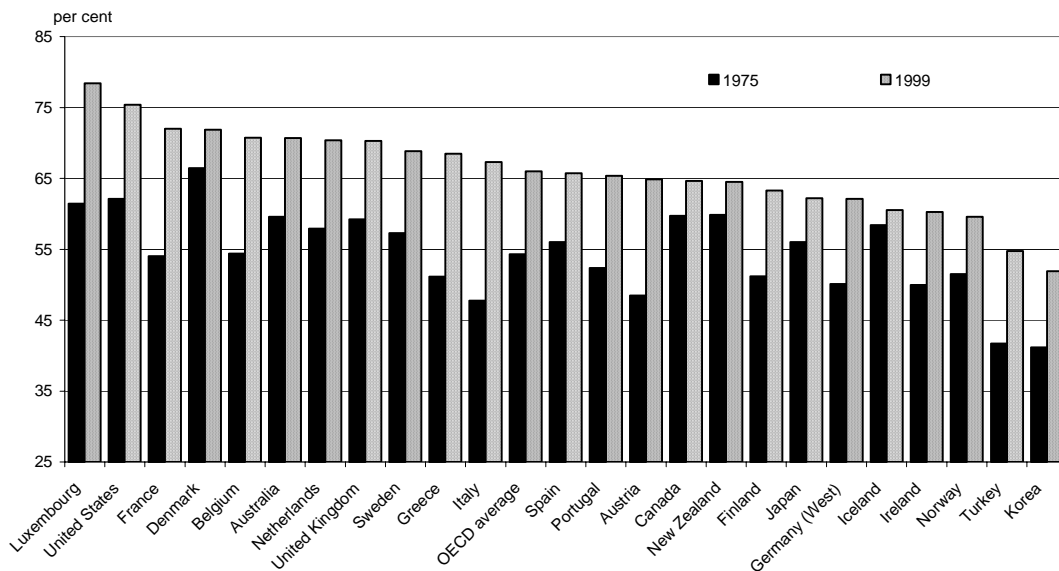
The story for service employment is similar to that of output. In 1998, services accounted on average for 63.5 per cent of total employment in the OECD area. Australia had the third highest service employment share (73.3 per cent) after Luxembourg and the United States. From the mid-1980s to the late 1990s, the overall employment share accounted for by services increased by around 8 percentage points for the OECD as a whole. Despite this general increase, small declines in the service sector's employment share were observed in Canada, Sweden, Portugal, Netherland, Finland and Mexico over the period 1994-98. The OECD (2000a, p. 82) suggests that these declines 'probably reflected the greater cyclicity of industrial employment rather than the end to the secular rise in the service share.'

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<sup>6</sup> To facilitate international comparisons, utilities and construction are excluded from the analysis in this section (the OECD does not include utilities and construction in its definition of services). The numbers reported in figure 3.6 refer to the 24 OECD countries for which data are available (excludes the Slovak Republic, Czech Republic, Hungary, Poland, Switzerland and Mexico).

<sup>7</sup> The 11 countries for which disaggregated data are available are: Australia, United States, Japan, Canada, Italy, Germany, France, New Zealand, Finland, Korea and Denmark (OECD STAN Industrial Database, 2001).

**Figure 3.6 OECD service sector output shares, 1975 and 1999<sup>a</sup>**  
Share of gross value added, all activities, at basic prices



<sup>a</sup> Where 1999 data were not available, the latest available year was used as follows — Iceland (1997), Germany (West) (1995), New Zealand (1995), Norway (1997) and Sweden (1998).

Data source: *OECD Services Statistics on Value Added and Employment* (1996, 2001).

Service sector shares of employment have converged across industrialised countries in recent years. In the mid-1980s, the share of service jobs in total employment was larger in Australia, Canada, Denmark and the United States than in most other OECD countries. However, over the past 15 years, the gap has narrowed as services have come to play an increasing role in the economies of all OECD countries.

Despite the similarity in broad trends, differences in the composition of employment across countries remain (OECD 2000a, p. 79):

National differences in the composition of service employment appear to persist, even at similar levels of income, and to reflect factors such as differences in female participation, the size of the welfare state, regulatory policy and trade specialisation. Multivariate regression analysis confirms that the overall share of service employment, as well as the distribution of employment across disaggregated service activities, respond to a wide array of economic and demographic factors in addition to the overall level of economic development.

There are, however, some similarities between countries in intra-sectoral growth patterns. Distribution and social services are the biggest service industry group employers in all countries. Within distribution services, the largest share of jobs are in retail trade, while for social services, health activities are the largest employers in most countries. In general, employment growth has been more rapid in producer and social services than in distribution and personal services (OECD 2000a).

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Another interesting feature to emerge from examining the international data is that the growth in importance of services (measured in terms of its output share) continued to rise across all countries, including those with levels of income per person above those recorded for Australia. For example, over the 15 years or so in which the US moved from an average income level per person broadly equivalent to the Australian level in 2000 to its current level — some 20-25 per cent higher than Australia — services increased their share of US employment and output by around 6 percentage points.<sup>8</sup> Similar trends were evident in all the higher income countries examined in the study (OECD 2000a). This suggests further growth in services in Australia over the next decade or so as real per-capita incomes rise and the economy continues to mature.

### 3.3 Why have services grown so rapidly?

A number of factors are identified in the literature as contributing to the rapid growth of services.<sup>9</sup> The three most common include:

- higher consumer demand for services;
- higher business demand for services and greater use of outsourcing; and
- technological change/innovation and its impact on relative sector productivity growth rates.

Each of these factors is discussed briefly below.

#### *Higher consumer demand for services*

A common explanation for the rapid growth of services is that, as people's incomes rise, they spend a smaller proportion of their income on basic goods and a larger share on services.

The income elasticity of demand is an indicator of the relationship between changes in the demand for goods and services and changes in income.<sup>10</sup> Income elasticities

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<sup>8</sup> This is also true if income levels are converted to a comparable currency using appropriate purchasing power parity levels (World Bank 2000).

<sup>9</sup> See, for example, Clark (1940), Fuchs (1968), Baumol (1967), Elfring (1988) and Daniels (1993).

<sup>10</sup> Income elasticity of demand is a measure of the responsiveness of the quantity demanded of a good or service for a given change in income. It is calculated by dividing the percentage change in the amount of a good or service purchased by the percentage change in income. Demand is described as inelastic if the value of the income elasticity of demand is less than unity and elastic (that is, relatively responsive to changes in income) for values greater than unity.

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are not easy to measure. And, while the empirical evidence on the relative strengths of income elasticities for goods and services is mixed, there is some evidence to suggest that they are slightly higher for services (as a group) than for goods (see box 3.2).

Estimates of the income elasticity of demand for different categories of services and goods are also mixed. Demand for some services, such as air travel, and some goods, such as motor vehicles, has been found to be more responsive to changes in income than others (box 3.2).

**Box 3.2      Income elasticities of demand for goods and services**

A longstanding topic of debate among economists is whether services are more income elastic than goods. The results of the empirical work are mixed.

Fuchs (1968), in a comprehensive study of the US service sector, covering the period 1927 to 1965, reported income elasticities of demand for services of 1.12 and 0.93 for goods, with the differences mainly explained by low elasticities for food and tobacco. In contrast, the Economic Council of Canada (1978), in a study covering the period 1947 to 1986, found the income elasticity of demand for most services to be substantially greater than unity and well in excess of the income elasticity of demand for most categories of goods. An Australian study by Dowie (1970), found evidence of income elasticities for services in excess of 1.0, but expressed reservations about the data due to conflicting results depending on the time period studied. Similarly, the BIE (1980) found some evidence of income elasticities for services in excess of 1.0, but it too expressed doubts about the reliability of its results due to data limitations.

A number of studies have sought to estimate the income elasticities of demand for different categories of services. Summers (1985), using international cross-sectional data, found that services such as housing and medical care had income elasticities significantly greater than one, but income elasticities for recreation and education, transportation and communications were one or less.

Work by the Industry Commission (IC 1986), covering 110 commodity groups for Australia, found a number of commodity groups — including both goods and services — with relatively high income elasticities of demand. They included services such as air transport (2.2), repairs (1.4), finance (1.4) and business services (1.3), as well as goods such as consumer durables (1.5) and private vehicles (1.2).

There are, however, differing views on the role that rising incomes and relatively high income elasticities of demand have played in the growth of the service sector. Earlier studies by Fuchs (1968) and Baumol (1967), examining the growth of service employment in the United States from the late 1920s to mid-1960s, concluded that these factors played only a minor role.

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Gershuny (1978), in a study of the final demand for services in the United Kingdom, showed that the proportion of household income spent on services had remained relatively constant over the period 1954 to 1974, although higher income households were found to spend a greater proportion of their income on services. Gershuny argued that growing consumer spending had resulted in the growth of a 'self-service economy' where relatively cheaper manufactured goods were increasingly relied upon to satisfy service needs. Examples include increasingly cheap prices of motor cars relative to railway season tickets, of washing machines relative to laundry services, and of televisions, video recorders and computer games relative to concert tickets.

In contrast, a number of more recent studies have concluded that income and demand factors have been significant drivers of the growth in services. For example, the OECD found that GDP per capita has had a positive impact on the overall service share. It argued that (2000a, p. 101):

This finding suggests that the expansion of the services sector is not simply a matter of the 'cost disease' [or different rate of productivity growth between sectors and associated relative price movements] diagnosed by Baumol (1967). Rather, some services appear to be luxury goods with income elasticities greater than unity. (*Section in [] added to quote.*)

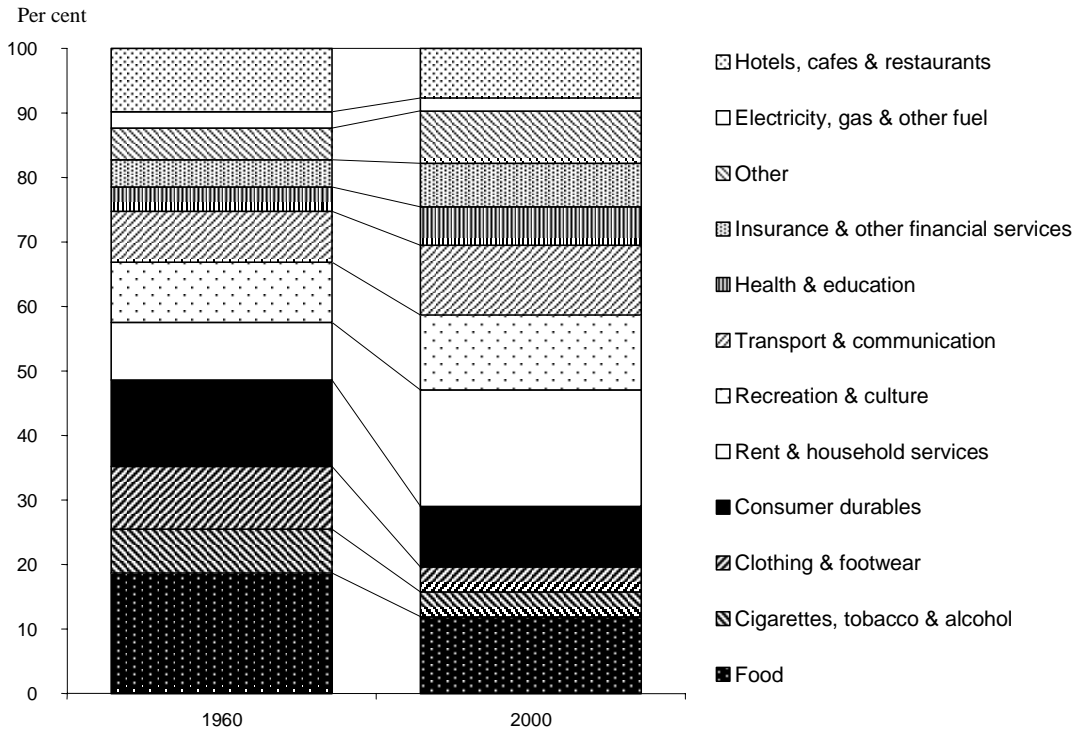
Appelbaum and Schettkat (1997), suggest that one possible explanation for the diverse empirical results is the degree of maturity of the market being studied.

Demographic and lifestyle changes have also contributed to the growth of consumer services. For example, as the workforce participation rates of women have increased, many predominantly 'service-type' activities previously undertaken within households have become part of the paid economy. With less time available for work in the home and more disposable income, demand for services such as takeaway food, cleaning, gardening, childcare and care for the elderly have increased. The OECD (2000a) found that higher female participation rates were associated with higher employment shares for social and producer services.

Australian household consumption data confirm that an increasing proportion of household income is now spent on services. While in 1960, almost 50 per cent of the consumption expenditure of the average Australian household went towards food, clothing and footwear, and consumer durables (such as cars, furniture and appliances), by 2000 it had fallen to under 30 per cent (figure 3.7). Over the same period, the share of household income spent on services increased by the equivalent

amount. The bulk of this increase was taken up by growth in spending on rent and household services, recreation and culture, insurance and financial services.<sup>11</sup>

**Figure 3.7 Australian household final consumption expenditure shares, 1960 and 2000**  
Current prices



Data source: EconData (2001).

The growth in consumer demand, however, only partly explains the growth in services. For some service industries, such as property and business services, business demand has been far more important than consumer demand. This is discussed next.

<sup>11</sup> Household expenditure data understate consumption because they exclude services provided by governments. For example, at around 6 per cent of household expenditure, health and education services' relative importance is greatly understated. In 1998-99, public sector (Commonwealth, State/Territory and Local Government) outlays on health and education amounted to 7.3 and 5.6 per cent of GDP, respectively. These shares are around twice as large as they were at the start of the 1960s. However, most of the increases occurred in the first half of the 1970s. Since then, public outlays on health and education have increased at approximately the same rate as GDP (EconData 2001).



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### *Higher business demand for services and greater use of outsourcing*

A second common explanation for the growth of services partly relates to the growth of demand for intermediate and business-related services and partly to the changing structure of business organisations, in particular the contracting out of activities previously undertaken in-house.

Marshall and Woods (1995, p. 20) suggest that the following factors are important in explaining the growth of business services:

- the emergence of new goods and service ‘products’ requiring specialist service support;
- transformations in the way goods and services are produced, arising from process innovations, which increase demand for specialist services;
- increasingly complex and internationally integrated financial, production and distribution environments which require additional service support;
- changes in government regulation and intervention that increase the need for businesses to monitor and analyse changes; and
- the proliferation of tasks related to the internal management and administration of firms, especially complex multinational businesses.

As discussed in chapter 2, there is evidence of a convergence in the production systems between manufacturing and services — services are increasingly being embodied in manufactured goods and developments in information and communication technology have contributed to the restructuring of both service and manufacturing industries. Pappas and Sheehan (1999), for example, note that the actual costs of manufacturing and packaging a pharmaceutical product can now be as little as 5-10 per cent of the total value of the product — with the remaining costs made up of a mix of service activities including planning, patenting, patient testing, regulatory approval, marketing and distribution.

Changes in sectoral intermediate input usage coefficients from Australia’s input-output tables confirm the increased supply of intermediate inputs by service firms. Between 1980-81 and 1993-94, the overall share of the output of the service sector used as intermediate inputs (by other goods and service firms) increased by 3.6 percentage points (from 33.5 per to 37.1 per cent).<sup>12</sup>

Firms and government agencies over the last twenty years or so have also increased their reliance on specialised externally supplied expertise for a wide range of services such as legal, accounting, computing, human resource management,

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<sup>12</sup> Estimates based on ABS Cat. no. 5209.0 (various years).

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cleaning, maintenance, advertising and marketing. This trend is confirmed by surveys conducted in the United States and Europe. For example, a survey by the Outsourcing Institute (1997) found that companies in the United States, with over US\$80 million in annual revenues, increased outsourcing by 26 per cent in 1997. Information technology was found to be the fastest growing activity being outsourced (30 per cent of total outsourcing expenditure), followed by marketing and sales (14 per cent) and finance (11 per cent). Manufacturers accounted for nearly two-thirds of the outsourcing (OECD 2000d).

There are only very limited data on contracting out in Australia. The 1995 Australian Workplace Industrial Relations Survey, found that the use of outworkers, contractors and agency workers increased from 4.7 to 6.5 per cent of total employment between 1990 and 1995. Also, 35 per cent of surviving workplaces from the 1990 survey had contracted out services that were previously performed by (in-house) employees (Morehead et al. 1997). The Industry Commission (1996) also found that competitive tendering and outsourcing by many public agencies for the delivery of cleaning, information technology, construction, maintenance and technical services had increased sharply in Australia during the 1990s.

The reasons for increased outsourcing include pressures on firms to focus on their core competencies, reduce costs and exploit economies from using specialised external expertise (box 3.3). Outsourcing can also improve firm performance via access to a wider knowledge base, skills, technology, better management and work practices and better use of capital.

While there are many benefits associated with outsourcing, the OECD (2000d, p. 17) has alluded to emerging constraints on its growth:

There are, however, limitations to its growth, to the extent that firms become concerned about the potential leakage of strategic information, loss of competence and control in outsourced activities, and reduced acquisition of 'know-how'. Other obstacles include immature and inefficient service markets, information asymmetries and little experience in measuring and evaluating country-specific laws and regulations, contractual issues, organisational considerations, employment mobility and related human resource issues and public procurement rules.

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### Box 3.3     **Some factors driving outsourcing**

*Cost and efficiency.* Outsourcing firms that provide support services to other firms are often able to do so at lower cost while offering a wider choice of services. This reflects the positive effects of competition — in house providers of such services are likely to be shielded from competition, a condition which lessens the pressures to be efficient and the incentives and need to innovate.

*Competence.* The increasing sophistication of information, financial, computer, research and training needs by business and the rapid evolution of new techniques and products in these fields have made it increasingly difficult for firms to build and maintain competitive competence in these areas.

*Specialisation.* The trend in industry in recent years has been towards consolidation and concentration on core competencies, a development which has provided new opportunities for independent suppliers of both goods and services.

Source: OECD 2000d.

It is difficult to separate the growth in services arising from the increasing service/information intensity of economic activity from that due to contracting out by goods firms of activities previously performed in-house. However, a recent OECD study which looked at the occupational mix of employment between ‘white collar’ and ‘blue collar’ jobs for the goods and service sectors across OECD countries, found that white collar jobs increased their concentration in all sectors of OECD economies, and concluded that (2000a, p. 82):

... differences in the service share cannot be attributed primarily to differences in the extent to which goods-producing firms outsource service-type work to firms in the service sector.

Similarly, Pilat (2001, p. 20) argues:

While some studies have attributed the growth in services to outsourcing, empirical studies for Germany and the United States suggest that this only explains a small part. Outsourcing aside, there has been an increase within manufacturing firms of (mainly white-collar) workers who undertake functions that are also being performed by specialised service firms. However, many service functions now provided by the latter are entirely new and were not previously performed by manufacturing firms.

### *Technological change and its impact on relative sector productivity growth*

The third common explanation attributes part of the rising share of services to slower rates of productivity growth for the service sector relative to other sectors of the economy. One argument is that the nature of many services means that they have less potential (compared with activities in the goods sector) for productivity

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improvements as they are less easily automated or affected by technological improvements. Indeed, in some cases, reducing labour input may not be possible. Baumol and Bowen (1966), for example, spoke about the ‘cost disease of the performing arts’ — a quartet requires the same number of musicians, and the same amount of time to perform in the late 20<sup>th</sup> century as it did in the 18<sup>th</sup> century.

The cost disease phenomenon suggests that services that have low or ‘stagnant’ productivity growth (such as the performing arts) will increase in cost relative to industries/sectors with high productivity growth. This comes about because, while all industries pay the same input and wage costs, high productivity growth industries use less and less of these inputs per unit of output. Put another way, higher productivity growth in the goods sectors frees up labour and capital to be absorbed by the expanding service sector — hence, the view that the growth in the output and employment shares of services in industrialised countries can largely be attributed to services being ‘productivity laggards’.

Considerable weight is given in the literature to lagging service sector productivity as an explanation for the growth of services. Both Fuchs (1968) and Baumol (1967), on analysing growth in employment in the United States from the late 1930s to mid-1960s, argued that more than half of the growth in service employment could be explained by the lagging productivity of services. More recent studies, such as those Pellegrini (1993) and Gershuny and Miles (1993), also suggest that productivity differences are important when it comes to explaining the growth of services.

However, productivity trends among service industries differ substantially, with some services experiencing rapid productivity growth in recent times. Productivity differences among sectors also need to be interpreted with care because of difficulties associated with accurately measuring output and taking quality improvements into account for many services. As Pilat (2001, p. 23) said ‘measurement problems may obscure actual productivity gains.’ These issues are taken up in chapter 6.

### **3.4 Services outlook**

The growth in services is predicted to continue. As the OECD (2000d, p. 13) said:

Services play a key role in OECD countries. ... Their growth has exceeded overall economic performance for decades, which has resulted in the share of services in total economic activity increasing over time. The rising trend can be expected to continue, or even accelerate, in light of the increasing prominence of knowledge-based, service-oriented activities in the OECD area.

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Forecasting at a sectoral or industry level, however, is not easy. It is difficult enough identifying, let alone quantifying the factors that have driven past shifts in industry structure. Also, many factors, such as changes in consumer tastes and technological developments are, by their nature, inherently uncertain.

Nonetheless, a number of Australian studies suggest that the output of Australia's service sector will grow over the next 5-10 years at a similar rate to that experienced in recent decades. For example, over the period 2000-01 to 2005-06, Access Economics (2001b) forecast output in the service sector to grow at an average annual rate of around 2.8 per cent, while over the medium term — 2000-01 to 2009-10 — the Centre of Policy Studies (CoPs) at Monash University forecast an annual growth rate for service output of around 4 per cent. In line with outcomes in recent decades, these forecasts suggest that service sector output is likely to grow at a faster rate than the economy as a whole (table 3.2).

Communications are expected to continue to be the fastest growing industry, in terms of output, in the economy. Over the next five years, their output is expected to grow in excess of 5 per cent per annum and at an average of around 6 per cent over the next ten years. As Access Economics (2001a, p. 10-11) said:

Communications has been the standout sector for some time. ...we expect little change going forward. Although hopes for them have been far over-hyped, much of the market expanding migration to digital TV, broadband cable and 3G mobile handsets remains ahead.

However, in the short-term, an international downswing in information technology demand and rapidly approaching saturation in mobile phone markets may mean that output growth in this service industry may not be as rapid as it has been in recent years.

Property and business services, community service and finance and insurance, are also expected to continue to be among the higher output growth service industries over the next five years.

Over the medium term, recreational and personal services are expected to grow at a faster rate than that experienced in recent decades. One of the factors expected to drive the growth of such services is the increased outsourcing of household services, such as gardening and housekeeping, by cash-rich and time-poor households.

The make-up of the slower output growth group of service industries is also unlikely to change. Outputs of electricity, gas and water, along with government administration and defence, are expected to grow at rates well below the average for services as a whole and the economy in general.

**Table 3.2 Output and employment forecasts for Australian industries**

Average annual growth rates<sup>a</sup> — per cent

	<i>Access Economics 2000-01 to 2005-06</i>		<i>CoPs 2000-01 to 2009-10</i>	
	<i>Output</i>	<i>Employment</i>	<i>Output</i>	<i>Employment</i>
Agriculture	1.9	0.4	2.3	0.3
Mining	2.7	1.3	2.7	-2.5
Manufacturing	2.1	-0.1	3.8	1.1
<b>Goods sector</b>	<b>2.2</b>	<b>0.1</b>	<b>3.3</b>	<b>0.7</b>
Transport and storage	2.2	0.9	4.1	0.6
Communications	5.5	0.6	6.1	-1.3
Electricity, gas and water	2.0	-0.6	3.3	-6.3
Construction	2.3	2.0	3.5	2.4
Wholesale and retail trade	2.5	2.3	3.6	2.2
Finance and insurance	2.7	1.7	6.0	-1.9
Property and business services	3.7	1.3	4.2	2.8
Government administration and defence	1.8	1.2	2.4	1.4
Community services (health and education)	3.0	2.5	3.0	2.0
Recreational and personal services	1.6	1.3	3.7	1.1
<b>Service sector</b>	<b>2.8</b>	<b>1.8</b>	<b>4.0</b>	<b>1.7</b>
<b>Total economy</b>	<b>2.6</b>	<b>1.5</b>	<b>3.9</b>	<b>1.5</b>

<sup>a</sup> Compound growth rates.

*Data source:* Access Economics (2001b), Five Year Business Outlook and manipulations of data supplied by CoPS, Monash University.

According to Access Economics and CoPs, employment in the service sector is also expected to continue to grow at a faster rate than the economy as a whole — 1.8 per cent per year over the period 2000-01 to 2005-06 and 1.7 per cent per year over the period 2000-01 to 2009-10, compared with 1.5 per cent per year for the economy as a whole. Over the short-term, employment growth is forecast to be most rapid for community services while over the longer term, property and business services are expected to record the highest employment growth. Other service industries expected to record above average employment growth over the next 5 years include wholesale and retail trade and construction. In contrast, employment in electricity, gas and water is expected to decline (table 3.2).

Over the ten year period, the forecasts from CoPs suggest that property and business services, construction, wholesale and retail trade and community services are likely to record above average employment growth while communications, electricity, gas and water, and finance and insurance are expected to experience declines in employment.

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## 4 Jobs in the service sector

**Most Australians work in the service sector. Jobs in this sector are diverse and include hairdressers, doctors, builders, architects, computer programmers and financial consultants. All the net growth in jobs in Australia over the past thirty-five years — an increase of 4.3 million jobs — has been in services. And, over the past fifteen years, service jobs have grown slightly faster in non-metropolitan regions. Service sector jobs tend to be more highly paid than jobs in the goods sector. The skills of service workers also compare favourably with those of the goods sector. And, while the incidence of part-time and casual work is higher in the service sector than in the goods sector, the majority — more than 70 per cent — of service workers are full-time.**

It is not uncommon for service sector jobs to be viewed as being low-skilled, poorly paid and/or part-time. With services accounting for four out of every five jobs in Australia, and the share of jobs in the sector continuing to rise, some people question the capacity of the sector to generate ‘proper’ jobs. The debate about the implications of the growth of service jobs, for example, is often couched in terms of a shift away from ‘good’ to ‘bad’ jobs. This chapter takes a close look at jobs in the service sector and what their growth has meant for the types of jobs being created in Australia.

The first section of the chapter looks at where the jobs are in the service sector, while the second section looks at where the growth has been in recent years. The third section seeks to answer a number of questions. Are service sector jobs poorly paid? Are they typically low-skilled? Are service jobs mainly part-time or casual? And, are the new service jobs largely concentrated in urban areas? The final section profiles the diversity of service jobs by drawing out some of the distinguishing features of workers across five broad service industry groups.

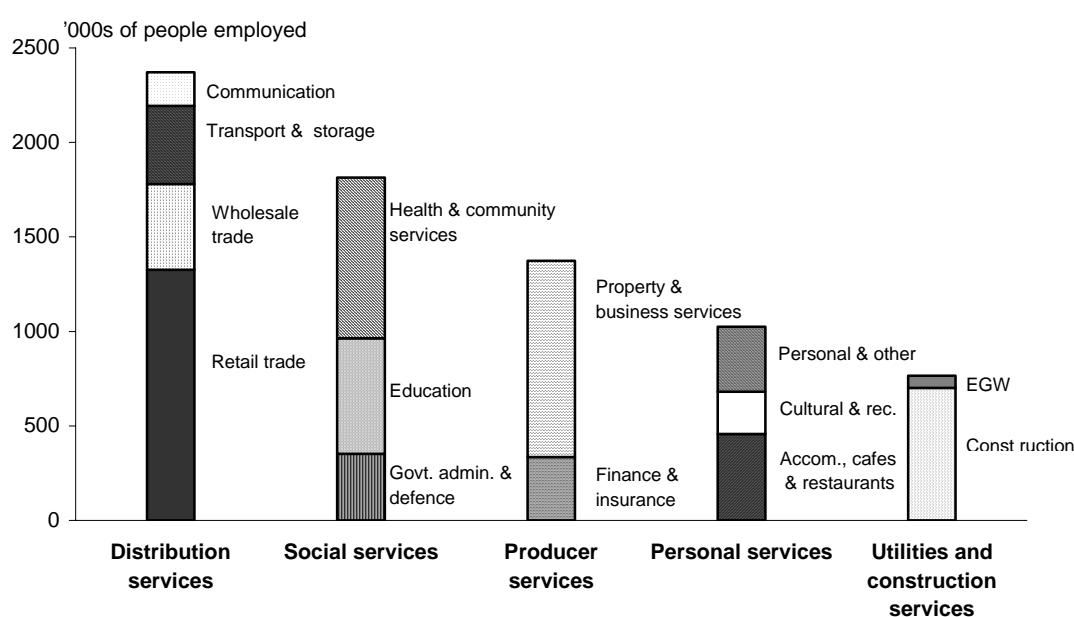
### 4.1 The service sector — where most Australians work

Most Australians work in the service sector. In 2000-01, 7.4 million Australians, or 82 per cent of the workforce, were employed in service jobs. And, despite common perceptions that the sector largely employs ‘hairdressers’ and ‘pizza deliverers’, there is considerable diversity in the nature of service employment. The extensive

list of service jobs includes — doctors, lawyers, truck drivers, builders, tilers, sales assistants, bank tellers, property managers, entertainers, computer technicians and programmers, architects, business and financial consultants — to name just a few.

Of the five service industry groups, distribution services are the biggest providers of service jobs. Around 2.4 million people, or almost a third of all those employed in services, are employed in this group. The biggest employer within distribution services is retail trade. In 2000-01, it employed over 1.3 million people (figure 4.1).

**Figure 4.1 Employment in the five service industry groups, 2000-01**



Data source: EconData (2001).

Social services are the second largest employer group — employing around 1.8 million people in 2000-01. Most of the jobs within this group are in the areas of health, community and educational services. Producer services — covering a wide range of business and financial services — employed around 1.4 million people.

The personal services group (covering people employed in hairdressing salons, cafes, hotels, etc), is the second smallest service group employer. In 2000-01, it employed around 1 million people. Utilities and construction services are the smallest employer service group, employing just under 800 000 in 2000-01.

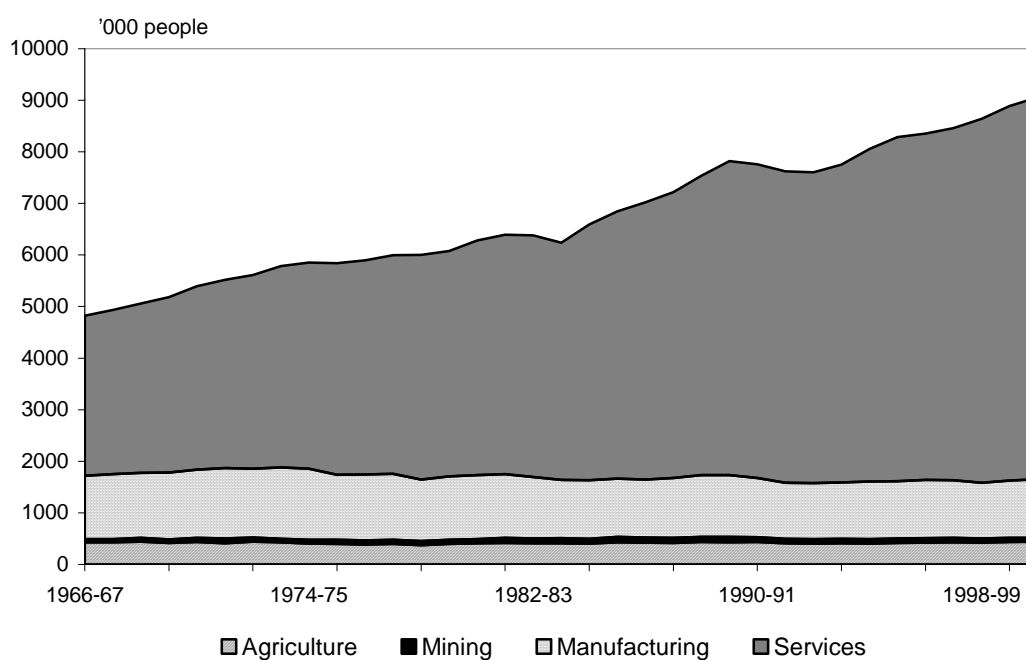


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## 4.2 Trends in service employment

All of the net increase in employment in Australia in the past thirty-five years — over 4.3 million jobs — has been in the service sector (figure 4.2).

Figure 4.2 Employment growth by sector, 1966-67 to 2000-01



Data source: RBA (1996) and EconData (2001).

The growth in service jobs, however, has not meant that there has been a mass movement of workers *out* of the goods sector (that is, agriculture, mining and manufacturing) into services. While there has been considerable restructuring within the goods sector away from labour intensive activities, the number of goods sector jobs fell only slightly over the period 1966-67 to 2000-01 — from 1.72 to 1.65 million jobs — or around 200 jobs a year. By comparison, between 1977 and 1997, over half a million people retired from full-time employment in the goods sector (latest available data, ABS 1998b).

While new jobs were created in all five service industry groups in Australia, since the mid-1980s,<sup>1</sup> employment growth was most rapid for producer services. This group accounted for almost one-third of Australia's employment growth over the period. This was largely driven by very rapid growth in property and business service jobs — around 6 per cent a year, or three times more than the national average (table 4.1).

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<sup>1</sup> Detailed industry data are not available on a consistent basis prior to 1984-85 due an industry classification change by the ABS from ASIC to ANZSIC.

Table 4.1 **Industry contributions to total employment growth, 1984-85 to 2000-01**

<i>Industry</i>	<i>Employment level (2000-01)</i>	<i>Absolute change over period</i>	<i>Contribution to growth in total employment</i>	<i>Trend annual growth<sup>a</sup></i>
	'000 of people		Per cent	
<b>Distribution services</b>	<b>2378.7</b>	<b>570.5</b>	<b>23.0</b>	<b>1.6</b>
Retail trade	1335.3	443.6	17.9	2.3
Wholesale trade	439.1	23.5	0.9	0.7
Transport and storage	421.8	70.6	2.8	0.8
Communications	182.6	32.9	1.3	0.8
<b>Social services</b>	<b>1864.4</b>	<b>560.8</b>	<b>22.6</b>	<b>2.1</b>
Health and community services	876.6	336.6	13.6	2.8
Education	621.6	181.1	7.3	2.1
Government admin & defence	366.2	43.1	1.7	0.6
<b>Producer services</b>	<b>1420.1</b>	<b>731.7</b>	<b>29.5</b>	<b>4.0</b>
Property and business services	1082.6	663.0	26.7	5.8
Finance and insurance	337.6	68.7	2.8	0.4
<b>Personal services</b>	<b>1039.6</b>	<b>476.0</b>	<b>19.2</b>	<b>3.8</b>
Accom., cafes & restaurants	470.7	245.0	9.9	4.4
Personal and other services	343.0	123.6	5.0	2.9
Cultural & recreational services	225.9	107.4	4.3	3.9
<b>Utilities and construction services</b>	<b>748.8</b>	<b>141.6</b>	<b>5.7</b>	<b>0.9</b>
Electricity, gas and water	65.7	-70.8	-2.9	-5.4
Construction	683.2	212.5	8.6	2.0
<b>Services</b>	<b>7451.7</b>	<b>2480.6</b>	<b>100.0</b>	<b>2.3</b>
<b>Goods</b>	<b>1638.7</b>	<b>0.3</b>	<b>0.0</b>	<b>-0.2</b>
<b>Total economy</b>	<b>9090.4</b>	<b>2480.9</b>	<b>100.0</b>	<b>1.8</b>

<sup>a</sup> The growth rates presented in this chapter are estimated by fitting a log-linear trend line through the data series.

Source: ABS Cat. no. 6203.0.

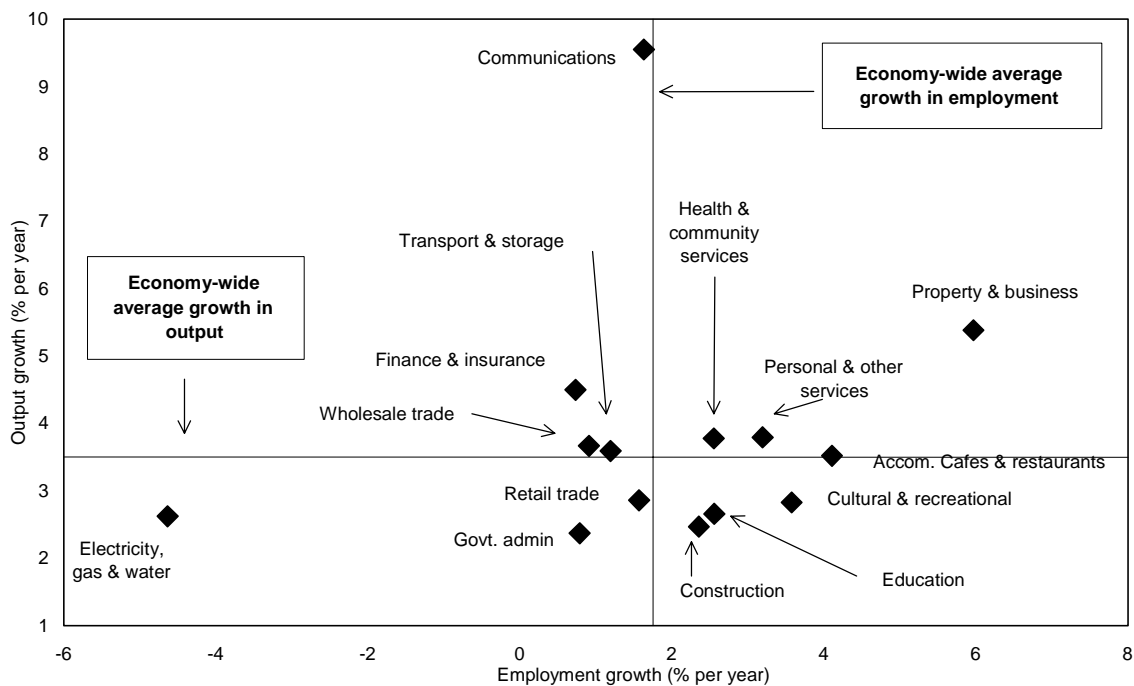
Personal services also expanded rapidly. Employment in this group grew at more than double the national average rate and contributed to one-fifth of Australia's new jobs. This was driven by strong growth in accommodation, cafes and restaurants (4.4 per cent a year), cultural and recreational services (3.9 per cent a year) and personal and other services (2.9 per cent a year). Social services, notably health and community services, also recorded above average employment growth.

Both distribution services and utilities and construction recorded below average employment growth. Nevertheless, given their large absolute size, distribution services generated about a quarter of Australia's new jobs since the mid-1980s. This mainly reflected solid growth in retail trade (444 000 new jobs). The relatively

weak employment growth for the utilities and construction services group reflected losses of over half the workforce associated with restructuring of the electricity, gas and water industries. Growth in construction jobs (of over 212 000) more than offset these losses.

While growth in output and employment for the service sector as a whole is similar, this is not the case at the industry level (figure 4.3). For example, while communications and finance and insurance experienced the most rapid growth in output, these industries had below average employment growth. Conversely, some of the below-average performers in terms of output, such as education and cultural and recreational services, generated employment growth rates well above the national average.

**Figure 4.3 Service output and employment growth<sup>a</sup> by industry relative to the national average, 1984-85 to 2000-01**



<sup>a</sup> Employment growth rates were calculated on an 'hours worked' basis to standardise for changes in industry work arrangements over the period. As would be expected, movements in the hours worked and employment data series are closely related — growing at a trend rate of 1.75 and 1.76 per cent a year for the economy as a whole between 1984-85 and 2000-01 — while services grew at 2.31 per cent a year on an hours worked basis and 2.30 per cent a year on an employment basis. The two main exceptions were retail trade and communications. The trend annual growth rate for the retail trade industry dropped from 2.3 to 1.6 per cent when measured on an hours worked basis due to an increase in part-time employment, while the communications industry trend annual growth rate rose from 0.8 to 1.6 per cent.

Data source: EconData (2001).

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### 4.3 Service jobs — the ‘good’ versus ‘bad’ jobs debate

The growth in service employment has sparked concerns by some about its implications for the nature and quality of employment opportunities across the economy. Some question the capacity of the service sector to generate well-paying, highly skilled, full-time jobs. For example, the Australian Centre for Industrial Relations Research and Training (ACIRRT 1999, p. 1) observed:

The other side of the coin to job shedding in blue-collar occupations has been a dramatic growth in service occupations, but the jobs here have been overwhelmingly part-time or casual. Consequently, the new jobs do not make up for those well-paid full-time jobs which have been lost.

And (p. 138, original emphasis):

In many respects, *the 1990s is a story about the loss of ‘proper jobs’, an upward trend in all kinds of non-standard forms of employment which undermine people’s job security.*

Ongoing service sector growth, in conjunction with microeconomic reforms affecting both goods and service industries, has also raised questions about the potential for employment growth in rural and regional Australia (see, for example, PC 1999a).

In response to this debate, this section looks at the evidence in relation to whether or not service jobs are low paying, low-skilled, mainly part-time or casual, as well as their regional concentration and growth.

#### Are service jobs low paying?

While there are a number of dimensions to job quality, the rate of pay that is associated with a job is obviously an important factor. Studies of earning differentials suggest that pay rates are highly correlated with the level of skill required, tenure in the job, work experience and/or the complexity of tasks involved. More highly paid employees also tend to have better working conditions and greater autonomy in their work schedules. This suggests that pay rates can be used as a proxy for job quality.

Data on average weekly full-time earnings in Australia show that service jobs are more highly paid than goods sector jobs. In August 2000,<sup>2</sup> average full-time earnings by workers in the service sector were around 4 per cent, or about \$33 per week, more than the goods sector (table 4.2).

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<sup>2</sup> Latest available data on a consistent and comprehensive industry basis (ABS 2001b).

Table 4.2 **Comparison of average weekly full time earnings by industry, August 2000<sup>a</sup>**  
Current prices

	<i>\$ per week</i>	<i>% of national average wage</i>
<b>Distribution services</b>	<b>735</b>	<b>92</b>
Retail trade	583	73
Wholesale trade	770	96
Transport and storage	892	111
Communications	922	115
<b>Social services</b>	<b>813</b>	<b>101</b>
Health and community services	740	92
Education	858	107
Government admin & defence	854	107
<b>Producer services</b>	<b>939</b>	<b>117</b>
Property and business services	916	114
Finance and insurance	999	125
<b>Personal services</b>	<b>709</b>	<b>88</b>
Accom., cafes & restaurants	590	74
Personal and other services	737	92
Cultural & recreational services	865	108
<b>Utilities and construction services</b>	<b>836</b>	<b>104</b>
Electricity, gas and water	1003	125
Construction	809	101
<b>Services total</b>	<b>807</b>	<b>101</b>
Agriculture	563	70
Mining	1263	158
Manufacturing	767	96
<b>Goods total</b>	<b>774</b>	<b>97</b>
<b>Total economy</b>	<b>801</b>	<b>100</b>

<sup>a</sup> Latest available data on a consistent basis for all industries. Weekly earnings include the amount of 'last total pay' from wage and salary jobs (including overtime and other payments and before taxation and other deductions are made). Ideally, earnings should be compared across industries on an hours-worked basis, however these data are not available on a comprehensive industry basis. Instead, total average weekly wages in main job (full time) are used. Estimates on hours worked (ABS Cat. no. 6306.0) indicated that in 2000 full-time employees in the goods sector worked approximately 5 per cent more hours than the average full-time service sector employee.

Source: ABS Cat. no. 6310.0.

These results are broadly in line with other developed countries. For example, a recent international comparison found that, in most developed countries, average service sector earnings were slightly higher, or around the same, as in the goods producing sector (OECD 2001a).

The relationship between average earnings in the goods and service sectors has remained fairly stable since the mid-1980s. For example, in August 1986, the

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average earnings for a full-time service sector worker was 4 per cent (\$21) above the average for the goods sector.

However, while full-time service jobs on average are more highly paid than goods sector jobs, service sector earnings are:

- significantly below average earnings in the mining sector (58 per cent);
- significantly above average earnings in the agricultural sector (30 per cent); and
- slightly higher than average earnings in the manufacturing sector (5 per cent).

Average earnings do, however, vary significantly across service industries. The highest paid service jobs are in the electricity, gas and water, and finance and insurance industries (25 per cent or \$200 per week higher than the national average of \$801 in 2000). Other highly paid service jobs include those in communications, property and business services, and transport and storage (15, 14 and 11 per cent, respectively, above the national average). The lowest paid service jobs are found in retail trade and accommodation, cafes and restaurants (about 75 per cent of the national average in 2000).

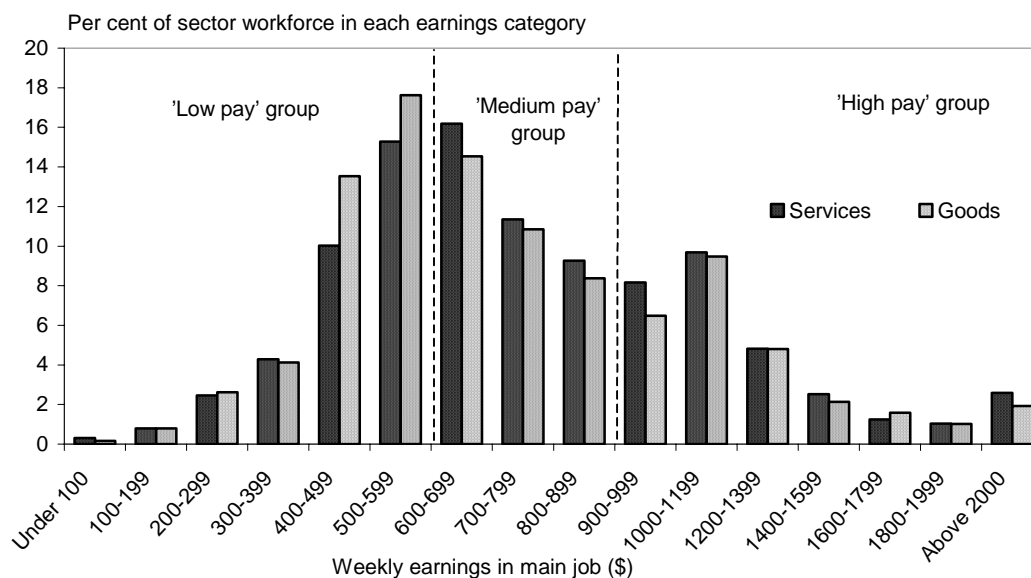
And, while there are some service industries with a high proportion of relatively low paid employees (for example, retail trade and accommodation, cafes and restaurants), the likelihood of a service sector worker earning a low income is considerably below that for the goods sector. In August 2000, 39 per cent of all full-time goods employees earned less than \$600 per week, compared with 33 per cent of all service sector employees (figure 4.4). Service sector employees were more likely to fall into the 'medium pay' (\$600 to \$900 per week) and 'high pay' (above \$900 per week) brackets than were goods employees.

Part-time earnings also need to be considered given the high proportion of part-time workers in the service sector (see section below on part-time and casual jobs). For a broadly similar number of hours worked, the average part-time worker in the services sector earned \$291 per week in August 2000 — around 9 per cent below the average wage of a part-time worker in the goods sector (\$316 per week).<sup>3</sup> The lower earnings for part-time service workers reflects the fact that a greater proportion of these employees work in relatively low-pay industries such as retail trade and accommodation, cafes and restaurants.

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<sup>3</sup> Differences in hours worked are minor. In 2000-01, the average number of hours worked by part-time workers in the service sector was 17.0, compared with 16.8 in the goods sector (EconData 2001).

**Figure 4.4 Distribution of services and goods sector full-time employees by earnings category<sup>a</sup>, August 2000**  
Current prices



<sup>a</sup> Data refer to weekly earnings in main job for full-time employees. Following OECD (2001a), the three broad groups were structured so that each accounted for as close to one-third of total employment as was possible given the categories available — the low, medium and high pay groups accounting for 34, 36 and 30 per cent respectively of Australia's total employment.

Data source: ABS Cat. no. 6310.0.

### Are service jobs low-skilled?

The skills required in most occupations are multidimensional, ranging from physical attributes to analytical ability and interpersonal skills. While there is no single measure for determining the overall skill level of the employed workforce, proxies based on educational attainment and occupational classification are commonly used (see, for example, OECD 1994, Colecchia and Papaconstantinou 1996, de Laine, et al., 2000).

Data on educational attainment show that it is incorrect to characterise service jobs as low-skilled. In 2000, 54 per cent of workers in the service sector had post-secondary education qualifications, compared with 47 per cent of goods sector workers (table 4.3). And, the average service sector worker was twice as likely as a goods sector worker to hold a bachelor degree or higher (22 per cent for services compared with 11 per cent for goods). By contrast, vocational qualifications are more prevalent in the goods sector.

Table 4.3 **Educational attainment of employed persons, 2000<sup>a</sup>**

	Services	Goods	Total
<b>Share of workforce with:</b>		%	
Higher degree	3.0	1.0	2.6
Postgraduate diploma	3.1	1.0	2.7
Bachelor degree	15.6	9.2	14.5
Undergraduate diploma	6.3	3.9	5.9
Associate diploma	3.8	2.9	3.6
Skilled vocational qualification	12.9	19.9	14.2
Basic vocational qualification	9.0	9.0	9.0
<b>Total with post-school qualification</b>	<b>53.7</b>	<b>46.9</b>	<b>52.4</b>
Completed highest level of secondary school	20.1	16.1	19.4
Did not complete highest level of secondary school	26.2	37.0	28.2
<b>Total without post-school qualifications</b>	<b>46.3</b>	<b>53.1</b>	<b>47.6</b>
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

<sup>a</sup> Data relate to all employed persons aged 15-64, excluding persons still at school.

Source: ABS Cat. no. 6227.0.

There are, however, considerable variations in the education profiles of the various service industry groups. Social and producer services have the highest proportions of degree holders (42 and 31 per cent, respectively), while distribution services and utilities and construction have the lowest shares (9 and 6 per cent, respectively).

For analysing trends in occupations, four occupational groups have been constructed (these groups were also used in Barnes, et al. (1999) and OECD (1996)).<sup>4</sup> They cover:

- *high-skilled white collar*, which includes professionals, associate professionals and managers and administrators;
- *high-skilled blue collar*, which includes tradespeople;
- *low-skilled white collar*, which includes clerks, salespersons and personal service workers; and
- *low-skilled blue collar*, which includes production and transport workers and labourers.<sup>5</sup>

Around 80 per cent of Australia's high-skilled employees work in service industries — 84 per cent of high-skilled white collar workers and 69 per cent of high-skilled

<sup>4</sup> Data from the Australian Standard Classification of Occupations (ASCO versions 1 and 2) for the period 1986 to 2001 were used for this section (see ABS Cat. no. 1232.0 for further information).

<sup>5</sup> While these occupational groups are somewhat arbitrary (the distinction between high and low skill is not clear-cut), they can be useful for analysing jobs by skill level.



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blue collar workers. The service sector also accounted for all the growth in high-skilled jobs between 1986 and 2001 — an increase of just over 40 per cent or almost 900 000 high-skilled jobs. Over the same period, the number of high-skilled jobs in the goods sector fell by 13 000 (table 4.4).

The growth in demand for high-skilled employment (both white and blue collar) between 1986 and 2001 reflected two complementary factors:

- compositional shifts in employment *between* different industries — industries with relatively high proportions of highly-skilled workers in 1986 increased their shares of economy-wide employment at the expense of industries which traditionally employed more low-skilled workers; and,
- changes occurring *within* Australia's industries towards a greater demand of highly-skilled workers — this trend towards greater usage of high-skilled workers was evident across virtually all industries (both goods and services).

The service sector also employs more than three-quarters of all low-skilled workers. In 2001, 91 per cent of low-skilled white collar workers and 58 per cent of low-skilled blue collar workers were employed in the service sector. While high-skilled workers predominate, the absolute size of the service sector means that it is also a major employer of low-skilled workers.

Services were also responsible for all of growth in low-skilled employment over the period 1986 to 2001 — an increase of around 7.5 per cent or around 149 000 low-skilled jobs. Over the same period, the number of low-skilled jobs in the goods sector fell by around 6 per cent (table 4.4).

Sector shares (presented in figure 4.5) also indicate that service sector workers are, on average, at least as highly skilled as goods sector workers. In 2000-01, 59 per cent of service sector employees worked in high-skilled occupations, compared with 55 per cent for the goods sector.

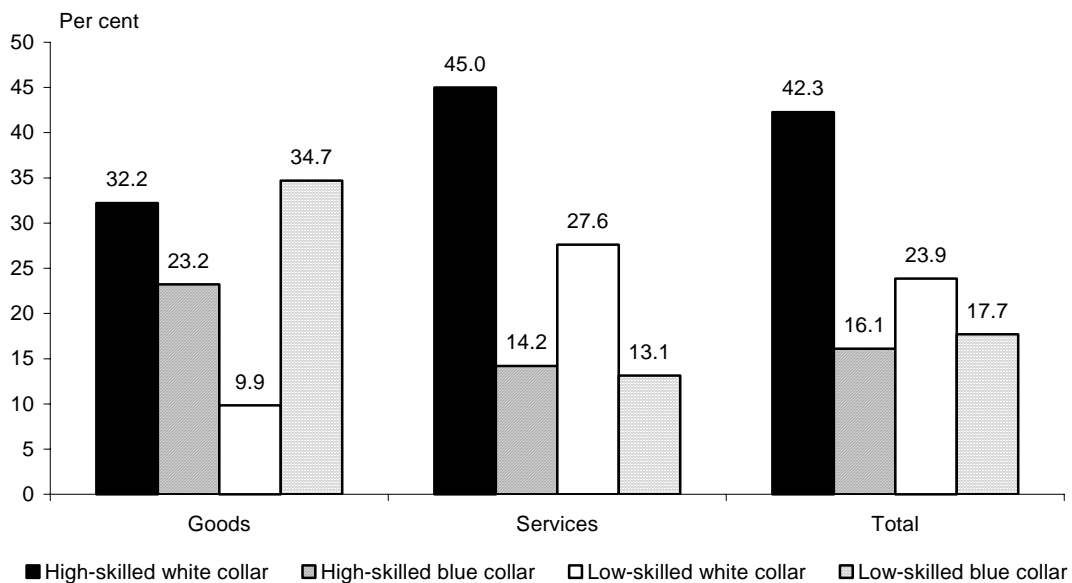
Table 4.4 Employment by occupation group, by sector, 1986 to 2001<sup>a</sup>

	1986		2001		Difference	
	Number	Share of total	Number	Share of total	Number	Growth
	'000	%	'000	%	'000	%
<b>High-skilled white collar employment</b>						
Services	1527.3	77.5	2361.5	83.8	834.2	54.6
Goods	443.6	22.5	455.8	16.2	12.2	2.7
<b>Total</b>	<b>1970.9</b>	<b>100.0</b>	<b>2817.3</b>	<b>100.0</b>	<b>846.3</b>	<b>42.9</b>
<b>High-skilled blue collar employment</b>						
Services	685.1	66.0	745.8	69.4	60.6	8.9
Goods	353.7	34.0	328.5	30.6	-25.2	-7.1
<b>Total</b>	<b>1038.8</b>	<b>100.0</b>	<b>1074.3</b>	<b>100.0</b>	<b>35.5</b>	<b>3.4</b>
<b>High-skilled totals</b>						
Services	2212.4	73.5	3107.3	79.8	894.8	40.4
Goods	797.2	26.5	784.3	20.2	-13.0	-1.6
<b>Total</b>	<b>3009.7</b>	<b>100.0</b>	<b>3891.5</b>	<b>100.0</b>	<b>881.8</b>	<b>29.3</b>
<b>Low-skilled white collar employment</b>						
Services	1304.8	87.8	1450.0	91.2	145.2	11.1
Goods	181.5	12.2	139.8	8.8	-41.8	-23.0
<b>Total</b>	<b>1486.3</b>	<b>100.0</b>	<b>1589.8</b>	<b>100.0</b>	<b>103.4</b>	<b>7.0</b>
<b>Low-skilled blue collar employment</b>						
Services	685.1	58.3	688.6	58.4	3.5	0.5
Goods	490.4	41.7	490.8	41.6	0.3	0.1
<b>Total</b>	<b>1175.5</b>	<b>100.0</b>	<b>1179.3</b>	<b>100.0</b>	<b>3.8</b>	<b>0.3</b>
<b>Low-skilled totals</b>						
Services	1989.9	74.8	2138.6	77.2	148.7	7.5
Goods	672.0	25.2	630.5	22.8	-41.5	-6.2
<b>Total</b>	<b>2661.9</b>	<b>100.0</b>	<b>2769.1</b>	<b>100.0</b>	<b>107.2</b>	<b>4.0</b>
<b>White collar totals</b>						
Services	2832.1	81.9	3811.5	86.5	979.4	34.6
Goods	625.1	18.1	595.5	13.5	-29.6	-4.7
<b>Total</b>	<b>3457.3</b>	<b>100.0</b>	<b>4407.0</b>	<b>100.0</b>	<b>949.7</b>	<b>27.5</b>
<b>Blue collar totals</b>						
Services	1370.2	61.9	1434.3	63.6	64.2	4.7
Goods	844.1	38.1	819.3	36.4	-24.8	-2.9
<b>Total</b>	<b>2214.3</b>	<b>100.0</b>	<b>2253.6</b>	<b>100.0</b>	<b>39.3</b>	<b>1.8</b>
<b>All employees</b>						
Services	4202.3	74.1	5246.0	78.8	1043.7	24.8
Goods	1469.2	25.9	1414.8	21.2	-54.4	-3.7
<b>Total</b>	<b>5671.5</b>	<b>100.0</b>	<b>6660.6</b>	<b>100.0</b>	<b>989.1</b>	<b>17.4</b>

<sup>a</sup> Data refer to number of *employees* only — and hence exclude employers and own account workers. Data for 1986 are estimates based on ASCO1 data which have been concorded to their closest ASCO2 category.

Source: Estimates based on ABS Ausstats database (2001), supplementary tables

Figure 4.5 Occupational skill composition by sector, 2001



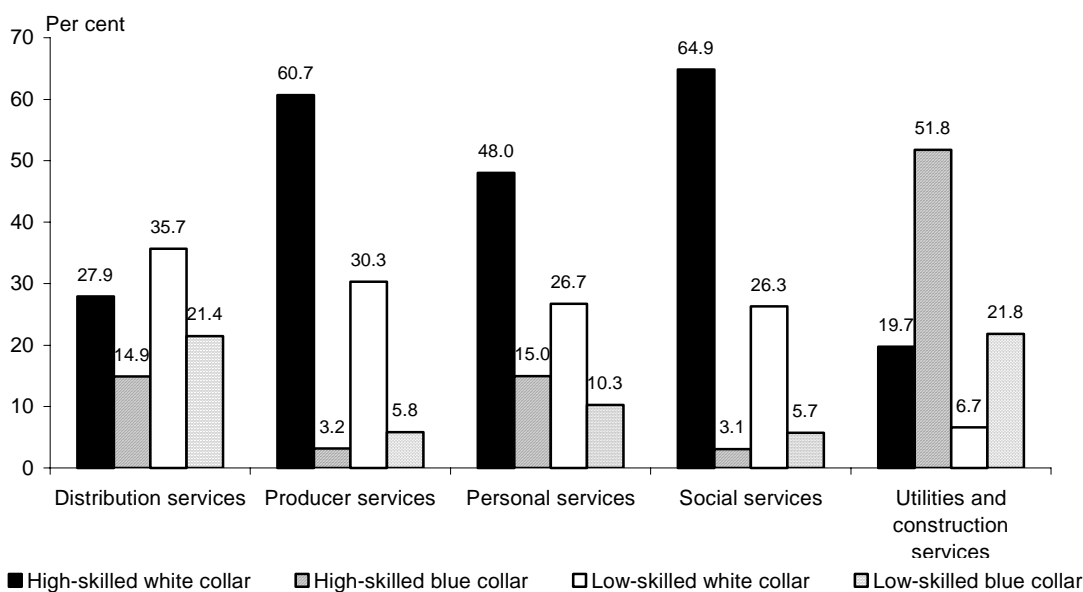
Data source: Estimates based on ABS Ausstats database (2001), supplementary tables.

There is considerable diversity in occupational skill levels for employees across the five service industry groups (figure 4.6).

Social and producer services employ the largest shares of high-skilled white collar workers (65 and 61 per cent, respectively). Low-skilled white collar workers are distributed relatively evenly among all service industry groups with the exception of utilities and construction services. The latter group is dominated by employment in high-skilled blue collar jobs and also has the highest proportion of low-skilled blue collar workers. Distribution services is the only service industry group to have more low-skilled workers than high-skilled workers.

In summary, while there are lower skilled jobs in all service industries, overall, a service sector worker is just as likely to be highly skilled as a goods sector worker. Moreover, the service sector has been the major source of demand growth for high skilled workers in Australia since the mid-1980s.

**Figure 4.6 Occupational skill composition among the five service employment groups, 2001**



Data source: Estimates based on ABS Ausstats (2001), supplementary tables.

### Are service jobs mainly part-time or casual?

The incidence of part-time and casual employment has risen significantly in Australia. Part-time employees (defined by the ABS as those who usually work less than 35 hours a week), increased from 18 to 26 per cent of the workforce over the period 1984-85 to 2000-01. Over the same period, casual employment (defined by the ABS as those who are not entitled to either annual leave or sick leave) increased from 13 to 23 per cent of the workforce. There is considerable overlap between casual and part-time employment, with around 70 per cent of casuals being part-time employees in 2000 (ABS 2001g).

The service sector has been a major contributor to these trends.

#### *Part-time work*

Almost half of all new (net) jobs created in Australia since the mid-1980s have been part-time. And, most of these jobs (around 95 per cent), have been in the service sector. Over the period 1984-85 to 2000-01, the share of part-time jobs in the service sector increased by 8 percentage points, compared with an increase of 4 per cent for the goods sector. In 2000-01, 29 per cent of service sector jobs were part-time, compared with 13.5 per cent for the goods sector. Or, put another way, a service sector worker is twice as likely to be part-time as a goods sector worker (table 4.5).

Table 4.5 **Part-time employment, 1984-85 to 2000-01**

	<i>Level in 2000-01</i>	<i>Absolute change</i>	<i>Share of workforce</i>	<i>Ratio of women to men</i>
	'000	'000	%	
<b>Distribution services</b>	<b>759.7</b>	<b>401.0</b>	<b>31.9</b>	<b>2.1</b>
Retail trade	606.8	328.6	45.4	2.4
Wholesale trade	64.1	21.8	14.6	2.1
Transport & storage	66.7	39.2	15.8	0.9
Communications	22.1	11.4	12.1	1.9
<b>Social services</b>	<b>603.6</b>	<b>302.6</b>	<b>32.4</b>	<b>6.5</b>
Health & community services	353.1	196.8	40.3	9.0
Education	198.4	74.6	31.9	5.0
Government administration & defence	52.2	31.2	14.2	3.3
<b>Producer services</b>	<b>328.0</b>	<b>213.1</b>	<b>23.1</b>	<b>2.5</b>
Property & business services	267.7	181.6	24.7	2.2
Finance & insurance	60.3	31.5	17.9	5.5
<b>Personal services</b>	<b>404.1</b>	<b>215.3</b>	<b>38.9</b>	<b>2.1</b>
Accommodation, cafes & restaurants	216.8	123.7	46.1	2.2
Personal & other services	96.6	39.5	28.2	2.9
Cultural & recreational services	90.6	52.0	40.1	1.5
<b>Utilities and construction services</b>	<b>96.4</b>	<b>40.6</b>	<b>12.9</b>	<b>1.3</b>
Electricity, gas & water	2.8	1.4	4.2	1.5
Construction	93.7	39.2	13.7	1.3
<b>Services</b>	<b>2191.7</b>	<b>1172.6</b>	<b>29.4</b>	<b>2.7</b>
<b>Goods</b>	<b>221.6</b>	<b>62.1</b>	<b>13.5</b>	<b>1.9</b>
<b>Total</b>	<b>2413.4</b>	<b>1234.6</b>	<b>26.5</b>	<b>2.6</b>

Source: EconData (2001).

The higher incidence of part-time work in services is not a feature unique to Australia — on average across OECD countries, part-time work is a much more common form of working arrangement in the service sector than in the goods-producing sector (OECD 2001a).

The incidence of part-time work is highest in personal services. In 2000-01, part-time work accounted for almost 40 per cent, or 404 000 jobs in this service industry group. However, the largest *numbers* of people working part-time are in the distribution services (760 000) and social services (604 000) industry groups. At the industry level, part-time work is most common in accommodation, cafes and restaurants, retail trade, and cultural and recreational services (table 4.5).

The figures on part-time jobs, however, need to be put into perspective. The majority — over 70 per cent — of service sector workers are full-time. And, in 2000-01, just under four-fifths of Australia's 6.7 million *full-time* workers were

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employed in the service sector. All the net growth in full-time jobs since the mid-1980s has also been in services. Full-time jobs in the goods sector, by contrast, fell by almost 100 000 over the period. Hence, although there has been strong growth in part-time jobs in the service sector since the mid-1980s, the view that services create mainly part-time jobs is not correct.

### *Casual work*

Services also dominate casual employment, with over 85 per cent of Australia's casual employees working in the service sector in 2000.<sup>6</sup> The industries with the highest shares of casual employees are accommodation, cafes and restaurants, retail trade and cultural and recreational services. The lowest casualisation rates are found in finance and insurance and government administration and defence.

There are both supply and demand factors driving the growth in part-time and casual employment. On the demand side, there are cost and flexibility benefits for employers from casual and part-time employment. Increased competition has enhanced the incentive for firms to minimise costs and seek more flexible working arrangements. Labour market deregulation has also had some effect on the extent of part-time and casual employment. Changes in workplace relations laws, for example, have removed the maximum and minimum hours for part-time work and removed restrictions on the proportion of part-time and casual workers that can be employed by a business. Other legislative and institutional changes, such as unfair dismissal laws and superannuation charges, have also affected the cost of employing casual workers relative to full time employees (EPAC 1996).

On the supply side, the increase in female participation in the labour force, particularly married women with children, has been an important factor in the growth of part-time and casual employment. Increased retention rates for secondary and higher education has also led to an increased supply of students willing to work on a part-time or casual basis (Dawkins and Norris 1995; Romeyn 1992). The great diversity of employment opportunities within the service sector provides more options for people who would find it difficult to fit in with the more rigid production processes in the goods sector (BIE 1994a).<sup>7</sup>

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<sup>6</sup> Data on the number of persons employed on a casual basis are not available in a form consistent with the part-time/full-time data. However, data on casual *employees* provide a fair indication of relativities across the various goods and service industries.

<sup>7</sup> For example, in 2000, over one in three service employees (both full-time and part-time) did not work to fixed starting and finishing times, compared to only one in four manufacturing workers (ABS 2001g).

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Data on employment status by gender and type of work show that in 2000-01, 43 per cent of women worked part-time. Women dominate part-time work in all service industries except transport and storage (where they made up slightly under 50 per cent). The highest concentrations of women working part-time are in health and community services (90 per cent) and finance, insurance and education (around 85 per cent). And, even in the more male-dominated industries like utilities, construction, wholesale trade and communications, around two-thirds of part-timers are women.

The ratio of women to men in part-time work has, however, fallen over the past decade and a half. This reflects strong growth recorded in male part-time employment, albeit from a very small base. Part-time employment increased by 1.2 million between 1984-85 and 2000-01, of which just under 800 000 were women. Further information on the growing role of women in service employment is provided in box 4.1.

Some employees that work on a part-time or casual basis would prefer to work full time. However, ABS data reveal that the overwhelming majority of part-time workers are not in this category (77 per cent in 2000-01). Nevertheless, the share of part-time workers who wanted to work additional hours increased sharply during and immediately following the recession of the early-1990s — with the proportion of part-time workers seeking additional hours rising from 18 to 28 per cent between 1989-90 and 1992-93. Shares have since declined steadily from this peak, although they remain around 5 percentage points above the level in the mid-1980s.

The trends in casualisation also need to be interpreted in context. A recent study by Murtough and Waite (2000) found that fewer than half of those classed as casual workers by the ABS were what is commonly thought of as casual. Part of the problem is that many people who are not on casual employment contracts, such as owner managers of incorporated enterprises, are classed as casual because they do not receive paid leave. Murtough and Waite found that, in 1998, only around 11.3 per cent of Australia's total employment could be classed as people with casual employment contracts that worked in a way that was occasional, irregular or short term — compared with just over 23 per cent as usually defined.<sup>8</sup>

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<sup>8</sup> Since March 2001, the ABS has used the terms 'with leave entitlements' and 'without leave entitlements' instead of permanent and casual 'to more accurately reflect what is collected in the survey' (ABS 2001g, p. 2). The OECD also recently expressed reservations about equating these data with its narrower definition of 'temporary' employment, noting that (OECD 2001a, p. 118): 'These [Australian] data are not strictly comparable with the data for the other countries as they include a substantial proportion of workers who appear to be in an "ongoing" job with no fixed finishing date.'

#### Box 4.1 Women in service employment

A striking characteristic of service jobs is that women are much more highly represented than in non-service activities. In 2000-01, the ratio of women to men in total Australian employment was 0.8. The equivalent ratio for services was more than twice that for the goods sector (0.9 compared to 0.4).

The gender mix of service employment varies considerably across service industries. The shares for finance, insurance, property and business services, retail trade and accommodation, cafes and restaurants are similar for women and men. However, gender differences are notable in social services, where women outnumber men by a ratio of two to one and three to one in health and community services, and education. In contrast, the ratio of women to men in construction, electricity, gas and water, wholesale trade, transport and storage, and communications remains well below the average for the service sector. These results are broadly consistent with the experiences of other OECD countries (OECD 2000a).

The labour force participation rates of women have been rising over the period 1984-85 to 2000-01, reflecting increases in employment of women within all industries combined with the fact that many of the fastest growing industries over the period have tended to employ more women.

1.7 million, or 43 per cent, of Australia's 4 million women in the paid workforce, were employed part-time in 2000-01 — mostly in the service sector (92 per cent). A desire to balance work and non-work considerations is an important factor underlying many women's preference for part-time work. The following comment was not uncommon among part-time woman workers interviewed as part of an Australian Centre for Industrial Relations Research and Training study on changes in Australia's labour market (ACIRRT 1999, p. 2-3):

I'd just had a baby and I didn't want to go back full-time, I wanted to spend the time with the kids. That was the best solution, you know, start at 8.30, work until one o'clock and then I had the rest of the day to myself — take the kids to the park. (*Part-time administrative assistant.*)

In an ABS study undertaken in 1997, family reasons were nominated by 18 per cent of women as the main reason for working part-time. Other major factors included: personal reasons (education, health/pregnancy — 12 per cent); work-related reasons (28 per cent); and not enough hours or no other jobs available (18 per cent). Approximately 23 per cent did not specify a reason.

Sources: ABS (1998c), EconData (2001), OECD (2000a) and ACIRRT (1999).

There is also the question of whether work is becoming increasingly precarious or insecure in Australia. However, jobs cannot be neatly categorised as either precarious or not — all jobs are precarious to some degree (Murtough and Waite 2000). The PC (1998a) found that, despite claims that work is becoming more precarious in Australia, there have been no increases in economy-wide average retrenchment rates since the mid-1970s. And at the sectoral level, retrenchment



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rates remain considerably lower for services than for goods. In 1997, the share of employees retrenched as a percentage of total employment in the service sector (10 per cent) was almost half that of the goods sector (18 per cent). Within services, utilities and construction recorded the highest retrenchment rates, while social and producer services recorded the lowest rates.

### **Has service job growth been mainly confined to metropolitan regions?**

Differences in the concentration and nature of economic activity across Australia mean that industry employment shares are not distributed evenly. In general, service jobs are concentrated in capital cities. In 2000-01, over 85 per cent of the 6 million people employed in metropolitan regions<sup>9</sup> worked in services (table 4.6). But, service workers also dominate employment in non-metropolitan regions — 75 per cent or 2.3 million, of the three million people employed in these regions in 2000-01.

The relative importance of the service industry groups are similar across metropolitan and non-metropolitan regions. The exception is producer services covering property and business services and finance and insurance. Employment in this industry group is twice as important, in relative terms, in metropolitan regions than in non-metropolitan regions. In relative terms, the goods sector plays a much larger role in non-metropolitan compared to metropolitan regions. In fact, almost half (47 per cent) of Australia's 1.6 million goods sector workers live and work outside metropolitan regions.

Employment growth in metropolitan and non-metropolitan regions has been almost identical over the past decade and a half. Between 1984-85 and 2000-01, total employment in metropolitan and non-metropolitan regions increased at a trend annual rate of 1.8 and 1.7 per cent respectively, resulting in an increase of 1.6 million jobs in metropolitan regions and 824 000 jobs in non-metropolitan regions.

Service industries were the major drivers of this growth. Overall, services grew slightly faster in non-metropolitan regions — 2.4 per cent a year compared with 2.3 per cent for metropolitan regions. One of the key areas of difference was in social services where employment grew much faster in non-metropolitan Australia (2.5 per cent a year compared with only 1.9 per cent a year in metropolitan regions). Reflecting this strong growth, the employment share for health and community

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<sup>9</sup> 'Metropolitan' regions comprise all capital cities. All remaining regions are classed as 'non-metropolitan'.

services and education in non-metropolitan regions (9.6 and 7.0 per 100 workers) is now on a par with metropolitan regions (table 4.6).

Table 4.6 **Employment growth in metropolitan and non-metropolitan Australia, 1984-85 to 2000-01<sup>a</sup>**

	<i>Metropolitan</i>			<i>Non-metropolitan</i>		
	<i>Level in 2000-01</i>	<i>Share in 2000-01</i>	<i>Annual growth 1984-85 to 2000-01</i>	<i>Level in 2000-01</i>	<i>Share in 2000-01</i>	<i>Annual growth 1984-85 to 2000-01</i>
	'000	%	%	'000	%	%
<b>Distribution services</b>	<b>1606.3</b>	<b>26.7</b>	<b>1.5</b>	<b>767.0</b>	<b>25.2</b>	<b>1.7</b>
Retail trade	852.0	14.1	2.1	479.0	15.7	2.7
Wholesale trade	318.8	5.3	0.6	119.8	3.9	1.2
Transport and storage	289.8	4.8	1.0	131.5	4.3	0.3
Communications	145.8	2.4	1.6	36.8	1.2	-1.5
<b>Social services</b>	<b>1247.3</b>	<b>20.7</b>	<b>1.9</b>	<b>614.5</b>	<b>20.2</b>	<b>2.5</b>
Health and community services	581.3	9.6	2.6	293.8	9.6	3.2
Education	407.3	6.8	2.0	213.8	7.0	2.3
Government admin. and defence	258.8	4.3	0.2	107.0	3.5	1.4
<b>Producer services</b>	<b>1130.5</b>	<b>18.8</b>	<b>4.0</b>	<b>288.0</b>	<b>9.4</b>	<b>4.0</b>
Property and business services	850.3	14.1	5.7	230.8	7.6	5.9
Finance and Insurance	280.3	4.7	0.5	57.3	1.9	0.0
<b>Personal services</b>	<b>676.0</b>	<b>3.7</b>	<b>11.2</b>	<b>360.8</b>	<b>11.8</b>	<b>4.0</b>
Accom, cafes and restaurants	284.0	4.7	4.8	185.0	6.1	3.9
Personal and other services	225.8	3.7	2.4	116.8	3.8	4.1
Cultural and recreational services	166.3	2.8	3.9	59.0	1.9	4.1
<b>Utilities &amp; construction services</b>	<b>491.8</b>	<b>8.2</b>	<b>1.0</b>	<b>255.0</b>	<b>8.4</b>	<b>0.7</b>
Construction	453.8	7.5	2.0	227.5	7.5	2.0
Electricity, gas and water supply	38.0	0.6	-5.6	27.5	0.9	-5.2
<b>Services</b>	<b>5151.8</b>	<b>85.5</b>	<b>2.3</b>	<b>2285.3</b>	<b>75.0</b>	<b>2.4</b>
<b>Goods</b>	<b>873.0</b>	<b>14.5</b>	<b>-0.4</b>	<b>763.3</b>	<b>25.0</b>	<b>0.0</b>
<b>Total economy</b>	<b>6024.8</b>	<b>100.0</b>	<b>1.8</b>	<b>3048.5</b>	<b>100.0</b>	<b>1.7</b>

<sup>a</sup> As detailed and consistent industry data were not available separately for the Northern Territory, all employment in the Northern Territory was included in the metropolitan totals. Latest available census data (1996) indicate that this omission leads to an underestimation of the non-metropolitan share of total Australian employment by around 0.5 percentage points. However, the growth trends are unaffected, with Darwin and the 'Territory balance' recording almost identical employment growth rates over the previous three censuses (2.6 and 2.7 per cent a year, respectively, between 1986 and 1996).

*Data source:* Estimates based on unpublished ABS data.

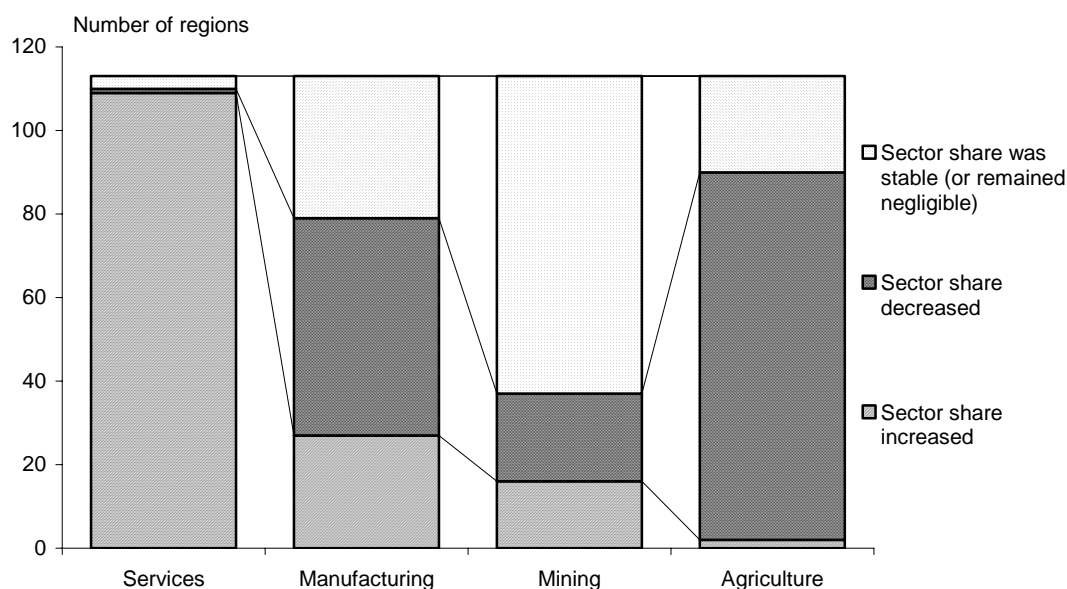
The only service industries to record an overall decline in jobs in non-metropolitan Australia were:

- electricity, gas and water, with a fall of 26 000 jobs (compared with a fall of 43 000 in metropolitan regions); and

- communications, with a fall of almost 9000 jobs (compared with an increase of 41 000 in metropolitan regions).

There was much greater variation in the employment growth rates recorded across non-metropolitan regions than was evident between capital cities. For instance, there has been strong growth in several coastal regions in northern New South Wales and Queensland, whereas employment (and population) growth has been much weaker in some inland regions (PC 1998a; 1999a). Nevertheless, analysis based on detailed census data reveals that growth in services were key drivers of regional employment growth across almost all of the regions included in this analysis over the period 1981 to 1996 (figure 4.7).<sup>10</sup>

**Figure 4.7 Sectoral employment shares — growth and decline across regions, 1981 to 1996**



Data source: PC (1998, table 3.4).

As illustrated in figure 4.7, average shares of service sector employment increased in most of Australia's 113 regions — including all eight metropolitan regions as well as 100 of Australia's 105 non-metropolitan regions. In contrast, the share for agriculture fell in 80 per cent of regions. While the direction of structural change for mining and manufacturing has varied somewhat, the importance of these sectors to regional employment has declined in more regions than it has risen (for further information, see PC (1998a)).

<sup>10</sup> Data for the 2001 census were not available at the time of printing.

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Overall, these findings show that, despite considerable regional variability and declines in some industries across non-metropolitan regions, the view that the employment benefits of the growth in the service economy have been confined to the capital cities is misguided. Indeed, services have been key contributors to employment growth in most non-metropolitan regions — with higher rates of employment growth recorded in non-metropolitan regions in four out of the five service industry groups between 1984-85 and 2000-01.

## 4.4 The diversity of service employment

The evidence presented above shows that the view that jobs created in the service sector are not ‘proper jobs’ is as misguided as the notion that the growth in services has led to a simple shift away from monotonous process and factory jobs towards professional and rewarding knowledge work. The reality is somewhere in between. Just as the goods sector has many different types of jobs, so too does the service sector. In this regard, Australia mirrors the experiences of most other developed countries (OECD 2001a, p. 90):

Comparisons of job quality based on measures of working conditions, job satisfaction and pay, reveal no simple dichotomy between the goods-producing sector and the service sector. Each has both good and bad jobs.

The range of service jobs is very diverse. The sector employs highly-skilled and educated workers and low-skill workers, full-and part-time workers, as well as permanent and casual workers. This diversity makes it difficult to make general statements about service jobs. Different job and worker characteristics largely cancel each other out when aggregated.

To better capture this diversity, it is useful to examine ‘profiles’ of key worker and job characteristics for each of the five service industry groups (table 4.7).

### *Distribution services*

In 2000-01, the typical distribution service worker was just under 38 years old and worked in sales or clerical work in private retail and wholesale establishments, or worked in transport or telecommunications. Distribution service workers earned around 90 per cent of the service sector average. This is not surprising given the high incidence of low-skilled white-collar and blue-collar jobs in this industry group. Among distribution services workers:

- tertiary qualifications were rare, with fewer than one in ten holding a degree;
- almost one in four held some form of vocational qualification; and

- over one in three had not completed the highest year of secondary school — just below the goods sector share of 37 per cent;

This group also had the highest private sector share and, with the exception of utilities and construction, the lowest female share.

**Table 4.7 Worker and job characteristics for the five service industry groups in 2000-01**

	<i>Distribution services</i>	<i>Social services</i>	<i>Producer services</i>	<i>Personal services</i>	<i>Utilities and construction</i>	<b>Services average</b>
<b>Age/sex</b>						
Median age (years)	37.7	40.5	37.3	36.6	38.0	<b>38.5</b>
Younger worker share <sup>a</sup>	17.1	9.5	14.5	18.2	15.6	<b>14.5</b>
Female share	41.7	68.0	47.2	50.8	13.0	<b>47.7</b>
<b>Education/training</b>						
Bachelor's degree/higher (%)	8.5	42.4	31.5	12.5	5.9	<b>21.8</b>
Vocational qualification (%)	22.9	14.2	16.2	23.8	43.9	<b>21.9</b>
High school incomplete (%)	35.5	16.6	19.4	28.9	30.5	<b>26.2</b>
<b>Skill levels</b>						
High-skilled white collar	27.9	64.9	60.7	48.0	19.7	<b>45.0</b>
High-skilled blue collar	14.9	3.1	3.2	15.0	51.8	<b>14.2</b>
Low-skilled white collar	35.7	26.3	30.3	26.7	6.7	<b>27.6</b>
Low-skilled blue collar	21.4	5.7	5.8	10.3	21.8	<b>13.1</b>
<b>Job characteristics</b>						
Private sector share <sup>b</sup>	97.8	40.1	97.2	85.4	85.2	<b>78.7</b>
Part-time share	31.9	32.4	23.1	38.9	12.9	<b>29.4</b>
Earnings (full-time)	0.92	1.01	1.17	0.88	1.04	<b>100.0</b>

<sup>a</sup> Young workers are 15-25 year olds. <sup>b</sup> Private share relates to wage and salary earners (remaining workers are self employed).

*Data sources:* EconData (2001); ABS Cat. no's. 6310.0; 6203.0; 6227.0; and estimates based on unpublished ABS data.

### *Social services*

Social service workers — including teachers, scientists, doctors, nurses, defence personnel, police and other public servants — are the most highly educated group in the Australian economy. In 2000-01, over two-thirds of these workers held high-skilled occupations and over 40 per cent had either completed a bachelor or higher degree (table 4.7). Not surprisingly, a majority — just under 60 per cent — are employed by the public sector. While this is three times the average for the service sector as a whole, it represents a noticeable decline from the levels a decade and a half ago, when over three-quarters of all social service employees were employed by the public sector.

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Of the five service groups, social service workers are also the oldest on average. The average social service worker is just over 40 years old. The higher average age for this group reflects the inherently smaller share of younger people — due to the greater average number of years of tertiary study per worker — as well as steady across-the-board rises in average ages since the early 1980s. Social services also employ more women than any other service industry group. In 2000-01, almost 70 per cent of social service workers were women.

### *Producer services*

Producer service jobs include bank tellers, real estate workers, computer programmers, accountants, lawyers and many other types of business and financial consultants. Producer services workers are:

- generally well educated;
- largely full-time;
- predominantly white collar; and
- almost entirely employed by the private sector.

The past decade and a half has, however, witnessed sharp declines in both the public sector share and the share of younger workers employed in this group. For example, in 1985, one in five producer service workers were employed by the public sector. By 2000-01, the private sector share was over 97 per cent. Until recently, a distinctive feature of producer services was the large number of younger workers (including bank tellers and related jobs). For example, in 1985, almost one in three workers were aged between 15 and 25 years old. By 2000-01, this share had fallen to under 15 per cent.

Producer services is easily the most highly paid employment group, with average earnings around 17 per cent above the average for services and around one-fifth higher than the goods sector average in 2000-01.

### *Personal services*

Personal service workers include hairdressers, domestic help and various types of hospitality and entertainment workers. This group shares several characteristics in common with distribution services workers, namely:

- a higher proportion of younger workers (18 per cent in 2000-01);
- a broadly similar educational profile, including relatively few workers with university degrees; and
- a pay rate around 90 per cent of the average for services as a whole.

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Personal services also have the highest proportion of part-timers — two workers in five were part-time in 2000-01. It is also the only employment group, apart from social services, where women are more highly represented than men.

### *Utilities and construction services*

With employment dominated by labourers, tradespeople and plant workers, utilities and construction exhibited a closer worker profile to that of the goods sector than any other service industry group. Utilities and construction workers are:

- generally blue collar;
- mostly males working full-time; and
- predominantly privately employed.

The share of utility and construction workers employed in the private sector has risen rapidly over the past decade and a half. In the mid-1980s, the split between public and private employment was around 50-50. By 2000-01, the public share had fallen to less than 15 per cent.

Utility and construction workers have a similar educational profile to the goods sector — fewer degrees and more vocational qualifications (44 per cent of all workers) — and a low share of professional, managerial and other high-skilled white-collar workers. Although both males and females in this industry group earned less than their respective gender averages for the service sector, the low representation of women resulted in above average earnings on a ‘persons employed’ basis.





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## 5 Trade in services

**Service trade has outpaced the growth in goods trade over the last twenty years or so. Its growth has been driven by various influences including advances in information and communication technologies and the deregulation of service industries in many countries. In conventional terms (that is, cross-border trade and movement of consumers), services account for about 20 per cent of world trade. However, this excludes foreign direct investment and the employment of service providers abroad which, given the nature of services, are important forms of service trade. In addition, the value of ‘non-traded’ services embodied in traded goods, for example, electricity and gas, are significant. Benefits associated with the growth in service trade include greater choice for consumers, expanded markets for service providers and access to new technologies, knowledge and innovative concepts. Despite some impediments to growth in service trade, improvements in technology combined with further liberalisation of global markets hold promise of further benefits.**

A common myth is that services are ‘non-tradeable’. While this is true for some services, others are highly tradeable and, with developments in information and communication technologies, globalisation of industry and reductions in barriers to the movement of people and capital, many services are becoming increasingly tradeable.

This chapter looks at trade in services. Section 5.1 discusses the issue of just how tradeable services are and the different modes of service trade. Section 5.2 examines the growth in international service trade. Australia’s service trade is discussed in section 5.3. A number of research and policy challenges associated with reducing impediments to growth in international trade in services are identified in section 5.4.

### 5.1 How tradeable are services?

Traditionally, services were viewed as ‘non-tradeable’. As the Director General of the World Trade Organization (WTO) said (Moore, 1999, p. 1):

Until very recently few politicians, and not many economists, gave much thought to the question of international trade in services. Generations of them had grown up and felt

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comfortable with the notion that services were essentially non-tradeable, because of the need for face-to-face contact between the service provider and his customer. This perception was always wrong to a considerable extent — financial services and maritime transport are obvious examples of services which have been traded internationally for centuries.

Some services are not directly tradeable in the same way that goods are. There is, for example, little direct trade in electricity, gas and water, and public administration and defence. And, it seldom makes sense to fly overseas to have a haircut, buy groceries or see an accountant.

Technology is, however, making considerable changes to the way in which many services are delivered across borders. An increasing range of information-based services that were traditionally ‘non-tradeable’ can now be traded without necessarily being embodied in people or goods. As Lavorel (1997, p. 2) — Deputy Director-General, of the WTO said:

Whole sectors of the economy — from banking, to accounting, to computer programming — can now be carried out anywhere in the world and delivered to consumers in a matter of seconds. The fast-changing telecommunication industry is an obvious example, but it’s not alone. The financial sector is already feeling the effects of the Internet and electronic banking. IBM now recruits programmers from as far afield as India and China via electronic networks, while many other firms are subcontracting services like design, data processing and marketing around the world. And technology now allows all of us to watch movies, plan vacations or purchase other ‘electronic’ services without ever passing the border.

Thus technology is creating a borderless economy in services, even more than in manufacturing.

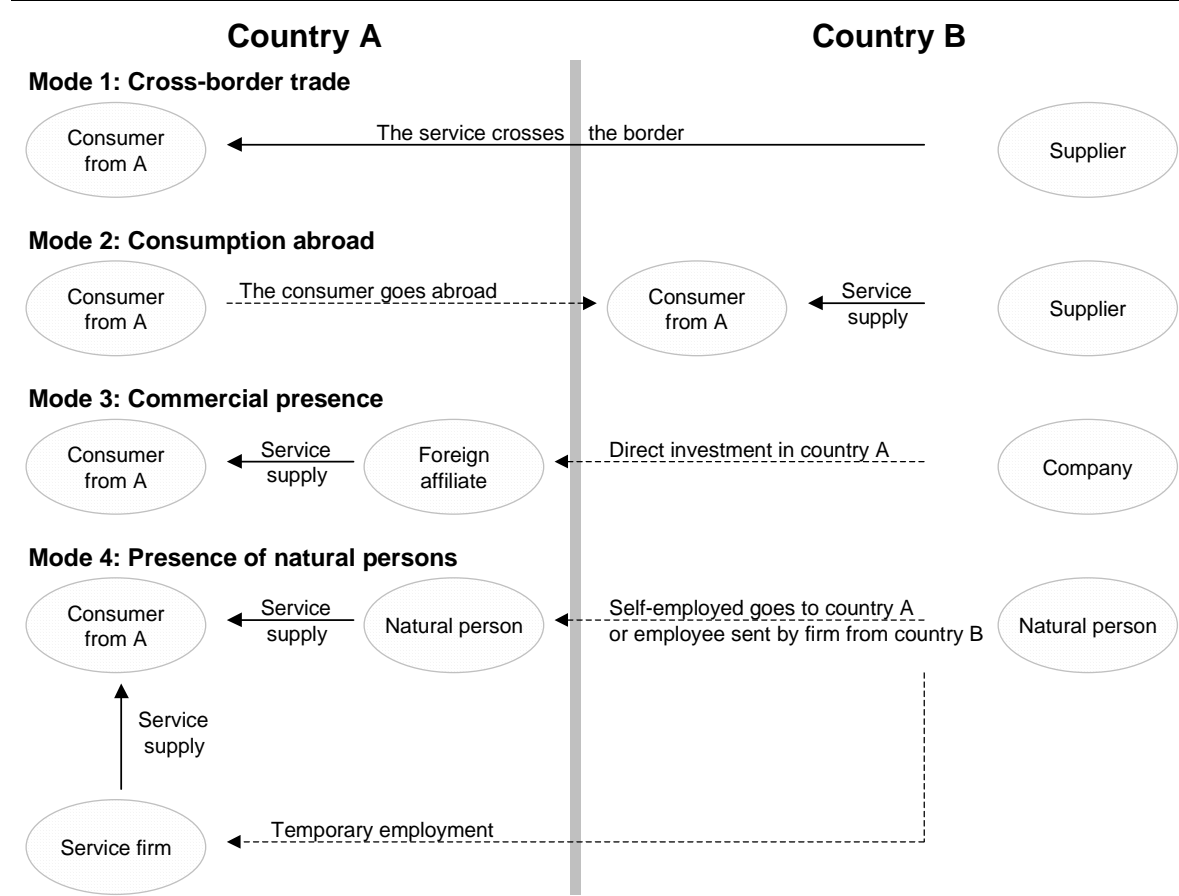
Part of the reason why services have been viewed as ‘non-tradeable’, or at least less transportable and tradeable than goods, is that when people think about international trade they think largely about cross-border exchanges (that is, the way goods are traded). But, trade in services is far broader. There are many services for which the establishment of a commercial presence within a market is necessary for international trade to take place. For other services, the physical presence of consumers is necessary, for example, tourism.

The General Agreement on Trade in Services (GATS) defines four modes of supply<sup>1</sup> for services based on how producers and consumers of services interact (WTO 1999). These four modes of supply are summarised below. Figure 5.1 presents a stylised summary of these modes.

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<sup>1</sup> This four-part taxonomy is based on Bhagwati (1984) and Sampson and Snape (1985).

Figure 5.1 The four supply modes of international trade in services



Source: Adapted from OECD (2001d).

- *Cross-border trade.* This is the most straightforward form of trade in services. It closely resembles goods trade by maintaining a clear geographical separation between the seller and buyer — only the service itself crosses national frontiers. The supplier either mails, electronically transmits, or otherwise transports a service. Examples include an architect sending design drawings to a consumer in a foreign country, or freight and insurance services.
- *Consumption abroad.* This typically involves the movement of consumers across borders, perhaps for tourism or to attend an educational establishment. Another example is the repair of a ship or aircraft outside its home country. This form of trade does not require the service supplier to be admitted to the consuming country.
- *Commercial presence.* A permanent presence in another country is frequently required to trade some services. This involves a service supplier establishing a foreign-based corporation, joint venture, partnership, or other arrangement to supply services to people in the host country. Examples include the establishment of branch offices or agencies to deliver services such as banking, insurance, legal advice or communications.

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- *Presence of natural persons.* This involves an individual, functioning alone or in the employ of a service provider, temporarily travelling abroad to provide a service. For example, consultancy services provided by an individual.

With advances in communications and information technology, many services, such as advertising and architectural design, can be produced in one location and sent to another destination. However, the need to respond to consumer preferences often requires commercial presence even if cross-border trade is technically possible, particularly when there are language and/or other cultural barriers.

Foreign direct investment (FDI) is the principal way in which firms achieve a commercial presence for service delivery in a foreign market. FDI involves a foreign firm or individual acquiring a controlling interest in an existing firm in a host country or establishing a new business in the host country.<sup>2</sup> Other methods by which a commercial presence can be established include non-equity arrangements, such as franchises or partnerships, or minority joint ventures. Such arrangements are often used by service companies such as hotels, restaurants and fast-food companies and, to a lesser extent, by accounting and legal firms.

Some have argued that commercial presence is probably the most important mode of service trade, particularly in terms of its potential for further growth in industries such as wholesaling, retailing, banking, business services, telecommunications, hotels and restaurants (see for example, WTO (1999)).

Moreover, many services which are not directly traded are embodied in goods exports. For example, the export of a tonne of aluminium includes not only the alumina and other materials used to produce it, but also many services such as electricity, gas, water and transport. When this indirect component is taken into account, both the value and range of service industries which contribute to exports expand considerably. Taking account of both the direct and indirect components, the service sector makes a larger contribution to overall trade than any other sector (see box 5.1)

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<sup>2</sup> The ABS defines FDI as investment over which a foreign domiciled person or corporation has potentially significant influence. Foreign ownership of 10 per cent of the ordinary shares of voting stock in a company is considered the minimum ownership level for foreign investment to be classified as FDI (ABS 1998a).

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### Box 5.1 Embodied exports

Although exports are often classified into industry or commodity groups according to different statistical conventions, the reality is that every Australian export (either good or service) is a combination of the goods and services used, directly and indirectly, in its production. In 1996-97, service inputs — predominantly transport and storage and wholesale trade as well as a range of business and technical services — accounted for, on average, one-fifth of the value of the output of the goods sector (table 3.1). Hence, when this indirect component is taken into consideration, both the value and the range of service industries which contribute to exports expand considerably.

A number of analysts have examined this aspect systematically and put the service sector's total contribution to Australia's cross-border exports at around 40 per cent, compared with a share of just over 20 per cent based on direct contributions alone. For example, the BIE (1994b) estimated that when these 'embodied exports' are taken into account the service sector contributed 43 per cent of total cross-border exports of goods and services — the highest of any sector, with agriculture, mining and manufacturing contributing 14, 22 and 21 per cent, respectively.

*Source:* BIE (1994b).

The performance of the service sector, can, therefore, have an important influence on the ability of other sectors to remain competitive in international markets (see chapter 6). As the Australian Minister for Trade (Vaile 2000, p. 3) said:

Exporting wheat or minerals is not only about a world-class quality Australian product; it is also about the efficiency of the services underpinning that product — the distribution and logistics services, the research and design services, and the financial, communication and business services that make the export transaction possible.

This broader definition suggests that services are far more 'tradeable' than traditionally viewed. Unfortunately, analysis of service trade is hampered by a lack of data on service trade flows. As the OECD (2001d, p. 4) said:

Measurement of trade in services is inherently more difficult than measurement of trade in goods. The tangibility of services makes them difficult to define. ... Unlike trade in goods, trade in services involves no package crossing the customs frontier with accompanying documentation showing an internationally recognised commodity code; a description of the contents; information on quantity, origin, and destination; an invoice; and an administrative system based on customs duty collection which facilitates data compilation. Obtaining the required information on services trade, once defined, is dependent on and limited by the extent of the common international understanding of concepts by statisticians and data providers.

The six main sources of data on service trade include: international transactions reporting systems (mainly from central banks); surveys of enterprises; surveys of households, administrative data; government data; and information obtained from partner countries and international organisations.

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Separate data are not currently available on the volume of trade in services according to each of the four modes of supply mentioned earlier or in accordance with the service industry groups employed in earlier chapters. The GATS, and subsequent negotiations, have identified the need for detailed internationally comparable data on service trade. As a first step in developing better data, an Interagency Task Force<sup>3</sup>, authorised by the UN Statistical Commission and convened by the OECD, has produced a Manual on International Trade in Services. The aim of the Manual is to provide a coherent conceptual framework within which countries can structure the statistics they collect and disseminate on international service trade (OECD 2001d).

The ABS currently reports data on trade in services in three broad categories — transportation, travel and other services (see box 5.2). The ‘other’ category encompasses a wide range of quite diverse services.

Although data limitations preclude a full examination of the indirect aspects of service trade, the available trade and investment data shed some light on service trade.

#### Box 5.2      **Categories for recording service trade**

The main source of information about Australia’s service trade is the ‘balance of payments’ compiled by the ABS. Data are collected for three broad categories:

**Transportation services** covers the carriage of passengers and the movement of freight and related supporting and auxiliary services.

- *Passenger services* — the international transportation of foreign persons by Australian carriers (largely overseas ticket sales by airlines) as well as charges for excess baggage and expenditures for food, drink or other items which passengers purchase while on board carriers.
- *Freight services* — incomes earned when resident operators move Australia’s exports once they leave Australia’s borders (domestic freight services are included as part of the value of the goods exported).

*Other transportation services* — services provided in ports, airports and terminal facilities such as cargo handling, storage, towage, customs, baggage handling and agents’ fees which involve sales from Australians to foreigners.

(Continued on next page)

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<sup>3</sup> The Interagency Task Force comprises representative from Eurostat, IMF, OECD, UN, United Nations Conference on Trade and Development and WTO.

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Box 5.2 (continued)

**Travel services** cover all goods and services acquired for personal use by travellers and foreign workers and include meals, accommodation, entertainment, sightseeing tours, gifts and souvenirs. Travel is broken down into two components:

- *Business travel* — expenditures by seasonal and other non-resident workers as well as travellers who visit for sales campaigns, market exploration, commercial negotiations, production or installation work or other business purposes; and
- *Personal travel* — *education-related travel* (expenditures by foreign students including tuition fees and course material) and *other personal travel* — largely tourism expenditure, including travel for leisure activities such as holidays or participation in sports, for health purposes and for other recreational activities.

**Other services** covers a range of predominantly business services that are making an increasing contribution to services trade, including; communication services, construction, insurance, finance, computer and information services, royalties and licence fees, other business service, personal, cultural and recreational services and government services (largely expenditures by embassy staff and defence employees).

Source: ABS (1998a).

## 5.2 The growth in international service trade

Services have been the fastest growing component of cross-border trade and investment activity for the better part of the last decade and a half.

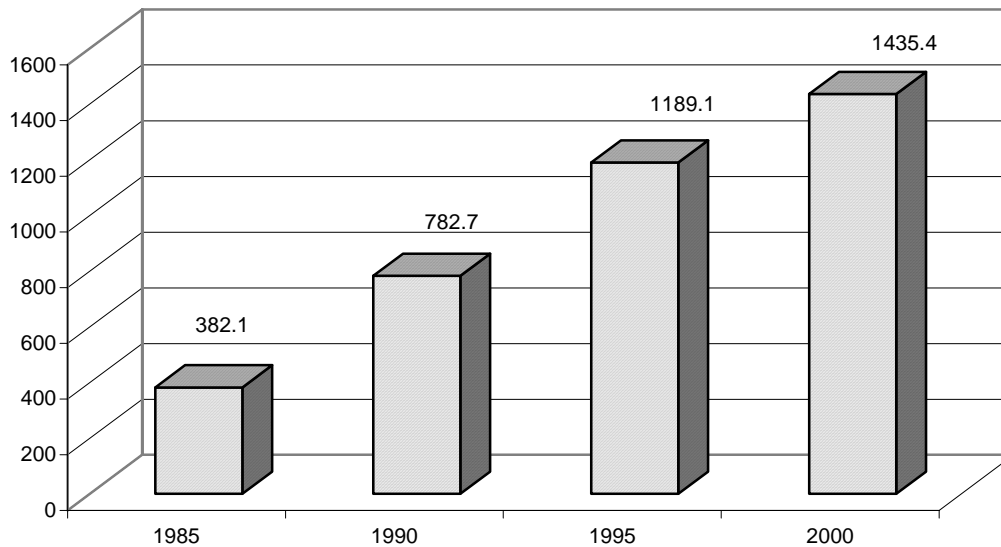
Between 1985 and 2000, world exports of services (that is, cross-border exports and consumption abroad) increased at 9.2 per cent a year — from under \$US400 billion to over \$US1.4 trillion (figure 5.2) This was faster than the growth in total global goods exports over the period (8.2 per cent a year). In 2000, world exports of services accounted for just under 20 per cent of the world's total exports.

While more than half of the world's trade in services is made up of travel and transportation services, the highest growth areas in recent years have been in financial services, construction and computer and information services.

FDI has also increased markedly since the mid-1980s. Underpinning this growth have been significant increases in retailing, banking, business services and telecommunications, and, to a lesser extent, in hotels and restaurants (OECD 1999a).

Figure 5.2 **World exports of services<sup>a</sup>, 1985 to 2000**

\$US billion, current prices



<sup>a</sup> Data presented here represent growth in 'Commercial services', a measure broadly comparable to cross-border exports and consumption abroad.

Data source: IMF (2001).

Total measurable trade in services (as defined by the four modes under the GATS referred to earlier) was estimated to be around \$2.3 trillion in 2000. This represents around 7.6 per cent of world output and over a third of total trade in goods and services (OECD 2001b).

The growth in service trade has been driven by a number of factors, including:

- *Growth in goods trade* — increased goods trade stemming from falling trade barriers and the closer integration of global economies has stimulated demand for commercial services such as transport and insurance. Also, firms that have expanded their international operations have pressured service providers to support these operations either by exporting their services, or through the establishment of a presence in foreign markets (OECD 1999a).
- *Technological advances* in information technology, electronic commerce and telecommunications have resulted in a number of financial, business, education and health services which were traditionally 'non-traded' now being traded internationally. Technology has also enhanced the ability of service providers to interface with foreign clients in a time-sensitive, highly cost-effective manner. Development of a greater variety of discrete 'service-oriented' products (such as software and interactive databases that can be easily accessed) has also been



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important as it has created an effective medium for packaging and distributing storable knowledge and information (OECD 1999a).

- *Rising per capita incomes* have increased demand for some income elastic services such as tourism and education (Kang 2001). For example, increasing per capita incomes associated with the rapid industrialisation of a number of Asian countries has resulted in strong growth in Australian exports of education services.
- *Micro-economic reforms* such as the deregulation of many markets for goods and services and the privatisation of many public utilities have created new opportunities for FDI (see, for example, Binder et. al 2001 and UNCTAD 1996).

### 5.3 Australia's service trade

Australia is not a large player in world service trade. In 2000, Australia accounted for just 1.2 per cent of the \$US1.4 trillion in world exports of commercial services and ranked as the 20<sup>th</sup> largest service exporter. This was below Australia's estimated 1.3 per cent share of global GDP in the same year, although it was larger than Australia's 1 per cent share of world goods exports. The latter reflects the fact that services are a more important component of Australia's total exports (21.8 per cent) than for global exports in total (18.3 per cent).

In 2000-01, service exports (cross-border plus consumption abroad) accounted for around one-fifth (\$32.8 billion) of Australia's total exports. Imports of services were slightly less (\$32.2 billion, 21.2 per cent of total imports), resulting in a surplus on services trade of \$571 million (table 5.1).

The attractiveness of Australia as a tourist destination is strongly reflected in our national service trade flows. Almost half (47 per cent) of Australia's service exports in 2000-01 were travel expenditures by foreigners in Australia, the bulk of which reflected tourism-related expenditures. Indeed, travel services are around 50 per cent higher as a share of Australia's total services exports than the corresponding share for the world as a whole and the majority of developed countries (for example, travel exports accounted for 34, 31 and 6 per cent respectively of the total services exports of the United States, Canada and Japan in 1996). In an examination of the importance of service exports in different countries, Kang (2001, p 32), notes:

... travel services accounted for more than 50 per cent of total services exports in several developing countries that are regarded as attractive tourist destinations. In some developed countries with exceptional geographical conditions, such as Australia and New Zealand, or historic value, such as Austria and Spain, inbound tourism made up just under or above 50 per cent of services exports.

**Table 5.1 Australia's service trade — cross-border and consumption abroad, 2000-01<sup>a, b</sup>**

Current prices

	<i>Exports</i>		<i>Imports</i>		<i>Balance</i>
	<i>\$ billion</i>	<i>Share %</i>	<i>\$ billion</i>	<i>Share %</i>	<i>\$ billion</i>
<b>Transportation services</b>	<b>8.1</b>	<b>24.6</b>	<b>11.4</b>	<b>35.3</b>	<b>-3.3</b>
Passenger transportation	7.0	21.3	5.4	16.7	1.6
Freight transportation	1.1	3.3	6.0	18.6	-4.9
<b>Travel services</b>	<b>15.3</b>	<b>46.8</b>	<b>10.8</b>	<b>33.5</b>	<b>4.6</b>
Business travel	1.2	3.6	2.8	8.8	-1.7
Personal travel	14.2	43.2	8.0	24.7	6.2
<i>Education-related travel</i>	<i>4.0</i>	<i>12.3</i>	<i>0.7</i>	<i>2.1</i>	<i>3.4</i>
<i>Other personal travel</i>	<i>10.1</i>	<i>30.9</i>	<i>7.3</i>	<i>22.6</i>	<i>2.8</i>
<b>Business and other services</b>	<b>9.4</b>	<b>28.6</b>	<b>10.1</b>	<b>31.3</b>	<b>-0.7</b>
Communications	1.5	4.6	1.9	6.0	-0.4
Construction	0.1	0.2	0.0	0.0	0.1
Insurance services	0.7	2.3	0.9	2.8	-0.2
Financial services	0.7	2.3	0.5	1.6	0.2
Computer and information services	0.8	2.3	0.4	1.3	0.3
Royalties and license fees	0.6	1.8	1.7	5.2	-1.1
Other business services <sup>c</sup>	2.9	9.0	3.2	9.8	-0.2
Audiovisual and related services	1.1	3.4	0.7	2.1	0.5
Other personal, cultural & recreational	0.3	0.9	0.1	0.5	0.1
Government services, nie	0.6	1.9	0.6	1.9	0.0
<b>Total services</b>	<b>32.8</b>	<b>100.0</b>	<b>32.2</b>	<b>100.0</b>	<b>0.6</b>

<sup>a</sup> Data reflect ABS balance of payments categories, see box 5.2 for an explanation of the different categories. The 'Other services' category has been renamed 'Business and other services' to better reflect the underlying nature of activity in the group. <sup>b</sup> Totals may not add due to rounding. <sup>c</sup> Not included elsewhere.

Source: EconData (2001), ABS (2001a).

Australia's large share of travel exports also reflects high and rapidly rising demand for its education services. It is estimated that Australian education institutions attracted around 150 000 international students in 2000 (DFAT 2001), and expenditures by foreign students in Australia (on tuition fees, course material and living expenses) reached \$4 billion in 2000-01. As the Australian Minister for Trade (Vaile 2000, p. 3) noted recently, the value of education exports 'exceeds the value of our wool exports and is considerably greater than those for passenger motor vehicles and wine'.

Transportation services (people and freight movements) accounted for a further 25 per cent of total service exports in 2000-01. The remaining service exports largely comprise business-related services, including finance and insurance, information technology and professional and technical services such as architectural and engineering services. These services have displayed relatively strong export

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growth in recent years, although their total value remains comparatively small. DFAT (2001, p. 6) provides some examples:

... other services industries are making their mark in the export stakes, particularly in the telecommunications, financial, education and professional services sectors:

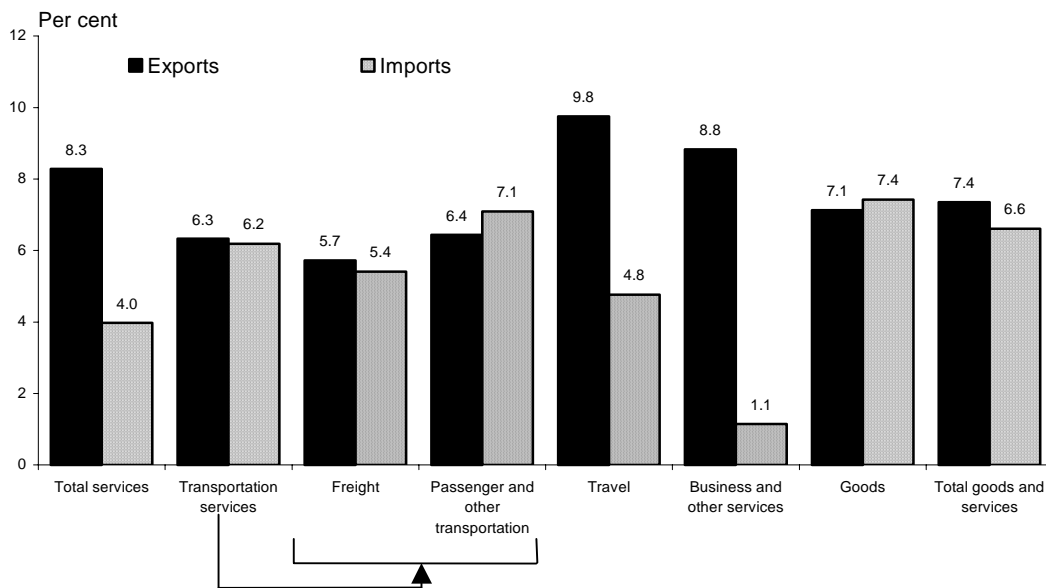
- Telstra, for example, is seeking to build on its interests in the Asia-Pacific region;
- The four major Australian banks and various Australian insurance companies, including AMP and QBE, have a strong global presence, some focusing on the South Pacific and Asia, others concentrating on markets in North America and the UK; and
- There also continues to be a strong demand for Australian lawyers, accountants, engineers and architects, particularly in our region, and many environmental services firms are seeking to exploit new and emerging market opportunities overseas.

The makeup of service imports differs from exports in a number of areas. Imports of transportation services are substantially more important, with imported freight services accounting for almost one-fifth of Australia's service imports in 2000-01 (the result being a deficit on these services of almost \$5 billion). In contrast, imports of passenger transportation services were less than exports, resulting in a surplus of \$1.6 billion in 2000-01.

Expenditures by Australians on travel services overseas are considerably less than exports — particularly personal travel and education-related expenditures by foreigners in Australia. However, imports of business and other services are larger than exports (31.3 per cent of total imports of services), with royalties and licensing, operational leasing and, to a lesser extent, communications resulting in an overall deficit on business and other services of \$0.7 billion in 2000-01.

Over the period 1985-86 to 2000-01, Australia's service exports grew at 8.3 per cent a year, while goods exports (agriculture, mining and manufacturing) grew at just over 7 per cent a year (figure 5.3). Hence, services increased their share of total Australian exports by almost 3 percentage points over the period.

**Figure 5.3 Growth in Australia's exports and imports, 1985-86 to 2000-01<sup>a</sup>**  
Annual average growth, constant 1999-00 prices<sup>b</sup>



<sup>a</sup> Data reflect ABS balance of payments categories, see box 5.2 for an explanation of the different categories. The 'Other services' category has been renamed 'Business and other services' for simplicity. <sup>b</sup> Measured on a balance of payments basis. Constant price data are not available prior to 1985-86.

Data source: ABS Cat. no. 5363.0.

Growth in Australia's service imports were well below the growth of service exports (4.0 compared with 8.3 per cent a year). Passenger and other transportation services exhibited the highest growth (7.1 per cent), this was marginally above the growth in exports of these services. Expenditures by Australians overseas on tourism and education-based travel services, as well as imports of business and other services, however, registered considerably slower rates of growth than exports. Imports of freight services also grew at a slower rate than exports, however the difference was not large.

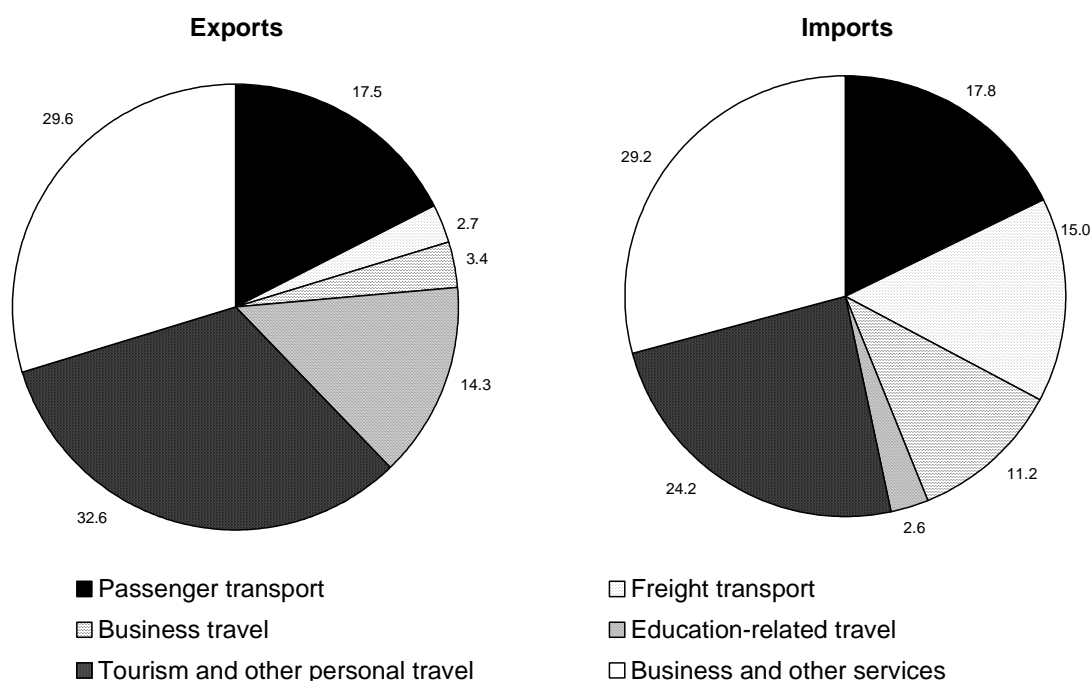
Figure 5.4 presents industry contributions to the total growth in Australia's service exports and imports between 1985-86 and 2000-01 measured in current prices.<sup>4</sup> Travel services, dominated by tourism and education-related travel, contributed just over half of Australia's services export growth over the period. A further 30 per

<sup>4</sup> Detailed constant price data are not available for this period. However, industry contributions to exports were almost identical when measured in both value (current price) and volume (constant price) terms. Some industry contributions to imports, by contrast, were substantially affected by price changes. For example, imports of business and other services accounted for only 11 per cent of the rise in import volumes, but almost one-third of the increase in the value of imports. Transportation services, by contrast, were much larger contributors in volume terms, with their contribution dropping from almost 50 per cent of the growth in import volumes to only one-third of the growth in import values.

cent of the growth in exports was due to steady increases in business and other services.

**Figure 5.4 Industry contribution to growth in Australia's service exports and imports, 1985-86 to 2000-01**

Current prices, per cent share



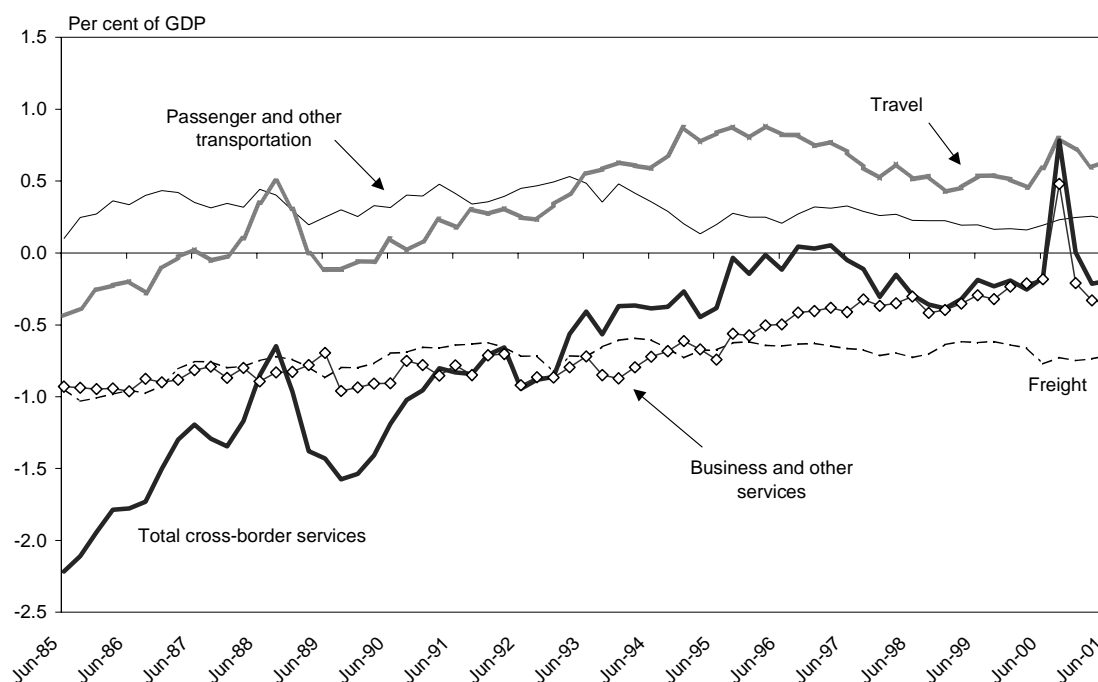
Data source: EconData (2001).

There were some broad similarities in the drivers of growth in imports over the period. For example, although imports of business services increased relatively slowly, their greater starting share, combined with rising prices, resulted in an almost identical contribution to growth in total services imports as exports. Similarly, imports of passenger transport services contributed an almost identical share as exports. The major differences were that personal travel expenditures (tourism and education) made a considerably smaller contribution to the increase in service imports than exports, while for imports of business travel and freight services, the opposite was the case.

Australia has traditionally been a net importer of services, with consistent deficits of 1.5 to 2 per cent of GDP. However, developments since the mid-1980s have seen a clear turnaround in the services deficit. In 1985-86, the cross-border service trade deficit was 2.1 per cent of GDP (figure 5.5). Steady declines in the deficit over the ensuing decade saw it all but disappear by the mid-1990s. And, thanks to a large increase in exports of business and other services in the September quarter of 2000

associated with the Sydney Olympic Games, the cross-border service trade balance moved into surplus, equivalent to almost 0.1 per cent of GDP, in 2000-01.

**Figure 5.5 Balance on service trade as a share of GDP, 1985-86 to 2000-01<sup>a</sup>**



<sup>a</sup> Data are quarterly and measured in current prices. As the data are seasonally adjusted to smooth out systematic changes, quarterly volatility reflects one-off occurrences — the most notable being the sharp falls in the deficit on services trade in 1988 due to the staging of World Expo in Brisbane (and the associated boost in tourism expenditure) and in 2000 due to the staging of the Sydney Olympics. In the latter case, the increase was driven only partly by increases in tourist expenditures and largely by increased expenditures by foreigners on business and other services (predominantly exports of audiovisual and related services which jumped by almost \$1 billion in the September quarter 2000).

Data source: EconData (2001).

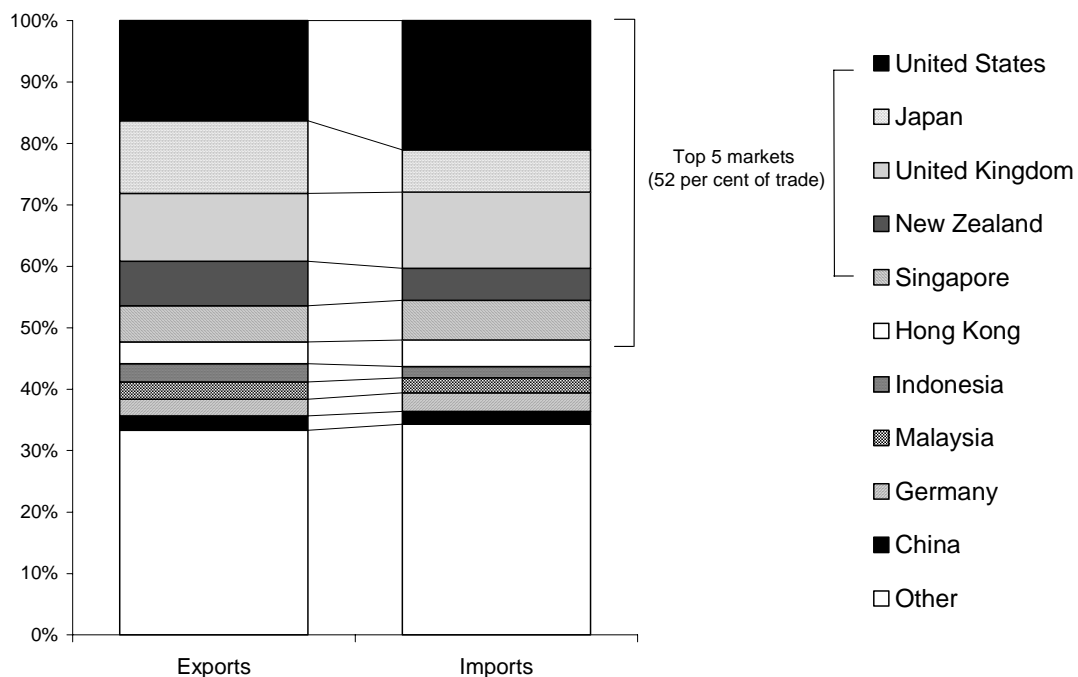
Of course, balanced trade in services should not be an end in itself. There is nothing inherently wrong with importing services — or goods for that matter. And it would make no sense for Australia to aim for balanced trade in each sector (or indeed each industry) of the economy. This would effectively undermine the very basis of international trade — the gains realised when countries specialise in activities where they have a comparative and competitive advantage. The turnaround in Australia's balance on service trade is of interest primarily because of the light it sheds on the structural shifts within services in recent decades.

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### Australia's major trading partners

Australia's trade in services is concentrated among a few major markets. In 1999-00, Australia's top 5 export markets accounted for 52.3 per cent of total service exports. And, in the same year these markets supplied 52 per cent of Australian service imports. Australia's next 5 largest trading partners accounted for just 14.4 and 13.7 per cent of Australia's service exports and imports, respectively (figure 5.6).

**Figure 5.6 Australia's major trading partners — share of service exports and imports in 1999-00**

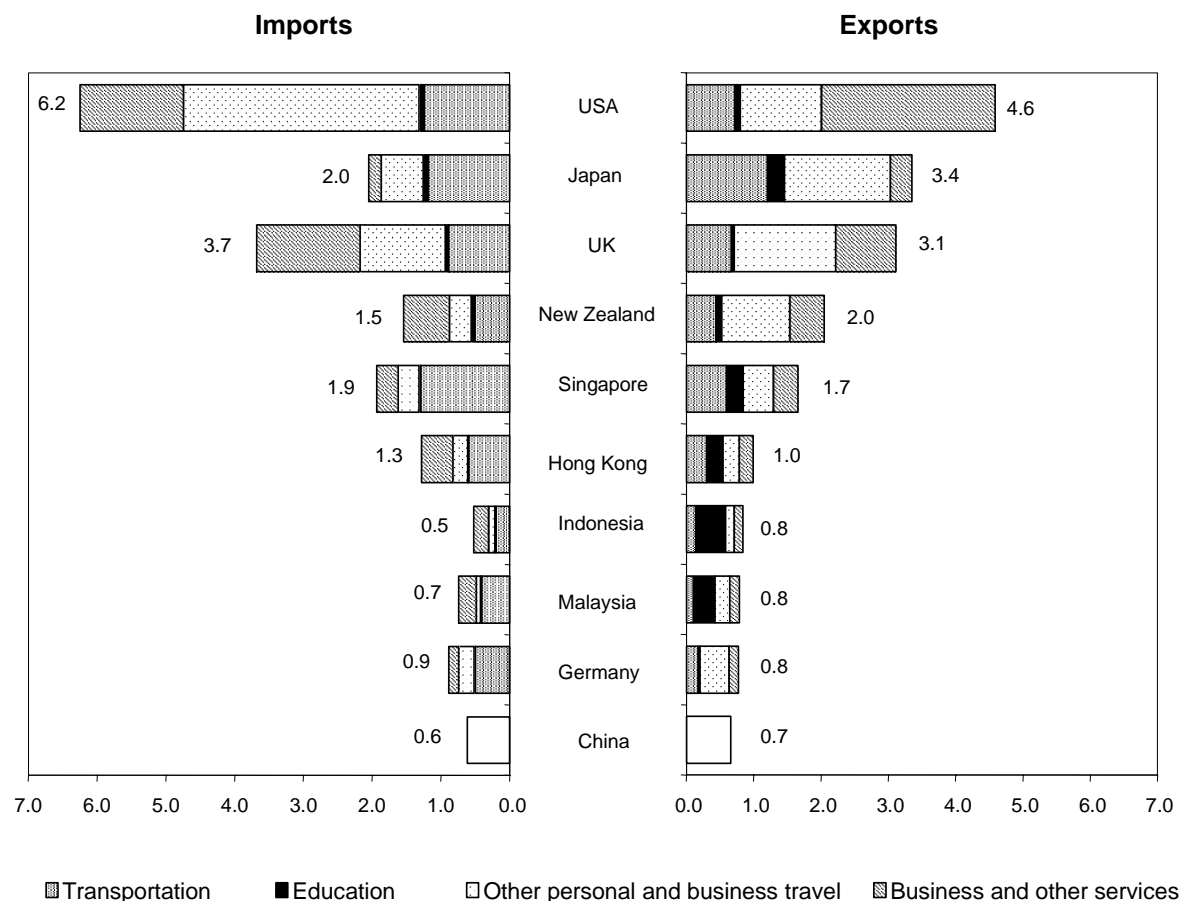


Data source: ABS Cat. no. 5363.0.

The United States is Australia's biggest service export market, accounting for 16 per cent of total service exports (and 21 per cent of service imports) in 1999-00 (figure 5.6). Australia has traditionally registered large deficits on service trade with the United States (\$1.6 billion in 1999-00, figure 5.7), largely due to a substantial deficit on personal and business travel.

**Figure 5.7 Service trade — Australia's top 10 service export/import markets, 1999-00<sup>a</sup>**

\$A billion, current prices



<sup>a</sup> As consistent data showing industry breakdowns were not available for China, totals only are presented.  
 Data source: ABS Cat. no. 5363.0.

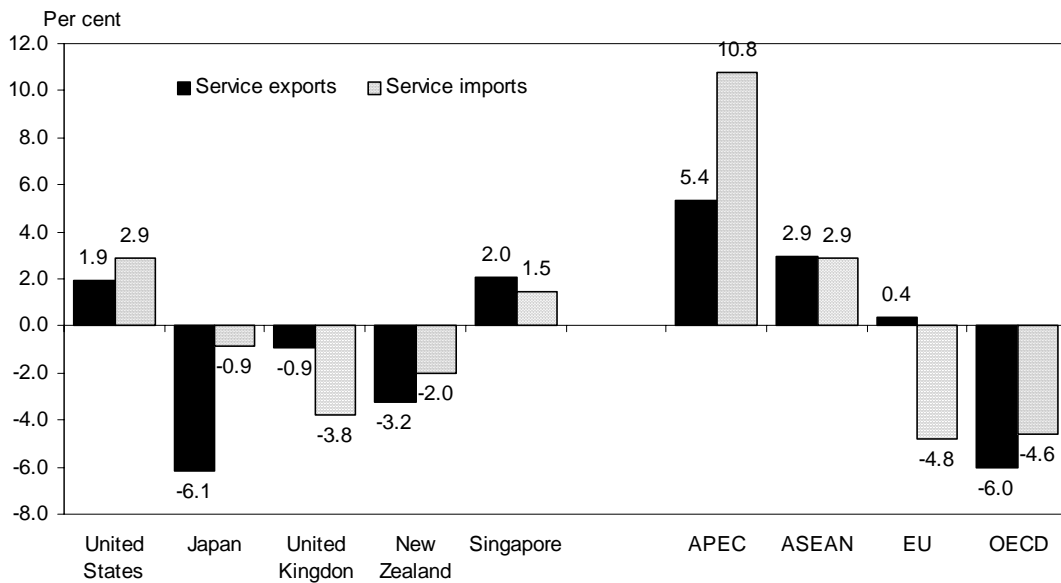
In contrast, Australia has consistently recorded substantial service trade surpluses with its next largest market, Japan — which accounted for 12 per cent of Australia's service exports and 7 per cent of service imports in the same year. These results are broadly consistent with the current patterns of goods trade, where Australia has consistently run large surpluses with Japan and large deficits with the United States (\$4.7 billion and \$13.7 billion respectively in 1999-00). This is typical of a much broader and longstanding trend of strong overlap in the global patterns of Australia's goods and service trade.<sup>5</sup>

<sup>5</sup> Country shares of total Australian trade (exports plus imports) for both goods and services are closely related, with a correlation coefficient of over 0.75 in 1999-00, up from 0.68 a decade earlier.



The relative importance of Australia's service markets has changed over time. Of the top five markets for Australia's service exports, the United States and Singapore increased in relative importance in the decade to 1999-00 (by 1.9 and 2.0 percentage points respectively, figure 5.8), whereas exports to the United Kingdom, New Zealand and Japan all declined in relative importance. The latter is partly explained by the extended period of slow economic growth experienced by Japan over the period.<sup>6</sup>

**Figure 5.8 Change in Australia's share of service exports and imports, selected countries and country groups — 1989-90 to 1999-00**  
Percentage point change in share, current prices



Data source: ABS Cat. no. 5363.0 (various years).

In spite of the decline in the relative importance of the Japanese market, the share of Australia's service exports sold to APEC countries increased by over 5 percentage points, up from 57 to 62 per cent over the last decade. Of more importance was the change in the source of service imports into Australia, with APEC countries increasing their share (from 46 to 57 per cent) bringing it more into line with their export share. ASEAN countries increased their overall share of Australia's service exports and imports by around 3 percentage points each (up from 11.4 to 14.3 per cent of service imports and from 11.4 to 14.4 per cent of service exports).

In contrast, the OECD declined in relative importance, driven mainly by two factors — weaker Japanese demand for Australia's service exports and a shift in Australia's

<sup>6</sup> Real GDP increased by an average of only 1.6 per cent per year in Japan between 1989 and 1999 — around half the OECD average for the period (EconData 2001).

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pattern of service imports away from European Union (EU) countries. The EU slightly increased its 20 per cent share of Australia's service exports over the period while its share of service imports declined by almost five percentage points.

### *Foreign direct investment*

In 2000, services accounted for just over half of Australia's inward FDI stock (around \$105 billion, table 5.2). Within the service sector, finance and insurance services (including banks, building societies, credit unions, life insurance and superannuation funds) account for the largest share of FDI stock (\$26 billion). Wholesale trade and property and business services were also important recipients of inward FDI (\$22 and \$20 billion respectively).

In contrast, Australia's outward FDI stock is much less oriented towards the service sector — in 2000, services accounted for just under 30 per cent of Australia's \$174 billion stock of outward FDI. Nearly three-quarters of Australia's outward FDI stock in the services sector, and more than one-fifth of total outward FDI stock, was accounted for by finance and insurance services. The next most important services industry was wholesale trade, accounting for around 5 per cent of Australia's outward FDI stock in services.

Data on FDI trends in Australia are quite limited at a sectoral level. Nevertheless, available data indicate that stocks of inward FDI in Australia have risen strongly over the 1990s, up from \$105 billion to \$201 billion (\$A, current prices) or an average annual increase of 8.5 per cent between 1992 and 2000.<sup>7</sup> Stocks of FDI in the service sector have grown the fastest, accounting for 56 per cent of the growth over the period, with the sector's share increasing from 49 to 52 per cent.

FDI abroad increased at a much faster rate over the same period, up from \$45 billion to \$174 billion<sup>8</sup>, an annual average increase of 18.5 per cent. This resulted in an increase as a share of GDP from 11 to 28 per cent. In this case, investment in the goods sector was the driving force, accounting for almost three-quarters of the overall rise. Despite the service sector's outward FDI stocks also expanding appreciably (from \$18 billion to \$51 billion), the sector's share of total Australian outward stocks of FDI declined from 41 to 30 per cent over the period.

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<sup>7</sup> This was faster than the rate of increase in GDP, with the stock of inward FDI increasing as a share of GDP from 26 to 32 per cent over the period.

<sup>8</sup> As these are measured in Australian dollars, part of this increase reflects valuation effects due to the fall in the value of the Australian dollar against the US dollar in particular. Nevertheless, even when measured in US dollars, stocks of outward FDI increased strongly (15.3 per cent a year between 1991-92 and 1999-00).

**Table 5.2 Australia's FDI stocks, 2000<sup>a,b</sup>**  
Current prices, \$A, June 30

	<i>Foreign direct investment in Australia</i>		<i>Foreign direct investment abroad</i>	
	<i>\$ billion</i>	<i>%</i>	<i>\$ billion</i>	<i>%</i>
Agriculture, forestry and fishing	1.5	0.8	np	np
Mining	28.9	14.4	9.2	5.3
Manufacturing	64.9	32.4	113.4	65.1
<b>Goods</b>	<b>95.3</b>	<b>47.5</b>	<b>122.5</b>	<b>70.4</b>
Electricity, gas and water	11.2	5.6	np	np
Construction	3.0	1.5	np	np
Wholesale trade	22.5	11.2	3.2	1.8
Retail trade	2.4	1.2	np	np
Accommodation, cafes and restaurants	2.1	1.1	np	np
Transport and storage	6.7	3.4	2.7	1.6
Communications	np	np	np	np
Finance and insurance	26.3	13.1	37.4	21.5
Property and business services	19.6	9.8	2.2	1.3
Other industries/unallocated	11.4	5.7	4.9	2.8
<b>Services</b>	<b>105.2</b>	<b>52.5</b>	<b>51.5</b>	<b>29.6</b>
<b>Total</b>	<b>200.5</b>	<b>100.0</b>	<b>174.0</b>	<b>100.0</b>

<sup>a</sup> When examining the sectoral pattern of inward FDI it is important to remember that the industry category given in official statistics denotes the predominant activity of the enterprise group receiving the investment funds. This is not necessarily the industry of the end use of the funds. Hence, it is likely that some of the FDI going into financial services is redirected to other industries, so that the importance of financial services may be overstated. <sup>b</sup> Totals may not add due to rounding. **np** Refers to data that are not available for publication but are included in totals where applicable.

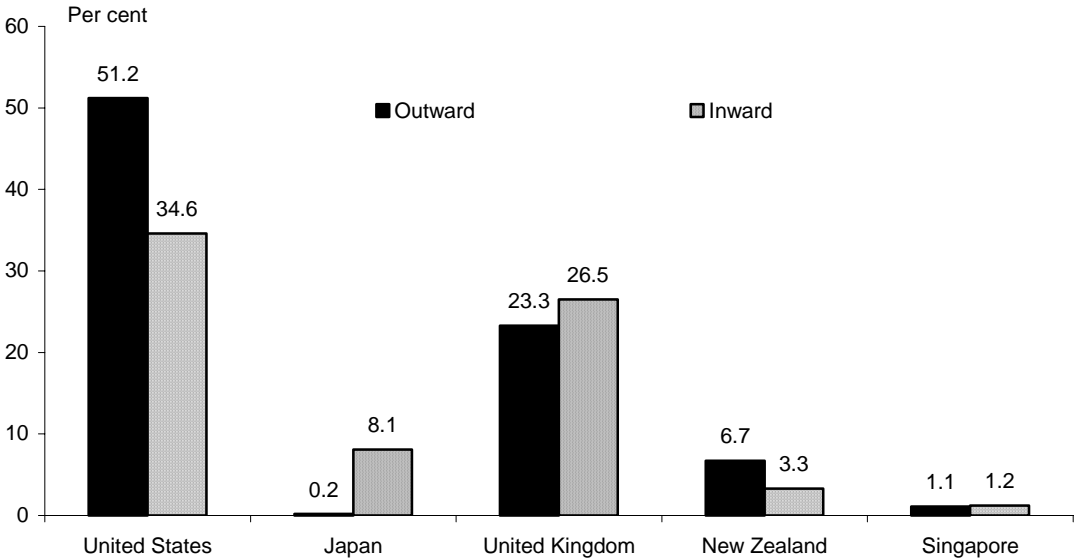
Source: Unpublished ABS estimates.

Consistent sectoral data on FDI stocks or flows by country are not readily available. However, data on changes in global FDI stocks for all industries as well as country shares provide an indication of broad trends. UNCTAD (2000) data indicate that the value of global stocks of inward FDI rose tenfold (from \$US0.6 trillion to \$US6.3 trillion) between 1980 and 2000. Australia's share of global inward FDI stocks rose from 2.1 per cent in 1980 to 3.9 per cent in 1990. However, it has been steadily declining since to be 1.8 per cent in 2000. In terms of outward stocks of FDI, Australia increased its share from 0.4 to 1.4 per cent between 1980 and 2000. Again, the fastest growth occurred in the 1980s, with Australia's share of global outward FDI stock rising to 1.8 per cent by 1990 and then slowly declining during the 1990s. Hence, although inward and outward stocks of FDI have been increasing in Australia relative to GDP, they have not kept pace with the strong increases evident in Asia, Europe and the United States over the past decade.

Unlike trade flows, global FDI flows are dominated by three major players — the United States, the European Union and Japan, which combined accounted for almost 80 per cent of total stocks of outward FDI in 2000. The composition of Australia’s FDI sources and destinations are similarly concentrated, with two countries — the United States and the United Kingdom — dominating. These two countries together accounted for 61 and 75 per cent of Australia’s total inward and outward stocks of FDI respectively at the end of June 2000. The only other major contributors are Japan — contributing just over 8 per cent of Australia’s inward stock of FDI — and New Zealand (around 7 per cent).

Overall, there is a high degree of overlap between Australia’s major investment partners and its trading partners, although there is greater concentration of FDI shares among a few countries. For example, the five largest markets for Australia’s service exports, which accounted for around 50 per cent of all goods and services trade, accounted for 83 and 74 per cent respectively of outward and inward stocks of FDI (figure 5.9).

**Figure 5.9 Top 5 country shares of Australia’s outward and inward FDI stocks, 1999-00**  
Current prices, \$A



Data sources: ABS Cat. no. 5363.0 and unpublished ABS data.

There is also a strong similarity in Australia’s trade and investment linkages with the United States and the United Kingdom. Both countries are more important to Australia as sources and destinations for FDI than for trade in services or goods. For Japan, the opposite is true, with goods trade being the much more important to Australia than either services trade or FDI.

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The patterns of sources for Australia's inward FDI stocks have not changed markedly over the past decade although, since 1992, the United States has become a slightly more important supplier, largely at the expense of New Zealand and Japan. In contrast, the destinations of Australia's outward stocks of FDI have changed substantially. The largest increase has been in the United States share, which has expanded from 27 to 51 per cent over the period, mainly at the expense of Hong Kong, the United Kingdom, New Zealand and Papua New Guinea.

### *Presence of natural persons*

The importance of trade in services attributable to the presence of natural persons, either in Australia or overseas, is difficult to gauge.<sup>9</sup> Part of the difficulty lies in separating this form of trade in services from the establishment of a commercial presence and cross-border trade flows. The WTO (1998, p. 9) notes that: '... movements of persons may be only one element of a larger "services package" involving trade under other modes as well.'

Nevertheless, information contained in Australia's balance of payments statistics on income flows stemming from compensation of employees working abroad suggests that this mode of service trade is becoming increasingly important. Comprising wages, salaries and other compensation received by individuals working abroad for less than one year, these data indicate that Australians working abroad earned over \$0.9 billion in 2000-01.<sup>10</sup> In the same year, compensation of foreign employees working in Australia was \$1.1 billion. Both measures have been increasing rapidly (11 and 14 per cent a year respectively since 1985-86 at current prices), more than doubling their respective shares of GDP since the mid-1980s.

Moreover, it appears that these workers are increasingly involved in high-skill jobs. The OECD (1998) has noted, for example, that the share of high-skilled workers among temporary workers has grown in most countries in recent years, particularly in Canada, the United States and Australia.

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<sup>9</sup> The WTO notes (1998, p. 9): 'The WTO Secretariat is not aware of any Member possessing a data collection system, be it a population register, a register of foreigners or any other surveys or administrative records, which would allow us to trace and keep track of foreign service providers in a reasonably comprehensive way.'

<sup>10</sup> The ABS (1998a) notes that, for the purposes of the balance of payments, where persons are working abroad for twelve months or more they cease to be regarded as residents of their home country and are treated as residents of the country in which they work. The data also refer to workers in all goods and service industries.

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## 5.4 Impediments to growth in services trade

Although progress has been made in removing or modifying barriers that restrict cross-border exchanges and the movement or activities of people and firms between countries, restrictions in these areas still impede the growth of service trade. Impediments and barriers to service trade take many forms. Some arise from natural influences, for example, language and cultural differences between countries. Others arise from government regulations and other measures.

Typical government related barriers encountered by Australian service exporters include foreign equity limitations, lack of recognition of qualifications, restrictions on the issue of licences, various restrictions on commercial presence such as the number and location of branches and restrictions on the forms of commercial presence (such as joint venture requirements) (DFAT 2001).

Reducing barriers to service trade is more complex than reducing barriers to goods trade. Because service trade covers a wide range of industries, liberalisation of service trade typically affects a wider range of policy areas (and, hence, a wider range of issues, institutions and interests). Regulations and other restrictive measures also tend to be specific to each service industry making it difficult to address issues ‘across the board’. As the OECD (2001e, p. 3) notes:

Services trade is vast and complex, covering sectors as diverse as telecommunications and energy, communications and retail trade. Services are generally governed by often complex regulatory structures that serve a wide range of policy objectives. The way services are supplied also varies enormously between sectors: a wide range of state and public sector suppliers, monopolies and competitive markets and now electronic means are used. Indeed, many sectors have seen enormous technological change which is in the process of transforming the nature and supply of services.

Technological advancements have reduced the effectiveness of some barriers to service trade. However, there are some practical limits to the extent and pace that barriers and impediments to service trade can be reviewed and reformed. Social attitudes to issues such as protection of national sovereignty and cultural identity place understandable limits on reform agendas. For example, countries assign different values and priorities to protection of the environment. Beyond this, a variety of international arrangements or agreements influence opportunities for expanding international trade in services. These involve sector-specific arrangements, bilateral agreements, arrangements applying to regional country groups and multilateral arrangements.

In a landmark development for service trade, WTO members (including Australia) signed the first and only set of binding multilateral rules covering international trade in services — the GATS — in 1995. The GATS has two parts: a framework

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containing general rules and disciplines; and country ‘schedules’ which list individual countries’ specific commitments on access to their domestic markets by foreign suppliers. The GATS encourages member countries to undertake the progressive opening of their service sectors at their own pace and in accordance with their priorities and objectives.

While the GATS represented a major step forward in the liberalisation of service trade, in its present form, it is really only a starting point — there remains a lot more to be done. As the WTO’s General Director (Moore 1999) said ‘its importance lay in creating the architecture of a completely new agreement’.

Subsequent negotiations in telecommunications and financial services have achieved some progress in liberalising trade in these areas. And, in January 2000, a new round of GATS negotiations commenced as part of its ‘built-in-agenda’ for reform. The main objective of these negotiations is to take the liberalisation process further by extending national commitments over a broader range of service activities and removing limitations from existing commitments.

In November 2001, at a summit in Doha, Qatar, members of the WTO agreed to launch a three year round of trade talks aimed at reducing barriers to trade in services, agriculture and industrial products and negotiating a better framework for investment and competition policies which impact on global trade opportunities. This round of multilateral trade talks will be the first since the completion of the Uruguay Round in December 1993.

Further progress in removing impediments to trade in services is partly dependent upon gaining a better understanding of the nature and significance of these impediments. It is generally much more difficult to quantify the impact of barriers and impediments to trade in services than it is for goods. Many of the protective measures applying to goods — such as tariffs, bounties and subsidies — are both direct in their impact and visible, making their impacts comparatively easy to quantify. In contrast, most of the barriers and impediments to service trade are less direct, more discretionary in their application and therefore more difficult to quantify.

A number of overseas and Australian studies have sought to quantify barriers to trade and investment for services by drawing on and extending approaches previously applied to analyses of goods trade. Collectively these studies have revealed that, while some service markets are relatively open, most are subject to some regulation or restrictions. Moreover, there is considerable diversity in the nature of these barriers, ranging from total prohibitions on some activities to others that are less direct and subject to administrative discretion that make their

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‘restrictiveness’ difficult to quantify (see, for example, PECC 1995, Hoekman 1995, Hardin and Holmes 1997, McGuire 1998 and Warren 2000).

Trade liberalisation is not an end in itself. Rather, it is the improvement in overall community welfare that is the goal. There are a number of ways in which service liberalisation can contribute to this goal including by yielding savings to consumers in the form of lower prices, promoting faster innovation, improving transparency and predicability, and facilitating technology transfer. As the OECD (2000d, p. 26) said:

The benefits of expanding international trade in services are clear. For consumers, it means greater choice, but there are many benefits for industry as well. In several services, such as retailing and retail banking, such expansion provides an important means for local companies to increase sales once firms are confronted with saturated domestic markets. It also provides a means for companies to gain access to new knowledge, innovative concepts, services and ideas, and to new technologies. This is particularly true in instances where companies participate in joint ventures, mergers or acquisitions with foreign partners. At the same time, expanded trade in services can act as a catalyst for broader growth in international trade and investment in other areas, by providing improved logistical and technical support to clients.

A number of Australian and international studies have identified the potential gains from modifying or removing these impediments.<sup>11</sup> For example, Dee and Hanslow (2000) examined the gains from eliminating barriers to trade in services together with post-Uruguay barriers remaining in the traditional areas of agriculture and manufacturing. They concluded that the world as a whole was likely to be better off by more than US\$260 billion annually as a result of eliminating all post-Uruguay trade barriers. Around half these gains — US\$130 billion — would come from liberalising service trade. Australia was projected to gain as much from global liberalisation of service trade as it would from liberalisation of trade in agricultural and manufacturing products. Each would make Australia’s real income about US\$2 billion higher than otherwise, for an overall gain of about US\$4 billion a year. The projected gain in annual income emerged about 10 years after the liberalisation occurred and the associated resource adjustments had taken place.

In summary, the diverse and indirect nature of impediments to the various modes of trade in services means that there are many challenges associated with identifying the form and likely impacts of these impediments. However, it is clear from studies in Australia and overseas that the payoffs from further liberalisation of services (and goods) trade, in terms of improved community welfare, are likely to be considerable.

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<sup>11</sup> Useful profiles of these studies are provided in Hardin and Holmes (1997, chapter 6), Dee, Hanslow and Phamduc (2000, chapter 15) and Findlay and Warren (2000).



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## 6 Service sector performance

**It is commonly held that services are ‘productivity laggards’. But, the two outstanding performers in terms of productivity growth since the mid-1980s have been service industries — communications and electricity, gas and water. There is, however, great diversity, in terms of productivity growth, among the service industries. While wholesale trade also recorded productivity growth greater than that achieved for manufacturing, services such as retail trade, accommodation, cafes and restaurants, and cultural and recreational services recorded low or negative productivity growth. Difficulties in measuring output and taking quality improvements into account, however, suggest the need for caution in interpreting productivity estimates for many service industries. And, while work in the area of comparing service productivity across countries is fairly limited, preliminary estimates suggest that there is scope for further improvement within Australia’s service sector.**

Services dominate economic activity in Australia, providing essential inputs into virtually every good and service produced. The performance of the service sector, therefore, has an important influence on the overall performance of the Australian economy and on the ability of other sectors to remain competitive in international markets. As the OECD (2001b, p. 3) said ‘an inefficient service sector acts like a prohibitive tax on a national economy.’

A common view is that services are ‘unproductive’ or ‘productivity laggards’ compared with goods. Underlying this view is the idea that intangible activities are unproductive and only activities that produce ‘things’ can be productive and wealth generating. But, as Cox and Alm (1995, p. 4) put it:

... goods and services aren’t all that different. Both have value, and both are useful. Both can be bought, sold and even bestowed. They’re just alternative ways of satisfying consumer needs. Why, then are services so often dismissed as second class? If someone manufactures a truck, it’s celebrated, yet if someone hangs on the back of one collecting trash, it’s often denigrated, even though the only real value in a garbage truck is its use in the removal of waste.

Hauknes (1999, p. 1) notes that myths characterising services as productivity laggards:

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... have roots stretching over two centuries back, originating in the debate in classical political economy on the distinction between ‘productive’ and ‘unproductive’ labour, between those activities that generate and those that dissipate wealth. The contemporary offspring of this debate, of services as weakly tradeable productivity laggards, has also been reflected in views such as that ‘manufacturing is the engine of growth’, in concerns about deindustrialisation of industrialised countries, and that it is ‘manufacturing [that] matters’.

Such myths have led to concerns that an expanding service sector will place a drag on overall productivity growth and improvements in living standards. As Riddle (1985, p. 70) put it:

Contemporary concerns about service sector productivity typically take the form voiced in the following quote ... ‘if everyone is in the service economy, who is going to be in the producing economy making the money to pay for the services?’ (Alter 1982, p. 35.)

This chapter seeks to shed some light on the performance of the Australian service sector. It provides an assessment of Australia’s service sector’s productivity performance over time and compared with other OECD countries. Factors affecting the performance of the sector are also examined. Before examining productivity measures for the sector, however, it is important to consider some issues relating to productivity measurement.

## **6.1 Measuring productivity for services**

Measuring productivity (that is, the rate at which inputs such as labour and capital, are transformed into outputs) for the service sector presents a number of challenges. In the first instance, defining and measuring output for many service industries is far from straightforward. And, because of the nature of some services, taking account of changes in service quality can be particularly difficult.<sup>1</sup>

### **Measuring service output**

Because services typically do not produce tangible ‘things’ that can be counted, defining and measuring output can be conceptually difficult, if not impossible for some services. As Dean and Kunze (1995, p. 12) observed:

For manufacturing industries, output is easy to define: The output of the steel industry is tons of steel; the output of the automobile industry is the number of automobiles. But, in a service industry, there often is no simple definition of output. What, for

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<sup>1</sup> A number of studies provide detailed treatment of productivity measurement challenges facing analysts of the service sector (see, for example, Zvi Griliches 1992, Brookings Workshop on Measuring the Output of Business Services 1999 and Triplett and Bosworth 2001).

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example, is the output of an orchestra? Is it the length of time it performs? Is it the quality of the performance? Hill (1977) describes a service as something that changes a person or an item and involves an economic transaction. This definition would suggest that if no one attends the concert, no service is delivered, regardless of how long the orchestra plays or of the quality of the performance.

And Dean (1999, p. 30) notes:

... for a surprisingly large number of service-producing industries there is a lack of agreement among economists on the best definition of output. Economic literature has produced no consensus definition for banking, insurance, other financial services, or retail and wholesale trade. ... Zvi Griliches of Harvard University, in his Presidential Address to the American Economic Association a few years ago, referred to the 'unmeasurable' sectors of the economy. He argued that as these sectors have grown in importance, the economy has 'shifted into uncharted waters'.

One of the complications associated with measuring output for some services is that often a single output indicator is unable to capture all aspects of an industry's output. The banking industry, for example, delivers a variety of quite different services including the safekeeping of funds, securities and other valuables, a system for making payments, the assessment and provision of credit, and so on. Capturing the different aspects of banking output into a single output indicator is far from straightforward.

A further complication is that it can be difficult to separate service output from the consumer's role in eliciting the output. Some have argued that, in the production of services, the consumer often supplies an essential input (see, for example, Sherwood 1994). For example, it may not be possible to define a doctor's output adequately without taking into account whether or not the patient followed the doctor's advice. Statisticians have not come up with any easy solutions for incorporating the consumer's role into the measurement of service outputs.

Where the output of a service industry is difficult to define, or is not sold in the market so it is hard to establish prices, output is usually measured on the basis of crude indicators. One approach is to use labour input data to derive a measure of output. But this virtually precludes any productivity growth. For example, if a teacher's output is measured in terms of the number of teaching hours, then productivity growth will be recorded as zero.

The output of some services are less 'abstract' and are, therefore, easier to measure. For example, for the communications industry, output may be measured as the amount of mail delivered by postal services or the number of call minutes for telecommunications. Similarly, although transport services are somewhat intangible, output can be measured as the number of passengers carried (or passenger-kilometres) or tonne-kilometres of freight moved.

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## Taking quality changes into account

If improvements in the quality of a service (or good) are ignored when measuring productivity growth, real output will be undervalued. However, quality changes in services can be more difficult to observe and measure than quality changes for goods. For example, it is difficult to measure the quality of medical advice given to a patient or the quality of legal advice given to a client. For other services, however, quality differences and changes are more easily observed. For example, differences in the quality of rooms in hotels and motels.

The issue of quality is, of course, closely related to the definition of output.

An improvement in quality is often reflected in an increase in price. If quality improvements are not taken into account, price changes will be registered as inflation and real output and therefore productivity growth will be understated. Wherever changes in quality and service features are directly observable, statistical techniques can be employed to establish a relationship between the service features and the price. But, often this is not easy to do. For example, while it is straightforward to measure the hours spent by a lawyer with clients, it is very difficult to measure the quality of the advice given. Yet, the quality of the advice is a determinant of the price and, a price rise due to greater probability of winning a case is difficult to distinguish from price rises that occur for other reasons.

Another commonly cited example is an orchestra that has a track record of selling-out all its performances but decides to upgrade by recruiting world-class musicians. Because of the new recruits, the performance cost rises along with ticket prices. But, the subscribers are happy to pay the higher ticket prices for the improved music quality. On standard output measures, the same output is observed (a sold-out performance), but because of the higher labour costs it can appear that there has been a decline in productivity. Current statistical practice is not well equipped to deal with this issue and typically no adjustments are made for quality improvements for services (see, for example, OECD 2000c and Johnston, et al. 2000).

The challenges associated with both accounting for quality changes and measuring output are often unique to the service industry in question. Indeed, in a recent paper looking at productivity in the service sector, Triplett and Bosworth (2001, pp. 35-36) argued that:

... there is no overall theme to measurement problems in service industries. Each appears to be a special case, with specific measurement problems unique to the characteristics of services industry output. Each industry problem requires a specific solution, an attack designed uniquely for the special problems posed by the nature of the industry's output.

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The problems with measuring service output and taking quality changes into account suggest the need for some caution in interpreting productivity estimates for services.

## 6.2 Service productivity — what the numbers say

### Productivity measures

Productivity measures provide a basis for assessing and comparing production processes in terms of the amount of inputs required to generate output — or, put another way, a measure of the efficiency with which inputs are used to produce output.

There are a number of different productivity measures.

Productivity *levels* are a measure of the ratio of output to inputs — for example, the number of hamburgers or telephone mainlines per employee.

Productivity *growth* is the amount of output growth in excess of input growth over a specified period. For example, if output grew by 6 per cent a year over a 10 year period and inputs grew by 4 per cent a year, productivity growth would be 2 per cent a year. Evidence of productivity growth usually means that ways have been found to create more output from given inputs, or alternatively, to produce the same output with fewer inputs.

Data limitations make it impracticable to analyse productivity growth for the economy as a whole. Analysis is therefore limited to the ‘market sector’ of the economy, or to those industries for which relevant information on industry inputs and outputs is readily available — typically about two-thirds of national output. The ‘non-market’ sector covers those activities in the service sector for which output cannot be measured independently of inputs. The outputs of government services such as public administration and defence, education and health, for example, are measured largely in terms of the value of their labour inputs. Many financial services are similarly valued. For these activities, productivity growth estimates make little sense or are assumed by the ABS to be zero (ABS 2000).

Productivity can be measured in relation to a single input — such as labour or capital — yielding a partial measure of productivity performance. Labour productivity is the most commonly used partial productivity measure. It is a useful measure as it typically relates to the single most important factor of production for many service industries. It is also relatively easy to measure. But, because labour

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productivity is a partial measure it is likely to reflect the influence of a host of factors, such as the personal capacities of workers, the intensity of their efforts, and the capital equipment used. Similarly, capital productivity can reflect technological changes and changes in other factor inputs (including labour), as well as improvements in the organisation of production processes.

Multifactor productivity (growth in output relative to the combined contribution of key inputs, usually labour and capital) provides a more comprehensive performance measure as it takes account of changes in all the main inputs used to produce output. Multifactor productivity is, however, more difficult to measure.

The choice between the different measures is generally influenced by the purpose of productivity measurement but also, often on practical grounds, by the availability of data.

### **What the numbers say**

Growth in Australia's labour, capital and multifactor productivity, by sector and industry for the period 1984-85 to 1999-00, is reported in table 6.1.

While substantial disparities exist among the service industries, the data show that it is incorrect to label all services as 'productivity laggards' or to suggest that productivity growth is a goods sector phenomenon. In fact, some service industries have experienced productivity growth rates considerably above that recorded for manufacturing and the market economy.

The two outstanding performers, in terms of both labour and multifactor productivity growth for the period 1984-85 to 1999-00, are the service industries communications and electricity, gas and water. Over this period, average annual multifactor productivity growth was 4.6 per cent for communications and 3.3 per cent for electricity, gas and water. Wholesale trade (1.9 per cent) also recorded growth in multifactor productivity above that recorded for manufacturing (1.5 per cent).

The service industries recording relatively slow or negative multifactor productivity growth over the period 1984-85 to 1999-00 include construction, retail trade, accommodation, cafes and restaurants, and cultural and recreational services.

Estimates for the period 1984-85 to 1999-00, however, mask rapid productivity growth experienced by many service industries since the mid-1990s. Figure 6.1 shows that strong productivity growth for the market economy over the period 1993-94 to 1999-00 has been supported by relatively strong productivity growth in a number of service industries.

**Table 6.1 Labour, capital and multifactor productivity growth rates by sector and industry for Australia, 1984-85 to 1999-00**

<i>Sector/industry</i>	<i>Labour productivity</i>	<i>Capital productivity</i>	<i>Multifactor productivity</i>
	<i>Annual average growth (per cent)</i>		
Agriculture	2.3	2.5	<b>2.4</b>
Mining	5.4	1.2	<b>2.3</b>
Manufacturing	3.2	-1.1	<b>1.5</b>
Services			
Electricity, gas and water	7.3	1.4	<b>3.3</b>
Construction	0.6	-1.1	<b>0.2</b>
Wholesale trade	2.5	0.4	<b>1.9</b>
Retail trade	0.7	-2.9	<b>0.0</b>
Accommodation, cafes and restaurants	-0.1	-3.6	<b>-0.9</b>
Transport and storage	2.1	-0.4	<b>1.2</b>
Communications	7.3	1.6	<b>4.6</b>
Finance and insurance	3.6	-3.3	<b>0.9</b>
Cultural and recreational services	-1.1	-6.8	<b>-3.5</b>
<b>Market sector</b>	<b>2.1</b>	<b>-0.4</b>	<b>1.1</b>

*Data source:* PC estimates based on ABS data.

Wholesale trade stands out as a particularly strong performer over the period 1993-94 to 1999-00 (average annual growth of 5.2 per cent) and a significant contributor to overall productivity growth.<sup>2</sup> Communications also recorded productivity growth well above the market sector average, although at a slower rate than in the period 1984-85 to 1993-94. In contrast, construction, retail trade, accommodation, cafes and restaurants, transport and storage, and finance and insurance experienced stronger productivity growth over this period than over the period 1984-85 to 1993-94.

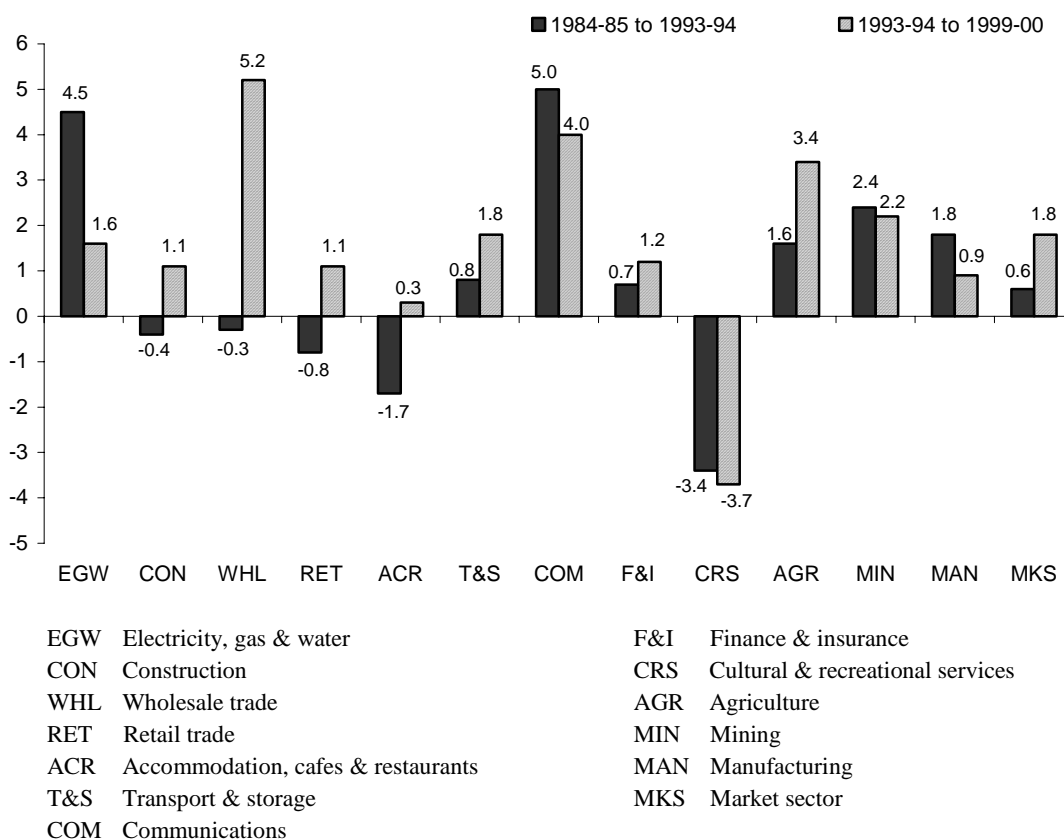
As a recent study by Productivity Commission staff on Information Technology and Australia's Productivity Surge (Parham, et al. 2001, p.XXXI) found:

... the 'traditional' contributors to aggregate MFP growth in the 1970s and 1980s — Agriculture, Mining and Manufacturing, as well as Electricity, gas & water and Communication services — have been overshadowed in the 1990s by the 'new' contributors, especially Wholesale trade and Finance & insurance. The new contributors are relatively intensive users of IT.

<sup>2</sup> A PC staff research paper on Productivity in Australia's Wholesale and Retail Trade (Johnston, et.al, 2000) examines performance in this industry in more detail.

**Figure 6.1 Multifactor productivity growth by industry and sector, 1984-85 to 1993-94 and 1993-94 to 1999-00**

Annual average growth. per cent



Data source: PC estimates based on ABS data, [www.pc.gov.au/work/productivity/index.html](http://www.pc.gov.au/work/productivity/index.html)

Productivity growth rates, however, only provide part of the story as they do not provide any insight into the relative efficiency with which resources are used. For example, an industry recording a relatively high productivity growth rate may be starting from a relatively low base. Productivity *levels*, therefore, provide an important basis for assessing productivity growth rates.

Labour and capital productivity level estimates presented in table 6.2 show that there is considerable variability between industries in output per hour worked and capital employed. Differences in productivity levels between the different industries should not, however, come as any surprise as these levels are really just the inverse of factor (that is, labour or capital) intensities. For example, if an industry is labour intensive, its ratio of output to labour is likely to be relatively low. Just as factor intensities vary between industries, so too will partial or single factor productivity levels.



**Table 6.2 Levels of labour and capital productivity by industry and sector for Australia<sup>a</sup>**

5 year averages (1996-97 to 2000-01), constant 1999-00 prices

<i>Industry/sector</i>	<i>Labour productivity</i>	<i>Capital productivity</i>
	<i>(\$ of output per hour worked)</i>	<i>(\$ of output per \$100 of capital employed)</i>
Agriculture, forestry, fishing	19.9	38.2
Mining	142.5	25.2
Manufacturing	31.7	77.4
<b>Goods</b>	<b>34.5</b>	<b>47.2</b>
Electricity, gas and water	117.9	14.5
Construction	24.7	127.7
Wholesale trade	31.1	91.7
Retail trade	15.0	81.1
Accommodation, cafes and restaurants	18.8	39.2
Transport and storage	35.8	20.8
Communications	53.7	29.1
Finance and insurance	59.2	59.6
Cultural and recreation services	30.9	63.3
<b>Market services</b>	<b>29.6</b>	<b>41.9</b>
<b>Market sector</b>	<b>31.1</b>	<b>43.6</b>

<sup>a</sup> Five year averages were employed to reduce the effects of year-to-year volatility in the data.

Source: EconData (2001).

Bearing this in mind, the labour and capital productivity levels reported above do, however, suggest that the view that services are ‘unproductive’ or ‘less productive’ than goods producing industries needs to be reconsidered.

Over the period 1996-97 to 2000-01, workers in market services produced, on average, almost \$30 of output per hour. This was only marginally lower than that for manufacturing (\$31.70 of output per hour worked) and the goods sector as a whole (\$34.50).

Within the service sector, labour productivity levels are particularly high in the capital intensive industries of electricity, gas and water, finance and insurance and communications. As would be expected, labour-intensive industries, including retail trade and accommodation, cafes and restaurants recorded relatively low labour productivity levels.

The service sector’s levels of capital productivity are well below those for manufacturing and slightly below the average for the goods sector. Again, there is much variability between industries within the service sector. Construction and wholesale and retail trade recorded the highest value of output per \$100 of capital

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employed, while the capital intensive electricity, gas and water industry recorded the lowest.

Finance and insurance stands out as recording both labour and capital productivity levels above the average for all industries. And, accommodation, cafes and restaurants recorded both labour and capital productivity levels below the average for the market sector.

## **Making sense of the numbers**

In light of the variation in productivity growth between service industries, it is pertinent to question whether this should be a source of concern and the reasons underlying the variation.

### *Are productivity differences between industries a source for concern?*

The existence of differences in productivity levels and growth rates between industries need not be a source of concern, nor does it provide a simple basis to suggest that improvements in national productivity can be brought about by shifting resources to higher productivity industries/sectors. While moving resources to higher productivity industries/sectors may raise national productivity, and in some cases may be appropriate (for example, if the shift were held back by unnecessary or ineffective government intervention), the demand side — as indicated by the preferences of consumers and users — also needs to be considered. Lower productivity growth industries continue to flourish (alongside higher productivity industries), because the goods and services they produce are in demand. With sufficient demand for their output, they can retain or attract resources through the wages and salaries they pay and the returns on investment they offer (IC 1997).

In short, what matters is that industries perform well relative to their productivity potential.

### *Different opportunities for adopting productivity enhancing technology*

Different industries have different opportunities for productivity growth due to their inherent characteristics. Opportunities for improving productivity by drawing upon technological advances, for example, differ across industries and over time. Developments in information and communication technologies (ICT) have been an important source of productivity growth for those service industries (such as communications, finance and public administration) that are involved in processing and diffusing information. Advances in ICT have also expanded the use of such

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technology in more physical services including transport and wholesale and retail trade and community services such as health and education. For example, in the wholesale trade industry, the widespread adoption of technologies such as barcoding, paperless pick systems and automatic re-ordering processes have transformed the industry from a storage-based system to a fast flow distribution network. In the finance industry, advances in ICT have facilitated improved networking between finance institutions which has allowed faster electronic transfers of funds and enabled the development of an array of new services for customers.

Many of the service industries experiencing slow productivity growth, such as accommodation, cafes and restaurants and cultural and recreational services, however, are less easily automated or affected by technological improvements. For example, it is difficult or inappropriate to reduce the number of waiting staff required in a restaurant or the number of players in a string quartet or sports team. Some services are also highly customised and do not lend themselves to standardisation — for example, in order for a doctor to treat a patient it is necessary to establish, on a case-by-case basis, what is wrong and then ‘tailor-make’ the treatment to suit the particular case.

But, as Baumol (2001, p. 24) argues, there is no service for which productivity is untouched by technical progress to some degree:

If, ... the hypothetical Mozart string quartet had been scored for a half-hour performance, then its performance in 1990 required two person-hours of labour, just as it did in 1790, when it might have been written. Thus, there is apparently no scope for the slightest increase in labour productivity. Yet that is only an illusion. To see why, consider a recent performance by a Viennese group of musicians played in Frankfurt am Main. A trip from their Austrian home base to the German auditorium surely would normally have taken no more than several hours in 1990. But when Mozart made the trip in 1790 it required six days of extreme discomfort. Certainly, technical progress has reduced the number of hours of labour required to provide a unit of the output in question, thus raising the labour productivity of every itinerant performer, even in live performance.

The greatest scope for technical progress for many services is to provide a better quality of service with the same amount of inputs. But, as previously discussed, quality improvements are often difficult to capture in the measures of output used to calculate productivity growth.

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### *Can mismeasurement explain low productivity growth in some service industries?*

Some of the differences in productivity growth rates may simply reflect difficulties in accounting for quality improvements and defining and measuring service output. As Griliches (1992, p. 20) said:

The actual productivity situation may not be as bad as some of the crude numbers indicate. In some sectors, such as communications, where we have good data, productivity is growing at a satisfactory rate. In others, where our measurement efforts are still in their infancy, we should not overinterpret the numbers.

Also Wolff (1999, p. 305):

... it is likely that services which are basically labour activities, such as hairdressing, medicine, business services, and teaching, are inherently limited (that is, stagnant) in the degree in which they can increase the amount of output produced per hour of labour input. However, it still appears that for many of these service industries, the official national income and product account measures of output have led to an understatement of the actual increase in their productivity.

Service industries for which measurement problems have been identified as potentially being an important issue include; finance, wholesale and retail trade, construction and cultural and recreation services.

Lowe (1995), for example, raised doubts about whether retail output measures include improvements brought about by the added convenience (and added input requirements) of longer trading hours. In principle, an increase in time convenience represents an increase in retail output. But, longer trading hours are more likely to bring about changes in the timing of consumer purchases rather than an increase in the volume of sales through retail outlets (box 6.1).

Similarly, in the finance industry, some suggest that the anecdotal evidence on productivity improvements arising from the adoption of information technology is at odds with the productivity data (Macleane 1997). Again, the extra convenience to customers from automatic teller machines and online banking, including twenty-four hour access to accounts and banking from home and from almost any location in the world, does not show up as an increase in output, even though customers benefit from such developments.

Attempts to improve the measurement of service industry outputs have typically resulted in upward revisions to productivity estimates. For example, Fixler and Zieschang (1999) introduced quality adjustments to capture the effects of improved service characteristics, such as easier and more convenient transaction and intermediation made possible by new technologies in the United States financial service industry. These adjustments resulted in estimates of output growth of over 7

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per cent a year between 1977 and 1994, well above the unadjusted measure of 1.3 per cent. Other studies show similar results for the health care and trucking industries when price measures are developed to try to capture some of the quality changes occurring in these industries (Pilat 2001).

**Box 6.1 Measuring productivity in wholesale and retail trade**

There are some doubts about how well productivity is measured in the wholesale and retail trade industries. It is argued that the failure to account for service improvements on the output side (such as the added convenience of longer shopping hours), while including additional inputs, leads to some downward bias in productivity estimates.

The output of the wholesale and retail trade is the transfer of ownership of goods and the provision of a range of services to secure a sale. These services include locational convenience for the transfer of goods, time convenience at which goods are available for sale, the time taken to execute the transfer, the range of products on offer and the extent and quality of customer assistance. These service components, however, are not measured directly. Rather, gross output is measured as the margin on goods traded when a sale occurs — that is, the difference between the value of sales and the cost of goods sold. This methodology assumes that the output of services increases in proportion with the volume of goods sold.

In principle, an increase in time convenience represents an increase in retail output. But, longer trading hours are more likely to bring about changes in the timing of consumer purchases than an increase in the volume of sales through retail outlets. Prima facie, it appears that measured output fails to capture the increase in service because the volume of goods sold does not increase in proportion to the additional convenience. However, longer trading hours involve additional labour costs and, other things being equal, these increase the sales price and the gross margin, registering an output increase. Provided costs are proportional to service, there is no mismeasurement of output.

But, in practice, it is unlikely to be that straightforward. Competition constrains opportunities to raise prices and margins and an improvement in one service may only be possible by a decrease in another service. For example, the labour cost of opening longer hours may be met by reductions in customer service, forcing an increase in customer self-service. The net effect on measured value added is unclear, but it is unlikely to be large. In this case, the change in measured output is likely to be close to the change in 'actual' output.

There are, however, other potential sources of error, including:

- economies of scale (output growth not proportional to increases in costs); and
- the ABS assumption of fixed value added to sales ratios over time when a number of operational factors have been changing.

Such possible measurement errors suggest the need for some caution in the interpretation of productivity estimates for wholesale and retail trade, especially where negative productivity trends are recorded over long periods of time.

*Source:* Johnston, et al. (2000).

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A study by Fisk and Forte (1997), looking at a range of indicators of physical counts or quantities of services provided by different parts of the United States federal government, also observed a small but steady increase in labour productivity for this ‘measured part’ of government services. Government services in the areas of — finance and accounting, library services, regulation (rule making and licensing) and social services and benefits — were found to have the highest rates of labour productivity growth over the period 1967-94. Over the same period, government services in the areas of legal and judicial activities, personnel management, medical services and electric power and production recorded very low or negative labour productivity growth.

### *The influence of different operating environments*

Differences in productivity growth rates may also reflect the different operating environments of firms and industries. As Pilat (1996a, p. 108) said:

Productivity growth is influenced by a range of factors. ... Apart from some specific options, such as investment in education, R&D or infrastructure, policies to boost productivity often focus on the framework conditions for productivity growth. The degree of competition is often considered to be among the most important of such factors, since a lack of competition reduces the pressure on firms to incorporate better technology, remove organisational slack and improve productivity performance.

Traditionally, many service industries have been highly regulated. Much of the regulation covering services was designed to deal with perceived market failures, such as natural monopolies and externalities. The level of government ownership has also been higher in services than in other sectors of the economy.

Over the last two decades, microeconomic reforms aimed at promoting competition in a number of service industries have been introduced in Australia (and elsewhere in the world). Reform in some areas has been driven by technological advances that have facilitated the provision of services at much lower costs and allowed competition in markets that were traditionally regarded as natural monopolies (for example, telecommunications). Service users who have come under increasing competitive pressure in recent years as trade and investment barriers have been lowered have also been a source of pressure for productivity improvement.

At least some of the improvements in productivity growth in the service sector appear to coincide with the introduction of microeconomic reforms. This is particularly the case in the areas of electricity, gas and water and communications, where regulatory reforms have imposed increasing competitive pressure since the mid to late 1980s.

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While considerable progress has been made on the reform front, further reform to service industries has the potential to substantially improve performance. Nicoletti (2001, p. 109) in a paper on *Regulation in Services: OECD Patterns and Economic Implications*, for example, found that:

In countries where competition enhancing regulatory reform in service industries and electricity supply is more advanced:

- the share of services, employment and the catch-up in productivity growth have been higher;
- distribution systems have been modernised;
- rail and transport have become less costly;
- air transport networks have been modernised and made more efficient, and airfares for all categories of travellers have declined substantially; and
- telecommunications and electricity supply have become more efficient and cheaper, especially for industrial customers.

In many industries, regulatory reform has been matched by technical progress, innovation and product diversification. Competitive pressures in liberalised markets have encouraged productivity-enhancing investment.

Nicoletti, on ranking OECD countries according to the degree of regulation, however, ranked Australia as ‘very liberal’ (relative to the average for OECD countries) for retail distribution, road freight, mobile and fixed telephony, air passenger transport, electricity and railways.<sup>3</sup>

### **6.3 International comparisons**

This section looks at the performance of Australia’s service sector compared with the standards achieved by other comparable countries.

OECD countries provide a reasonable basis for comparison of Australia’s productivity performance given their broadly similar stage of economic development. There are, nevertheless, some important differences among these countries that need to be recognised when making productivity comparisons. More specifically, differences in productivity growth may reflect different resource

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<sup>3</sup> Nicoletti’s data source is the OECD International Regulation Database. This database contains comprehensive and internationally comparable information (over 1100 quantitative and qualitative observations for each member country) about the state of regulation and market structures in OECD countries in 1998 as well as (for telecommunications and electricity) a time series covering the past 15 years. The OECD indicators of regulation are cardinal measures that summarise economy-wide and industry-specific regulations by regulatory domain. They are designed to reflect the stringency of regulations, from least to most restrictive (along a scale of 0 to 6), as regards their impact on market competition.

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endowments, differences between countries in exploitation of 'catch-up' opportunities, the use of different technologies and institutional and regulatory arrangements.

Comparing service sector productivity across countries is not easy. For many services, measuring productivity is difficult enough at the national level; an extra layer of difficulty is added when you try to compare performance across countries. And, largely because of the difficulties involved, it is an area where only a limited amount of work has been done. As van Ark and Timmer (2001b, p. 18) observed:

Although the interest in measurement and analysis of productivity in service industries has increased, relatively little work has been done on international comparisons of service productivity. This is partly caused by measurement problems which increase in complexity when concentrating on international comparisons. The other reason is that relative levels of service productivity are strongly affected by the institutional organisation, the legal framework and cultural preferences within each country, so the interpretation of the results at macro level is less straightforward than for manufacturing.

Because work in this area is still in its infancy, caution needs to be taken in interpreting differences in the productivity performance of service industries across countries.

Data covering labour, capital and multifactor productivity growth rates and levels are available for OECD countries for extensive time periods up to around the mid 1990s. Comparisons of productivity growth rates by sector were previously reported on by the Industry Commission for the period 1970 to 1994 (see IC 1997).

There is, however, only limited *recent* data available for comparing productivity growth rates and levels for service industries between countries. Preliminary data contained in the OECD's STAN Industrial Database has been used to estimate labour productivity growth rates for selected OECD countries for the period 1984 to 1998. The estimates for Australia are based on ABS data as the OECD's STAN Industrial Database currently does not have data for Australia (table 6.3).

Because the OECD uses measurement conventions designed to improve the comparability of productivity estimates among countries, some caution is warranted when interpreting differences in productivity growth rates for Australia and other OECD countries. The estimates are also based on the use of economy-wide purchasing power parities (PPPs) rather than industry-based PPPs.



**Table 6.3 Labour productivity growth<sup>a</sup> by sector and industry, selected OECD countries, 1984 to 1998**

Average annual compound growth rates (per cent)

Sector/industry	ABS data	OECD data			
	Australia <sup>b</sup>	United States	Large OECD <sup>c</sup>	Small OECD <sup>d</sup>	Selected OECD <sup>e</sup>
Agriculture	1.7	3.2	4.8	4.4	4.5
Mining	6.2	6.0	2.7	6.5	5.0
Manufacturing	2.4	3.2	2.9	3.8	3.4
<b>Goods</b>	<b>2.8</b>	<b>3.3</b>	<b>3.3</b>	<b>4.3</b>	<b>3.8</b>
Electricity, gas and water	8.4	2.3	2.5	4.7	3.6
Construction	1.0	0.4	0.2	1.2	0.8
Wholesale and retail trade, restaurants and hotels	0.5	2.5	1.3	1.7	1.6
Transport, storage and communications	4.6	2.4	3.5	3.7	3.5
Finance, insurance, property and business services	1.2	-0.1	0.1	0.1	0.1
Community, social, personal and other services	0.7	-0.3	-0.2	0.5	0.2
<b>Services</b>	<b>1.4</b>	<b>0.9</b>	<b>0.9</b>	<b>1.5</b>	<b>1.2</b>

<sup>a</sup> Labour productivity estimates were derived by dividing sector output (value added at basic prices (which exclude taxes and subsidies) using 1995 purchasing power parities in \$US) by the number of workers in the industry/sector. Growth in the number of workers may not grow at exactly the same rate as growth in hours worked — due to changes in working arrangements — although, for Australia, the growth rates have been very similar (see notes to figure 4.3). <sup>b</sup> These estimates are based on published ABS measures of value added at basic prices and number of workers by ANZSIC industry. Although the industry coverage for Australia (ANZSIC) differs slightly from that employed for the remaining countries (ISIC Revision 3), the classifications are sufficiently close to allow broad sector and industry comparisons. <sup>c</sup> Large OECD comprises Canada, France, Germany, Italy and Japan. <sup>d</sup> Small OECD comprises Australia, Austria, Denmark, Finland, Korea, Netherlands and Sweden. <sup>e</sup> Countries covered include: Australia, Austria, Canada, Denmark, Finland, France, Germany, Italy, Japan, Korea, Netherlands, Sweden and the United States. These countries account for over 80 per cent of the GDP of OECD countries in 1995.

Sources: Commission estimates based on STAN (2001); ABS Cat. no's 5204.0 and 6203.0; and OECD (2001c).

These preliminary estimates suggest that Australia's labour productivity growth for the service sector as a whole over the period 1984 to 1998 is marginally above the OECD average and that recorded for the United States and other large OECD countries. This is in contrast to Australia's labour productivity growth for the goods sector which is estimated to be below the OECD average and the United States.

The Australian service industries that stand out as recording relatively high labour productivity growth over the period are electricity, gas and water, and transport, storage and communications. Finance, insurance, property and business services, community, social, personal and other services and construction, however, also recorded labour productivity growth higher than the OECD average. On the other

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hand, Australia's wholesale and retail trade, restaurants and hotels, achieved considerably lower productivity growth than the OECD average.

OECD estimates of service industries labour productivity growth (Pilat 2001)<sup>4</sup> for a selection of OECD countries covering the period 1990-97, also suggest that Australia's productivity growth in transport, storage and communications has been higher than that recorded in a number of OECD countries. The OECD estimates suggest that labour productivity growth in Australia's wholesale and retail trade, restaurants and hotels, has been lower than for these industries in Canada, Italy, Sweden and the United States. And Sweden, Finland, West Germany, Italy and Japan all recorded higher productivity growth than Australia for finance, insurance, real estate and business services.

Productivity growth rates on their own, however, cannot tell the whole story as they do not take into account starting levels. For a more complete story, it is desirable to also compare productivity levels in order to gain some insight into the scope for productivity improvements.

There are two main approaches to comparing industry productivity levels across countries. The first is a case study approach where a particular industry is analyzed in detail and specific indicators are collected for comparison across countries (often with adjustments to reflect operational as well as institutional differences between countries). The fine level of disaggregation associated with this approach potentially provides the greatest opportunity for comparing like with like in different countries. The second is a sectoral approach where the aim is to stay as close as possible to concepts and definition used in national accounts and to apply uniform methods across sectors/ industries and countries (van Ark and Monnikhof, 1999).

The international benchmarking work undertaken by the (former) Bureau of Industry Economics, and now the Productivity Commission, is an example of the case study approach (BIE 1995, PC 1998b, PC 1999b). This benchmarking work, which covers the service industries — telecommunications, electricity, gas, rail and road freight, waterfront (containers and coal), aviation and coastal shipping — identified significant performance gaps for most of Australia's service industries compared with their overseas counterparts. However, for many of these industries the latest published estimates of labour and capital productivity indicators are for the period 1992 to 1994.

In order to obtain more up-to-date estimates of service industry productivity levels across countries, preliminary estimates were made (based on preliminary data from the OECD's STAN Industrial Database and ABS data for Australia) for the period

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<sup>4</sup> Estimates are based on data contained in the OECD's Intersectoral Database.

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1995 to 1998. The estimates, which are based on the number of workers employed in each industry sector, suggest that Australia's labour productivity levels for the service sector as a whole are considerably below the United States and the OECD average.

Australia's transport, storage and communications and construction industries were found to have labour productivity levels somewhat higher than the OECD average. On the other hand, Australia's electricity, gas and water industries, community, social, personal and other services, wholesale and retail trade, restaurants and hotels and finance and insurance, property and business services, were found to have labour productivity levels below the OECD average. These results suggest that most of Australia's service industries still have some way to go to catch up to other OECD countries and that there is scope for further productivity gains.

These estimates, however, are preliminary and they are based on the use of economy-wide PPPs. But, as Pilat 1996b, p. 4) points out:

Productivity comparisons at the sectoral level are less simple to make than for the economy as a whole. The main problem that has to be confronted is the lack of appropriate sector-specific conversion factors. ... The PPP for total GDP is not suitable, as it does not reflect the variation in price levels across sectors. In principle, industry-specific conversion factors are required that reflect price differentials across countries for the industry in question.

In 1983, an International Comparisons of Output and Productivity (ICOP) project was set up at the University of Groningen to pursue research on industry-of-origin comparisons of output and productivity. At this stage, the ICOP Industry Database only provides estimates of comparative productivity levels for two service industries — transport and communications and wholesale and retail trade (including hotels and restaurants). These estimates, which are based on industry PPPs, suggest that in 1998 Australia had considerably higher labour productivity levels for transport and communications than the United States and a number of other OECD and Asian countries. For wholesale and retail trade, however, Australia's labour productivity level was estimated to be well below the United States suggesting that there is considerable scope of improvement. However, the ICOP estimates are also preliminary and, according to the research team, there may not have been sufficient adjustments made for differences in the quality of the services provided in each of the countries (van Ark and Timmer 2001a).

Reflecting on the current situation in relation to assessments of service productivity, van Ark and Timmer (2001b, p.19) said:

... the measurement of productivity in the service sector is still a pioneering activity. Compared to the measures for manufacturing and other goods producing sectors, the service measures are still subject to a much wider range of uncertainty, and the

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comparability of the estimates between countries is not as good. Further methodological improvements and more detailed data will certainly contribute.

Clearly, there is a need for further research and analysis in this area to improve the comparability of data bases and research methods and to identify the main sources of differences in productivity performance between Australia's service industries and their better performing international counterparts.

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# A Alternative approaches to classifying services

As discussed in chapter 2, the heterogeneous nature of the service sector means that, in order to trace through and analyse changes within the sector, it is necessary to disaggregate it in some way. This appendix briefly reviews some of the better known approaches to classifying services.

## *The traditional industry-based approach*

The traditional approach to arranging economic activity relies upon an industry-based classification. Fisher (1935) and Clark (1940) were the founders of the three sector — primary, secondary and tertiary/services — classification of the economy. Today, the United Nations International Standard Industrial Classification of All Economic Activities (ISIC) forms the basis upon which most countries collect and publish data on their economies<sup>1</sup>. The Australian and New Zealand Standard Industrial Classification (ANZSIC) contains agriculture, mining, manufacturing and fourteen service industry groups (see chapter 2, table 2.2).

There is a long-running debate about whether activities such as construction, transport, communication and utilities (including electricity, gas and water), should be included or excluded from the service sector. Even Fisher (1935) and Clark (1940) differed in their views on where the split between the secondary and tertiary sectors should lie. Fuchs (1968) in a comprehensive study of the United States service sector, excluded transport, communications and public utilities from his list of services on the basis that they used large amounts of physical capital and their production processes had more in common with manufacturing. Physical capital is, however, significant in many service industries including many business and community services. Other analysts have argued that construction, electricity, gas and water should be included in the service sector because of the essentially non-

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<sup>1</sup> The definition of services that was established by the United Nations (1990) in Revision 3 of the ISIC includes eleven major divisions (G to Q) — wholesale and retail trade; health and restaurants; transport, storage and communications; financial intermediation; real estate, renting and business activities; public administration and defence, compulsory social security; education; health and social work; other community, social and personal service activities; private households with employed persons; and extra-territorial organisations and bodies.

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traded nature of these activities (Dowie 1970). The ISIC (Revision 3) definition of services, and that adopted by the OECD, exclude utilities (electricity, gas and water) and construction.

The traditional industry-based classification has, however, been criticised by a number of analysts (see, for example, Marshall and Wood (1995) and Pilat (2001) for its inadequacies when it comes to analysing trends in services and the role they play in the economy.

Over the years, a number of alternative classification systems have been proposed as a means of facilitating analysis and an improved understanding of service activities. The basis for some of the alternative systems include:

- the different growth experiences of services in the course of economic development;
- the different markets served by services and economic functions performed; and
- the role/use of information and communication technologies and process/product innovations.

#### *Classifying services according to differing growth experiences*

Work by Katouzian (1970) was influential in differentiating between those services that had grown in the course of economic development and traditional services that were likely to decline. Katouzian suggested dividing the sector into three categories:

- ‘new’ services — those that reflect mass consumption in industrial countries. This category includes services such as research, education, medical, recreational and entertainment services;
- ‘old’ services — those that flourished prior to industrialisation, including laundrettes and domestic services; and
- complementary services — those that are complementary to the process of industrialisation. This category covers services such as banking, finance, transportation, wholesale and retail trade.

#### *Classifying services according to the markets they serve and economic functions they perform*

The more common approach to classifying services, however, has been to group them according to the markets they serve — that is, whether they meet final (consumer or household) or intermediate (producer) demand. Under such a classification, consumer services cover all services sold directly to consumers for

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their personal use — entertainment and recreational services and personal services such as hair and beauty treatments. Producer services cover all services provided to producers of goods and services and include, for example, office cleaning, computing, consulting and other business services.

The market-based classification system has intuitive appeal because it has the potential to better reflect changes going on within the service sector. But, some of the proposed categories are neither mutually exclusive (for example, some services, such as banking, insurance and transport fall into both final and intermediate demand), nor do they necessarily relate to the form in which economic data on services is collected. One way around the problem of some services not being mutually exclusive is to create a third group of ‘mixed’ services. Another is to assign activities to consumer or producer services according to which type of output or employment predominates. But, this solution overlooks the fact that the share of intermediate and final output of service industries can change over time and can vary between countries. And, as Allen (1988, p. 18) argues, it does not recognise that some services, such as the ‘commercial and financial services which mediate and abbreviate the exchange process, are neither producer nor consumer services’ but are ‘circulation services’ which should be classified separately.

A market-based classification system, however, continues to group together quite different types of activity. Many analysts have sought to further split the categories to derive more homogeneous groups.

Browning and Singelmann (1978), for example, proposed a taxonomy which reflected a combination of: the economic function performed by the service; the markets served; and the dominance of private or public provision. They suggested splitting the sector into four categories or sub-sectors— distributive, producer, social and personal services. Distributive (transport, storage, trade) and producer services (insurance, banking, engineering, legal, etc) are made up mainly of activities that support the production and marketing of goods-producing firms. Social services cover health services, education, welfare and government, while activities such as accommodation, entertainment and domestic services come under the heading of personal services. Also, in order to capture key within-sector variations, Browning and Singelmann proposed a detailed industry disaggregation yielding twenty-seven industry sub-groups (see chapter 2, table 2.3).

Commenting on the Browning and Singelmann system, Riddle (1986, p. 17) said:

Using this system, we can potentially capture the important trends ... — the development of various forms of intermediate (producer) services, the contribution of services to enhancing quality of life, and the ‘marketisation’ of domestic services.

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Many subsequent researchers have built on Browning and Singelmann's classification. Elfring (1988), for example, divides their four service subsectors into a further sixteen subgroups (table 2.3). The OECD (2000a, p. 82) uses this classification scheme to analyse components of service sector employment, noting that: 'research suggests that the distribution of service employment across these disaggregated activities has important implications for employment conditions'.

But, as Gershuny and Miles (1983, p. 15) argue, such classification systems have limits when it comes to analysing service employment:

Approaches based on the characteristics of *consumption* appear to offer a rather better grasp of the disparate nature of services than do those based on typical features of *service production*. They do make it apparent that the 'service economy' may be discussed in terms of services involved in the production, distribution and consumption of material goods, as well as those services which are themselves produced for direct consumption or to service the distribution and consumption of services. But such a description by itself tells us little about service employment: to understand past trends and future prospects it is necessary to take into account not only consumption categories and output levels, but also the organisation and structure of production.

To get a more complete picture of trends in service employment it is necessary to look at both 'employment in the service industries' and 'employment in service occupations'. Employment in the service sector covers all those people employed in firms classified as forming a part of service industries. Service occupations, on the other hand, are not limited to service-producing firms alone. For example, accounting and legal work undertaken in-house by a car manufacturer would not be picked up as service employment if only employment in service industries was analysed.

These two elements of service employment can have important effects on the overall structure and characteristics of the labour market. For example, the introduction of a new technology could affect a particular group of workers across a group of industries, such as white-collar workers, while changes in consumer demand may affect employment across a range of occupations within a particular service industry. See chapter 4 for analysis of employment in the service industries and service occupations.

### *Classifying services to reflect the use of technology and innovation*

With the growing importance of information and communication technologies and the process of innovation as a point of leverage in competition between producers and countries, a number of proposals have been put forward for re-classifying service activities to capture these features. These proposals also reflect a growing interest in attempts to provide a better data base to support analysis of how the



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different service activities produce and adopt new technologies and how they seek to compete via process and product innovations.

Porat (1977), suggested setting up a separate ‘information’ sector. This involved dividing economic activities into four sectors — primary, secondary (manufacturing and construction), tertiary (services not based on the transfer of information) and quaternary (information services). Under Porat’s classification, the tertiary sector would include services such as transport, storage, wholesale and retail trade, while the quaternary sector would include education, communications, finance and insurance. It is in the quaternary sector where the impact of computerisation and other technological change is likely to be greater.

Miles (1993) also proposed a classification scheme to facilitate analysis of the use of technology and innovation in services. His categories of services reflect the main transformation processes characterising services — the transformation of physical objects, people or codified information — as well as the markets they serve. He distinguished three types of services — physical, human or person-centred and information services:

- *Physical services* primarily maintain or transport facilities, goods or people. This group covers transportation and storage, wholesale and retail trade. Both producer and consumer services fall within this group. This group of services are mainly influenced by innovations in manufacturing.
- *Human or person-centred services* span social and community services (health, education and welfare) as well as many private consumer services (personal services, hotels and restaurants). Some of these services have specific links to their own set of technologies (for example, health services to pharmaceutical and surgical innovations). Until recent developments in IT, the highly person-specific and non-routine nature of many of these services meant that ‘front-office’ applications of technology were often relatively restricted.
- *Information services*, cover three types of service activity —
  - the mass media, mainly distributing standardised data on a large scale (cinemas, broadcasting);
  - organisations distributing large volumes of non-standard information to specific recipients (telecommunications, financial services); and
  - knowledge services that produce and interpret specialised information (accountancy firms, advertising, marketing and consultancy companies).

Information services have generally been early and extensive users of IT and within this group there has been much innovation at consumer interfaces.

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Commenting on Miles' classification scheme, Hauknes (1998a, p. 12) observed:

The three broad subsets of physical and human- and information-oriented services sector are all likely to make use of emerging IT systems, from transport telematics to medical informatics, from distance learning to interactive television. The three-way classification of services according to their orientation, key functional capabilities and client specificity suggest, however, that the context of innovation and hence innovation patterns will show considerable variety.

The Miles classification system is also potentially useful for analysing productivity growth in the different service industries.

Evangelista (2000, p. 184), however, argues that 'we are a long way from having a satisfactory picture of the extent, role and nature of innovation activities in the service sector'. Most of the literature on technology and innovation has focused on the manufacturing sector (which has traditionally been seen as the major producer and user of technology) and, while many drivers of service performance are similar to those of manufacturing, their role may differ. Research and development, for example, is an important innovation source for only a small group of service industries. Service innovation is typically more dependent on acquired technology, organisational change and human capital.

Using the results from a 1993-95 Italian innovation survey in services, Evangelista and Savona (1999) propose a sectoral taxonomy for analysing innovation in services. It arranges service industries according to the innovative performance of firms, the nature of the innovation activities carried out, the different knowledge bases underlying the innovation processes and the different patterns of interaction through which service firms innovate (figure A.1).

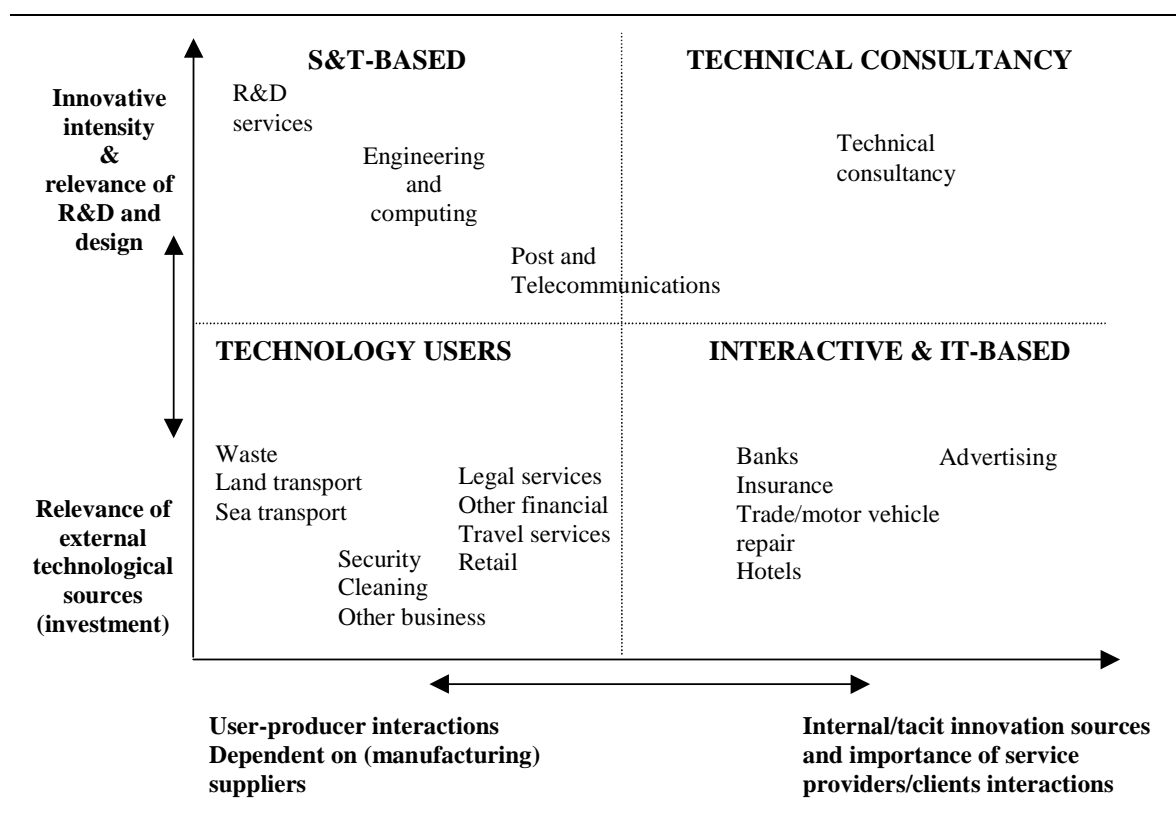
Evangelista and Savona (1999) suggest four service categories. They are summarised below.

- *Technology users.* This category of service industries are generally not very innovative and tend to rely on technologies developed elsewhere, particularly the manufacturing sector. Investment is the most important technological source for these industries. It includes land and sea transport, legal, travel and retail services, also business services such as security and cleaning.
- *Science and technology-based services.* This category of service industries are major generators and diffusers of technological knowledge both within the service sector and elsewhere. A large share of their innovation costs is devoted to research and development and design. This category consists of services such as research and development services, engineering and computing.
- *Interactive and IT-based services.* Innovation in this category is achieved through close interaction with clients and a heavy reliance on developing

software and/or acquiring know-how. This category includes services such as advertising, banking, insurance, hotels, trade and repairs.

- *Technical consultancy services.* This category is highly innovative drawing on internal innovation efforts and client knowledge. Service industries in this category provide customer-specific answers to a variety of technical needs and requirements of clients, exploiting the technologies available in the market.

Figure A.1 **A taxonomy for better understanding technological change and innovation in services**



Source: Evangelista (2000).

The use of such a taxonomy is likely to facilitate analysis and a better understanding of the character of innovation in services and drivers of performance.

### Summing up

While the traditional industry-based classification system provides a starting point for analysing the service sector, alternative classification systems can be useful tools for providing insights into key trends and developments within the sector. The choice of classification system is likely to depend on the type of analysis being undertaken and the form in which service sector data is collected. The

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disaggregation provided by the Browning-Singlemann and Elfring systems, for example, is particularly suited to analysing employment trends and developments within the service sector. It is used in chapters 3 and 4 of this study to analyse changes in output and employment in the service sector. The system developed by Evangelista and Savona, on the other hand, can provide useful insights into the importance of process and product innovations within the sector.

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# References

- Access Economics 2001a, *Economics Monitor*, August.
- 2001b, *Five Year Business Outlook*, December quarter.
- ACIRRT (Australian Centre for Industrial Relations Research and Training) 1999, *Australia at work, just managing?* Prentice Hall of Australia.
- Allen, J. 1988, 'Service Industries: uneven development and uneven knowledge', *Area* 20.1, pp. 15-22.
- Alter, J. 1982 'Precarious prosperity: The siren song of the service sector', *The Washington Monthly*, December, pp. 34-36, (quoted in Riddle 1995).
- Applebaum, E. and Schettkat, R., 1997, 'Are Prices Unimportant? The Changing Structure of the Industrialized Economies', *Journal of Post Keynesian Economics*, 21(3), Spring, pp. 387-98.
- ABS (Australian Bureau of Statistics) 1993, *Australian and New Zealand Standard Industrial Classification*, 1993 Edition, Cat. no. 1290.0.
- 1998a, *Balance of Payments and International Investment Position Australia — Concepts Sources and Methods*, Cat. no. 5331.0, September.
- 1998b, *Retirement and retirement intentions, Australia*, Cat. no. 6538.0, June.
- 1998c, *Working Arrangements in Australia*, Cat. no. 6342.0.
- 2000, *Australian National Accounts: Concepts, Sources and Methods, Chapter 27: Productivity Measures*.
- 2001a, *Balance of Payments and International Investment Position Australia*, Cat. no. 5363.0, May.
- 2001b, *Employee earnings, benefits and trade union membership, Australia*, Cat. no. 6310.0, March.
- 2001c, *Labour Force Australia*, Cat. no. 6203.0.
- 2001d, *National Accounts: Capital Stock*, Cat. no. 5221.0.
- 2001e, *National Income, Expenditure and Product*, Cat. no. 5206.0.
- 2001f, *Private New Capital Expenditure Survey*, Cat. no. 6525.0.
- 2001g, *Working Arrangements Australia*, Cat. no. 6342.0.

- 
- Barnes, P., Johnson, R., Kulys, A. and Hook, S. 1999, *Productivity and the Structure of Employment*, Productivity Commission Staff Research Paper, AusInfo, Canberra.
- Baumol, W. 1967, 'Macroeconomics of unbalanced growth: the anatomy of urban crisis', *American Economic Review* 57, pp. 415-26.
- Baumol, W. 2001, 'Paradox of the services: exploding costs, persistent demand', *The Growth of Service Industries*, edited by T. Raa and R. Schettkat.
- and Bowen, W. 1966, *Performing Arts: The Economic Dilemma*, New York, Twentieth Century Fund.
- Bhagwati, J. 1984, 'Splintering and disembodiment of services and developing countries', *The World Economy*, 7 (2), 133-44.
- BIE (Bureau of Industry Economics) 1980, *Features of the Australian service sector*, AGPS, Canberra.
- 1994a, *Job growth and decline: recent employment change in large and small business*, AGPS, Canberra.
- 1994b, 'What do we really export?' in *Australian Industry Trends*, April, Issue No. 20, AGPS, Canberra.
- 1995, *International Benchmarking*, Report No. 95/20, AGPS, Canberra.
- Binder, M., Papadimitriou, J. and Monday, I. 2001, *International Investment Rules: An Efficiency Perspective*, Staff Working Paper, Productivity Commission, Canberra, May.
- Brookings Workshop on Measuring the Output of Business Services, 1999, May 14.
- Browning, H.L and Singelmann, J. 1978, 'The transformation of the US labour force: The interaction of industry and occupation', *Politics and Society*, vol 8.
- Bryson, J. R. and Daniels, P.W. 1998, 'Introduction: Understanding the rise and role of service activities and employment in the global economy: an introduction to the academic literature', *Service Industries in the Global Economy Volume I*, Edward Elgar Publishing Limited, UK.
- Butlin, N.G. 1962, *Australian Domestic Product, Investment and Foreign Borrowing — 1861-1938/39*, Cambridge University Press, Cambridge.
- Clark, C. 1940, *The Conditions of Economic Progress*, Macmillan, New York.
- Colecchia A. and Papaconstantinou G. 1996, *The Evolution of Skills in OECD Countries and the Role of Technology*, STI Working papers 1996/8, OECD/GD(96)183, OECD, Paris.
- Cox, W. M. and Alm, R. 1995, 'The Service Sector: Give It Some Respect', in *Annual Report, Federal Reserve Bank of Dallas*.

- 
- Daniels, P.W. 1993, *Service Industries in the World Economy*, Blackwell Publishers, Oxford.
- Dawkins, P. and Norris, K. 1995, 'The growth of part-time employment in Australia and the US, 1978-93', *Labour Economics and Productivity*, vol. 7, no. 1, pp. 1-27.
- de Laine, C., Laplagne, P., Stone, S. 2000, *The Increasing Demand for Skilled Workers in Australia: The Role of Technical Change*, Productivity Commission Staff Research Paper, AusInfo, Canberra, September.
- Dean, E. 1999, 'The accuracy of the BLS productivity measures', *Monthly Labour Review*, February, pp. 24-33.
- and Kunze, K. 1995, 'BLS Productivity Measures for Service Industries', in *The Service Productivity and Quality Challenge*, edited by P. Harker, Kluwer Academic Publishers.
- Dee, P. and Hanslow, K. 2000, *Multilateral Liberalisation of Services Trade*, Productivity Commission Staff Research Paper, , Ausinfo, Canberra.
- , —— and Phamduc, T. 2000 'Modelling the liberalisation of services', in Productivity Commission and Australian National University 2000, *Achieving Better Regulation of Services*, Conference proceedings, AusInfo, Canberra, November, pp. 379-410.
- DFAT (Department of Foreign Affairs and Trade) 2001, *Australia and the WTO Negotiations on Trade in Services, Challenges and Opportunities for the Australian Services Sector*, [http://www.dfat.gov.au/trade/negotiations/services/services\\_ebooklet.pdf](http://www.dfat.gov.au/trade/negotiations/services/services_ebooklet.pdf)
- Dowie, J. A. 1970, 'The Service Ensemble' in Forster, C (ed), *Australian Economic Development in the Twentieth Century*, Allen and Unwin, London, 1970.
- Economic Council of Canada 1978, *Service Economy*, Research Report, Ottawa.
- Elfring, T. 1988, *Service Sector Employment in Advanced Economies. A Comparative Analysis of its Implications for Economic Growth*, Gower Publishing Company Limited, Adlershot, UK.
- EPAC (Economic Planning Advisory Commission) 1996, *Future Labour Market Issues for Australia*, Commission Paper no.12, AGPS, Canberra.
- Evangelista, R. 2000, 'Sectoral Patterns of Technological Change in Services', *Economics of Innovation and New Technology*, vol. 9, pp. 183-221.
- and Savona, M. 1999, 'Patterns of Innovation in Services: The Results of the Italian Innovation Survey', Paper presented to the 7<sup>th</sup> Annual RESER Conference, Berlin, 8-10 October.

- 
- Findlay, C. and Warren, T. 2000, *Impediments to Trade in Services*, Routledge, London.
- Fisher, A.G.B. 1935, *The Clash of Progress and Security*, Macmillan, London.
- Fisk, D. and Forte, D. 1997, 'The Federal Productivity Measurement Program: Final Results', *Monthly Labour Review*, May, pp. 19-28.
- Fixler, D. and Zieschang, K. 1999, 'The Productivity of the Banking Sector: Integrating Approaches to Measuring Financial Service Output', *Canadian Journal of Economics*, vol. 32, no. 2, pp. 547-569.
- Fuchs, V.R. 1968, *The Service Economy*, National Bureau of Economic Research, Columbia University Press, New York.
- 1969, *Production and Productivity in the Service Industries*, Studies in Income and Wealth, Volume Thirty Four, by the Conference on Research in Income and Wealth, National Bureau of Economic Research, Columbia University Press, New York.
- Gallouj, F. 1998, *Innovation in Services and the Attendant Myths*, SI4S Topical Paper, Studies in Technology, Innovation and Economic Policy (STEP) Group.
- Gershuny, J.I. 1978, *After Industrial Society? The Emerging Self-Service Economy*, London, Macmillan.
- Gershuny, J.I. and Miles, I.D. 1983, *The New Service Economy, The Transformation of Employment in Industrial Societies*, Frances Pinter, Great Britain.
- Griliches, Z. 1992, *Output Measurement in the Service Sector*, National Bureau of Economic Research, The University of Chicago Press.
- Hardin, A. and Holmes, L. 1997, *Services trade and foreign direct investment*, Industry Commission Staff Research Paper, Canberra, AGPS, November.
- Hauknes, J. 1998a, *Services in innovation — Innovation in services*, Services in European Innovation Systems (SI4S) Final report.
- 1998b, *Services in innovation — Innovation in services*, SI4S Final report (Exerpt), Prepared for the OECD Industry Committee Business and Industry Policy Forum on Services, 28 September 1999.
- 1999, *Innovation in Services — A Questionnaire Survey*, Prepared for the OECD Business and Industry Forum on Realising the Potential of the Service Economy: Facilitating Growth, Innovation and Competition.
- Hill, T. 1977, 'On goods and services', *Review of Income and Wealth*, 23 (4), pp. 315-388.



- 
- Ho, V.T. 1994, *Embodied exports*, Working paper 96, Bureau of Industry Economics.
- Hoekman, B. 1995, 'Assessing the General Agreement on Trade in Services', in W. Martin and L.A. Winters (eds) *The Uruguay Round and the Developing Economies*, World Bank Discussion Paper 307, Washington DC, World Bank, pp. 327-64.
- IC (Industry Commission) 1986, *The Changing Structure of the Australian Economy*, AGPS, Canberra.
- 1996, *Competitive Tendering and Contracting by Public Sector Agencies*, Report No. 48, Commonwealth of Australia, Canberra.
- 1997, *Assessing Australia's Productivity Performance*, AGPS, Canberra.
- IMF (International Monetary Fund) 2001, *International Financial Statistics Yearbook*, Washington.
- Johnston, A., Porter, D., Cobbold, T. and Dolamore, R. 2000, *Productivity in Australia's Wholesale and Retail Trade*, Productivity Commission Staff Research Paper, AusInfo, Canberra.
- Kang, J. 2001, 'The services sector in output and international trade', in Findlay, C. and Warren, T. (eds), *Impediments to Trade in Services*, Routledge, London.
- Katouzian, M.A. 1970, 'The development of the service sector: A new approach', *Oxford Economic Papers*, 22.
- Lavorel, W. 1997, *Coalition of Service Industries Conference*, Address by the Deputy Director-General WTO, Geneva, 24 June.
- LEK Partnership 1994, *Intelligent exports ... and the silent revolution in services*, Australian Trade Commission, Sydney.
- Lowe, P. 1995, 'Labour-Productivity, Growth and Relative Wages: 1978-1994', *Productivity and Growth*, Proceedings of a Conference held at the H.C.Coombs Centre for Financial Studies, Kirribilli in July, Ambassador Press, November.
- Maclean, D. 1997, *Lagging Productivity Growth in the Service Sector: Mismeasurement, Mismanagement or Misinformation?*, Working Paper 97-6, Bank of Canada.
- Marshall, J.N. and Wood, P.A. 1995, *Services and Space: Key Aspects of Urban and Regional Development*, Longman Scientific and Technical, New York.
- McGuire, G. 1998, *Australia's Restrictions on Trade in Financial Services*, Staff Research Paper, Canberra, Productivity Commission, November.
- Miles, I. 1993, Services in the new industrial economy, *Futures*, July/August, pp. 653-72.

- 
- 1995, *Services Innovation, Statistics and Conceptual Issues*, Group of National Experts on Science and Technology Indicators, OECD, Paris, DSTI/EAS/STP/NESTI/(95)23.
- 1996, *Innovation in services: services in innovation*, Manchester Statistical Society.
- and Boden, M. 2000, 'Introduction: Are services special?', *Services and the Knowledge-Based Economy*, Edited by Boden, M and Miles, I, Continuum, London and New York.
- Moore, M. 1999, 'The future of international trade in services', Speech by Mike Moore, Director General of the WTO at The Third Debis Services Conference, Berlin.
- Morehead, A., Steele, M., Alexander, M., Stephen, K. and Duffin, L. 1997, *Changes at Work: 1995 Australian Workplace Industrial Relations Survey*, South Melbourne, Addison Wesley Longman.
- Murtough, G. and Waite, M. 2000, *The Growth of Non-Traditional Employment: Are Jobs Becoming More Precarious?*, Productivity Commission Staff Research Paper, AusInfo, Canberra.
- Nicoletti, G. 2001, 'Regulation in Services: OECD Patterns and Economic Implications', in *Innovation and Productivity in Services*, Proceedings from a joint OECD-Australia Workshop held in Sydney, Australia on 1-2 November 2000.
- Organisation for Economic Co-operation and Development (OECD), 1986, *Services Statistics on Value Added and Employment*, Paris.
- 1992, *Structural Change and Industrial Performance — A seven country growth decomposition study*, OECD Documents, Paris.
- 1994, *Manufacturing Performance: A scorecard of indicators 1994*, OECD Documents, Paris.
- 1996, *Technology, Productivity and Job Creation*, OECD, Paris.
- 1998, *Trends in International Migration: 1998 Edition*, OECD, Paris.
- 1999a, *Business and Industry Policy Forum on the Services Economy: Background Report*, DSTI/IND (99) 19.
- 1999b, *Business and Industry Policy Forum on 'Realising the Potential of the Service Economy'*, Draft Agenda, DSTI/IND(99)11/REV2.
- 2000a, *OECD Employment Outlook*, June, Paris.
- 2000b, *Quarterly National Accounts*, No. 4, Statistics Directorate, Paris.

- 
- 2000c, *A New Economy? The Changing Role of Innovation and Information Technology in Growth*, OECD, Paris.
- 2000d, *The Service Economy*, Business and Industry Policy Forum Series, Paris.
- 2001a, *OECD Employment Outlook*, Paris.
- 2001b, *Open Services Markets Matter*, Policy Brief, OECD Observer, Paris.
- 2001c, *Services Statistics on Value Added and Employment*, Paris.
- 2001d, *Trade in Goods and Services: Statistical Trends and Measurement Challenges*, Statistics Brief, October, No. 1 (by Andreas Lindner, Bill Caves, Lydia Deloumeaux and Joscelyn Magdeleine).
- 2001e, *Trade in Services, Negotiating Issues and Approaches*, Industry, Services and Trade, Paris.
- Outsourcing Institute 1997, 'The Outsourcing Index' December, <http://www.outsourcing.com/news/dnb/>.
- Pappas, N. and Sheehan, P. 1999, 'The New Manufacturing: Linkages between Production and Service Activities' in Sheehan, P. and Tegart, G. (ed) *Working for the Future: Technology and Employment in the Global Knowledge Economy*, Centre for Strategic Economic Studies, Victoria University Press.
- Parham, D. Roberts, P. and Sun, H. 2001, *Information Technology and Australia's Productivity Surge*, Productivity Commission Staff Research Paper, AusInfo, Canberra.
- PC (Productivity Commission) 1998a, *Aspects of Structural Change in Australia*, Research Paper, AusInfo, Canberra.
- 1998b, *International benchmarking of the Australian waterfront*, AGPS, Canberra.
- 1999a, *Impact of Competition Policy Reforms on Rural and Regional Australia*, Report no. 8, AusInfo, Canberra.
- 1999b, *International benchmarking of telecommunications prices and price changes*, AGPS, Canberra.
- PECC (Pacific Economic Cooperation Council) 1995, *Survey of Impediments to Trade and Investment in the APEC Region*, Singapore, PECC.
- Pelligrini, G. 1993, 'The Baumol Gap Revisited. An Econometric Analysis of the Productivity Differential Between U.K. Manufacturing and Service Firms, 1982-1989', *Labour*, Summer, pp. 43-157.
- Pilat, D, 1996a, 'Competition, Productivity and Efficiency', *OECD Economic Studies No. 27, 1996/II*.

- 
- 1996b, *Labour Productivity Levels in OECD Countries: Estimates for Manufacturing and Selected Service Sectors*, Economics Department Working Papers, No. 169.
- 2001, Innovation and Productivity in Services: State of the Art, in *Innovation and Productivity in Services*, Proceedings from a joint OECD-Australia Workshop held in Sydney, Australia on 1-2 November 2000.
- Porat, M. 1977, *The information economy: definition and measurement* SP-77-12(1). Office of Telecommunications, US Department of Commerce, Washington, DC.
- RBA (Reserve Bank of Australia) 1995, *Australian economic statistics — 1949-50 to 1993-94*, Ambassador Press, Australia.
- 1996, *Australian Economic Statistics*, on dx DataDisks, EconData, 20 November.
- Riddle, D. I. 1986, *Service-Led Growth, The Role of the Service Sector in World Development*, Praeger Publishers, New York.
- Romeyn, J. 1992, *Flexible Working Time: Part-time and Casual Employment*, Industrial Relations Research Monograph no. 1, Department of Industrial Relations, Canberra.
- Sampson, G. and Snape, R. 1985, 'Identifying issues in trade in services', *The World Economy* 8 (2), pp. 171-82.
- Sherwood 1994, 'Difficulties in the measurement of service output', *Monthly Labour Review*, March, pp. 11-19.
- Summers, R. 1985, 'Services in the International Economy', in Inman, R. (ed), *Managing the Service Economy: Prospects and Problems*, Cambridge University Press, Cambridge, Mass., pp. 27-48.
- Triplett, J. E. and Bosworth, B. P. 2001, 'Productivity in the Services Sector', in Stern, R.M (ed), *Services in the International Economy*, The University of Michigan Press., pp. 23-52.
- UNCTAD (United Nations Conference on Trade and Development) 1996, *World Investment Report 1996: Investment, Trade and International Policy Arrangements*, New York and Geneva: United Nations.
- 2000 *World Investment Report 2001*, New York and Geneva: United Nations.
- United Nations 1990, *International standard industrial classification of all economic activities — third revision*, Statistical papers, Series M, No. 4, Rev 3, Department of International Economic and Social Affairs, Statistical Office of the United Nations, New York.

- 
- Vaile, M. 2000, *Australia and the Knowledge Economy*, Speech by the Australian Minister for Trade to The Economist Intelligence Unit, Canberra, 31 October, [http://dfat.gov.au/media/speeches/trade/2000/001031\\_eiu.html](http://dfat.gov.au/media/speeches/trade/2000/001031_eiu.html)
- van Ark, B. and Monnikhof, E. 1999, 'Productivity in services: an international comparative perspective', *Canadian Journal of Economics*, vol. 32, no. 2. pp. 471-499.
- and Timmer, M. 2001a, *Measuring Productivity Levels: An Overview of the Issues*, Working Party on Statistics, OECD, Paris, 28 November, DSTI/EAS/IND/SWP(2001) 26.
- and Timmer, M. 2001b, 'PPPs and international productivity comparisons: bottlenecks and new directions', Paper for ILO Seminar on Productivity Comparisons 26 January and Joint World Bank — OECD Seminar on Purchasing Power Parities, Washington D.C. 30 January – 2 February 2001.
- Warren, T. 2000, 'The identification of impediments to trade and investment in telecommunications services', in Findlay, C. and Warren, T. (eds) , *Impediments to Trade in Services*, Routledge, London.
- and Findlay, C. 2000 'Sins of commission and omission': Measuring regulatory impediments to trade in services in Productivity Commission and Australian National University 2000, *Achieving better regulation of services*, Conference proceedings, Ausinfo, Canberra, November, pp. 355-369.
- Wolff, E. N. 1999, 'Productivity paradox: evidence from indirect indicators of service sector productivity growth', *Canadian Journal of Economics*, vol. 32, no. 2, pp. 281-305.
- World Bank 2000, *World Development Report*, World Bank, Geneva.
- WTO (World Trade Organization) 1998, *Presence of Natural Persons (Mode 4)*, Background note by Secretariat, Council for Trade in Services, [http://www.wto.org/english/tratop\\_e/serv\\_e/w75.doc](http://www.wto.org/english/tratop_e/serv_e/w75.doc).
- 1999 *An Introduction to the GATS*, WTO Secretariat, Trade in Services Division, [http://www.wto.org/english/tratop\\_e/serv\\_e/gsintr\\_e.doc](http://www.wto.org/english/tratop_e/serv_e/gsintr_e.doc).