# 2 Drivers of recent structural change

|  |
| --- |
| Key points |
| * Both global and domestic developments have driven structural change in the Australian economy in recent decades. * Improvements in communications and transport technologies, combined with more open policies in Australia and overseas, have led to an expansion of international capital flows, increased trade (particularly in industry inputs) and greater labour mobility. This has given domestic producers access to cheaper capital and intermediate goods and to more skilled labour, but has also increased the competitive pressures that some of them face. * Given Australia’s relative endowments of capital, labour and natural resources, rising global connectedness can be expected to have contributed to the relative expansion of industries that are more intensive in the use of capital and higher‑skilled labour. * It is also likely to have reduced the relative output and employment shares of import‑competing industries that are more intensive in their use of less‑skilled labour. * Domestic forces have also continued to operate, with wide‑ranging impacts. * Increased labour force participation among women and older Australians, combined with rising average educational attainment, are likely to have been both causes and consequences of structural change. * Population ageing, rising incomes and changing tastes have resulted in an increasing proportion of household spending on services such as health, education, housing and communications. Shares of spending on goods, particularly food, clothing and consumer durables, have declined. * Policy changes and microeconomic reforms, particularly since the 1990s, have exposed Australian firms to increased competitive pressures, stimulating greater efficiency and fostering reduced prices for consumers and downstream producers. More recently, COAG reforms have sought to reduce regulatory burdens on firms and to increase the national stock of human capital. * While many of these reforms drove structural change in their own right, they also made the economy more responsive to other sources of structural change. |
|  |
|  |

This chapter examines the range of global and domestic factors that have affected the structure of the Australian economy in recent decades. Many of these factors — from trade and foreign investment to technology, population ageing and policy initiatives — have affected most developed economies. As a result, Australia has had experiences in common with many other nations. However, Australia’s distinctive characteristics — plentiful natural resources, a small but skilled population and long‑standing international openness — have resulted in structural change that differs in several respects from that observed elsewhere.

Section 2.1 discusses global forces, including the growth in international trade and investment, as well as recent events such as the terms of trade increase and the Global Financial Crisis. Section 2.2 considers domestic forces: population ageing; participation in education and the labour market; microeconomic reforms; and changing consumer preferences.

## 2.1 Global forces have brought opportunities and challenges

Recent decades have seen greater interconnectedness between the Australian economy and the rest of the world, with strong growth in international flows of goods, services and capital, and increased labour mobility. As observed by Downes and Stoeckel (2006), this interconnectedness (often described as ‘globalisation’) has brought greater opportunities for many firms and consumers but, at the same time, has heightened competitive pressures and the Australian economy’s sensitivity to external shocks. It has yielded widespread benefits for consumers and for firms who have enjoyed increased access to imported goods and services, financial capital and labour. However, globalisation has also placed substantial pressure on domestic producers in import‑competing industries.

A combination of differences in relative factor endowments and consumer preferences across economies, technological advances, and domestic and overseas policies have driven the observed increases in the mobility of goods, services and factors of production between countries.

* Differences in relative endowments of factors of production — capital, skilled and unskilled labour, land (including natural resources) — give rise to potential gains from trade and exchange between countries. These relativities are not fixed. Countries’ endowments can alter as a result of factor accumulation — through investment (in physical and human capital), immigration and importation — and depletion (for example, diminishing ore grades).
* Consumer preferences can evolve with economic development and with social and cultural change, also giving rise to opportunities for mutually beneficial exchange between nations.
* Improvements in technology have dramatically lowered the cost of transport and communications, reducing the costs of international exchange.
* Policies to promote openness — particularly the liberalisation of trade and foreign investment — have lowered barriers to the international movement of goods, services and factors of production.

All these developments are reflected in changing demand, supply and prices in world markets for tradeable goods and services.

This section begins with a brief consideration of the impacts of technological advances and of domestic and international policy reforms. It then turns in greater detail to the major manifestations of increased global interdependence, highlighting the expected implications of these global forces for industry shares of economic activity in Australia.

### Technological advances

Broadly, technological change refers to an increase in the set of feasible production possibilities, as a result of a change in the nature or quality of the inputs used in production, or in the way that they are used. As an example, the use of ‘self check‑out’ machines enables supermarkets to produce a given retail output at a lower cost than previously, using a different combination of inputs (labour, capital and intermediate goods).

Some highly significant areas of technological change in recent decades have been in telecommunications and Internet technologies (Manyika and Roxburgh 2011) and in freight and logistics (Downes and Stoeckel 2006). These advances have dramatically lowered the costs of communication and transportation, expanding access to and use of these technologies by both producers and consumers. This has had profound implications for economic activity within and between national economies, including:

* reduced costs of international trade and investment
* more accessible international travel and increased cultural awareness and cross‑country links, facilitating labour mobility
* increased productivity across many industries relying on transport and communications as key inputs
* changes in relative factor prices between capital, skilled and unskilled labour.

Using computable general equilibrium (CGE) analysis, Giesecke (2004, 2008) estimated that, over the period 1996‑97 to 2001‑02, technological change was the key driver of change in output by industry. For example, technological advances were largely responsible for output growth rates of between 10 and 55 per cent (over five years) in knowledge‑based services industries such as financial services, communications and other business services.

Technological changes have introduced new ways of doing things. Recent growth in the popularity of online retailers — driven by access to Internet technologies (box 2.1) and falling international freight costs — now presents a growing challenge to the traditional retail model. In the Australian context, the Commission estimated that in 2010, approximately 4 per cent of the value of total retail sales in Australia took place via domestic online retailers, and a further 2 per cent were via overseas online retailers (PC 2011b). Although this particular issue has attracted public debate in regards to its impact on some Australian producers, other domestic producers and consumers have benefited from cheaper access to goods and services.

|  |
| --- |
| Box 2.1 Rapid expansion in access to communications technologies |
| The proportion of individuals across the world using Internet and mobile telephone technologies has increased dramatically over the past few years, according to data collected by the International Telecommunications Union.  In 2013, an estimated 39 per cent of individuals worldwide were using the Internet, a figure that more than doubled from 16 per cent in 2005. (In 2013, 77 per cent of people in developed countries used the Internet.) The global number of mobile telephone subscriptions was 6.8 billion in 2013, almost equal to the world’s population. In contrast, the penetration of mobile telephones was just under 34 per cent in 2005. Convergence of delivery platforms means that individuals are increasingly accessing the Internet via their mobile telephone service: mobile broadband subscriptions grew seven-fold from 4 per 100 inhabitants in 2007 to almost 30 in 2013, reaching 75 in the developed world.  Australia has been no exception to these trends, with mobile telephone subscriptions increasing from 57 to 108 per 100 people in the decade to 2011 (latest available figures). Over the same period, fixed broadband subscriptions grew from less than 1 to about 24 per 100 people. By 2011, 79 per cent of Australians were using the Internet, compared to just over half of the population in 2001. |
| *Source*: ITU (2013). |
|  |
|  |

In addition to their impact on the demand facing some industries, information and communications technologies (ICT) can generate structural change via their varying impact on industry productivity. Parham, Roberts and Sun (2001) found that, depending on the industry, ICT contributed between 4 and 68 per cent of all labour productivity gains recorded during the 1990s. That contribution was particularly high in Accommodation, cafes and restaurants (68 per cent) and Finance and insurance (52 per cent). By contrast, it was low in Mining (4 per cent) and Agriculture (10 per cent).[[1]](#footnote-1) Such large differences in the productivity impact of ICT can explain part of the changes in industry output and employment shares observed over a period.

### Policies and institutions

Policies and institutions can affect the extent and nature of Australia’s engagement with the rest of the world and so result in structural shifts in the economy. This may happen directly, such as when trade barriers are removed at home or abroad. It can also happen indirectly, such as when similarities or differences between Australia’s domestic policies and those of other countries create opportunities for international arbitrage and cost minimisation by firms. To give an example, climate change policies have the potential to cause structural change across the Australian economy (box 2.2).

|  |
| --- |
| Box 2.2 Climate change policies and structural change |
| In one sense, the purpose of climate change policies is to achieve structural change. That is, these policies seek to affect both production and consumption patterns so that the share of emissions-intensive industries in an economy declines over time. Due to carbon pricing, for example, energy producers face increased costs if they continue to rely on coal-based technologies, encouraging them to switch to renewable sources of energy. For their part, energy consumers, and consumers of emissions-intensive products such as alumina, also face higher prices, unless they switch to more emissions-efficient products.  As a result of price signals on both the supply and demand sides of some markets, output and employment shares of emissions-intensive industries (or firms) should progressively decrease. |
| *Sources*: PC (2011a, 2012e). |
|  |
|  |

The wide‑ranging trade and financial liberalisation implemented in Australia in the 1980s and 1990s — including reductions in tariffs and industry assistance, floating of the exchange rate and reduction in restrictions on foreign banking and investment — have been institutional factors contributing to the sustained growth in trade and investment observed in the past few decades. Patterns of trade and investment have also been shaped by Australia’s participation in bilateral and regional trade agreements. Recent Commission analysis suggests that tariff preferences in such agreements can affect the volume of trade between Australia and the countries with which it enters into such agreements, but typically at the cost of trade with other countries being diverted (PC 2010a). The study concluded that any increase in national income from preferential trade agreements is likely to be modest and fall short of the gains from multilateral reforms.

As another example of the role of institutions, the expansion of the permanent migration program (a policy initiative aimed at increasing skilled migration) has been an important contributor to the growth in immigration during the 2000s. Similarly, changes to regulations governing foreign residents studying and working in Australia, including on Temporary Work (Skilled) (subclass 457) visas, have brought about changes in temporary migration over the last ten years (PC 2010b).

### Increasing trade volumes and lower‑cost imports

Worldwide, growth in real per‑capita incomes, reduced trade barriers and lower transport and communications costs have resulted in large increases in trade volumes in the past 50 years. In real terms, Australia’s exports of goods and of services, and imports of services, have each almost tripled since 1990; imports of goods have grown nearly five-fold during the same period (figure 2.1). As a result, the degree of openness of the Australian economy, when measured by the sum of imports and exports as a proportion of GDP, has grown over recent decades, although most of the increase took place in the 1980s and 1990s (figure 2.2).

On the export side, the growth of China and other emerging economies has contributed to large increases in world demand for Australia’s mineral and energy resources. This is reflected in the high export prices received by the Mining industry during the 2000s (figure 2.3). Export prices received by agricultural producers, by contrast, grew more slowly, on the whole, during that decade. Moreover, they experienced volatility from the 1980s onward, reflecting the impact of natural events in a number of major producing countries. Manufacturing export prices have also been somewhat volatile, although their growth outstripped that of agricultural prices over the 1974–2012 period.

Figure 2.1 Imports and exports volumes, 1960 to 2012**a**

|  |
| --- |
|  |

a Chain volume measures for year ended June. Reference year is 2010‑11.

*Source*: ABS (*Balance of Payments and International Investment Position, Australia,* Cat. no. 5302.0).

Figure 2.2 Foreign trade as a proportion of GDP, 1960 to 2012**a**

|  |
| --- |
|  |

a Measured as imports plus exports as a percentage of gross domestic product, based on current price data for year ended June.

*Source*: ABS (*Australian System of National Accounts, 2011‑12*, Cat. no. 5204.0).

Figure 2.3 Export prices, selected industries, 1974 to 2012**a, b, c**

Export price index (1974-75=100)

|  |
| --- |
|  |

a Quarterly data from September 1974 to December 2012. Date labels refer to the June observation. b Industry classifications (including Mining) and industry subdivisions (including mineral and energy commodities produced by Mining) are outlined in appendix A.

*Source*: ABS (*International Trade Price Indexes, Australia*, *December 2012*, Cat. no. 6457.0).

With respect to imports, the rapid industrialisation of China and other emerging countries such as Malaysia, Indonesia and Thailand has significantly increased the supply of lower‑cost imported manufactured goods. At the same time, technological advances have reduced the price of high‑technology goods (which Australia tends to import rather than produce domestically) (Gruen 2001). Consequently, Australian firms have enjoyed declining relative prices for imported intermediate and capital goods. On an index basis, the producer price of imported capital goods has fallen by over 30 per cent since 1999, while the price of domestically‑sourced capital goods has increased by almost 60 per cent (figure 2.4). Similarly, since 2002, imported intermediate goods have become relatively cheaper than those purchased domestically.

Figure 2.4 Producer prices for domestic and imported capital and intermediate goods, 1999 to 2012**a**

Producer price index (1998‑99=100)

|  |
| --- |
|  |

a Year ended June. Annual averages of quarterly data.

*Source*: ABS (*Producer Price Indexes, Australia, June 2012*, Cat. no. 6427.0).

The divergence in producer prices between domestic and imported goods is an indicator of the strong rise in the real exchange rate since the early 2000s (figure 2.5). This rise is due to the shifts in the supply of imports, caused by improved technology and reduced overseas labour costs, and to the strong appreciation in the Australian dollar since 2002. The high relative price of domestically-produced capital and intermediate goods is also due to the fact that they incorporate non-tradeable inputs (mainly services), the price of which has risen (chapter 3).

Given these price trends, it is unsurprising that volumes of capital and intermediate goods imported by Australian producers have increased markedly in recent decades (figure 2.6). The real value of intermediate goods imports grew from less than $20 billion in 1986 to $96 billion in 2011, while capital goods imports (primarily destined for the mining sector) increased tenfold to $56 billion over the same period.

These patterns in import and export prices and volumes contribute to observed changes in industry shares of domestic output. The increased availability of lower‑cost imported intermediate and capital inputs would tend to favour the expansion of relatively capital‑intensive industries. At the same time, the expansion in imports of these goods (as well as of consumer goods) has likely played a part in the relatively slow growth or (in some cases) decline of import‑competing domestic manufacturers. To the extent that these imports are produced overseas in a manner that is relatively intensive in the use of lower‑to‑medium‑skilled labour, they would tend to place competitive pressures on domestic industries with a similar skill intensity, effectively amounting to the substitution of lower‑cost overseas labour (embodied in the imported manufactures) for higher‑cost domestic labour.

Figure 2.5 Real exchange rate, 1970 to 2012**a**

Real trade‑weighted index (March 1995=100)

|  |
| --- |
|  |

a Quarterly data from June 1970 to September 2012. Date labels refer to June observation.

*Source*: RBA (2012).

Due to these substitution effects, increased imports of intermediate and capital goods may alter the relative returns to skilled and unskilled labour in Australia, at least in the short run. This outcome may be the result of the technological improvements embodied in those imports. Such improvements are often a complement to skilled labour but a substitute for unskilled labour. Changing relative wages may also be a consequence of the similarities or differences between the skill intensity of imports and that of the domestic products they compete with. Imports embodying lower-skilled labour will tend to lower the returns to equivalent domestic labour. However, any effects of imports on relative wages may not persist in the long run, when firms are able to enter and exit industries, and when real wages for all types of labour can adjust to restore full employment.

Figure 2.6 Quantity of imported capital and intermediate goods,  
1986 to 2011**a**

|  |
| --- |
|  |

a Chain volume measures. Year ended June. Reference year for chain volume measures is 2008-09.

*Source*: ABS (*Balance of Payments and International Investment Position, Australia,* Cat. no. 5302.0).

The foregoing analyses have highlighted the many avenues through which international trade developments can influence Australia’s economic structure. This influence has been supported empirically by Giesecke (2004, 2008), for the period from 1997 to 2002. Using CGE analysis, he found that foreign demand and import prices had had a strong positive impact on the mining industry and an equally strong negative impact on manufacturing industries such as Textiles, clothing and footwear. (The latter was also particularly affected by changing domestic consumer preferences in favour of imported (rather than locally-produced) goods, as was the transport equipment manufacturing industry.)

### Increased financial flows

While Australia has long been a net importer of capital funds, the liberalisation and deregulation of its financial markets in the 1980s and 1990s facilitated large real increases in the flows of financial capital between Australia and the rest of the world. As indicated in figure 2.7, both foreign direct investment (investment that ensures a significant interest in, and influence on, the Australian enterprise in which the funds are invested) and foreign portfolio investment (which includes mainly the purchase of privately‑ and publicly‑issued securities such as bonds) recorded sustained growth over the past two decades. Of the two categories, portfolio investment has grown far more rapidly, but has also displayed greater volatility.

Figure 2.7 Foreign investment in Australia and Australian investment abroad, 1989 to 2011**a**

Real values of assets and liabilities

|  |
| --- |
|  |

a Value in June of the specified year, deflated by the chain price index for gross domestic product. The reference year is 2009-10.

*Sources*: ABS (*Balance of Payments and International Investment Position, Australia,* Cat. no. 5302.0, *Australian System of National Accounts, 2010‑11*, Cat. no. 5204.0).

That growth mainly reflected increased foreign purchases of Australian private sector debt (mostly issued by the banking sector) as well as increased foreign investment in Australian public debt, with the shift into deficit of federal and state government budgets in the second half of the decade (D’Arcy and Ossolinski 2009).

The construction phase of the 2000s natural resources boom has played a large part in driving growth in foreign direct investment in the past decade. The RBA recently estimated that about 80 per cent of the investment boom in the resources sector has been foreign‑funded, through a combination of overseas‑based investors and partly foreign‑owned, Australian‑listed companies such as BHP (Debelle 2013).

The substantial growth in inflows of foreign capital linked to the resources boom has had repercussions throughout the economy, via the impact on the exchange rate. Increased net foreign investment into Australia involves an increase in the demand for Australian dollars in currency markets. Under a floating exchange rate regime, this demand leads to an appreciation of the Australian dollar. Although there is some associated outflow of funds in the form of increased imports, (lagged) payments of dividends and Australian purchases of foreign assets, foreign inflows are still likely to result in a net appreciation of the dollar (Corden 2012). The twin results are an exacerbation of the pressures felt by the trade‑exposed sectors of the economy, accompanied by greater purchasing power of Australians over imports.

### Increased labour supply through immigration

As illustrated in figure 2.8, net overseas migration, although typically a volatile component of population growth, has been consistently above the natural increase in population since around 2005 (although part of the gap between the two series is due to a change in the measurement of migration by the ABS from 2006-07 onward).

Figure 2.8 Net overseas migration and natural population increase, 1972 to 2011**a, b**

|  |
| --- |
|  |

a Data are for year ended June. b Net overseas migration data prior to 2006-07 are not directly comparable with those from later years, due to a change in ABS measurement. According to Commission estimates (PC 2010b), if the old method were applied from 2006-07, net overseas migration figures for these years would likely be 15 to 20 per cent lower than those presented.

*Sources*: ABS (*Australian Demographic Statistics,* Cat. no. 3101.0, *Australian Historical Population Statistics*, Cat. no. 3105.0.65.001); PC (2010b).

Immigration levels vary considerably, based on the perceived attractiveness of Australia’s economic opportunities and amenities to potential migrants, the overall level of economic activity and the profile of Australian firms’ demand for labour, and government policies to attract or limit immigration inflows. In contrast, the rate of natural increase (births minus deaths, as a proportion of the population) tends to change more slowly, mostly in accordance with longer‑term social and technological change (the latter, in the form of advances in medical and pharmaceutical goods and services that contribute to reduced mortality rates) (PC 2010b).

Net migration is particularly sensitive to fluctuations in economic activity (both in Australia and in source countries). Periods of sustained growth generally give rise to increased immigration, for both supply‑ and demand‑side reasons. Greater business and employment opportunities draw in more immigrants, while increased labour demand leads employers to lobby governments for more liberal migration programs (PC 2010b).

During the 1990s and 2000s, sustained economic growth and a lift in the immigration target saw net overseas migration increase from less than 50 000 persons per year to a peak of about 300 000 in 2009. Much of this growth was in the form of temporary business migrants (who may stay for up to four years) and overseas students (PC 2006a, 2010b). This expansion has had the effect of increasing the quantity of labour available to Australian producers at any given unit labour cost.

Over the past few years, net migration has fallen quickly to below 200 000 persons annually. This has reflected a drop in demand due to the impact of the Global Financial Crisis, but is also partly attributable to policy changes that restricted eligibility for permanent residency. These changes have likely discouraged many temporary workers and overseas students from arriving with a view to subsequently obtaining permanent residency.

Immigration can be expected to have implications for industry shares of output and possibly for the returns to labour of different skill levels, depending on the number, composition and characteristics of immigrating workers. For example, to the extent that increased immigration consists of higher‑skilled workers, it might contribute to slower growth in domestic returns to skilled labour in the short run (PC 2006a, 2010b). It would also be anticipated to contribute to increased activity in industries relatively intensive in skilled labour, such as those industries in the services and resources sectors[[2]](#footnote-2) that depend heavily upon professional and technical expertise. Finally, greater immigration can increase the share of those industries — such as dwelling construction — that depend closely on the number of households.

### Outsourcing and offshoring

For any given intermediate good or service a firm uses in production, it can choose to produce the good or service itself or else ‘outsource’ that activity by purchasing it from another firm. Improved logistics and communications technologies have given firms the additional choice to outsource locally or overseas. Global outsourcing, or ‘offshoring’ — one feature of increased global interconnectedness — involves firms sourcing part or all of their intermediate goods and services from overseas. The multi‑country sourcing of an Apple iPhone’s components is a prime example of a globally outsourced good (box 1.3). The telephone call centre located offshore but providing services to an Australian firm and its customers is a common example of a globally outsourced service input.

Indirect evidence of the growth of offshoring can be seen in the growth of services imports in recent years (figure 2.1), as well as the sustained growth in the quantity of imported intermediate goods (figure 2.6). Although importing offshored services is a newer and at‑times more controversial practice than importing intermediate inputs, its effects on employment and wages are ‘not qualitatively different’ (Bhagwati, Panagariya and Srinivasan 2004, p. 94). That is, to the extent that workers overseas are a close substitute for some domestic workers (lower‑skilled manufacturing workers, for instance, or higher‑skilled ICT workers), the latter will face a higher risk of unemployment or experience slower growth in real wages, than otherwise would be the case.

That said, Henry (2012) argues that offshoring by Australian producers may have saved some local jobs, by enabling firms to remain profitable and preserve at least part of their domestic operations. Similarly, increased offshoring by overseas producers might give Australian firms opportunities to become part of international value chains, where they can specialise in that part of the production process in which they have a comparative advantage (Lamy 2012).

Evidence of local (as opposed to external) outsourcing is difficult to find. Breunig and Bakhtiari (2013) identified some domestic outsourcing among manufacturing firms in the 1990s, using data on small‑to‑medium‑sized firms from the ABS Business Longitudinal Survey. They reported that, in the year to June 1995, almost 11 per cent of manufacturing firms had contracted out (mainly domestically) jobs previously performed by their own employees. In the two financial years that followed, 8 per cent and 7 per cent (respectively) of firms engaged in contracting out.

## 2.2 A changing domestic environment

This section summarises the major forces at work in the domestic sphere, and describes how they have contributed to structural change.

### An older population

Changes in demography — the size, age structure and composition of the population — have driven structural change through both supply‑ and demand‑side effects. A changing population has compositional effects on labour force participation and productivity, as well as on expenditure in areas such as health and aged care.

As previously noted by the Productivity Commission (2005a, 2006a, 2010b), Australia’s population size and composition are changing and will continue to do so. Assuming a continuation of long‑term trends towards lower fertility (despite a recent upturn since the mid‑2000s), lower mortality and higher net overseas migration, the ABS has projected a substantial ageing of the population over the next 50 years (figure 2.9). Similar trends have also contributed towards a general ageing of the population in many developed countries (Auer and Fortuny 2000; OECD 2008; PC 2005a; Treasury 2010).

On the supply side, an increase in the proportion of the population aged 65 years and over has the potential to reduce the relative size of Australia’s labour force. This, in turn, could reduce the productive capacity of the economy and per‑capita incomes, if all else is held constant (PC 2005a; Treasury 2010). Moreover, the scarcity of labour might increase, thus encouraging firms to become more capital‑intensive in their production methods. For example, population ageing is likely to affect (and already has affected) services industries reliant on skilled labour, such as health care and education. Such industries may then become more capital‑intensive, as workers retire or reduce their working hours. Increased returns to labour could trigger a labour supply response and, potentially, the increased accumulation of skills through education and training. This may mitigate any labour shortages, but is unlikely to offset them completely.

Figure 2.9 Population age structure, past and projected, 1971 to 2056**a, b**

|  |
| --- |
| → forecast |

a Figures for 2012 to 2056 are projections from the ABS ‘Series B’ scenario (ABS 2008). This scenario has as its key parameter assumptions: total fertility rate of 1.8 babies per woman; net overseas migration of 180 000 per year; life expectancy at birth of 85 years for males and 88 years for females. Based on these parameter values, the ‘Series B’ scenario projects an Australian resident population of 35.5 million in 2056. b The dependency ratio is the number of children aged 0–14 years and persons aged 65 years and over per hundred persons aged 15–64 years.

*Sources*: ABS (*Australian Demographic Statistics,* Cat. no. 3101.0, *Population Projections, Australia, 2006 to 2101*, Cat. no. 3220.0).

On the demand side, an older population is expected to lead to increased household spending on health and aged care services. The interaction of technology and demography has generally resulted in a rise in the expenditure, output and employment shares of the health industry (ABS 2011e; AIHW 2012; Daley 2013; PC 2005a, 2005b). This has tended to occur because of the availability of new, more costly health care interventions and the rising prevalence of people suffering from lifestyle and age‑related conditions.

These factors can be reinforcing, as technological change can influence demographic change. For example, advances in medical care and interventions leading to increased life expectancy can have implications for population size, age structure and the dependency ratio (as defined in figure 2.9). At the other end of the age spectrum, technological advances — for example, in assisted reproduction or family planning — are unlikely to have a material impact on population size and structure, or on female labour force participation.

### Participation in work and education

A person’s choices about whether to invest in education and training, and whether to work or not, depend on his or her preferences for consumption versus leisure, in a contemporaneous sense but also over time. The two decisions are related: for example, the decision to seek work is influenced by expected returns to the skills and qualifications a person holds. Outcomes from these decisions affect the size (through labour force participation) and quality (through educational attainment and skill levels) of the labour force and, hence, the productive capacity of the economy. For example, the Commission has estimated that achievement of the COAG Certificate III target — halving the proportion of Australians without at least this qualification by 2020 — alone could raise employment by 1 per cent, productivity by 0.35 per cent and gross domestic product by 2 per cent by 2020 (PC 2012d).

Moreover, both labour force participation and human capital accumulation decisions can generate structural change, as they affect the endowment of labour of various qualities available for production. To give an example, an increase in the supply of university‑educated workers will, all else equal, result in the relative expansion of knowledge‑intensive industries.

By the same token, structural change can influence people’s decisions to participate in education and work. Changes in industry shares of output and differing growth rates among industries will generally alter the relative returns to different occupations, and so affect individuals’ choices to work or not, to work in particular occupations or industries, and to undertake education and training for these occupations and industries.

The labour force participation of women has been increasing since the mid‑1980s, while participation rates of people of both genders, aged 55 to 59 and 60 to 64, have been rising since the late 1990s, from a low base (figure 2.10). These trends have been driven by the marked increase in participation by older women (aged 55 to 64 years) over the past two decades, as well as a more modest rise in participation by women of prime child‑bearing age (25 to 34 years) (ABS 2012g; gender breakdown not shown).

On the supply side of the labour market, trends in female participation reflect women’s changing preferences for work, leisure and non‑market activities (such as caring responsibilities). These preferences are shaped by social, cultural, technological and economic forces, as well as by government policies. For example, increased participation among women of child‑bearing age is partly a reflection of changing perceptions of the role of women, aided by gender anti‑discrimination measures, as well as government policies towards childcare and paid parental leave.

Figure 2.10 Labour force participation rates, by gender and age,  
1978 to 2012**a, b**

|  |
| --- |
|  |

a Persons aged 65 years and over not shown. b Observations are for the June quarter of each year.

*Source*: ABS (*Labour Force, Australia, Detailed — Electronic Delivery*, *June 2012*, Cat. no. 6291.0.55.001).

Government policy settings across a range of other areas, particularly in relation to education and training subsidies and the income taxation system, can also alter the relative returns to paths of study and work (as well as of non‑participation).

On the demand side, the growth in women’s labour market involvement has been facilitated by the structural expansion of certain industries — primarily in the services sector — that are traditionally female labour‑intensive or which tend to employ workers on a part‑time and/or casual basis. This trend is particularly noticeable at the older end of the age spectrum. Gilfillan and Andrews (2010) report that almost half of all mature-aged women (45–64) are employed in just three industries: Health care and social assistance; Education and training; and Retail trade.

The increase in the share of skilled migrants in the immigration program has contributed to higher labour force participation and overall skill levels. On average, immigrants are more likely than the existing resident population to have a bachelor degree (or higher), while permanent immigrants arriving on a Skilled visa between 2000 and 2004 had a participation rate of 82 per cent in 2004, compared with 67.3 per cent for their Australian‑born counterparts (PC 2006a).

The overall labour force participation rates of men has remained steady since 2002, after a prolonged decline. However, participation rates among younger men (aged 15–24) have declined (gender breakdown not shown). Even though younger men are generally over‑represented among those who do not complete Year 12, the proportion who are ‘not fully engaged’ in school or work has remained stable since 2002 (data not shown). This suggests that the declining labour force participation of younger men is primarily due to the decision to remain in education and training, motivated by both market forces and institutional factors such as increases in the minimum school leaving age (ABS 2012g).

The participation rate of males aged 55 years and over increased from 33 per cent to 42 per cent between 2000 and 2010 (data not shown). According to Borland (2011, p. 179), possible explanations for this significant increase are ‘increasing life expectancy, strong business cycle conditions (at least until the late 2000s), the growth in service sector jobs (which are less physically demanding), and improved health of the older population’. However, Gregory (2012) notes that the ratio of full‑time employment to population for unskilled males aged 50–59 is very low (56 per cent in 2006). The decline in manufacturing employment is one of the reasons he puts forward for this trend, along with technological change and labour market reform.

### Microeconomic reforms

Over the last four decades, successive Australian governments have implemented a wide range of initiatives in the area of microeconomic policy. Some of these measures have contributed to increased productivity and sustained growth in per‑capita incomes (PC 2005c, 2012d). They have also fostered significant structural change, in some cases.

From the early 1970s onward, assistance to manufacturing and agricultural industries began a long-term decline (PC 2012f). For example, the manufacturing sector received an estimated effective rate of assistance of 35 per cent in 1970‑71. As a result of major reductions in import tariffs and other forms of assistance over subsequent decades, that rate has decreased to 5 per cent, on average since 2000. For the agricultural sector, the effective rate of assistance has dropped from more than 25 per cent in 1970‑71 to about 5 per cent since 2000, although it has shown far greater volatility over this period, due to drought conditions.

Throughout the 1980s and 1990s, a series of additional major reforms was introduced, which included:

* National Competition Policy — this ambitious set of reforms implemented recommendations from the 1991 Special Premiers’ Conference and the 1993 ‘Hilmer’ Report. The reforms extended the reach of competition or competitive pressures to a number of previously sheltered areas of the economy, such as public natural monopolies and unincorporated businesses. It affected some sectors directly (for example, utilities) and most sectors indirectly (through a strengthened competition regulation framework) (PC 2005c)
* labour market deregulation (for example, the introduction of enterprise bargaining in 1993 and of individual contracts in 1996)
* financial reforms, including the floating of the Australian dollar, deregulation of financial markets and the shift in monetary policy to inflation targeting.

Since the 2000s, a new wave of more detailed policy changes has been (and continues to be) introduced under the Council of Australian Governments’ reform agenda. These have included (PC 2012d):

* ‘seamless national economy’ initiatives designed to reduce regulatory impediments to domestic trade and factor reallocation, such as national occupational health and safety standards
* regulatory changes in education and training systems — such as in the early childhood education and care, and vocational education and training sectors — designed to facilitate long‑term productivity increases by expanding the national stock of human capital.

### Consumer preferences

In Australia, as in other developed economies, shifts in observed consumer choices have resulted from a combination of rising incomes, changes in tastes arising from social and cultural influences, and technological advances that permit both new products and new ways of purchasing products.

Changing patterns of household expenditure also reflect demographic change that alters the size and composition of the population, as noted earlier. For example, increased shares of migrants and older people in the Australian population can be expected to increase the demand for goods and services preferred or required by these groups.

Over the past 50 years, with increasing per‑capita real incomes, Australian households have substantially increased their expenditure on services relative to goods (figure 2.11). As in many other countries, rising incomes have also led to increasing household expenditure on external services that replace those previously produced within the household, such as restaurant meals, childcare and home maintenance services (OECD 2012a).

Figure 2.11 Share of household consumption expenditure accounted for by goods and services, 1960 to 2011**a, b**

|  |
| --- |
|  |

a Year ended June. Current prices. b The definition of goods is food, alcohol and tobacco, clothing and footwear, furnishings and household equipment, purchase of vehicles, goods for recreation and culture, books, papers, stationary and artists’ goods and personal effects. Services are defined as residual consumption expenditure. ‘Other goods and services’ have been excluded (from goods, from services and from the total used to calculate shares).

*Source*: ABS (*Australian System of National Accounts, 2010‑11*, Cat. no. 5204.0).

One key driver of this observed pattern is Engel’s Law (Acemoglu 2012). According to this principle, households need to purchase a minimum level of ‘basic’ goods for subsistence, but, as their income rises, they are able to satisfy their preferences for goods and services that are not essential for survival. As a result, demand for basic products (such as food) increases less than proportionately with income, while demand for discretionary goods and services (such as recreational and cultural outings) increases more than proportionately.

Aside from income, consumption patterns are also influenced by changing relative prices. There is evidence that, in Australia, discretionary spending has increased in all household income deciles in recent times (AMP‑NATSEM 2012). This suggests that relative price movements — for example, between electronic equipment and other goods and services — may have favoured this form of expenditure.

Consistent with Engel’s Law, the proportion of household consumption spent on food has almost halved in the past five decades, from 18 per cent in 1960 to 10 per cent in 2012 (table 2.1). This period has also seen declining shares of consumption spending on basic goods such as clothing and footwear, and furnishings and household durables. In contrast, there has been corresponding growth in the shares of expenditure on ‘knowledge’ services such as communication, recreation and cultural services, and education services. Dwelling services have also received a greater share of household spending, reflecting real increases in spending on housing by owner‑occupiers following the boom in residential property values during the 2000s. Between 2003‑04 and 2009‑10, for example, the median dwelling value among owner households increased from just under $360 000 to $440 000, in 2009‑10 dollars (ABS 2011d).

Table 2.1 Shares of household spending, 1960 and 2012**a, b**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Share in 1960 | Share in 2012 | Change in share |
|  | % | % | Percentage point |
| Food | 18.0 | 10.2 | -7.8 |
| Clothing and footwear | 10.2 | 3.1 | -7.1 |
| Rent and other dwelling services | 8.8 | 20.5 | 11.7 |
| Electricity, gas and other fuel | 2.3 | 2.4 | 0.1 |
| Furnishings and household equipment | 9.3 | 4.5 | -4.8 |
| Health | 3.8 | 5.9 | 2.1 |
| Transport | 11.5 | 10.7 | -0.8 |
| Communication | 0.6 | 2.4 | 1.8 |
| Recreation and culture | 9.1 | 10.5 | 1.4 |
| Education services | 1.0 | 4.3 | 3.3 |
| Hotels, cafes and restaurants | 9.5 | 7.0 | -2.5 |
| Miscellaneous goods and services | 9.7 | 15.1 | 5.4 |

a Shares of household consumption expenditure, calculated using current price data for year ended June. b Shares may not add up, due to rounding.

*Source*: ABS (*Australian System of National Accounts, 2011‑12*, Cat. no. 5204.0).

Apart from income and price effects, population ageing is likely to explain part of the increase in expenditure on health services observed in table 2.1. Ageing may also have exerted downward pressure on the share of household spending devoted to rent and dwelling services, but the strong rise in that share over time suggests that the effects of population growth have more than offset those of ageing.

In the last decade, patterns of household spending have also been affected by a significant reversal in consumers’ saving behaviour. The household saving ratio (the proportion of net household disposable income remaining after consumption expenditure) fell from around 15 per cent in the mid‑1980s to near zero by the early to mid‑2000s. Since that time, however, there has been a sharp upturn in household saving. This was accompanied by financial deleveraging by households, following the Global Financial Crisis. There has been some debate about whether the turnaround in the saving trend (as mirrored in other countries such as the United States) is a cylical or structural phenomenon (Carroll, Slacalek and Sommer 2012; Swanson 2012). In the Australian context, the Reserve Bank of Australia (2011) has suggested that the saving ratio observed at the end of the 2000s is closer to ‘normal’, in historical terms, than that observed up to the mid‑2000s.

Recent changes in saving behaviour by households would have affected the shares of disposable income devoted to basic products and discretionary products, respectively, resulting in structural change. For example, Stevens (2012) has noted that the new patterns of household consumption (and investment) have had adverse implications for industries such as financial, retail and real estate services.

1. The terms ‘natural resources sector’, ‘resources sector’, ‘mining sector’ and ‘Mining industry’ are used interchangeably in this supplement. Appendix A provides a definition of the natural resources sector. [↑](#footnote-ref-1)
2. Sectors and industries are defined in appendix A. [↑](#footnote-ref-2)