



Australian Government
Productivity Commission

Geographic Labour Mobility

Productivity Commission
Research Report

April 2014

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The Productivity Commission

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

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Foreword

Geographic labour mobility is an important element of a well-functioning labour market. By improving matches between employers and workers, geographic labour mobility can contribute to economic efficiency and community wellbeing.

Australia's geography, demography and economy are the big forces that shape where people live and where jobs are located. These forces will continue to affect labour demand and supply in Australia into the future, reflected in near term developments such as the maturing of the resources boom and the closure of car manufacturing in Australia, as well as longer-term developments such as globalisation, population ageing, participation in work and education and technological advancements. Geographic labour mobility can help the economy adjust to these changes.

The Commission has been asked to assess geographic labour mobility within Australia and its role in a well-functioning labour market. Our study has found that geographic labour mobility is helping the economy adjust to major structural change, and has enabled wealth to be spread across the country. However, the study also highlights some signs that the labour market is not adjusting efficiently in all cases and concludes that there is room for improvement.

The study was undertaken by a team in the Commission's Melbourne office, led by Mary Cavar. The study benefited from discussions and submissions from a variety of stakeholders in the government, non-government and business sectors. The Commission acknowledges the valuable contribution of all those who participated.

Alison McClelland
Commissioner

April 2014

Terms of reference

I, David Bradbury, Assistant Treasurer and Minister Assisting for Deregulation, pursuant to Parts 2 and 4 of the Productivity Commission Act 1998, hereby request that the Productivity Commission undertake a research study assessing geographic labour mobility within Australia and its role in a well-functioning labour market.

The principal objective of the study will be to examine patterns of mobility, impediments and enablers, and their effect on the ability to meet Australia's continually changing workforce and employment needs.

While the different types of labour mobility are related, the primary focus of this study is to be on geographic mobility, given regional variations in the demand for workers by occupation and supply capacity, including seasonal variations.

Geographic mobility is especially valuable in an evolving and multi speed economy, helping people to adapt and connect with the job opportunities available in different regions of Australia, including outer metropolitan and non-metropolitan locations. Enabling geographic mobility can help to relieve labour shortages, increase skills utilisation and improve earnings.

People weigh up a complex range of costs and benefits when deciding where to live and work (including economic, social and environmental factors) and they can face diverse barriers (from the availability of affordable housing to information deficiencies, transport connections, difficulties in skills recognition and transaction costs). A comparative understanding of these issues and underlying causes will help different stakeholders to best support geographic mobility.

In undertaking this study, the Commission is to:

1. examine patterns and trends in geographic mobility (including by state/region, industry, occupation, skill level, form of employment and demographic characteristics), their relative contribution to regional labour supply, and the implications of structural, demographic and technological developments;
2. identify the key determinants and drivers of mobility, including the costs and benefits from the perspectives of businesses, individuals, their families and governments (indicating the composition of costs faced and potential benefits in a range of representative circumstances and regions), any differences in the

determinants and drivers of mobility between groups (such as employed and unemployed people), and an assessment of the effectiveness of market signals, such as wages;

3. identify the major impediments to geographic mobility to support economic adjustment, employment and productivity outcomes;
4. assess the current strategies used by employers and governments that affect geographic mobility, and discuss possible options to enable further mobility; and
5. estimate the prospective economy-wide impacts of reducing impediments to geographic mobility.

In undertaking the study, the Commission is to consult with governments and other interested groups; and take into consideration any recent work relevant to the study (including key international findings).

The Commission is to provide both a draft and a final report, with the final report due within twelve months of receipt of the Terms of Reference. The reports will be published. To assist in future policy formulation, the Commission should also publish any modelling underpinning its analysis.

DAVID BRADBURY
Assistant Treasurer

21 May 2013

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Acknowledgments

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The Commission acknowledges the support of the Department of Employment in relation to the access and use of data from the Department's Research and Evaluation Database. The research findings and views expressed by the Commission in relation to the data are those of the Commission and are not the findings or views of the Department of Employment.

Abbreviations

ABS	Australian Bureau of Statistics
ACTU	Australian Council of Trade Unions
ADF	Australian Defence Force
AMMA	Australian Mines and Metals Association
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ANZSIC	Australian and New Zealand Standard Industry Classification
APS	Australian Public Service
ATO	Australian Tax Office
BIBO	Bus-in, bus-out
CAF	Council for the Australian Federation
CFMEU	Construction, Forestry, Mining and Energy Union
CGC	Commonwealth Grants Commission
CGE	Computable General Equilibrium
CMEPSP	Commission on the Measurement of Economic Performance and Social Progress
COAG	Council of Australian Governments
CPI	Consumer Price Index
CRA	Commonwealth Rent Assistance
CSF	Census Sample File
DEEWR	Department of Education, Employment and Workplace Relations
DIDO	Drive-in, drive-out
DoE	Department of Employment
DSS	Department of Social Services
DURD	Department of Urban and Regional Development

EU	European Union
FBT	Fringe benefits tax
FIFO	Fly-in, fly-out
GCCSA	Greater Capital City Statistical Area
GIS	Geographic Information System
GP	General Practitioner
GPRIP	General Practice Rural Incentives Program
GST	Goods and services tax
HFE	Horizontal Fiscal Equalisation
HILDA	Household, Income and Labour Dynamics in Australia
HRSCRA	House of Representatives Standing Committee on Regional Australia
IC	Industry Commission
IRSD	Index of Relative Socio-economic Disadvantage
LAFHA	Living away from home allowance
LNG	Liquefied natural gas
MCA	Minerals Council of Australia
NCVER	National Centre for Vocational Education Research
NOLA	National Occupational Licensing Authority
OECD	Organisation for Economic Co-operation and Development
OH&S	Occupational Health and Safety
PC	Productivity Commission
SA2(s)	Statistical Area(s) Level 2
SA4(s)	Statistical Area(s) Level 4
SISO	Ship-in, ship-out
SME	Small or medium enterprise
TERM	The Enormous Regional Model
TTTA	Trans-Tasman Travel Arrangement
VET	Vocational Education and Training

OVERVIEW

Key points

- Geographic labour mobility is an important element of a well-functioning labour market. By improving matches between employers and workers, geographic labour mobility can contribute to economic efficiency and community wellbeing.
- Advances in transport and communication technologies have broadened the scope of geographic labour mobility. This mobility can take the form of residential moves, long-distance commuting and telecommuting.
- Geographic labour mobility has been an important mechanism for adjusting to the demographic, structural and technological forces shaping the Australian economy. It has accommodated differences in the pace of economic activity across Australia and enabled wealth to be more widely distributed across the country.
- Labour appears to be responding to market signals and moving to areas with better employment and income prospects. These movements, together with the increase in long-distance commuting and temporary immigration, have assisted in meeting labour demand in many parts of the country.
- Gravity (a region's size), distance and economic opportunities are the main determinants of geographic labour mobility at an *aggregate* level.
- At the *individual* level, personal and locational factors interact to influence whether and where people move. Life events and family circumstances appear to be the most important factors in such decisions, but factors related to housing, employment, local infrastructure and a person's level of education also play a prominent role.
- Areas of high unemployment and disadvantage vary in their mobility — some have high rates of mobility, while others have low rates of mobility.
- While geographic labour mobility is assisting labour market adjustment, high unemployment is persisting in some regions, and there is room for improvement.
- There are no simple levers to affect geographic labour mobility. Many policies aiming to influence where people live and work in regional and remote areas have had limited effectiveness. Policies will be more effective if they are highly targeted.
- In addition to geographic labour mobility, a flexible, accessible and quality education and training system is important for meeting Australia's continually changing workforce and employment needs.
- The negative consequences of some poorly designed policies, such as taxation, housing and occupational licensing, include reduced geographic labour mobility. Reform in these areas would lessen impediments to geographic labour mobility, and also have broader benefits.
 - The community has been poorly served by the lack of progress in occupational licencing and action should be expedited.
- Improved access to administrative data would assist better understanding of geographic labour mobility in Australia.

Overview

Geographic labour mobility is one element of a flexible labour market, and is important for broader economic efficiency. By enabling labour to move to its best use across different regions of Australia, geographic labour mobility can alleviate labour shortages and regional disparities in labour market conditions, and increase skills utilisation and incomes. In doing so, geographic labour mobility can improve community wellbeing.

The Australian Government has asked the Commission to assess geographic labour mobility within Australia and its role in a well-functioning labour market. The main objectives of the study are to: examine patterns of mobility; assess the key determinants of mobility including the effectiveness of market signals; and, identify the major impediments to geographic labour mobility.

Geographic labour mobility is a dynamic process, and there is a range of underlying forces — structural, technological and demographic changes — that affect where people choose to live and work and the way in which adjustments to changes in labour demand and supply occur across different geographic locations.

The Commission’s approach to geographic labour mobility

Labour mobility refers to the movement of people between jobs. Geographic labour mobility provides a locational perspective on labour mobility.

Advances in transport and communication technologies have dramatically changed the way in which labour demand and supply can adjust across different geographic locations. Instead of permanently relocating, workers now have the option of long-distance commuting or telecommuting. This has fundamental implications for how we think about and define geographic labour mobility.

Accordingly, the Commission has adopted a very broad interpretation of geographic labour mobility as referring to people’s work relocation, that is, the shift of labour supply from one regional labour market to another (including residential moves, long-distance commuting and telecommuting). This approach captures any movement that alters labour supply in a region (box 1). The Commission has

focused its empirical work on people in the labour force, because mobility by people who are not in the labour force is less likely to influence labour supply.

Box 1 Scope of geographic labour mobility

The Commission interprets geographic labour mobility as any movement that shifts labour supply from one regional labour market to another. This includes where people:

- relocate their usual residence to another area to look for a new job, to start a new job, or to set up a new business
- relocate their usual residence because their existing job has been relocated
- relocate their usual residence for reasons other than employment, but change jobs as a result
- maintain their usual residence and commute to another area for work
- fly in and out or use other forms of long-distance transport for a job in another region, taking up temporary/part-time residence in the region
- telecommute
- work from home.

The Commission has examined geographic labour mobility in terms of its contribution to economic efficiency and impact on community wellbeing. Geographic labour mobility can improve efficiency and wellbeing where it enables workers to move to the locations where they are most productive and highly valued. This can increase employment and incomes, and facilitate the distribution of higher incomes more broadly across Australia. Conversely, a lack of mobility can lead to persistent disparities in regional labour market performance and increased inequality in income and social conditions.

While geographic labour mobility can contribute to efficiency and community wellbeing, this does not necessarily mean that more geographic labour mobility is always desirable — there can be negative impacts. Very high rates of mobility can lead to costly levels of staff turnover and entail economic and social costs for individuals and their families, as well as for the broader community.

In areas of population growth, community-wide costs may include congestion, pressures on the natural environment and on urban and social amenity. But there can also be positive impacts. Community-wide benefits may include increased economic activity, enhanced diversity and improved infrastructure.

Geographic labour mobility can interact with population ageing to exacerbate population decline in certain regions, for example, through an increase in the proportion of older residents as younger people move away for work or education

opportunities. This can pose substantial risks to the ongoing viability of communities, as can be seen in parts of Tasmania. It can also affect the provision of essential services.

It is difficult to identify an optimal rate of geographic labour mobility, and to do so would have limited utility. Geographic labour mobility is only one form of labour mobility, and job, occupational and industrial mobility are also important in allocating labour to its efficient use. It is also very difficult to benchmark current patterns of mobility in Australia against other countries to determine whether geographic labour mobility is too high or low, given Australia's economy and unique geography and demography. Therefore, in this study, the Commission has assessed current rates and patterns of geographic labour mobility according to the following considerations:

- Whether workers are responding to market signals and moving to areas of high labour demand and away from areas of high unemployment.
- Whether there are impediments to mobility that are distortions, and amenable to change.
- Whether geographic labour mobility is leading to negative impacts on communities.

The Commission has based its assessments on information gathered from submissions and consultations, current research and academic literature and empirical work undertaken for this study. The Commission has conducted econometric work on regional migration patterns in order to provide insight into the factors that influence *aggregate* people movements, and discrete choice modelling on the factors that influence the decision to move at an *individual* level.

A range of government policies can affect geographic labour mobility. The concern of policy should be to ensure that geographic labour mobility is as seamless as possible and there are no significant distortions. The challenge for policy makers is to identify the policies that are creating the largest distortions, and where change could reasonably be expected to be effective in leading to efficient labour market adjustment and increased community wellbeing.

Setting the scene

Australia's geography, demography and economy are the big forces that shape where people live and where jobs are located. Economic models of *aggregate* people movements typically emphasise the importance of gravity (a region's size, in terms of population or economic activity), distance and economic opportunities.

Australia's pattern of settlement reflects the influence of gravity, distance and opportunity including factors such as climate, arable land, rivers and ports, industry and resources. And while the geographic distribution of Australia's population has remained fairly stable over time, there have been some changes, many of which are part of longstanding trends:

- Australia's population is growing faster and is on average younger than the populations of most other developed countries.
- Since Federation, population growth rates across states and territories have tended to move together, but have been considerably higher in Western Australia and Queensland, and lower in Tasmania and South Australia.
- The proportion of Australians living in urban areas has increased since Federation (box 2). This increase was particularly pronounced in the period after World War II. Since the 1970s, the proportion of people living in capital cities has been relatively stable.
- Net overseas migration has generally contributed about as much to population growth as natural increases. 'The population of no other medium sized or large country in the world is as influenced by international migration as Australia' (CEDA 2012, p. 7).
- Historically, most immigrants have settled in large 'gateway' cities, such as Sydney and Melbourne.

Box 2 The role of cities and conurbations

The proportion of Australians living in cities has increased over the past century, particularly in capital cities. This trend is noticeable worldwide. Cities can play an important role in the efficient matching of workers and employers. Deep labour markets benefit both workers and employers. If one business fails, an employee has a better chance of finding an alternative job nearby. Equally, if an employer loses staff, or wants to expand production, a deep labour market makes recruiting easier. Other benefits of cities, or more precisely agglomeration, include economies of scale and information spillovers. As such, agglomeration can reduce the need for geographic labour mobility and is likely to reduce the incentive for labour to move to regional and remote areas. This matters for Australia because our natural resources are often located away from the major cities.

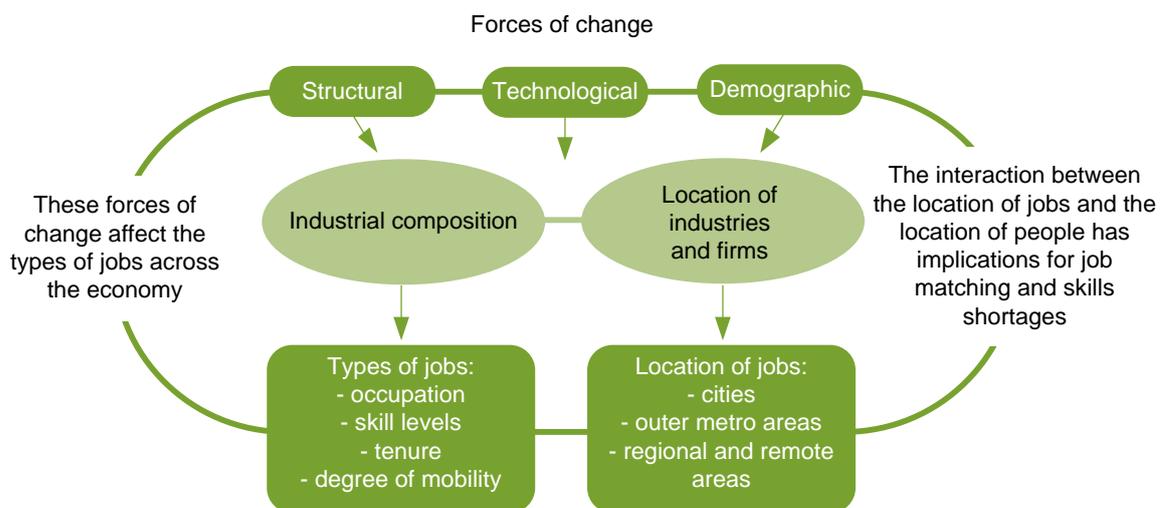
The extent of agglomeration varies by industry and occupation. For example, population-serving occupations such as nurses, teachers and mechanics are needed wherever people live, and cannot be concentrated solely in big cities.

Economic change, labour demand and supply

Australia has been subject to the longer-term patterns of structural change experienced worldwide, such as the relative decline of agriculture and manufacturing, and the rise of the services sector. In the last decade, Australia has also experienced a resources boom, which has contributed to the process of structural change.

These structural forces have influenced the geographic distribution of economic activity, and therefore labour demand (figure 1). The geographic concentration of Australia's mineral wealth has led to much stronger economic and employment growth in Western Australia, Queensland and the Northern Territory. The decline of manufacturing has particularly affected New South Wales, Victoria, South Australia and Tasmania. The recent rates of structural change observed among states and territories have been unprecedented in the last 50 years; and yet the economic and social policies adopted have allowed Australia to cope well on most indicators.

Figure 1 **Impacts of structural, technological and demographic changes**



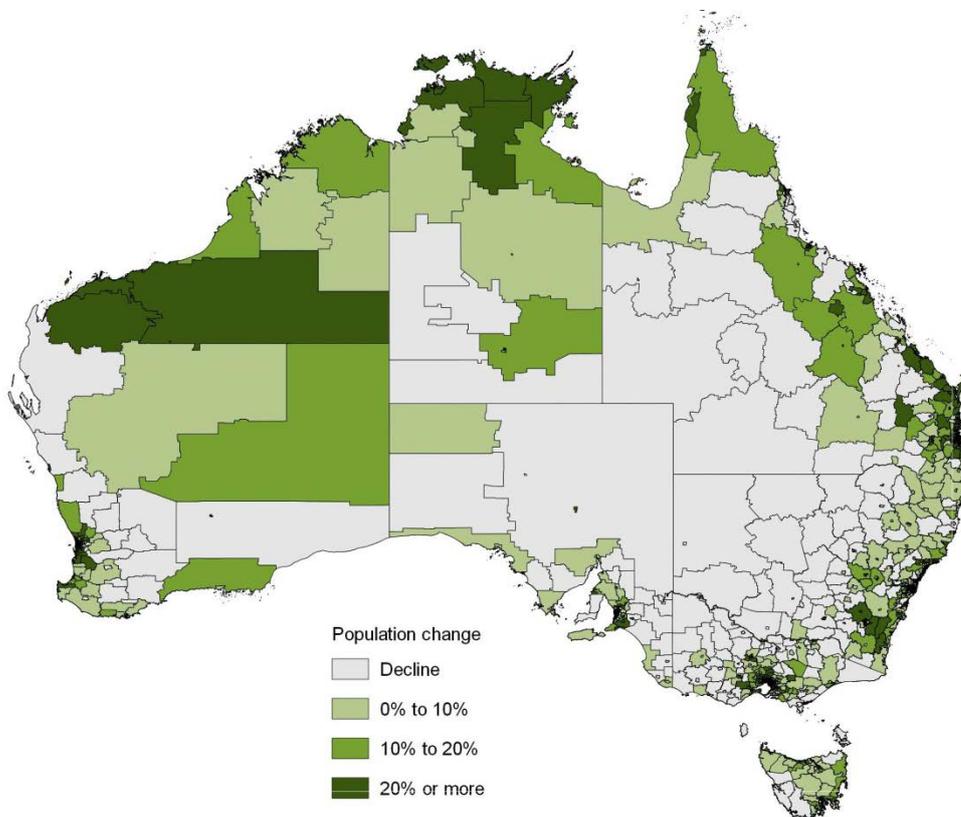
Structural change affects the nature of labour demand. Advances in technology can make existing jobs obsolete and lead to the creation of new jobs. Overall, there has been an increase in higher-skilled jobs, which are particularly prevalent in service industries. The nature of the work and cultural norms in some service industries make them more open to flexible working arrangements, such as telecommuting.

Labour supply has adjusted to meet these changes in labour demand. Over the past decade there has been continuing net interstate migration into Queensland, and, to a lesser extent, Western Australia. The share of net overseas migrants going to New South Wales has fallen steeply, offset by the rising share taken by other states,

particularly Western Australia. In contrast to Queensland, Western Australia has relied much more on overseas migration to meet the labour demands of its strong economy. This could be pointing to the formidable role of distance.

Over the same period, population growth has generally been higher in capital cities and surrounding regions, and coastal regions, with declines or slow growth in many inland and sparsely populated regions, except for those remote regions with mining activity (figure 2). International migrants have increasingly settled in regional and rural areas in the past decade and in some regions, immigrants have been important in offsetting the decline in the Australian-born population.

Figure 2 Population growth, 2001–2011



Structural change will continue to affect labour demand, reflecting near-term developments such as the maturing of the resources boom and the closure of car manufacturing in Australia, as well as longer-term trends such as globalisation, population ageing, participation in work and education, technological advancements and changes in preferences. Labour supply will also be affected by these changes. Of these, our ageing population is arguably the greatest structural risk affecting labour supply in the medium to long term with associated workforce and fiscal challenges. Geographic labour mobility can help the economy adjust to these

changes, including, for example, through higher net international migration to Australia which can boost labour supply and ameliorate to some extent the fiscal challenges from an ageing population, at least in the medium term.

How does efficient job matching take place?

The process of matching workers to jobs takes place through employers deciding where to locate their activities (labour demand) and individuals deciding where to live and work (labour supply). To arrive at an efficient outcome, each side of the market — employers and workers — weigh up the relevant costs and benefits of the different options. To do this, they need timely, accurate and transparent market signals. Figure 3 summarises the potential ways in which labour demand and supply can be matched when a job vacancy arises in a given regional labour market. The Commission’s focus is on matching that entails an element of geographic mobility.

Influences on labour demand

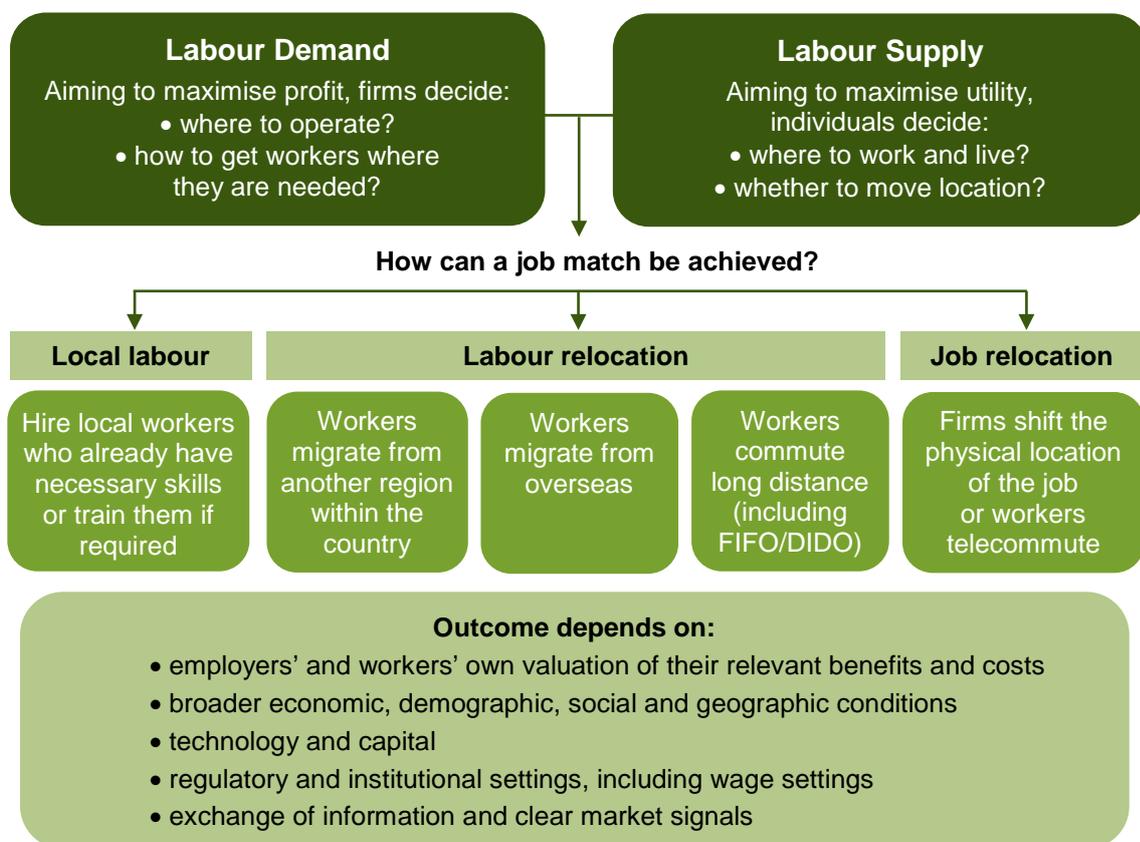
The location of jobs will influence the geographic mobility decisions of people in the labour force. When deciding where to locate their business, firms need to consider not only their proximity to the consumer market for their goods and services, but also their proximity to the inputs required for production. These inputs include labour, which is relatively mobile. Other inputs may be fixed in location (such as land or mineral deposits) or might be costly to move or re-establish in new locations (such as infrastructure and other large-scale capital inputs).

A firm’s proximity to other business operations will also be a factor in its location decisions, if there is potential for it to benefit from economies of scale, information spillovers, and being close to other firms that provide inputs and services. The agglomeration of firms in a given location can also mean larger labour markets for firms to draw upon. The benefits of agglomeration, however, need to be balanced against some costs, such as congestion.

Determinants of an individual’s mobility decision

Individuals (and their families) assess the costs and benefits of moving (and of different types of moves) according to a range of factors. The Commission’s analysis broadly groups these factors as: personal factors (the characteristics and circumstances of the individual), locational factors (the characteristics of the regions where the person is considering moving from and to) and transitional factors (the one-off costs and benefits arising from the act of moving).

Figure 3 Matching labour demand and supply



Personal factors

The Commission's analysis indicates that personal factors are significant determinants of an individual's geographic labour mobility.

- Age is strongly correlated with mobility patterns. Younger people are more likely to move. This may be due to the role of human capital — younger people have a longer time period over which to receive the economic benefits from moving. But age can also reflect 'life events' — major events that impact the course of a person's life. Life events that often coincide with a change of location include completing formal education, getting married, having a child, becoming separated and getting divorced.
- Life events often have dual effects on mobility — most events act as enablers of geographic mobility in the immediate term, but in the longer term, these events can either be enablers or impediments depending on whether they tend to strengthen or weaken ties to a given location. For example, while the event of having a child can be an enabler of mobility, the ongoing presence of children generally reduces geographic labour mobility.

-
- Rising female labour force participation and accompanying changes in family dynamics are also important. The increase in dual-income households means that decisions about where to live and work often need to take into account the employment prospects of both partners. Available evidence suggests that this can act as an impediment to geographic labour mobility, particularly where it involves a change of usual residence.
 - Education enables geographic labour mobility. This is because more educated workers tend to be more highly skilled, and the returns to migration are larger for highly skilled workers.

Locational factors

Locational factors distinguish one regional labour market from another, and also influence people's geographic labour mobility decisions.

While surveys have consistently shown that most residential moves are made for reasons other than employment, having a job is crucial to long-distance moves — few long-distance moves are undertaken unless secure employment is expected at the destination region. Employment is usually a necessary but not sufficient reason for residential mobility.

Housing and living costs are also found to be determinants of where people choose to live and work. As some labour markets with good employment prospects and high wages also have above average living costs, the high cost of living can act as an impediment to attracting people to the area, particularly workers in low-wage industries. This may at least partly offset the enabling effect of higher wages.

The quality and availability of economic and social infrastructure — such as education facilities, health services, communications services and transport — also influence where people live and work. The importance of social and economic infrastructure featured heavily in responses from study participants. Such locational factors are subjective in their impacts, and become influential when they interact with personal factors. For example, proximity to good schools is likely to be more important for people with school-aged children.

Transitional factors

Transitional factors relate to the one-off costs and benefits associated with the act of moving, and include search costs, adjustment costs, and legal and administrative costs. Study participants, household surveys and academic research suggest that legal and administrative costs (together with other transitional costs) play a

significant role in making people reluctant to move. One of the most significant transitional costs to changing one's residential location relates to buying and selling one's home.

In summary, at the individual level, personal and locational factors interact to influence whether and where people move. Life events and family circumstances appear to be the most important factors in mobility decisions, and governments are limited in their ability to influence them. Factors related to housing, employment, local infrastructure and a person's level of education also play a prominent role and can be affected by broader policy settings.

Patterns and trends in geographic labour mobility

The Commission was asked to identify the patterns and trends in geographic labour mobility in Australia and considered three different types of moves in this study:

- *Residential labour mobility* — where people in the labour force relocate their usual residence to another regional labour market.
- *Long-distance commuting* — regular commutes from a person's place of usual residence to their workplace which exceed a time or distance threshold.
- *Telecommuting* — working from a distance, in any location other than the usual workplace. In essence, telecommuting involves moving the job to the worker.

Residential mobility

About 16 per cent of the labour force changes residence each year (table 1). This is high by international standards. Only a fraction of people move primarily for work purposes (estimated to range between 10 and 17 per cent of residential moves). Many move for family, housing or other personal reasons. Most of these moves are over short distances and are unlikely to significantly affect labour supply across different regional labour markets. Two-thirds of these residential moves are less than 10 km, indicating that people generally move within cities or regions, rather than between them.

The rate of movement of people in the labour force between regional labour markets is lower than all residential moves, at 3.3 per cent.¹ For interstate moves it is 1.7 per cent. Gross interstate migration has declined over the past decade, from about 2 per

¹ It is difficult to evaluate the rate of residential mobility across regional labour markets in Australia relative to other countries due to data limitations and Australia's unique geography.

cent of the population through the 1990s, to about 1.5 per cent of the population more recently. Over the same period, there has been an increase in long-distance commuting and international mobility. Interstate mobility has also declined in the United States and Canada.

Table 1 Proportion of people who moved residence in the year prior to the Census
Per cent

	<i>All moves</i>	<i>Labour market moves</i>	<i>Interstate moves</i>
Population	14.6	3.0	1.5
People in the labour force	16.4	3.3	1.7
People aged 15 years and over	14.5	3.1	1.5
People aged 15–64 years	16.3	3.5	1.7

Who moves across regional labour markets?

In Australia, younger people, unemployed people, Indigenous Australians, recent overseas migrants, single people, people without children, more highly educated and skilled people, and people working in the mining industry all have a higher propensity to move residence between labour markets than do other cohorts. This is consistent with overseas evidence.

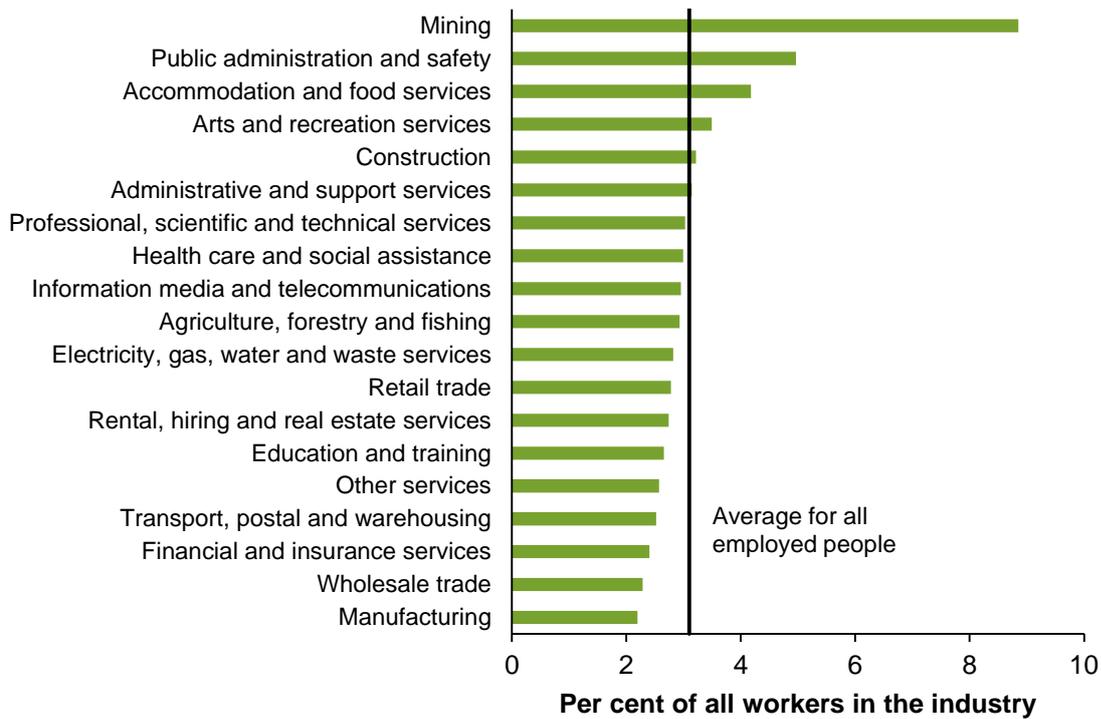
In 2011, workers in industries with high growth in employment and high vacancy rates were more likely to have moved residence within the past year compared to those in other industries. Some of the industries that have the highest proportion of workers moving residence across regional labour markets are mining, construction and the accommodation and food services sector. Workers in these industries may be more geographically mobile because of the inherent project-based or seasonal nature of the work (figure 4).

Overall, in comparison to the broader population, people in the labour force are more likely to be moving to areas with better job prospects, namely capital cities and mining regions. Young people generally move out of regional areas and into capital cities. This has been attributed to them seeking education and employment opportunities. In contrast, older people, who are less likely to be in the labour force, are more likely to move out of capital cities and into regional areas. These moves have been attributed to the amenities of many coastal areas, such as mild weather, low crime rates and higher concentrations of other older people.

Housing tenure is related to mobility. People who rent privately are more likely to move residence than home owners, and ABS data show that renters are more likely

to move for employment reasons than home owners. People in public housing have the lowest rates of residential mobility.

Figure 4 Residential mobility by industry of worker
Per cent moved in the previous year, 2011



Mobility and unemployment

People who struggle to find work are of particular concern in relation to geographic labour mobility. Long periods of joblessness impose costs on individuals, their families and the wider community.

In Australia, unemployed people are more likely to move between labour markets than those who are employed or not in the workforce. There is strong evidence that unemployed people who do move between labour markets leave unemployment benefits sooner, but this appears to be due to differences in the underlying characteristics of movers and non-movers. The mobility patterns of the very long-term unemployed are complex, with high residential mobility, but mainly across short distances. This may be suggestive of involuntary moves associated with insecure housing tenure, which are unlikely to be helpful to employment prospects.

The Commission's analysis indicates that in some high unemployment areas people frequently move in and out, while in other areas there is little movement. Further, the evidence is mixed as to whether unemployed people are more inclined to move to areas with strong employment prospects or to areas with low living costs (but not necessarily good employment prospects).

Unemployment, particularly of an extended duration, is a complex problem. Aggregate unemployment is an outcome that predominantly reflects macroeconomic factors such as economic growth and the flexibility of the labour market. Skill deficits and mismatches, industry structural change and incentives and assistance for job searching also play a role, particularly in influencing the duration and pattern of unemployment. Thus, even where opportunities for employment are available, and moving for work is financially feasible, low levels of education and skills, fear about losing public housing or a place on the waiting list, poor health and reliance on family networks for support may sometimes limit the capacity of unemployed people to relocate and take advantage of these opportunities. It is unlikely that small incentive payments or penalties will increase their mobility.

While geographic labour mobility is not a comprehensive solution, reducing impediments to mobility may help to prevent some individuals from becoming long-term unemployed. However, addressing the challenges of long-term unemployment requires a broader approach, with economic growth and labour market flexibility at the core, complemented by targeted policy responses across the spectrum of welfare, education and training, health and housing, focused on increasing the employability of the individual.

Long-distance commuting

Long-distance commuting can be a substitute for permanent residential moves. The number of people undertaking long-distance commuting is increasing, although it is still a small proportion of the workforce. KPMG has estimated that 2.1 per cent of the workforce undertook a long-distance commute at the time of the 2011 Census, up from 1.7 per cent in 2006. Long-distance commuting occurs in many sectors, but there has been a significant increase in the resource sector (box 3), in part reflecting growth in the sector itself. 'Fly-in, fly-out' (FIFO) workers constitute a significant part of the workforce in certain mining regions, such as the Pilbara.

Box 3 **The growth of FIFO**

One increasingly utilised source of labour supply is fly-in, fly-out (FIFO) workers. While not uniformly regarded as a positive development by stakeholders, it appears that FIFO has been instrumental in attracting sufficient mining and construction workers to mining areas during the resources boom, and spreading the benefits of the boom across the economy more broadly. FIFO has also dulled the boom–bust cycle that mining towns might otherwise experience if all workers had to be residential.

The increasing use of FIFO practices, particularly in the mining and construction industries, can be attributed to a number of factors, including:

- the high cost of living in regional and remote areas
- a lack of accommodation and facilities in regional and remote areas
- worker preferences for living in metropolitan or coastal areas
- the shift away from the traditional 8-hour working day to 12-hour shifts
- the short term nature of construction projects
- more widely available flights to regional areas
- intense competition for workers with particular skills, such as engineers and project managers
- newer mines increasingly located in more remote areas.

While FIFO is more common in the mining and construction industries, it is also used in a number of service industries. For example, FIFO practices have been used by police services to overcome difficulties in attracting and retaining police officers in regional and remote areas of Australia. FIFO practices are also used in the education and health industries to provide services in small remote communities where there is no adequate supply of relevant professionals.

FIFO practices have also been adopted in other countries, particularly in remote mining regions such as Scottish and Norwegian oil fields, the Canadian mineral sands regions and parts of Africa. FIFO policing models are used by the Royal Canadian Mounted Police.

Capital cities and mining regions appear to be the most common destinations for long-distance commuters, and the most common route in 2011 was from Perth to the Pilbara. Many of the other most common commuting routes to mining regions were from regional areas, suggesting that the benefits of the resources boom are spread widely.

Intra- and intercity commutes are important for geographic labour mobility and efficient job matching. There have been concerns expressed by participants about people in outer metropolitan areas needing to commute long distances to work, with negative impacts on productivity and participation. However, others have suggested that commuting does not always result in a reduction in wellbeing. While there will

be considerable variation, average commute times for people in outer suburban areas are only slightly longer than for people in inner suburban areas, and average commuting times have increased only moderately in the past decade. Most people who live in outer suburban areas also work in outer suburban areas. Further, between 2001 and 2011, outer suburban areas of capital cities generally recorded larger increases in employment than inner city areas, although the industry composition of employment growth differed across inner and outer city areas.

Telecommuting

The number of formal telecommuters is small, at around 6–7 per cent of employees. However, the actual number of telecommuters is likely to be larger because many telecommuters may have informal arrangements. Available data do not point to an increased prevalence of telecommuting in Australia.

Telecommuting offers flexibility and potentially opens up a job opportunity to a greater pool of workers. It can help overcome skills shortages in regional and remote areas by making the job available to any worker with the adequate skills, irrespective of their location. While telecommuting is currently used in industries like technology and professional services, it is less suited to industries characterised by highly location-specific jobs such as construction and mining, and customer service-centric industries, such as accommodation and food services.

Telecommuting also has potential downsides. These include the risk of loneliness from not interacting with co-workers, lower productivity due to lack of motivation or distractions at home, and costs involved in setting up adequate occupational health and safety arrangements. These issues suggest that the greatest challenge to the uptake of telecommuting may not necessarily be technology, but rather management practices and cultural norms in workplaces.

Actions by employers

Employers use a range of strategies to encourage workers to relocate from other regions or undertake long-distance commuting (box 4). Some employers are sourcing workers from a very wide geography, including interstate and overseas, if they are unable to employ suitably qualified local people.

Box 4 **Employer strategies to attract workers**

A range of strategies (often in combination) is used by employers to attract workers.

Relocation incentives aim to increase the benefits of moving, and can include additional pay, professional development opportunities and training, and free or subsidised accommodation. Benefits are sometimes provided to the broader household, such as spouse employment support and training. Other incentives are used to reduce the costs of moving, such as removal and storage costs, the costs of selling or buying a house, and temporary accommodation expenses.

Return of service obligations involve a person being provided training or other benefits such as a scholarship, and then being required to work for the employer for a certain period of time in certain locations.

FIFO work practices generally involve a choice of rosters and free accommodation, extended recreation leave, shift leave and commuting allowances. FIFO work can be arduous. Resource sector employers use strategies to promote wellbeing and mitigate any negative effects of FIFO on workers and their families, such as induction programs, employee assistance programs and the facilitation of networks for families.

Some resource companies have actively **targeted underutilised labour** in Indigenous communities to undertake FIFO work. For example, Rio Tinto recruits FIFO workers out of Meekatharra, Western Australia, for the Hope Downs mine. Many Indigenous people in Meekatharra were unemployed before the opportunity to undertake FIFO work arose.

Training to facilitate relocation — for example, Shell has re-trained employees displaced by the winding down of its operations at a New South Wales oil refining plant to work at a liquefied natural gas project in north-west Western Australia.

Telecommuting is being used by employers as a strategy to attract and retain workers. For example, telecommuting is being used by Medibank in response to difficulties recruiting health care professionals, with over 1600 health care professionals delivering services from their homes.

International migration strategies are also used when suitable local workers are difficult to source. State and territory governments often employ international medical professionals to work in regional and remote areas. The agriculture and tourism industries, where work can be seasonal, are heavily reliant on temporary migration, such as the Working Holiday Maker program.

Is geographic labour mobility working in Australia?

The Commission's econometric modelling and its analysis of trends and patterns in labour mobility in Australia lead to the broad conclusion that geographic labour mobility has been an important mechanism for adjusting to the demographic, structural and technological forces shaping the Australian economy. It has

accommodated differences in the pace of economic activity across Australia and enabled wealth to be more widely distributed across the country.

This conclusion is supported by the following:

- Australians move residence relatively frequently. They may also be willing to undertake significant commuting to access jobs while maintaining a certain lifestyle.
- People who are more likely to move to another regional labour market — young people, single people, recent overseas migrants, unemployed people and more highly educated and skilled people — are those who are likely to gain the most from moving.
- Employers are using a range of labour sources to find the skills they require and are hiring workers from a much wider geography than in the past. The increased use of FIFO practices and temporary immigration, such as 457 and working holiday visas, has been critical to meeting labour demand for some positions in many parts of the country.
- Labour appears to be moving to areas with better job and income opportunities; that is, workers seem to be responding to market signals and there do not appear to be *significant* impediments that are distorting decisions.
- The dominance of cities in Australia contributes to efficient job matching. The deep labour markets of cities enable high levels of labour mobility without the need for geographic mobility.

There is room for improvement

While the Commission's findings indicate that geographic labour mobility is assisting labour market adjustment in Australia, there is room for improvement.

- There are some areas of ongoing skills shortages in regional and remote areas. These are largely essential service, government jobs where wage flexibility has been limited.
- There are also regions of high and persistent unemployment, such as Tasmania, western Sydney, parts of coastal Queensland and regions with a high proportion of Indigenous residents.
- Much of current policy action to directly influence geographic labour mobility appears to have had limited effectiveness, particularly in relation to regional development policies.

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- The negative consequences of some poorly designed policies can create impediments that distort labour market efficiency and decrease community wellbeing.
 - Governments may have a role in addressing some of the negative impacts associated with high mobility and in improving the data available to understand and respond to geographic labour mobility.

While geographic labour mobility is important for meeting Australia's continually changing workforce and employment needs, the complementary roles of education, skills and overseas migration should be acknowledged. Governments should ensure the benefits of temporary migration are maximised by maintaining flexible arrangements and avoiding excessive regulatory burden while at the same time ensuring that arrangements have integrity, and investment in education and training is well-directed.

Overseas migration has assisted in addressing skills shortages in hard-to-fill regions and occupations. In the health sector, the contribution of international migration is substantial. The mining industry contends that it would not have been able to respond to increased demand without temporary skilled migrants. On the other hand, unions have warned that increased use of temporary migrants can erode local investment in skills and education. Temporary migration programs are subject to a range of checks and balances, which are currently being reviewed.

Education is one of the enablers of mobility that may be amenable to government policy influence, although the impacts are less immediate. As well as being an enabler of geographic labour mobility (and a pull factor for migration to certain regions), a high quality education and training system is critical for improving the productivity and earnings of the local workforce and generating broader community benefits. Where skills development lags, this can lead to lower productivity and entrenched unemployment and disadvantage. While education and skills development have been the focus of significant policy and program reform effort in recent years, there remain concerns about educational disadvantage, inconsistent quality and low completion rates, particularly in some areas with high unemployment. Employer groups have also voiced the need for skills taught to be relevant to industry needs, including skill sets rather than full qualifications.

Policies aimed at geographic labour mobility

Where persistent skills shortages exist (box 5), for example essential services employees in regional and remote areas, governments have responded with financial and non-financial incentives to encourage relocation (although wage flexibility is constrained in some government workforces). The use of financial incentives is likely to be effective only when tightly targeted at a group who will clearly benefit — for example, those who are more budget constrained and/or have an inclination to relocate, such as students faced with high education costs or recently arrived immigrants in particular occupational categories trying to settle in a new country. Financial incentives may need to be accompanied by other support, such as professional development and information provision, to better address the various impediments to relocation.

Box 5 Skills shortages

Study participants have reported that skills shortages are common in Australia. Some occupations are in shortage nationwide (for example, sonographers) while others are in shortage only, or more severely, in regional and remote areas. These include many public sector workers such as health professionals, community services employees, emergency services employees, police officers, and teachers. The Commission has previously examined workforce trends in some of these occupations.

In 2012, the Commission found that there were shortages of mathematics and science teachers, and shortages of teachers more generally in rural and remote communities. The reasons behind these shortages include:

- teachers having access to fewer educational and personal amenities
- restricted access to support networks and professional development.

The Commission recommended that the Australian, state and territory governments should encourage the trialling of measures that enable principals to use remuneration-based incentives to fill hard-to-staff positions, among other suggestions directed at improved targeting of assistance.

A 2006 Commission inquiry into the health workforce found that shortages exist across several health professions, particularly in remote areas. These include general practitioners, medical specialists and some allied professionals. The factors contributing to this regional shortage of health workers are varied and include:

- generally lower remuneration levels than in metropolitan areas
- longer working hours than in cities and a heavier workload
- inadequate community infrastructure, supporting health care infrastructure and access to other health professionals
- limited professional development opportunities and career pathways.

In attempting to influence the regional supply of, and demand for labour, government policies can target the decisions of individuals (for example through relocation grants), or they can target a specific region to increase its attractiveness to both employers and workers. Australian governments have a long history of trying to influence where people live and work, as part of regional development policies.

There is an ongoing policy debate about the goal of regional development policies, including the circumstances in which resource allocation should favour regional areas (if at all), and the most appropriate way to design and target the assistance offered. Regional development policy is often intertwined with industry policy and structural adjustment support, and can consequently lack a clear rationale. Research suggests that overall, investment in regional economic development and structural adjustment packages has not been effective in achieving its objectives. Goal clarity, consideration of the potential for resource misallocation, improvements in policy design and implementation, and a substantially stronger commitment to project evaluation would be beneficial in this area. The structural adjustment that will take place in response to the closure of car manufacturing in coming years would benefit from well-focused evaluation of outcomes.

Realistic expectations are also required; governments cannot reverse the continual process of agglomeration nor delay necessary structural adjustment. To do so is costly and ineffective. Benefits are likely to be higher if policies focus on creating an economic climate conducive to growth across *all* regions and *all* industries.

Addressing impediments from broader policy settings

The Commission has identified a number of key areas where it considers policy review is warranted. These areas relate to broader government policies that are poorly designed and have been found to indirectly affect individuals' and firms' geographic mobility decisions. These either distort the costs and benefits of living and working in various locations, or impose unnecessary and distortionary transitional costs.

Housing

The most common impediments to geographic labour mobility raised by stakeholders are insufficient housing supply and a lack of affordable housing. Housing affordability is of particular importance in communities experiencing an influx of population, where demand for housing has outstripped supply, and where substantial increases in both rents and house prices have been experienced. This can

have important implications for the community, as low-to-middle income earners may no longer be able to afford local housing. Affordability has also been identified as a problem in Australia's larger cities, where some workers are unable to live close to jobs, particularly those offering higher wages.

A number of existing government policies, such as taxation and land-use planning, are contributing to distorted housing costs, which impact on rental and purchase decisions and can impede geographic labour mobility. Two areas that have been frequently raised in this study are also areas that the Commission has examined in previous work:

- Inefficient land-use planning processes and the delayed release of land for residential development can limit housing availability.
- Conveyancing duty (stamp duty) imposes additional costs on property transactions and leads to a lower level of property exchanges than would occur in the absence of the tax.

The availability of affordable rental housing is particularly important for the geographic labour mobility of low-income workers and job seekers, but supply has been in long-term decline. It is important that governments review the effectiveness of policies affecting the supply of affordable rental housing, such as the National Rental Affordability Scheme — a relatively recent program directed towards improving the supply of affordable rental accommodation. Such a review will need to take into account broader policies — such as taxation, superannuation, income support — that can affect the demand for and supply of housing, and whether these policies are distorting investment in rental housing as well as the tenure and price of housing generally.

Income and housing support

Governments provide people on low incomes with income and housing support, including Commonwealth rent assistance and public housing. The eligibility requirements and design of these programs may impede geographic labour mobility where they inadvertently discourage labour force participation and geographic relocation for work. The recently-announced welfare review may examine some of these issues, although this is yet to be confirmed.

- One identified problem is that mobility can be impeded for people on the waiting list for public housing in order to retain eligibility. Another is that the way rents are set can discourage labour force participation. The Henry tax review recommended changes to the structure of public housing and the way rents are set to support an improvement in workforce participation of residents.

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- Commonwealth rent assistance is provided to eligible renters who receive income support payments. The regulatory arrangements around rent assistance are highly complex. Further, the impact that rent assistance has on affordability varies significantly across the country. There would be merit in reviewing the level, indexation and eligibility criteria for rent assistance to ensure it does not act as a disincentive to workforce participation and geographic labour mobility.

Employment services

Different government services and programs for job seekers and people without employment can affect their geographic labour mobility decisions. According to employment services providers, there are significant barriers to successful relocations of job seekers. Some of these relate to the characteristics of unemployed individuals. However, some of the barriers are inherent to the design of these employment services, particularly in terms of the limited opportunities for job seekers to link with potential employment opportunities in other locations. An emphasis by employment services providers on proactive engagement with employers, including those outside the local labour market, could promote geographic labour mobility, and improve outcomes for unemployed people more generally.

Cross-jurisdictional differences

Stakeholders have raised concerns about the effects of jurisdictional differences on the ease of mobility within Australia. Different school starting ages and school curricula have been cited as impediments to geographic labour mobility. Some of these are being addressed, for example the development of a national curriculum.

A large number of occupations in some sectors of the Australian economy are governed by jurisdictional occupational licensing, which may create a barrier for individuals who are considering working interstate. COAG had been working on a national licensing system, but in December 2013 decided to cease the implementation of this reform, as state governments had concerns about the proposed model and its potential costs. Instead, state governments agreed to work together via the Council for the Australian Federation ‘to develop alternative options for minimising licensing impediments to improving labour mobility’ (COAG 2013, p. 5). Enhancing skills recognition across jurisdictions is likely to improve geographic labour mobility and, in response to the COAG decision, participants have reaffirmed the need for action in this area. The Commission considers that these workers, their clients and their employers have been poorly served by the lack of progress in producing consistent occupational licensing across

jurisdictions. Action to remove occupational licencing impediments to mobility should therefore be expedited, noting the lessons learnt from the failed national occupational licensing reforms, especially the difficulties associated with complex governance arrangements.

Mitigating the negative impacts of geographic labour mobility

Geographic labour mobility, and broader demographic and structural change, can sometimes have negative impacts on individuals and communities. Managing these impacts is sometimes the purview of employers. Mining companies invest in power plants, water treatment facilities and airport infrastructure in predominantly mining towns, and sometimes also in soft infrastructure. For example, BHP Billiton and Xtrata spend 1 per cent of their pre-tax profit on local community development projects, such as education and health.

In cases where these impacts are imposing external costs on communities, such as congestion, government action has the potential to improve community wellbeing. A lack of planning for population growth and insufficient provision of infrastructure could also be resulting in outcomes that are not socially optimal. This study has heard of lags in planning and delivery of physical and social infrastructure in growth areas, which can significantly affect the local community. Some have suggested that more of current government spending on regional services needs to be redirected to fast-growing regions.

Local governments face capacity constraints in relation to the broad range of areas in which they have regulatory and service provision responsibilities. Nonetheless, some specific constraints have been identified that are limiting councils' ability to manage population mobility. Their financial capacity to respond to these challenges may be impeded by rate capping and the distribution of financial assistance grants. Further, increases in council rates revenue are likely to lag population influx, creating a discontinuity between community expectations of service provision and councils' financial capability. In areas undergoing rapid population growth, funding systems from other levels of government should have the flexibility to respond. Another capacity constraint may be a lack of professional and technical expertise, particularly in regional and remote areas.

Greater recognition and understanding of the capacity constraints in rural and remote councils is required, particularly in the development of policy and initiatives that may address and encourage greater labour mobility to these areas. (LGAQ, sub. 5, p. 11)

This study has also heard cases of local governments not being meaningfully consulted on developments within their area, for example approvals for large mining projects.

The Commission considers that local governments should be consulted early as part of state government planning and approval processes and have related restrictions on their capacity to raise their own revenue removed.

The need for better data and policy evaluation

The ability to plan for and manage the impacts of population growth requires a timely and adequate evidence base. There are opportunities to improve data on geographic labour mobility, which is part of a broader need for better data on temporary or service populations. Where local governments have a large number of temporary residents (called ‘service populations’) who are not captured in the resident population statistics, local governments have argued that they are receiving insufficient funding. The Australian Government should investigate the effects of service populations on service delivery by local governments and their implications for funding allocations. The review could be undertaken by the Commonwealth Grants Commission, in consultation with its state counterparts. Some jurisdictions have already made some progress in incorporating the effects of non-resident populations on intrastate grant allocation.

The concept of a service population is difficult to clearly define. There are numerous challenges, such as deciding on the type of services people need to access in order to be counted as part of a service population and the different time frames that could apply. For example, a region may service daytime visitors, overnight visitors, FIFO workers who reside there every second week, or holiday home owners who only reside there seasonally. These different groups will access services in that region differently. Given these differences, service population definitions (and estimates) need to be fit-for-purpose; that is, they need to correspond to the use of a particular service by different service populations.

While there is growing demand for nationally-consistent estimates of service populations, the development of such data sets is highly complex and has numerous challenges. The utility of national estimates is not clear, and regional, rather than national, estimates may be more viable.

There are other more feasible and less costly data improvements that can be pursued in the near term, which would improve our understanding of geographic labour mobility and population change. In particular, there is potential to augment existing

statistical collections and make better use of administrative data, such as taxation statistics. Lack of access to administrative data is a serious impediment to social policy and planning in Australia (see PC Annual Report 2012-13).

The need for better data should be accompanied by improved evaluation of government actions to influence where people live and work, including through structural adjustment and regional development policies. Policy outcomes should be monitored and evaluated in order to assess overall efficiency and effectiveness. This study has found numerous instances where the strategies designed to influence the location of economic activity have not been evaluated.

Recommendations and findings

FINDING 8.1

At the individual level, personal and locational factors interact to influence whether and where people move. Life events and family circumstances appear to be the most important factors in mobility decisions, but factors related to housing, employment, local infrastructure and a person's level of education also play a prominent role.

FINDING 10.1

Where governments need to attract essential services employees to specific areas of skills shortages, they need to use highly targeted approaches. Programs targeting students, international migrants and those with return of service obligations seem to be most effective.

RECOMMENDATION 10.1

All governments, when developing structural adjustment programs, should have clear objectives and ensure that they are properly evaluated, including how they affect geographic labour mobility.

This should apply to the programs announced by the Australian and State Governments in response to the closures of car assembly plants in Victoria and South Australia.

A longitudinal study of the retrenched workers in these regions would be particularly beneficial in understanding the long-term impacts of structural adjustment and its implications for geographic labour mobility.

FINDING 10.2

Education is one of the enablers of mobility that is amenable to policy influence. Improving the quality, flexibility and accessibility of education and training, particularly for disadvantaged groups and regions, will support geographic labour mobility and have broader efficiency and wellbeing benefits.

FINDING 11.1

Geographic labour mobility has been an important mechanism for adjusting to the demographic, structural and technological forces shaping the Australian economy. It has been assisted by the considerable flexibility shown by employers and employees in overcoming the effects of impediments to mobility. The increase in long-distance commuting and temporary immigration has been particularly important.

FINDING 11.2

The negative consequences of poorly designed policies, in areas such as taxation, housing, and occupational licensing, include damage to efficient geographic labour mobility. Reforming these areas would lessen impediments to geographic labour mobility, and have broader benefits.

RECOMMENDATION 12.1

The Australian Government should make changes to employment services (including Job Services Australia, Disability Employment Services and the Remote Jobs and Communities Program) so that employment service providers have incentives to work directly with employers to identify work opportunities for job seekers, including opportunities outside their immediate labour market region where relevant.

RECOMMENDATION 12.2

State and Territory Governments should remove or significantly reduce housing-related stamp duties, and increase reliance on more efficient taxes, such as broad based land taxes.

RECOMMENDATION 12.3

State and Territory Governments should facilitate a responsive housing supply through efficient planning and flexible land release. In its benchmarking study on planning, zoning and development assessments, the Commission identified a number of leading practices that can significantly improve the governance, transparency, accountability and efficiency of these processes. Where this is not already occurring, State and Territory Governments should implement these leading practices.

RECOMMENDATION 12.4

The Australian Government should review policies that affect the demand for and supply of affordable rental properties, to ensure they are not hindering workforce participation and mobility, and that assistance is targeted to those in most significant housing need. This would include:

- *reviewing the level, indexation and eligibility for Commonwealth Rent Assistance in light of recommendations from the Henry tax review*
- *reviewing the effectiveness of policies affecting the supply of affordable rental properties including the National Rental Affordability Scheme.*

FINDING 12.1

The failure to progress occupational licensing reforms has negative consequences for geographic labour mobility, and community wellbeing more broadly. Policy development and implementation so far has been hampered by complex governance arrangements and significant delay.

RECOMMENDATION 12.5

State and Territory Governments should urgently progress action to reduce occupational licensing barriers to mobility. To avoid the difficulties that led to COAG ceasing the implementation of national occupational licensing, governments must specifically emphasise efficient communication and cooperation between regulators in different jurisdictions.

RECOMMENDATION 12.6

State Governments should:

- *review the restrictions imposed on local governments' capacity to raise own-source revenue*
- *emphasise early local consultation as part of their planning and approval processes for major projects and land release and use.*

RECOMMENDATION 12.7

The Australian Government via the Commonwealth Grants Commission should investigate the effects of temporary or service populations on service delivery by local governments and the implications for funding allocations.

RECOMMENDATION 12.8

All governments should make holdings of administrative data accessible for research and evaluation of programs, including those relevant to understanding geographic labour mobility. Further expansion of the data collected by the ABS will also be beneficial in improving the understanding of mobility trends.

1 Introduction

Geographic labour mobility is one element of a flexible labour market, and is important for economic efficiency. By enabling labour to move to its best use across different regions of Australia, geographic labour mobility can alleviate labour shortages and regional disparities in labour market conditions, and increase skills utilisation and incomes.

By influencing where people live and work and the extent to which workers are matched with jobs that utilise their skills, geographic labour mobility can have important implications for wellbeing. For example, the characteristics of a job, the climate of a location and the distance of one's work or residence from extended family and friends can all affect satisfaction with life.

Geographic labour mobility is a dynamic process. There are underlying forces — demographic, structural and technological changes — that will affect where people choose to live and work and the way in which adjustments to changes in labour demand and supply occur across different geographic locations.

1.1 What the Commission has been asked to do

The Australian Government has asked the Commission to assess geographic labour mobility within Australia and its role in a well-functioning labour market. Matters on which the Commission has been asked to report include:

- patterns of geographic labour mobility in Australia, the implications of structural, demographic and technological developments, and key determinants of mobility
- impediments and enablers of mobility and their effect on the ability to meet Australia's continually changing workforce and employment needs
- the economy-wide impacts of reducing any impediments
- existing strategies by governments and businesses that affect geographic labour mobility and possible options to enable further mobility.

1.2 The scope of the study

The study has a broad scope and considers the geographic labour mobility of all working-age Australians, including Indigenous Australians. It covers people in different forms of employment, people looking for work and those marginally attached to the labour force.

The terms of reference request the Commission to assess geographic labour mobility *within* Australia. In this context, the study considers movements of labour across regions of Australia, including outer metropolitan and non-metropolitan locations. This study looks at international migration in terms of its effects on domestic regional labour supply and demand.

The study covers the mobility of jobs, firms and economic activity, to the extent that they affect the demand for labour and the way that labour demand and supply interact to send market signals to workers. In doing so, a broad range of employment arrangements are considered including seasonal work, long-distance commuting and telecommuting.

The Commission's analysis of patterns and trends in geographic labour mobility and its own empirical work focus on the past decade. Changes during this period are placed in the context of previous periods of economic and structural change and the history of settlement patterns in Australia.

1.3 The Commission's approach

What is geographic labour mobility?

At a basic theoretical level, shifts in regional labour supply or labour demand will lead to changes in wages and employment, which will affect an individual's incentives to work in a given region versus another. Where workers respond to these economic signals and move to work in different regional labour markets, labour supply can adjust to meet labour demand.

Advances in transport and communication technologies have dramatically changed the way in which labour demand and supply can adjust across different geographic locations. Instead of permanently relocating, workers now have the option of long-distance commuting or telecommuting. This has fundamental implications for how we think about and define geographic labour mobility.

The Commission has adopted a very broad interpretation of geographic labour mobility — and one that reflects the current dynamics of the Australian labour

market. Under this interpretation, geographic labour mobility entails people's work relocation (including residential moves, long-distance commuting and telecommuting). This approach includes any movement that alters labour supply in a region (boxes 1.1 and 1.2). A range of views were provided in submissions regarding how to define geographic labour mobility (box 1.3). In general, participants accepted the Commission's proposed interpretation.

Box 1.1 Defining geographic labour mobility

The Commission interprets geographic labour mobility as any movement that shifts labour supply in one regional labour market to another. This includes where people:

- relocate their usual residence to another area to look for a new job, to start a new job, or to set up a new business
- relocate their usual residence because their existing job has been relocated
- relocate their usual residence for reasons other than employment, but change jobs as a result
- maintain their usual residence and commute into another area for work
- fly in and out or use other forms of long-distance transport for a job in another region, taking up temporary/part-time residence in the region
- telecommute
- work from home.

How do we analyse geographic labour mobility?

This study presents a conceptual framework to structure thinking about geographic labour mobility. Consistent with the Commission's role and operating principles this framework encompasses the interests of the economy and the community as a whole.

In developing its conceptual framework and analysing patterns and trends in geographic labour mobility the Commission has drawn on a range of sources. The Commission has considered views from stakeholders provided in submissions and roundtables. It has also drawn on relevant research and literature. The Commission has conducted its own empirical work on regional migration patterns in aggregate in order to provide insight into the impact of various factors on mobility. Modelling of the factors that influence an individual's decision to relocate has also been undertaken.

Box 1.2 Regional labour markets

Labour markets are geographic regions which have a high degree of interconnectedness or overlap between where people live (labour supply) and where people work (labour demand) (ABS, sub. 12). What constitutes a regional labour market will be determined by distance, travel time and convenience between possible workplaces and a job seeker's residence (Newell 2001).

In addition, regional labour markets are likely to vary by skill and occupation, among other things. For example, a financial analyst who moves from the inner suburbs to an outer metropolitan area of a city for lifestyle reasons might be expected to remain in their city centre job. Thus, the inner metropolitan and outer metropolitan areas as a whole could be considered one regional labour market for financial analysts. For another occupation where job opportunities are more geographically dispersed, such as gardeners, this might not hold and the inner and outer metropolitan areas might be considered separate regional labour markets. Consequently, workers might be prepared to move a longer or shorter distance and be more or less prepared to undertake different forms of commuting depending on their industry and occupation. Some specialised workers might be prepared to move internationally.

The question of how to define a regional labour market is of practical relevance in that it will determine how movement is estimated across boundaries. In many cases, analyses of labour mobility between regional labour markets have assumed that moves over a certain distance, or across administratively defined areas, would necessitate a change in job. For example, some studies have analysed moves between postcodes (Bill and Mitchell 2006). Others have focused on moves between statistical local areas (Mitchell 2008a) or states (IC 1993). An alternative approach developed 'functional' labour market areas based on analyses of economic behaviour, for example the commuting patterns of workers (OECD 2000). The Centre of Full Employment and Equity (nd) has produced a labour market geography based on commuting relationships between statistical local areas. The ABS (2010c) has used this approach to inform the design of the Statistical Area Level 4 (SA4) regions.

The Commission's framework describes the process of matching people to jobs through employers deciding where to locate their activity (labour demand) and individuals deciding where to live and work (labour supply) (chapter 2). In matching employees and employers across geographic locations, geographic labour mobility can have a range of impacts on individuals, employers, communities and governments. In doing so, it has implications for economic efficiency and wellbeing (chapter 3).

Box 1.3 **Participants' views on defining geographic labour mobility**

The National Occupational Licensing Authority (sub. 17, p. 3) stated that 'geographic labour mobility refers to the capacity for people to move from one job to another, while also moving between geographic locations. This may refer to an employee moving between geographic regions, within jurisdictions, or interstate'. Similarly, the Australian Petroleum Production and Exploration Association (APPEA) (sub. 24, p. 3) stated that 'geographic labour mobility in its simplest form is the occupational movement of workers to a specific location'. A broader interpretation was presented by the Isaac Regional Council (sub. 16, p. 1) which defined geographic labour mobility to include 'permanent relocation, fly-in fly-out, and drive-in drive-out workforce practices and virtual relocation workforce practices such as telecommuting'.

The Regional Australia Institute (sub. 25, p. 3) presented geographic labour mobility in the context of efficiency and wellbeing and stated that 'to ensure each sector of the economy operates as efficiently and effectively as possible it is necessary to ensure that the right resources are available at the right time, at the right place and price and that the collective wellbeing of the community is maximised'. The Department of Employment (sub. DR60) noted that geographic labour mobility is one form of labour mobility and that occupation and industrial mobility are related forms of mobility that are also important in allocating labour to its efficient use.

The Ai Group highlighted how the definition of geographic labour mobility is changing with advances in technology. They posit that "labour mobility" can no longer be defined simply according to the physical location and availability of employees. This is reflected in the increasing flexibility of working arrangements and "teleworking" as companies take advantage of expanding internet availability and efficient, low-cost communications' (sub. 19, p. 10). APPEA (sub. 24, p. 3) also stated that 'the need to physically travel to operational or other distant work locations can be offset to some degree by advances in technology — for example, emailing, teleconferencing, skype or video calls — that allow some workers virtual access to other locations from an office or other work environment'.

However, APPEA also provided a caution on the extent to which technological change removes the need for physical relocation of workers. It noted that for the majority of operational occupations in the oil and gas industry a physical presence is required, often in remote locations, to fulfil employment functions (sub. 24).

Demographic, technological and structural changes have altered the way we think about geographic labour mobility. These factors have had wide-ranging impacts on Australia's economy and labour market (chapter 4). The Commission has studied how these factors affect both labour demand and labour supply. This includes analyses of the location of job opportunities in Australia and the factors driving the location and nature of jobs.

In analysing geographic labour mobility in Australia, the Commission has considered a number of different types of moves:

- *Residential labour mobility* — where people in the labour force relocate their usual residence, to another regional labour market.²
- *Long-distance commuting* — regular commutes from a person's place of usual residence to their workplace which exceed a time or distance threshold.
- *Telecommuting* — working from a distance, in any location other than the usual workplace. In essence, telecommuting involves moving the job to the worker.

These analyses profile geographic labour mobility in Australia at a range of levels including by state and territory, metropolitan, outer metropolitan and regional and remote areas. Trends in residential mobility in Australia and other comparable countries are presented in chapter 5. A key objective was to elucidate the characteristics of those who move for work. Other forms of geographic labour mobility — that do not involve permanent residential shifts — are examined in chapter 6. The relationship between mobility and labour market participation is also explored, in particular for those who are unemployed, in chapter 7.

When thinking about labour supply, the Commission has developed an understanding of the key factors behind an individual's decision to move (or not move) for work and the role that different factors play as impediments or enablers of mobility (box 1.4; chapter 8). This understanding is complemented by empirical work.

In order to deepen our understanding of labour demand, the Commission has explored the types of strategies employers use to attract suitably qualified employees from different geographic locations. These strategies target one or more elements of an individual's decision to supply labour in a particular location (chapter 9). Drawing from submissions and employers' own reports, the Commission highlights common elements of successful strategies.

The Commission has examined what governments do to support geographic labour mobility (chapter 10). This analysis includes a range of policies used by governments to directly influence where people live and work, such as regional development and structural adjustment policies. Governments also support other sources of labour supply, through skills development and international migration. The effectiveness of these approaches, in terms of how they support optimal job matching across labour markets and increase overall wellbeing, is considered.

² Not all residential moves are considered, because many are over short distances. Only those moves that cross over regional labour markets, as defined in Appendix B, are considered.

Box 1.4 Determinants of geographic labour mobility

A range of factors influence an individual's decision about where to live and work, and whether or not to move for work. In deciding whether to move for work, an individual will assess the expected net benefits over time of two courses of action: moving or remaining in their current location. These net benefits are influenced by an individual's personal characteristics and their evaluation of the costs and benefits that comparative locations and employment situations offer them.

Some of the factors that affect relocation decisions relate to social and environmental features specific to different locations, such as climate and lifestyle factors. Economic factors will also play a role in relocation decisions. Market signals such as the relative availability of work, wages and conditions and costs of living are key determinants. Finally, the transaction costs of moving, including physical relocation costs and information costs associated with researching the new location, are also important considerations.

Determinants of geographic labour mobility are dynamic. While some factors, such as age, will change naturally over a person's lifetime, other factors will be affected by broader changes taking place in society. For example, advancements in communication, information and transportation technology can reduce the costs associated with travel and distance.

The analyses of patterns and trends in geographic labour mobility, and strategies used by employers and governments to influence where people live and work, are drawn together to make an assessment of whether current rates and patterns of geographic labour mobility are assisting labour market adjustment (chapter 11). This involves a consideration of whether:

- workers are responding to market signals and moving to areas of high labour demand and away from areas of high unemployment
- there are impediments to mobility that are distortions, and amenable to change
- geographic labour mobility is leading to negative spillovers on communities.

Finally, while not directly targeted at geographic labour mobility, other government policies can influence the mobility decisions of individuals and firms (chapter 12). Examples include taxation, housing, welfare and occupational licensing. These policies may create impediments to geographic labour mobility by distorting market signals or by imposing regulatory barriers to mobility. The Commission assesses the potential for policy reform where this generates broader efficiency and wellbeing benefits and lessens impediments to geographic labour mobility.

1.4 Conduct of the study

The terms of reference for the study were received from the then Assistant Treasurer on 21 May 2013.

The study was advertised in national newspapers, and promoted on the Commission's website. The Commission has consulted widely with stakeholders, drawing on input from participants through visits, roundtable discussions, a public forum and written submissions (appendix A).

The Commission released an issues paper in July 2013, and received 34 submissions prior to the release of a draft report in 3 December 2013. It sought further submissions on the proposals in that report and received 26 additional submissions.

The Commission is grateful to all study participants for meeting with Commissioners and staff, participating in roundtables, making written submissions and providing other information to the Commission.

2 Conceptual framework

Key points

- Efficient job matching involves employers and workers arriving at an employment arrangement that meets their objectives.
 - When deciding where to locate their firms, employers need to consider where their potential workers are located. When deciding where to live, individuals need to consider the location of their potential job opportunities.
 - Achieving an efficient job match sometimes require firms or individuals to move location.
- An individual's place of work does not need to be the same as their place of permanent residence, given the potential availability of long-distance commuting and telecommuting.
- When deciding whether to move, an individual will weigh up the expected costs and benefits of moving or staying. A wide range of factors can constitute these costs and benefits, including the job opportunities in different locations. Whether a given factor is a cost or benefit depends on an individual's circumstances and preferences. This will often be a family decision rather than an individual one.
- If employers cannot attract suitably-skilled workers to the locations where they are needed, and vacancies remain unfilled even though potential labour is available elsewhere, this could be a sign that:
 - the net cost for workers to move location is not being adequately compensated by the remuneration and other incentives offered by employers
 - it is not feasible, or would be excessively costly from the perspective of workers and/or firms, for workers to commute long distances or telecommute, or for firms to shift the physical location of the job.
- These decisions are also shaped by broader regulatory and institutional settings, the adequacy and efficiency of information exchange, and technological capacities.

This chapter identifies the ways in which workers and employers can come together in the labour market to achieve an efficient job match. The process of matching workers to jobs is the outcome of various decisions taking place in the labour market. Firms make decisions about where to locate their activities, taking into account the geographic location of their potential workforce. At the same time, individuals make decisions about where to live and work, taking into account where their potential job opportunities are located.

Achieving an efficient job match may sometimes require individuals to relocate their place of residence to be closer to work, or to devise different commuting arrangements. Alternatively, firms might need to shift the job, either physically or virtually, to where available workers are located. This chapter will look at how these decisions are made from the perspectives of firms (section 2.1) and individuals (section 2.2), and the potential ways in which an efficient job match might be achieved (section 2.3). The focus will be on job matching that involves an element of geographic mobility.

Sometimes, however, a job vacancy might persist even though there are job seekers elsewhere in the labour market who are not employed and are willing to work. As chapter 3 discusses, this situation is of concern, because it means that the country's workforce is not being fully utilised and there is scope to improve the welfare of the community overall. This chapter will consider the reasons why a geographic mismatch might persist between where jobs are available and where underutilised workers are located (section 2.3).

2.1 How do firms decide where to locate their activities?

The locational decisions of firms are shaped by their business objectives, usually profit maximisation (in the private sector) or the delivery of an essential service (in the public sector). When deciding on their location, firms need to consider not only their proximity to the consumer market for their goods and services, but also their proximity to the inputs required for production (Krugman 1991; Ottaviano and Thisse 2004). These inputs include labour. It is likely that, all other factors equal, distance from inputs will add to the costs of production and reduce profitability.

Some inputs are relatively fixed in location (such as land, mineral deposits and other natural resources) or might be costly to move or re-establish in new locations (such as infrastructure and other large-scale capital inputs). Labour, however, has the potential to be relatively mobile in a geographic sense. Yet, in some cases, employers might need to offer incentives to attract workers to the locations where they are needed.

A firm's proximity to other business operations will also be a factor in its locational decisions if there is potential for them to benefit from economies of scale, information or knowledge spillovers, or from being close to other firms that provide inputs and services to the business (Audretsch and Dohse 2007; Krugman 1991; Porter 2000). The agglomeration (or 'clustering') of firms in a particular area can attract more workers to that area, thereby generating a larger pool of labour for

firms to draw upon. The benefits of agglomeration can help explain why cities and regional ‘hubs’ have developed as centroids of economic activity within a broader geographic area (chapter 4). Agglomeration, however, can entail costs. For example, the concentration of business activity in a given area can bring about congestion (Ottaviano and Thisse 2004).

While choosing a location is generally a fundamental decision for firms, technological developments can have the effect of diminishing the importance of a firm’s geographic location. Advances in transportation and communications technology, in particular, can make it easier for firms to access inputs and consumers, irrespective of how far away they are located (Porter 2000).

2.2 How do people decide where to live and work?

This section presents a framework for understanding how an individual decides where to live and work. This analysis is based on the assumption that each individual aims to maximise their expected utility, subject to constraints (such as budget and time) and risk preferences. While the term ‘individual’ or ‘worker’ is used throughout the report, it is acknowledged that such decisions are often ‘couple’ or ‘family’ decisions, based on maximising the utility of the household unit as a whole, rather than one individual in isolation (NATSEM, sub. DR38).

When thinking about how an individual might decide whether or not to move for work, it is also important to recognise that, although it is common for people to live in the same geographic area where they work, this does not always need to be the case. Given the advances in communication technologies and transportation that have made long-distance commuting and telecommuting more viable than in the past, it is increasingly feasible for people to live a significant distance from where they work. This means that people can take up jobs in new locations without necessarily moving their permanent place of residence. This utility-maximising framework can therefore apply to a person’s decision to move residence, commute over long distances or telecommute.

A cost–benefit decision

Much of the literature in this field expresses an individual’s mobility decision as an outcome of a cost–benefit evaluation. That is, an individual who is contemplating whether or not to move location takes into account the benefits (or utility) that they expect to gain in the alternative locations, as well as the expected costs (or losses) they would incur (Isserman et al. 1986). Individuals are predicted to move if the

anticipated future stream of net benefits of moving to the new location exceed the anticipated net benefits of staying in their current location.

Some approaches to modelling an individual's mobility decision are presented in box 2.1. Drawing on these models, some key considerations for understanding an individual's mobility decision are recognised:

- Benefits and costs encompass both pecuniary factors (such as wages and the costs of housing) and non-pecuniary factors (such as the thrill of moving to a big city, the stress of moving away from family and friends, and the value placed on the local amenities). Non-pecuniary factors are generally harder to quantify.
- An individual's move will impact on their family or household. Hence, an individual's decision is likely to also encompass the benefits and costs experienced by other family or household members. This can increase the complexity of the cost–benefit calculation, and often it is a couple or family decision.
- While many benefits and costs are ongoing, some are one-off or could gradually diminish over time. An example of a one-off cost is the expense of hiring a removalist, while a one-off benefit might be the financial allowance or inducement offered by an employer to cover the cost of relocation. An example of a cost that could diminish over time is the sense of social dislocation that a person might initially experience when moving to a new town, but which dissipates as they adjust to their new surroundings. Similarly, the initial excitement of moving to a new city might be high at first, but fade over time.
- It is not possible to definitively list which factors are benefits and which are costs. Whether a given factor provides a benefit or a cost — and precisely how much the benefit or cost is valued — is likely to depend on the individual's personal preferences and circumstances. For example, a person who prefers warm weather will place a positive value on a warm climate, whereas a person who prefers cool weather might regard this locational factor as a cost. A person with a sense of adventure might regard the uncertainty of moving to a new location as a benefit, whereas a risk-averse person might consider it a cost.
- The value of these costs and benefits to the individual is likely to change over time, as they progress through different stages of life and their circumstances change. Over time, a person's valuation of their costs and benefits is also likely to change due to the impact of technology, especially advances that improve the ease of transport and communication over long distances.

Box 2.1 Modelling the individual's cost–benefit decision to move

In existing literature, an individual's choice to move is often conceptualised in a cost–benefit framework. For example, **Harris and Todaro** (1970) model an individual's decision in the context of a person deciding whether or not to relocate from a rural area (producing agricultural goods) to an urban area (producing manufacturing goods). The difference between the *actual* wage the person currently earns in the rural area, and the *expected* wage they are likely to earn in the urban area, is central to the decision. The higher the relative wage premium potentially earned in the urban area's industry, the larger the flow of people to that area. The expected wage can be approximated by the urban employment rate. The model estimates the total population of the urban area (N_U) as a function^a of the real manufacturing wage (W_M), the real agricultural wage (W_A) and the urban employment rate ($\frac{N_M}{N_u}$):

$$\text{Population } (N_U) = f\left(W_M \cdot \frac{N_M}{N_u} - W_A\right)$$

Also basing an individual's decision on the expected earning differential, **Bartel** (1979) predicts that a person will move when the present value of the real income stream they expect to earn if they moved (Y_t^*) exceeds the present value of the real income stream they would earn if they stayed (Y_t), minus the costs of moving (C_t), computed at time t .

$$\text{Prob}(\text{moving})_t = f(Y_t^* - Y_t - C_t)$$

In Bartel's model, the probability that an individual will move is also related to the probability of a person retaining their current job. Bartel's model has been adopted by **Caldera Sánchez and Andrews** (2011a) who added a range of housing-related variables (such as property transaction fees) among the relevant cost factors.

One way to build on the cost–benefit framework, and accommodate the range of other considerations discussed in this chapter, is to illustrate an individual's decision to move as follows (drawing on **Ehrenberg, Chaykowski and Smith** 2004):

$$\text{Move if: } \sum_{t=1}^T \left(\frac{(B_{Nt} - C_{Nt}) - (B_{Ot} - C_{Ot})}{(1+r)^t} \right) + B_M - C_M > 0$$

B_{Nt} = benefits of living in new location (N) in year t

B_{Ot} = benefits of living in old location (O) in year t

C_{Nt} = costs of living in new location (N) in year t

C_{Ot} = costs of living in old location (O) in year t

B_M = one-off benefits of moving

C_M = one-off costs of moving

T = total number of time periods (t) a person expects to live in the new location if they move

r = discount rate.

That is, the individual will move if the net benefits of living in the new location exceed that of living in the old location, taking into account both the one-off and ongoing costs and benefits, and discounting all future values.

^a N_M denotes the number of people employed in manufacturing (that is, in the urban area) and N_U denotes the total number of people in the urban labour force. Urban wage is equal to the real minimum wage in the manufacturing sector, on the assumption that there is no excess demand for labour in the sector.

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- Individuals' decisions are influenced by their initial location and circumstances. For example, when considering moving elsewhere, a person who lives in a small remote town could face a different set of constraints and opportunities compared to someone who lives in a large city (for example, they could face fewer transport options or a lower probability of being able to sell their house). This reinforces the point that each person's mobility decision is highly specific to their own (and their family's) circumstances.
 - Some costs and benefits cannot be known for certain, and therefore contain an element of probability. For example, unless they have already been guaranteed a job, an individual can only calculate their *expected* wage in a new location. The expected wage would be a function of the average wage level and unemployment rate in the new location.
 - The value of the costs and benefits accruing to the individual in the future needs to be discounted to the present time period. Each individual will have their own discount rate, depending on how much value they place on the future relative to the present.

Chapter 8 examines, in more detail, the factors that could act as costs and benefits, and appendix D presents the Commission's quantitative analysis of the effects of personal characteristics on a person's propensity to move.

Beyond the decision 'to move or not'

Individuals' mobility decisions can extend beyond the choice about whether to move their permanent residence. When an individual is contemplating one job option over another, their options might involve long-distance commuting or telecommuting.

The framework developed to analyse an individual's decision 'to move or not to move' can also be applied to these other mobility choices. Instead of assessing the costs and benefits associated with living in the old and new locations (as per the equation in box 2.1), an individual might weigh up the relevant costs and benefits associated with one type of mobility arrangement, compared to those of another.

When contemplating job options that involve commuting or spending a significant concentration of time away from family — as usually happens with fly-in, fly-out (FIFO) and drive-in, drive-out (DIDO) arrangements — an individual's decision making can be understood in the context of time allocation theories. Individuals, when faced with a fixed amount of time, must make tradeoffs in how they allocate their hours among competing uses, and are expected to make this allocation in a

way that maximises their total utility (Becker 1965). There are various uses of time that generate utility. Utility can be gained from the consumption of goods and services, and being able to purchase these goods and services depends on how many hours a person allocates to work. Utility can also be gained from leisure and other non-work activities, such as social activities and spending time with their family. With a fixed amount of time available, spending more time at work earning an income means there is less time for leisure and other non-work activities.

Time allocated to work could also mean significant time spent commuting. The cost of this time could be a significant determinant in people's choice of job location arrangements.³ For example, an individual who lives in an outer metropolitan area could face a choice between travelling a long distance to work in a highly-paid job in the city, or taking a lower-paying job closer to home. The income the job provides, the extent of their family or other caring responsibilities, the value that is placed on leisure activities, and the potential 'disutility' experienced while commuting, could be among the factors in their decision.

FIFO rosters affect the frequency and concentration of time that a worker can spend with their family. A FIFO roster of two-weeks-on and one-week-off — compared to a standard eight-hour day, five-day working week — allows a worker to spend a more concentrated amount of time with their family, but at less frequent intervals. A worker's personal preferences about how often they would like to see their family would therefore affect their valuation of the costs and benefits of a FIFO job arrangement.

This utility-maximising framework can apply to a person's decision about how much time, within their total working life, to allocate to a particular work arrangement. For example, an individual might decide to take up a FIFO job for a certain number of years, before switching to a non-FIFO job later in life when they acquire more family responsibilities. Or, they might decide to switch from physical commuting to telecommuting during the years that they have young children at home or other caring responsibilities. As their stage of life changes, so too does their valuation of the costs and benefits associated with different mobility arrangements.

³ While commuting can entail costs, it can also have positive value for individuals who, for example, use their commuting time in productive and enjoyable ways (Dr David Bissell, sub. DR56).

2.3 How does efficient job matching take place?

On the demand side of the market, employers — aiming to maximise profit or deliver an essential service (in the case of governments as employers) — are concerned about attracting workers to the location where they are needed, by providing the right type of incentives. On the supply side of the market, individuals — aiming to maximise utility — are interested in matching themselves to the right type of job for their skills and preferences, responding to the incentives on offer.

Whenever a job vacancy arises (due to, for example, an employee retiring or an employer needing to hire extra workers to produce more output), there are several possible ways in which labour demand and supply can come together to achieve a suitable job match:

- employers can use the local population — employers may hire local people who are already suitably skilled or equip them with the skills required through training
- labour may relocate to the job in different ways:
 - internal migration — people migrate to the region where the job vacancy exists, from other regions within the country
 - migration from overseas — people migrate to the region where the job vacancy exists, from overseas (including those employed on temporary visas)
 - transitory movement of workers — people commute long distance to get to the place of work, which might entail residing temporarily near their work location under a FIFO or DIDO arrangement
- job relocation — employers bring the job to the worker, by shifting the physical location of the job or by workers telecommuting.

Figure 2.1 summarises these potential ways in which labour demand and supply could be matched when a job vacancy arises in a given regional labour market.

Figure 2.1 **Matching labour demand and supply**



Although hiring local labour does not entail the geographic movement of labour over long distances, this potential source of labour is relevant because it can be an alternative to geographic labour mobility. For example, employers might first turn to the local population as this would be the most readily available source of labour. However, if the local labour force does not possess the requisite skills and cannot be trained in a timely way, or are already fully employed, then employers might need to use alternative sources of labour supply to fill their job vacancies. Policies that affect the skilling of the local population will, consequently, have indirect implications for the geographic mobility of labour (chapter 10).

In some cases, not all of these potential sources of labour are feasible. Many jobs are tied to a specific physical location and cannot be relocated or performed virtually. The nature of the work being performed, as well as technological capacities, will be relevant.

The decisions by employers and workers in relation to these different options will also depend on a range of broader factors, which are also represented in figure 2.1:

- economic, demographic, social and geographic conditions, which affect the types of jobs on offer, the composition of the workforce, the geographic location of resources, and the costs of transportation
- regulatory and institutional settings, such as tax and welfare arrangements, mechanisms for infrastructure provision, industrial relations arrangements, occupational licensing systems, the education and training system, immigration policy, transport regulation, and occupation health and safety legislation
- technology and capital, which affect the nature of labour demand and the composition of the economy more generally, as well as the costs and feasibility of travel and telecommuting arrangements.

The role of market signals

The exchange of relevant information is essential for an efficient job-matching process. Employers' demand for labour can be communicated to prospective employees through several types of market signals, including relative wages and conditions and vacancy rates. As long as institutional settings are sufficiently flexible, these indicators can be allowed to vary between regions, to reflect their respective labour market conditions.

Individuals can use this information to assess their likelihood of finding a job in a given region and their expected wage. These signals can, therefore, provide people an incentive to move their geographic location. For example, people currently living in a region with relatively high unemployment rates and low wage prospects might consider moving to a region with better labour market conditions.

For these labour market signals to work effectively, people need to have sufficient information about all possible job market opportunities and conditions. Limits on the accessibility or availability of such information could impede people from moving location to achieve a better job match.

Implications for population flows and regional adjustment

The job-matching process has implications for the aggregate movement of people between regions. The impact of these population flows on each region will differ, depending on the geographic source of labour.

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- If a job vacancy within a particular region is filled by people moving permanently from elsewhere in the country, the size of the region's residential population will be affected. So too will the size of the population of the region from which the people moved.
 - If a vacancy is filled by people migrating from overseas, the region's residential population size will be affected, as will that of the country as a whole.
 - If a vacancy is filled by workers undertaking long-distance commuting, the region's permanent residential population size will not change, but the size of its temporary (or service) population will. This type of mobility could lead to an increase in demand for short-term accommodation, and a greater use of local infrastructure and amenities which can have implications for the funding mechanisms for infrastructure provision at a regional level (chapter 12).
 - If a vacancy is filled by the local population, or by a firm shifting the job to where available workers are already located, the residential population of the region in which the job is located will be unaffected.

Models of population flows can be used to illustrate the effects of locational factors on people's mobility at an aggregate level, and some examples are outlined in box 2.2. Appendix E presents the Commission's quantitative analysis of migration flows using a gravity-inspired model, with the results discussed in chapter 8.

Given that labour demand and supply are constantly adjusting to the forces shaping the economy — and the ongoing creation and destruction of jobs in the labour market — the job-matching process is perpetually taking place (Mortensen and Pissarides 1994). Regional population flows are therefore part of a dynamic economy. While the flow of people between regions will contribute towards the economic expansion of some regions, and the decline of others, population flows that are a response to market signals are an important part of an economy's overall adjustment process (Debelle and Vickery 1998). As long as people are being channelled to the locations where their skills are most highly valued in the labour market, regional population flows will contribute to enhancing overall efficiency and increasing output.

Box 2.2 Existing models of population flows

Gravity models (or **spatial interaction models**) are often used to analyse the flow of people from one location to another, and the extent to which the flow can be explained by the features of the comparative locations and the ease of moving between them.

As one of the early models in this field, **Alonso's** General Theory of Movement (1973) models the flow of the population between two locations (M_{ij}) based on the characteristics of the origin location (v_i) and the destination location (w_j), the distance between them (d_{ij}), the opportunities available outside of the origin location (O_i), and the degree of competition for jobs among new migrants in the destination location (C_j) (with k as a constant):

$$M_{ij} = kv_i w_j d_{ij} O_i C_j$$

The greater the availability of opportunities outside of the origin location, the larger the flow of people towards the destination locations. At the same time, greater competition among migrants for these opportunities can reduce this flow. The relative attractiveness of the opportunities in the alternative locations also depends on the ease of accessing these locations.

Some gravity models include the size of the existing population as an explanatory factor, in recognition that the existing size of a locality and its economy can be a drawback in attracting even more people. The larger the population (and, by extension, the labour market), the greater the number of potential job opportunities and scope for further growth. **deVries, Nijkamp and Rietveld** (2000) adopt Alonso's model to estimate population flows from the origin to destination region (T_{ij}) as a function of the size of the origin region (V_i), the size of the destination region (W_j) and the ease of movement between them (F_{ij}) which depends on distance and travel costs:

$$T_{ij} = V_i W_j F_{ij}$$

Similarly, **Lewer and Ven den Berg** (2008) model immigration between two locations (imm_{ij}) as a function of their populations (pop), the ratio of their per capita incomes ($rely$), the distance between them ($dist$), and the number of natives in the source country ($stock$). The model also includes descriptive factors capturing commonalities between the countries that would make it easier for new migrants to adjust to a new location (such as shared language, contiguous borders and colonial links):

$$imm_{ij} = a_0 + a_1(pop_i \cdot pop_j) + a_2(rely_{ij}) + a_3(dist_{ij}) + a_4(stock_{ij}) + a_5LANG_{ij} + a_6CONT_{ij} + a_7LINK_{ij} + u_{ij}$$

When might efficient job matching not occur?

It is important to consider circumstances in which an efficient job match is not achieved in the framework of the various sources of labour supply depicted earlier in figure 2.1.⁴

First, when considering the local population as a source of labour supply, unfilled vacancies might be due to a skills mismatch. The local pool of labour might not hold the required skills or attributes, and it might take too much time to train them. In this regard, it is important that quality education and training opportunities are provided, so that the local population is equipped with the skills that are in demand. If such skill deficiencies are difficult to overcome in a timely way, employers might need to explore various forms of geographic labour mobility to fill their local job vacancies.

A second potential reason for unfilled job vacancies could be that suitably skilled people might not be able or willing to move location because employers are not offering sufficient incentives (financial or otherwise). The act of moving can entail significant costs — such as leaving behind family and friends, the temporary loss of earnings of other household members, enrolling children in new schools, setting up new accommodation, and potentially inhospitable conditions in some remote locations. Sufficient compensation for these costs needs to be offered to incentivise people to move.

A third potential reason is the immobility of the job, as previously discussed, due to the nature of the work (such as a construction project) or the presence of fixed inputs (such as in mining and agriculture). In some circumstances, long distance commuting or telecommuting may not be possible or may be too costly. Hence, job vacancies could remain unfilled.

⁴ One way to evaluate the effectiveness of the job-matching process, and the responsiveness of labour supply to market signals, is by an analysis of the Beveridge Curve which depicts the correlation between unemployment and vacancy rates for a given labour market over time (Blanchard and Diamond 1989; Borland 2011; Dixon, Lim and Freebairn 2010; Groenewold 2003). A shift in the Beveridge Curve could indicate that the job-matching process has either improved or worsened over time. The correlation between unemployment and vacancy rates at a regional level in Australia is examined in chapter 4.

Furthermore, regulatory and institutional settings could be preventing the exchange of timely, accurate and transparent market signals, they could be distorting these signals, or they could be preventing individuals or employers from responding to them. For example:

- Industrial relations settings might prevent market signals (such as relative wage differentials) from being sufficiently specific to a region, consequently preventing the workforce needs of a specific location from being clearly communicated to prospective workers.
- Inadequate design of systems for the provision of infrastructure and community amenities, relative to a region's population and economic needs, could result in an undersupply of housing, transport, medical and other essential services in the regions where workers are required, thereby deterring workers from moving to fill jobs in these regions.
- Various tax arrangements can add to the costs of individuals or firms moving location (such as the stamp duty incurred in property transactions).
- Social security settings, in conjunction with the tax system, influence incentives for people to increase their workforce involvement.
- Regulations, like occupational licensing or limits on immigrant intakes, could constrain potential sources of labour supply and prevent vacancies from being filled by suitably skilled workers.
- Individuals might not have adequate information about the job opportunities available in different locations. Employers might not have adequate information about the factors that would incentivise prospective workers to move locations to take up a job.
- Any deficiencies in the accessibility, quality or responsiveness of the education and training system could impede the capacity for workers to acquire the skills required by employers in their region.

Job-search and job-matching theories highlight how 'frictions' in the labour market, such as information deficiencies or wage rigidities, can give rise to the coexistence of job vacancies and unemployment (Chindamo and Uren 2010; Mortensen 1986; van Ommeren, Rietveld and Nijkamp 1999; Petrongolo and Pissarides 2001; Pissarides 2001, 2011; Rogerson, Shimer and Wright 2004). Factors that prevent what would otherwise be an efficient job match from being achieved are effectively acting as distortions in labour mobility decisions. Distortions caused by either government regulations or market failures suggest there is scope for efficiency improvements, as discussed in chapter 11.

Identifying the actual reasons why labour demand and supply might not be matched over a geographic distance — and what scope there is to mitigate impediments to labour mobility — is at the core of this report’s analysis. The distributional impacts of any inefficiencies in this job-matching process are also of significant interest. That is, understanding the circumstances faced by people who have underutilised labour market capacity, and yet who do not move to where jobs are available, is of particular concern, especially if these people have been out of work for long periods of time.

3 Why is geographic labour mobility important?

Key points

- Geographic labour mobility is important for improving economic efficiency and enhancing wellbeing.
 - It plays an important role in a flexible and well-functioning national labour market.
 - It is an important mechanism for adjusting to regional economic change, and can reduce economic disparities between regions.
- Geographic labour mobility has impacts on individuals and their families, employers, communities, governments and the broader economy.
- The impacts of long-distance commuting are complex and contentious, particularly in the resources sector. There are benefits and costs to individuals, employers, communities and government.

Australia has experienced a long period of growth and prosperity while being buffeted by significant external shocks such as the global financial crisis and its aftermath. Australia experienced a multi-speed economy in recent years with the need to simultaneously address labour and skills shortages in areas of strong demand, such as Western Australia, and to lower unemployment in weaker parts of the economy.

The extent of some existing labour and skills shortages may be easing. It appears that the resources boom has evolved from the investment (construction) phase to the production (operational) phase. Some regions and industries will be affected by the closure of major employers and rising unemployment. Yet in the medium term, labour and skills shortages could develop as a result of the dynamic impacts of ongoing structural, demographic and technological changes on labour supply and demand. Geographic labour mobility allows the economy to adjust to change and plays an important role during both weaker and stronger economic conditions.

The Commission has adopted a very broad interpretation of geographic labour mobility. Under this interpretation, geographic labour mobility encompasses people's work relocation (including residential moves, long-distance commuting and telecommuting). These different types of geographic labour mobility play an important role in the labour market adjusting to structural, demographic and

technological change, thereby increasing economic efficiency and wellbeing. Geographic labour mobility is only one form of labour mobility, and job, occupational and industrial mobility are also important in allocating labour to its efficient use.

Geographic labour mobility has costs and benefits for people, communities, employers and governments. The Commission has heard concerns about inadequate mobility, excessive mobility and the nature of mobility. For some employers, the rate of mobility is inadequate to meet their labour needs. Low rates of mobility might also be detrimental to people from disadvantaged areas. There are also concerns about the growth in some types of geographic labour mobility, particularly fly-in, fly-out (FIFO) work practices, and the use of temporary workers from overseas, as well as some negative impacts of mobility in areas of very high growth.

This chapter explains the concepts of economic efficiency and wellbeing, which have been used to assess geographic labour mobility in this study (section 3.1). Potential impacts of geographic labour mobility on people and communities are then explored (section 3.2).

3.1 Economic efficiency and wellbeing

Geographic labour mobility is important for improving economic efficiency and enhancing wellbeing. The concepts of economic efficiency, wellbeing and how wellbeing is distributed have been used by the Commission to assess whether geographic labour mobility is operating as desired (chapter 11).

Economic efficiency

Economic efficiency is about maximising the welfare of the community and requires satisfying productive, allocative and dynamic efficiency (box 3.1).

Geographic labour mobility is important for productive and allocative efficiency, through improving matches between employers and workers. Dynamic efficiency will also improve if productive efficiency increases over time. If labour can move, without distortions, to the locations where it is most productive and highly valued, then economic efficiency will be enhanced. Geographic labour mobility is also important given technological, demographic and structural change that can alter the demand for, and supply of, labour in particular locations (chapter 4).

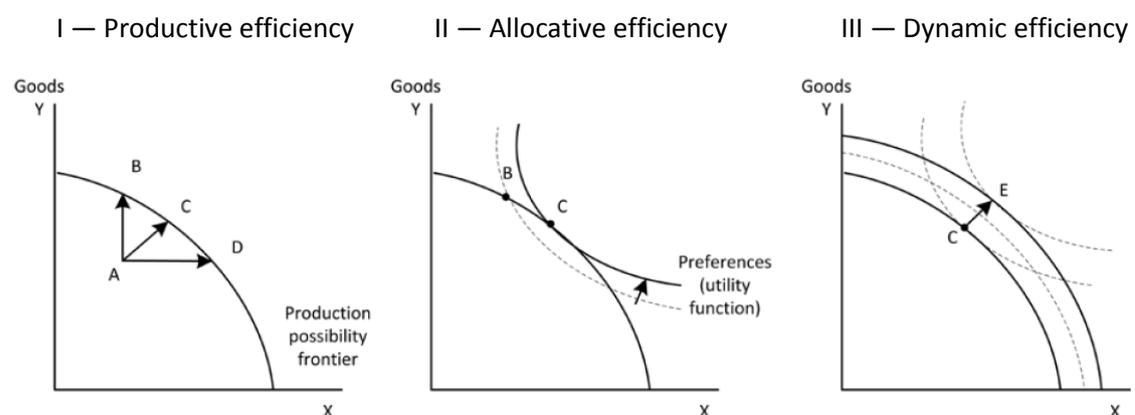
Box 3.1 Components of economic efficiency

Economic efficiency is about maximising the aggregate or collective welfare of all members of the community. Economic efficiency requires satisfying productive, allocative and dynamic efficiency.

Productive efficiency is achieved when output is produced at minimum cost. This occurs where no more output can be produced given the resources available, that is, the economy is on its production possibility frontier. Geographic labour mobility allows employers to access a deeper pool of labour and recruit more productive employees, enhancing productive efficiency. In panel I below, a shift from point A to points B, C or D is an improvement in productive efficiency as more of good x and/or good y is produced.

Allocative efficiency is about ensuring that the community gets the greatest return (or utility) from its scarce resources. A country's resources can be used in many different ways. The best or 'most efficient' allocation of resources uses them in the way that contributes most to community welfare. Geographic labour mobility could facilitate labour moving between industries and, as a result, produce the mix of goods and service that the community most values. In panel II below, the move from B to C is an improvement in allocative efficiency as a higher level of utility can be achieved by better matching the output mix to preferences.

Dynamic efficiency refers to the allocation of resources over time, including allocations designed to improve economic efficiency and to generate more resources. This can mean finding better products and better ways of producing goods and services. In panel III, this is represented as a shift out in the production possibility frontier, with consumption of both good x and good y rising as the economy moves from C to E. This shift can arise from innovation (producing more with less) and from growth in resources such as capital and labour. Improvements in dynamic efficiency bring growth in living standards over time.



Source: PC (2013d).

Regional and seasonal variations in labour demand require geographic labour mobility. For example, work in the agricultural and tourism sectors can require a

temporary influx of workers at certain times of the year. Similarly, the resources boom has significantly increased demand for mining and construction workers in regional and remote areas. Some of this increased labour demand may be acute and short- to medium-term in nature, for example during the construction phase of a mine, which may require long-distance commuting, such as FIFO. Other aspects of this increased labour demand may be more enduring, such as in the operational phase of mining, and might require a larger permanent residential workforce.

Geographic labour mobility plays an important role in a flexible, well-functioning national labour market, and is an important mechanism for adjusting to regional variations in labour demand (OECD 2005). In the absence of geographic labour mobility, high demand regions would experience localised inflation and would not reach their potential output, while low demand regions would experience higher unemployment than they would otherwise.

Increasing geographic labour mobility has the potential to increase employment and to reduce unemployment if, on average, people move from weaker to stronger labour markets. There is also the potential to increase workforce participation if moving encourages people to enter or re-enter the labour market. Higher employment and participation rates can increase output and improve economic efficiency. However, excessive mobility could reduce a worker's productivity due to short tenures in a number of jobs. This could reduce economic efficiency.

Wellbeing

Geographic labour mobility has implications for wellbeing and its distribution. Wellbeing can include a person's economic opportunities, physical health, mental health, quality of relationships and education, and the amenity of the communities they live and work in. A person's wellbeing might also depend on the wellbeing of those around them. There is no one accepted definition, method or data source to measure wellbeing. Many authors have defined and attempted to measure it (box 3.2).

The Commission has used a broad concept of wellbeing to assess geographic labour mobility and related topics rather than precisely define it. The Commission has also considered the distribution of wellbeing across the community.

Geographic labour mobility can improve wellbeing where it allows for an increase in employment and income. Where this applies to disadvantaged groups or regions (for example, people experiencing unemployment or low wages), equity is also enhanced. Where endowments are fixed (for example, in mining), geographic labour mobility, including through long-distance commuting, can facilitate the

distribution of higher incomes, and consequently wellbeing, more broadly across Australia.

Box 3.2 Examining wellbeing

The Australian Treasury has had a formal wellbeing framework since the early 2000s, which has been used to inform policy advice it provides to the Government. This framework was revised in 2011. Treasury ‘takes a broad view of wellbeing as primarily reflecting a person’s substantive freedom to lead a life they have reason to value ...’ (Gorecki and Kelly 2012, p. 29). This view encompasses more than is directly captured by commonly used measures of economic activity. Treasury identified five dimensions that directly or indirectly have important implications for wellbeing.

- The *set of opportunities* available to people.
- The *distribution* of those opportunities across the community.
- The *sustainability* of those opportunities available over time. Will opportunities be maintained or enhanced for current and future generations?
- The overall level and allocation of *risk* borne by individuals and the community.
- The *complexity* of the choices facing individuals and the community, including the costs of dealing with unwanted complexity, the transparency of government and the ability of individuals and the community to make choices and tradeoffs that better match their preferences.

This framework draws on Amartya Sen’s ‘capabilities’ framework, which is concerned with a person’s abilities and characteristics and the environment around them. A person’s capabilities are influenced by their opportunities.

Wellbeing has also been examined by other governments. For example, the French Government established the Commission on the Measurement of Economic Performance and Social Progress (CMEPSP) in 2008 to examine and address concerns about the adequacy of existing measures of economic performance, particularly in measuring quality of life. The CMEPSP recommended that emphasis be shifted from ‘measuring economic production to measuring people’s wellbeing’ (Stiglitz, Sen and Fitoussi 2009, p. 12).

The OECD drew on the work of the CMEPSP, and developed the ‘How’s Life?’ framework for measuring wellbeing and progress. The OECD identified 11 dimensions that contribute to wellbeing: housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety and work–life balance.

Subjective wellbeing can also be measured by researchers asking people whether they are satisfied with their lives. Such indicators are available from the Household, Income and Labour Dynamics in Australia survey.

Alternatively, significant barriers that impede mobility can limit the capacity of disadvantaged groups to move and find work. This can compromise wellbeing, and in such situations, disadvantage can be compounded. The OECD (2005) has found

that a lack of mobility can lead to persistent disparities in regional labour market performance and increased inequality in income and social conditions.

It is also important to consider situations where wellbeing can be affected negatively by high rates of geographic labour mobility and any resulting spillovers. For example, an individual who moves may experience isolation from family, friends and social networks, and a community experiencing rapid population growth might experience a loss of amenity and high housing costs. These spillover effects can be short-term frictional spillovers (for example, a temporary surge in house prices) or be longer term. These spillover impacts can also be felt unequally.

3.2 Impacts of geographic labour mobility

Geographic labour mobility can have impacts on individuals and their families, employers, communities, the operations of governments and the broader economy. Mobility trends can strongly influence the social, cultural and economic circumstances of regions, and assist in either promoting growth or further entrenching disadvantage (Dufty-Jones 2012).

This section discusses the impacts of geographic labour mobility on different groups in the community and then discusses the impacts of long-distance commuting in the resources sector in detail.

Impacts on individuals and their families

Individuals' choice of residential and work location can have important implications for their wellbeing, through its impacts on job prospects, financial security and social inclusion. Geographic labour mobility enables individuals to access a greater number, and potentially wider range, of employment opportunities. The impacts of mobility on individuals depend on their personal circumstances, their motivations for moving and the type of move undertaken. A residential move will have different impacts compared to a long-distance commute or telecommute.

Residential moves over substantial distances can have significant impacts on individuals and their families. In the short term they may have fewer personal contacts and social networks (Sweet 2011). When an entire household moves, as is often the case, relocation may entail a spouse changing jobs and children changing schools.

Existing evidence on the labour market outcomes for those who move (whether for employment or other reasons) is mixed (box 3.3). There is limited evidence about

the effects of geographic labour mobility on life satisfaction, and this evidence relates to all job changes rather than those where a worker moves location. Watson (2011) found that, on average, while workers who changed jobs were not better off financially, they were happier. The National Farmers' Federation (sub. 33, p. 15) similarly contends that 'changing jobs does not appear to have a major impact upon people's earnings, but it does seem that it increases happiness, skill development and skill use'. Clark (2011) analysed the outcomes of mobility, and found the majority of households sustained or increased their satisfaction after moving.

Box 3.3 Labour market outcomes from moving

Recent Australian studies that have examined the labour market outcomes associated with internal migration reported mixed findings.

- Sweet (2011) looked at labour market outcomes for interstate movers compared to those who did not move interstate. He found that unemployed people are more likely to be employed following a move, while employed people are less likely to have a job in the short term after relocating.
- Clark and Maas (2013) analysed the change in the mean hourly wage of Australian workers by gender and marital status, distance moved and reason for the move. They found that movers generally experienced larger wage gains than those who did not move. The gains were greatest for those who moved longer distances.
- Mitchell (2008b) investigated whether moving increases the likelihood of a pay increase. Mitchell looked at both moves between different statistical local areas and moves of more than 30 km. In both instances, moving was found to have a significant positive effect on the probability of a respondent reporting a pay increase. Mitchell also found that commuting a longer than average distance had a significant positive effect on the probability of a pay rise.

Mitchell's results are perhaps the most reliable of those discussed because Mitchell employed econometric methods to control for differences in the characteristics of people who moved and those who did not. The other studies discussed relied on cross tabulation of data.

The impacts of long-distance commuting, and in particular FIFO work, can be complex. In recent times, FIFO has been associated with highly paid jobs in mining and construction or related industries. Unions and other bodies have reported that these jobs can take a significant toll on the individual and their family, including health problems, drug use and relationship breakdowns (HRSCRA 2013). In other cases, however, these roles can be better suited to individual circumstances, and allow workers to maintain access to amenities and infrastructure, or create a better work–life balance (de Silva, Johnson and Wade 2011). The impacts of long-distance commuting in the resources sector are discussed in detail in box 3.4.

While moving has inherent risks, a lack of mobility can also have a detrimental effect on individuals in disadvantaged areas. Research has found that individuals who remain in disadvantaged areas tend to have lower educational attainment and lower incomes than those who move away from those areas (Ryan and Whelan 2010). Chapter 7 explores this further.

Impacts on employers

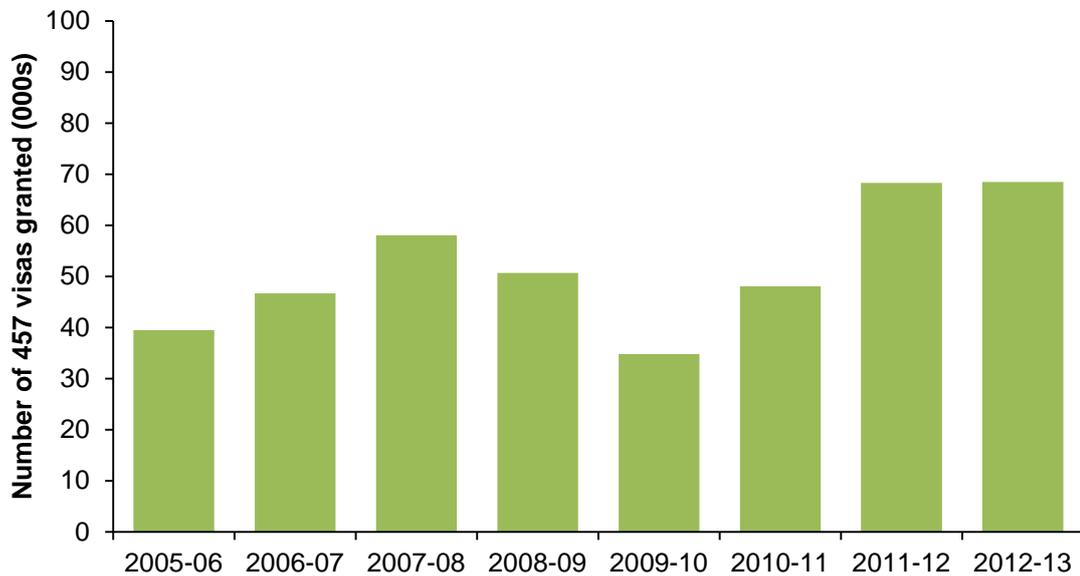
Geographic labour mobility will affect an employer's input market (specifically labour) and potentially their product market (sales of goods and services).

On the one hand, geographic labour mobility benefits employers as it allows them to recruit widely, which, all other things equal, will improve job matching and the employer's productivity. On the other hand, geographic labour mobility can mean employers lose employees who might have specialist skills or were costly to train.

A geographically mobile workforce is particularly important for employers whose location is fixed by natural endowments, such as mining or agricultural employers. Labour and skills shortages exist in many regional and remote areas. AgriFood Skills Australia (sub. 18, p. 1) commented that 'regional employers in the resources, services and community sectors are struggling to attract and retain the talented people they need and regional economies are struggling to grow'. The Australian Mines and Metals Association (sub. 29, p. 1) noted that while, 'wherever possible, resource companies source labour from the local community ... low population densities in those areas compared with regional and capital centres makes finding the necessary number of skilled workers challenging'.

Employers may use a range of work practices including long-distance commuting to attract workers to regional and remote areas (HRSCRA 2013). If Australians are not prepared to move to these regions, then employers may use temporary immigrants, including holders of working holiday and 457 visas. Working holiday visas are particularly important for the tourism and agriculture industries given the regional location and seasonal nature of much work in these industries (Austrade, sub. DR41; NFF, sub. 33). A number of submissions noted the importance of the 457 visa program for addressing skills shortages, and stated that the program is responsive to economic conditions (BCA, sub. 31; MCA, sub. 6). The number of primary 457 visas granted in recent years has grown overall although grants have fluctuated in response to the economic cycle (figure 3.1).

Figure 3.1 Primary 457 visas granted, 2005-06 to 2012-13^a



^a There are 'primary' and 'secondary' 457 visas. Primary visas are for the worker. Secondary visas are for the worker's family members.

Source: Department of Immigration and Border Protection, pers. comm., 6 February 2014.

On the other hand, there are concerns that Australians might miss out on jobs as a result of employment of temporary immigrants (CFMEU, sub. DR46) and that the use of 457 and other visas might be a reflection of inadequate investment in education and training of Australian workers (ACTU, sub. 21; Isaac Regional Council, sub. 16; SGS Economics & Planning 2013). There are also concerns that 457 visa workers are tied to their employer, which inhibits mobility (CFMEU, sub. 26). Temporary overseas migration is discussed in more detail in chapter 10.

In mining regions, non-resource sector employers can struggle to compete with the high wages being paid by the resources sector (Isaac Regional Council, sub. 16; LGAQ, sub. 5). The Isaac Regional Council (sub. 16, p. 11), located in a mining region, noted:

For businesses not directly linked to the resource sector, recruiting and retaining staff in resource communities is challenging ...

The high cost of living also makes it harder for non-resources sector employers to retain and attract employees (HRSCRA 2013). Prof. Fiona Haslam McKenzie (sub. 30, p. 3) noted that:

Unless non-mining businesses have access to a ready supply of affordable accommodation for their businesses and employees and can pay comparable wages to the resource sector, there are risks of labour force cannibalism and poaching, causing considerable workforce turnover and community churn.

Mobility rates in a region will influence the size of markets (chapter 2). An influx of people will increase the demand for goods and services, and the pool of labour and skills available. The opposite applies for regions where people leave (Ottaviano and Thisse 2004). Employers will respond to geographic labour mobility trends by expanding in areas where population is increasing and moving out of areas where population is decreasing (Krugman 1990). The Regional Australia Institute (sub. 25, p. 4) noted that ‘the movement of people for any reason takes with it the labour resources and capital of those people, providing the new location with additional resources and the former location with fewer resources to support economic growth and development over time’.

Impacts on communities

The impacts of geographic labour mobility on communities differ by type of mobility. Where geographic labour mobility leads to residential moves, some areas will experience relative population growth, while others will experience relative population decline.

In areas of population growth, community-wide costs may include congestion, reduced housing affordability, and pressures on the natural environment, and on urban and social amenity. Excessive mobility could inhibit social cohesion and community capacity (Shah et al. 2012). Community-wide benefits may include increased economic activity, enhanced diversity, and improved infrastructure (Arnott 2011). In contrast, population decline can cause shifts in regional population composition (for example, an increase in the proportion of older residents as the younger population moves away for work or education opportunities) and lead to closure of essential services. This can undermine the ongoing viability of communities (Beer 2012).

Long-distance commuting can have complex impacts on both source communities (where these workers come from) and host communities (where they commute to). Long-distance commuting might reduce participation in social activities in source communities and erode cohesion and amenity in host communities. On the other hand, long-distance commuting might alleviate labour and skills shortages, boosting the local economy, and allowing a broader range of goods and services to be provided to a community. The impact of long-distance commuting on communities in resources regions has been the subject of much debate in recent years (box 3.4) due to strong growth in the resources sector.

Box 3.4 Impacts of long-distance commuting practices in the resources sector

Long-distance commuting in the resources sector can have complex effects on individuals and communities. Fly-in, fly-out (FIFO) work practices in particular have been contentious, and have been raised in submissions to this study.

Impacts on workers and their families

There are concerns about the impacts of long-distance commuting on the wellbeing of mining workers, including excessive use of alcohol and other drugs, fatigue and mental health problems (HRSCRA 2013). There are also concerns about the impacts on workers' families. The House of Representatives Standing Committee on Regional Australia's Inquiry into the use of 'fly-in, fly-out' workforce practices in regional Australia (HRSCRA 2013) heard conflicting evidence about the impact of having a FIFO parent on a child's health and the impact of FIFO on family relationships. Hoath and Haslam McKenzie (2013, p. viii) studied long-distance commuters from Mandurah and Busselton in Western Australia and found that 'most individuals and families ... cope well with [the] lifestyle'. Similarly, Meredith, Rush and Robinson (2014) found that FIFO families generally functioned well and most coped with FIFO employment.

There are benefits from long-distance commuting for workers and their families. These jobs tend to pay high salaries which allow workers to pay off debts, including mortgages, and increase their financial security. These jobs can also help workers and their families achieve other lifestyle goals.

Some workers might prefer long-distance commuting rather than relocating themselves, and potentially their families, to a mining region. Long-distance commuting might allow them to maintain links with their friends and family and broader community, and accommodate the career of their spouse. Relocation can be difficult for workers' families. In many mining communities the cost of living, particularly housing, is very high, which further deters people from relocating (AMMA, sub. 29; Police Federation of Australia, sub. 2). A 2012 Queensland Resources Survey found that only 15 per cent of non-resident workers (which includes long-distance commuters) were in non-preferred accommodation arrangements (MCA, sub. 6).

Impacts on employers

Long-distance commuting is an alternative to residential mobility, which allows the resources sector to recruit from a deeper pool of labour. As mentioned above, it can be difficult to encourage workers to relocate to remote mining regions.

Long-distance commuters might alleviate wage pressure in the local region, through increasing the supply of labour and reducing the bidding up of wages, which can benefit both resources and non-resources sector employers. They might also boost the local economy through buying goods and services locally (AMMA, sub. 29). Accommodation providers might particularly benefit.

(Continued next page)

Box 3.4 (continued)

Impacts on communities and governments

There are concerns that these practices have negative impacts on the amenity of local communities. The Police Federation of Australia (sub. 2, p. 2) noted:

Where large sections of the community are FIFO [or drive-in, drive-out] workforces, it becomes far more difficult to create a sense of community ...

Some specific concerns about amenity include increased alcohol and drug use, the changing makeup of communities (many more men and outsiders) and reduced safety (CFMEU, sub. 26; HRSCRA 2013). There are also concerns about the capacity of infrastructure in mining communities to cope with more long-distance commuters and whether local councils are adequately funded to support this population (Isaac Regional Council, sub. 16). It has been argued that FIFO work practices are both a cause and effect of infrastructure deficits (SGS Economics & Planning 2013). In some mining regions, traffic and accidents have increased due to drive-in, drive-out (DIDO) practices (Isaac Regional Council, sub. 16). Long-distance commuters also increase pressure on medical services, which are often already stretched due to difficulties attracting doctors to remote areas (HRSCRA 2013).

Long-distance commuting can also impact negatively on source communities (where workers originate from) due to a worker's absence. This might reduce participation in a community, such as in sport (HRSCRA 2013). However, Hoath and Haslam McKenzie (2013) found no definitive evidence that long-distance commuting has led to lower levels of community participation.

There are concerns about the impacts of growth in the resources sector on housing markets in mining communities. Since the beginning of the resources boom, housing prices and rents have increased dramatically in many of these communities as supply has not adjusted to fully meet demand although in the past year housing costs have eased in many communities. While higher housing costs can hurt people in these communities, they benefit property owners. In general, these concerns relate to the impact of the broader resources boom rather than the growth in long-distance commuting specifically. Long-distance commuting might actually reduce pressures on housing supply in mining regions. The MAC Services Group (sub. 9, p. 2) noted that:

... [workers' villages] act as shock absorbers in the period where increased new demand exceeds existing local housing supply.

There are community benefits from long-distance commuting. The Australian Mines and Metals Association (sub. 29) noted that long-distance commuters participate in host communities and contribute to the local economy.

Source communities might significantly benefit from higher wages earned by long-distance commuters. However, these communities are vulnerable to the boom–bust cycle of mining (Hoath and Haslam McKenzie 2013). A number of regional areas have campaigned to become a FIFO hub to benefit their local economy (LGAQ, sub. 5). For example, the Regional Development Australia committee for the Wide Bay Burnett region (about 300 km north of Brisbane) launched the 'I'M4FIFO' campaign.

Impacts on governments

Geographic labour mobility can have important impacts on all levels of government. Governments need to contend with demographic changes resulting from mobility and consequent impacts on their budgets (via changes to tax revenue and demand for transfers) and changing demand for government services. These impacts may be particularly significant at the local government level. Previous Commission work has found that local governments face capacity constraints in relation to the broad range of areas in which they have regulatory and service delivery responsibilities (PC 2008).

Local governments' income is affected by changes in their population levels. Changes in population can affect financial assistance grants as well as local governments' own revenue base. In addition, demand for the community services provided by local governments may change as workers relocate. When geographic labour movements are temporary, local governments may face challenges when demand for local services increases but is not matched by an increase in income (HRSCRA 2013; Isaac Regional Council, sub. 16; MCA, sub. 6; Muswellbrook Shire Council, sub. 15).

The capacity constraints are not always just financial. Local governments may lack the professional and technical expertise to manage population changes. The minerals industry contends that local governments in Western Australia are struggling to manage the large inflow of funding generated through the Royalties for Regions scheme (MCA, sub. 6).

These issues are discussed in more detail in chapter 12.

4 Labour demand in a changing economy

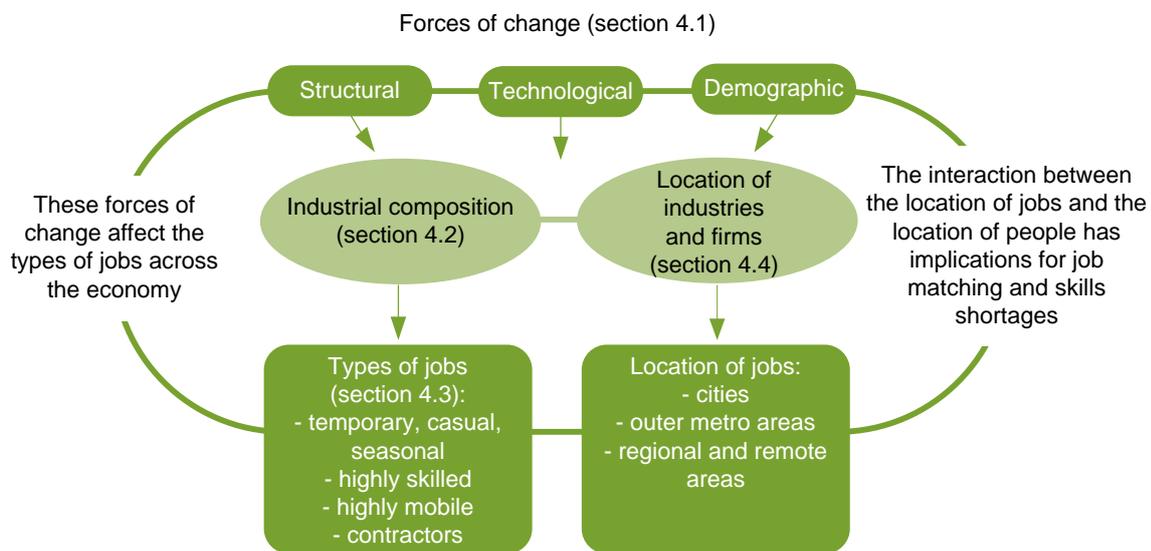
Key points

- Structural, demographic and technological changes influence geographic labour mobility and the regional demand for, and supply of, labour in Australia.
 - Major structural changes include the relative decline of agriculture and manufacturing, the rise of services, and the resources boom.
 - Key demographic trends include an ageing population, increased female labour force participation and a more culturally diverse population.
 - ... The population has grown strongly over the past decade, particularly in and around capital cities and coastal regions.
 - ... International migration has been a large component of population growth.
 - Important technological changes include developments in communications and transport technologies and the falling costs of these technologies.
- These changes influence patterns of employment growth by industry and by region.
- Total employment has increased by more than 20 per cent over the past 10 years. In absolute terms, employment increased the most in the health care and social assistance industry, but the fastest rate of growth occurred in mining.
- In line with industry trends, the mining states of Western Australia, Queensland and the Northern Territory recorded the strongest employment growth rates over the past 10 years.
- The changing industrial composition of the economy affects the nature of labour demand including skill levels, employment tenure and type, and the need for mobility.
- A number of occupations are in short supply in regional areas, including health professionals, community services employees and teachers.
 - The resources boom has increased the severity of some of these supply constraints.
- Ongoing structural, environmental, demographic and technological changes will continue to influence the industrial composition of the Australian economy, the way employers operate, the number and types of jobs available, the location of those jobs, and geographic labour mobility.

The structure of the Australian economy is constantly evolving in response to domestic and international forces. These forces can be of a demographic, structural

or technological nature. For example, the rise of Asia and the resources boom; population ageing and increased demand for health and social services; and rapidly advancing technology are all affecting the industrial and employment structure of the economy and society more broadly. These forces and their impacts on the economy have implications for labour demand and regional patterns of employment growth, as well as the way in which people connect with available job opportunities (figure 4.1).

Figure 4.1 Impacts of structural, technological and demographic changes



This chapter discusses some of the changes influencing the Australian economy and the nature and location of jobs in Australia, with a focus on the past decade. Section 4.1 presents information about the key demographic, structural and technological changes influencing the Australian economy, and provides important context for the analysis of labour demand and geographic labour mobility. Section 4.2 identifies recent trends in the industrial composition of labour demand. Section 4.3 then shows how the types of jobs vary across industries. Section 4.4 covers the location of industries and jobs in Australia and section 4.5 concludes with a brief discussion about the future of labour demand.

4.1 The Australian economy is changing

Structural, demographic and technological changes shape where people live and where jobs are located, thereby affecting regional labour demand and supply. While geographic labour mobility can be an important mechanism for adjusting to these changes, it can also contribute to these changes. For example, geographic labour

mobility, through higher immigration, can ameliorate the impacts of population ageing. Geographic labour mobility can also exacerbate the impacts of population ageing in certain regions, if it means that younger people leave the region in search of better economic opportunities.

Demographic change

Demographic change influences the regional demand for, and supply of, labour as well as patterns of geographic labour mobility. For example, population growth in a region can increase the size of the available labour pool and at the same time increase the demand for labour by employers (as the demand for goods and services increases). This increased labour demand could be met by the local workforce or could require additional people relocating from other regions of Australia or overseas.

Australia's demographic profile

Australia's demographic profile is changing in various ways. Key demographic trends include:

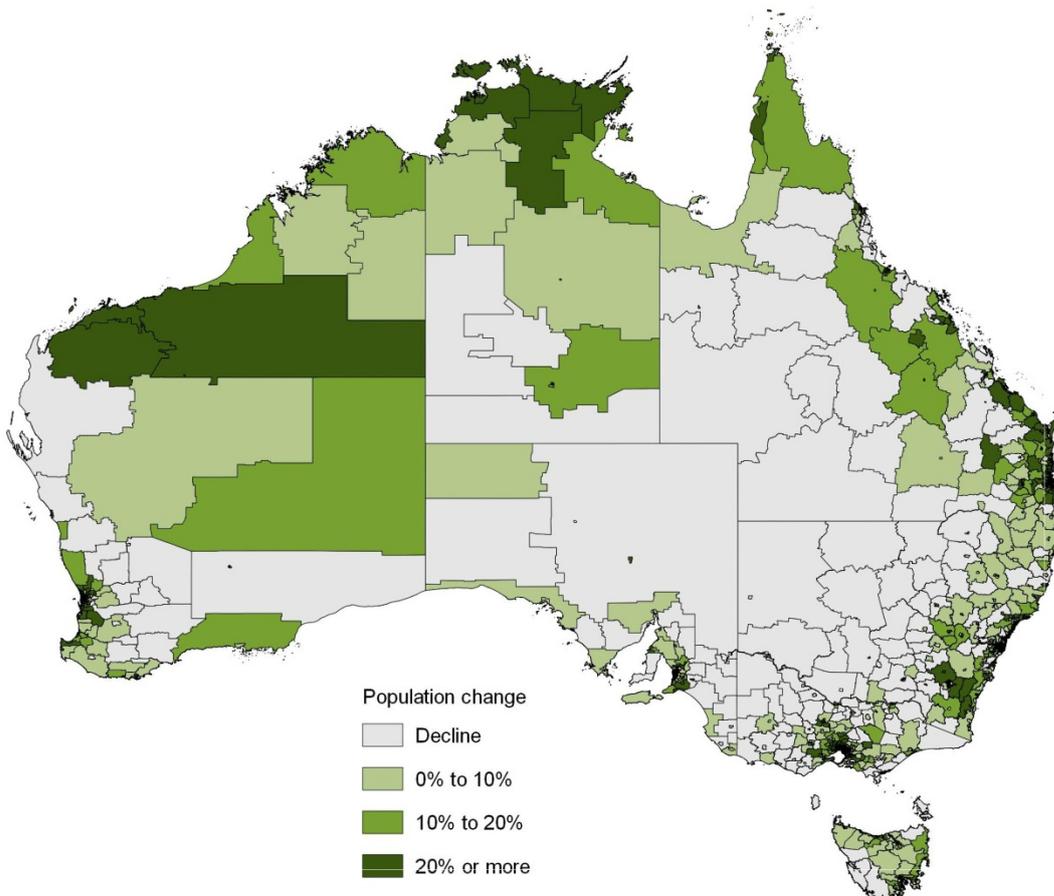
- population ageing, with the median age at 37 years in 2013, up from 33 years in 1993 (ABS 2013p). Ageing of the population is likely to reduce mobility as older people move less (chapter 5)
 - the median age varies across Australia and is highest in Tasmania (41 years) and South Australia (40 years) — states that have experienced a decline in their population share over time (ABS 2013p)
- an increase in female labour force participation and in the number of dual-income households (Baxter 2013). The proportion of females in the labour force has increased from about 37 per cent in 1980 to about 45 per cent in 2013 (ABS 2013k). Further, in more than two-thirds of Australian couples, both partners work
- a more culturally diverse Australia. In 2011, 26 per cent of Australians were born overseas and this proportion has increased steadily since World War II — at the 1947 Census, 10 per cent of Australians were born overseas. The backgrounds of immigrants are also now much more diverse. Hugo and Harris (2011) noted that recent immigrants tend to be more mobile when they first arrive in Australia.

Population growth and patterns of geographic settlement

Australia's population has grown strongly over the past decade, from 20 million people in March 2003 to 23 million people in March 2013 (ABS 2013b). This growth is much faster than in most developed countries (OECD 2013).

Over the past decade, population growth has generally been higher in capital cities and surrounding regions, and in coastal areas (figure 4.2). Reflecting worldwide trends, the proportion of Australians living in cities has increased over the past century. Today, about 40 per cent of Australians live in Sydney and Melbourne, and about 65 per cent live in capital cities. The population in many inland and sparsely populated regions has declined or has grown very slowly, except for remote regions with mining activity. Patterns of geographic settlement in Australia are discussed further in appendix C.

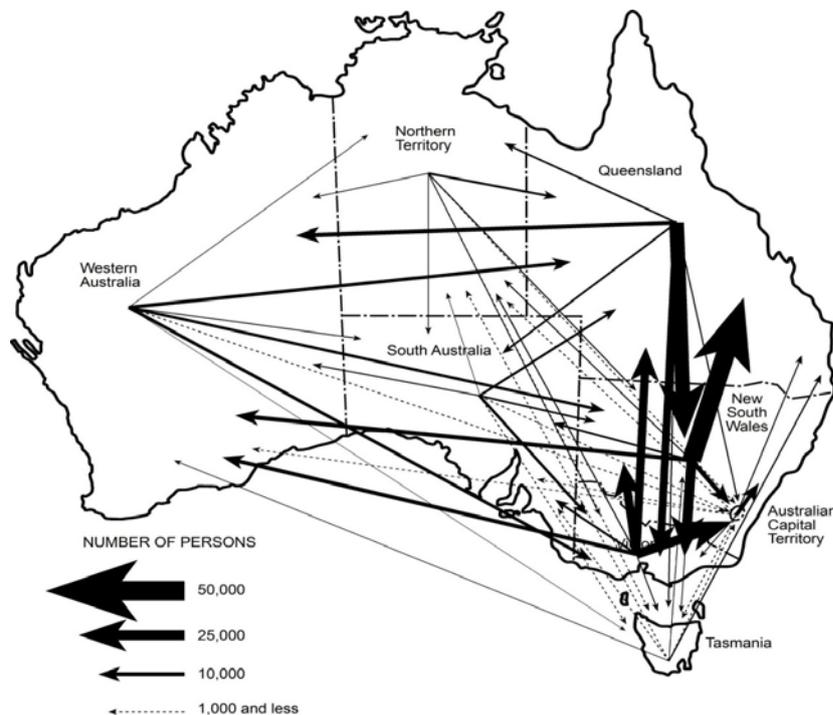
Figure 4.2 Population growth by Statistical Areas Level 2, 2001–11



Source: ABS (2012d).

Interstate migration is an important component of geographic labour mobility. Figure 4.3 highlights gross interstate migration flows in 2011-12. A striking feature of the figure is the large flows of people between the eastern seaboard states.

Figure 4.3 Interstate migration in Australia, 2011-12



Source: RAI (forthcoming).

Patterns of interstate migration vary across states and territories. Over the past decade, there has been continuing net interstate migration into Queensland, and to a lesser extent, Western Australia. Queensland continues to attract interstate migrants, in part because of its proximity to the large population in the south-east. On the other hand, New South Wales and South Australia lost residents to other states.

In contrast to Queensland, Western Australia has relied more on overseas migration to meet the labour demands of its growing resources sector. This could be due to distance from the highly-populated eastern states acting as an impediment to mobility and the fact that Australian workers are often unwilling to relocate to Western Australia (ACTU, sub. 21; AMMA, sub. 29, Hugo and Harris 2011; Salt 2012; WA Government 2012). The Australian Mines and Metals Association (sub. 29, p. 5) stated that the ‘reluctance of Australian workers to relocate to [Western Australia] is juxtaposed with significant numbers of workers from countries like Ireland and the [United Kingdom] who are keen to take up the work on offer’.

International migration

International migration is a large component of population growth and has been throughout Australia's history. Hugo (in CEDA 2012, p. 7) noted that 'no other medium sized or large country in the world is as influenced by international migration as Australia'. Appendix C provides further information on Australia's migration programs.

While most international migrants traditionally settle in large 'gateway' cities, such as Sydney and Melbourne, the past decade has seen an increase in migrant settlement in regional areas. This is partly due to initiatives introduced by Australian, state and territory governments to attract skilled migrants to regional areas suffering from acute skills shortages (for example, the Regional Sponsored Migration Scheme). It is too early to tell whether these initiatives will have a long-term impact on the settlement patterns of migrants, and there would be merit in evaluating them in the future.

International migration influences labour supply and can be particularly important for regions where skills are not readily available. For example, migrants arriving in Australia under the Humanitarian Program are increasingly settling in regional areas and helping fill persistent vacancies for lower-skilled jobs in sectors such as agriculture and tourism. Over the past decade, the proportion of refugee-humanitarian migrants initially settling in communities outside capital cities has approximately quadrupled (RAI forthcoming). In some regions, international immigration has offset the decline in the Australian-born population (Hugo 2011).

The settlement patterns of immigrants differ across states and territories. The Department of Immigration and Border Protection (2013a, p. 4) reported that:

Migration across all states is strongly skewed towards the state capitals over regional areas, with the exception of Queensland and Tasmania. Queensland is the most even with a 52:48 per cent split of migrants to Brisbane over regional areas for the year ending June 2013. Tasmania is the only state where migration to regional areas outstrips migration to the state capital.

International migrants work in a range of industries and the proportion of overseas-born workers in the local labour force is increasing. For example, between the 2006 and 2011 Censuses, the proportion of overseas-born workers increased from 11.8 to 13.8 per cent in agriculture, forestry and fishing, and from 21.0 to 23.4 per cent in mining (RAI forthcoming).

Structural change

Structural change is a process through which the sectoral composition of the economy is altered (PC 2013c). Structural change is influenced by ‘shocks’ (changes) to supply or demand such as the increased demand for Australian mineral resources. These shocks can be short or long term, and they can affect specific regions (such as the closure of a major employing firm) or affect the wider economy (such as the collapse of a major industry).

Structural change influences the demand for different types of workers, as well as the location of job opportunities. Geographic labour mobility can help the economy take advantage of positive demand shocks and deal with the adjustments that accompany structural change, such as localised unemployment.

Australia has been subject to the long-term patterns of structural change experienced by many other developed countries, such as the relative decline of agriculture and manufacturing, and the rise of the services sector (figure 4.4).

- The output and employment shares of manufacturing and agriculture have declined since 1950. In 2012, manufacturing accounted for approximately 9 per cent of output, down from approximately 20 per cent in 1950.
- The ongoing growth of the services sector has accounted for a rising share of both output and employment. The proportion of the Australian workforce employed in the services sector has increased from approximately 50 per cent in 1960 to over 75 per cent in 2012 (Lowe 2012).

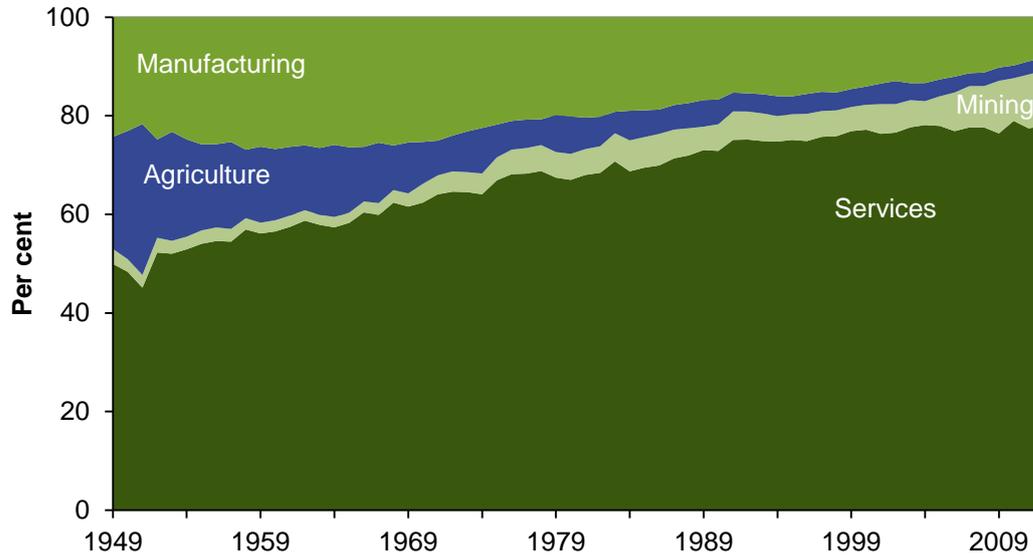
More recently, Australia has also experienced a resources boom, which has contributed to the process of structural change. Since the early 2000s, the share of mining output has grown and there has been rapid growth in mining activity, employment and exports. Between 2002 and 2012, the resources workforce trebled from around 80 000 to 260 000 workers (PC 2013c). By delivering a substantial increase in Australia’s real income, the resources boom is having positive spillover effects on output and employment in the services sector.

Technological change

Technological change affects the nature of labour demand, including where and how people live and work, and is relevant to geographic labour mobility. It can influence whether people physically relocate for work, commute or telecommute.

Figure 4.4 **Sectoral shares of total output, 1949–2012**

Nominal gross value added



Source: PC (2013c).

The world has seen phenomenal change and development in communications and transport technologies in recent decades, with profound impacts on society and the economy. For example:

- computerisation and information technology have reduced the need for some types of workers (such as clerical and administrative workers), but have required other workers to develop new skills in using these technologies
- advances in telecommunications, in particular personal computers, the internet, and smartphone devices, have changed the way people work (Manyika and Roxburgh 2011). In some occupations, these advances have made telecommuting possible
- the costs of using telecommunications have fallen, expanding access to, and use of, these technologies by employees and employers
- telecommunication technologies have reduced the search costs associated with relocating and finding a new job, and reduced the psychological costs of moving by improving connectivity with friends and family
- technological change has made transport cheaper, faster, safer and more comfortable, thereby enabling long-distance commuting.

Improvements in communications and transport technologies can influence the types of geographic labour mobility people undertake. These changes have reduced

the cost and disamenity of long-distance commuting and telecommuting, and therefore may have reduced the need for residential mobility.

Implications for labour demand

Changes in the Australian economy and society (including technological, demographic and structural change) influence the nature of labour demand. These changes affect the way employers operate and also change the industrial composition of the economy. This has implications for the types of jobs available and the way workers and employers come together. For example, technological innovations combined with structural changes have seen a rise in services sector jobs, long-distance commuting practices and telecommuting (effectively moving the job to the worker).

These changes also significantly influence the location of industries and employers across Australian regions, and in doing so, the geographic distribution of jobs. For example, the:

- geographic concentration of Australia's mineral wealth has led to much stronger economic and employment growth in Western Australia, Queensland and the Northern Territory
- decline of manufacturing employment has particularly affected New South Wales, Victoria, South Australia and Tasmania, while the decline in agricultural employment can be seen nationwide
- long-term growth in the services sector means there are more jobs concentrated in major cities, inner suburbs and regional hubs.

4.2 Recent trends in the industrial composition of labour demand

The demand for labour in particular industries can have a significant impact on the quantity and types of jobs available in different regions. For example, if employment is concentrated in the mining industry, there are likely to be many jobs available for middle- to higher-skilled workers in remote areas. On the other hand, if employment is concentrated in the services industries (such as health care, professional services, and retail), job opportunities for workers with a range of skill levels are likely to be clustered around major cities and regional population hubs.

Although industry-specific labour demand cannot be observed directly, it can be measured by changes in the industrial composition of employment over time.

Trends in employment, along with trends in job vacancies and unemployment, can provide a useful picture of job availability in an industry.

Employment patterns

In February 2014, there were approximately 11.5 million people employed in Australia, representing a 22 per cent increase over 10 years (2.1 million jobs). The three major employing industries were health care and social assistance (1.4 million), retail trade (1.2 million) and construction (1.0 million) (ABS 2014c).⁵

Over the past 10 years, employment growth has varied widely by industry (figure 4.5). Employment increased in 15 industries, with the largest increase in employment being in health care and social assistance (475 500), construction (278 500) and professional, scientific and technical services (273 500).⁶ Mining recorded the strongest growth in percentage terms (166 per cent). In contrast, employment decreased in four industries: 72 600 workers (7 per cent) in manufacturing, 48 400 workers (13 per cent) in agriculture, forestry and fishing, 10 300 workers (5 per cent) in information media and telecommunications, and 6700 workers (2 per cent) in wholesale trade (ABS 2014c).

These broad employment patterns are consistent with changes in the Australian economy.

- Employment growth in the services sector reflects the secular shift in economic activity towards services and leisure activities, the growing importance of information, as well as an expanding and ageing population.
- Strong employment growth in mining reflects the recent rise in Australia's terms of trade and strong demand for mineral resources, particularly from developing countries.
- Employment decline in manufacturing and agriculture, forestry and fishing reflects the long-term declining output share and modernisation of these industries resulting from growing international trade, drought conditions,

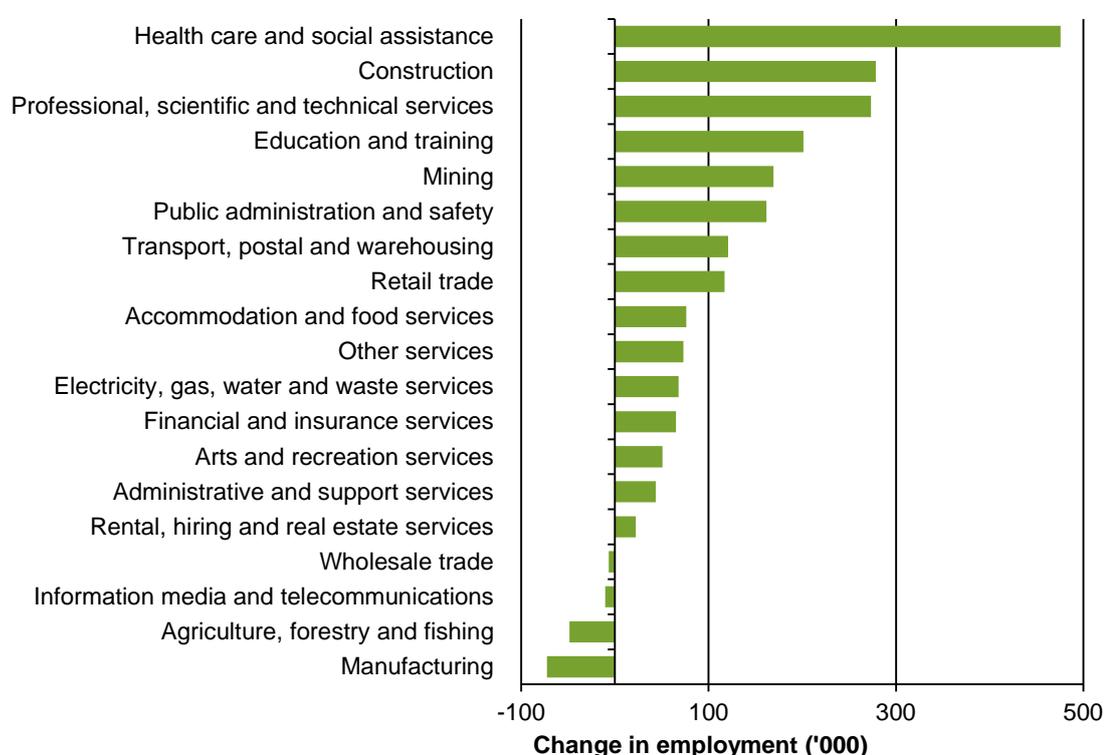
⁵ These industry divisions are based on the Australian and New Zealand Standard Industry Classification (ANZSIC) (ABS 2006a). The 19 broad ANZSIC industries are agriculture, forestry and fishing; mining; manufacturing; electricity, gas, water and waste services; construction; wholesale trade; retail trade; accommodation and food services; transport, postal and warehousing; information media and telecommunications; finance and insurance services; rental, hiring and real estate services; professional, scientific and technical services; administrative and support services; public administration and safety; education and training; health care and social assistance; arts and recreation services; other services.

⁶ Employment numbers are rounded to the nearest 100.

removal of industry protection, fiercer domestic competition, technological change and a broad push towards higher productivity (NFF, sub. 33; Rozenbes and Mowbray 2009).

- Employment decline in information media and telecommunications partly reflects increasing competition from digitisation and outsourcing. For example, publishing is gradually moving to lower cost digital formats and is increasingly outsourced to overseas providers (DEECD nd).

Figure 4.5 **Change in employment by industry, February 2004–14**



Source: ABS (*Labour Force, Australia*, Cat. no. 6291.0.55.003).

Job vacancies

The number and rate of job vacancies vary across industries (table 4.1). In November 2013, industries that recorded relatively high vacancy numbers were accommodation and food services (17 600 or 12.5 per cent of all job vacancies), followed by retail trade (16 600) and professional, scientific and technical services (16 200). Administrative and support services recorded the highest vacancy rate (3.9 per cent) (ABS 2014a). On the other hand, the relatively low-employing industries such as electricity, gas, water and waste services, and arts and recreation

services recorded the lowest number of vacancies as well as relatively low vacancy rates.

Table 4.1 Job vacancies by industry, November 2013^a

<i>Industry</i>	<i>Job vacancies</i>	<i>Vacancy rate (%)^b</i>
Accommodation and food services	17 600	2.3
Retail trade	16 600	1.3
Professional, scientific and technical services	16 200	1.8
Administrative and support services	15 800	3.9
Health care and social assistance	13 300	0.9
Construction	9 900	1.0
Other services	6 700	1.4
Financial and insurance services	6 400	1.6
Manufacturing	6 100	0.6
Transport, postal and warehousing	6 000	1.0
Public administration and safety	5 500	0.7
Mining	4 700	1.7
Wholesale trade	4 300	1.1
Rental, hiring and real estate services	3 300	1.7
Education and training	3 100	0.3
Information media and telecommunications	2 400	1.3
Arts and recreation services	2 300	1.1
Electricity, gas, water and waste services	600	0.4

^a These numbers are derived from quarterly estimates of job vacancies from the ABS Job Vacancies Survey. The survey covers all employing organisations in Australia in the public and private sectors, except employers primarily engaged in agriculture, forestry and fishing; private households employing staff; and foreign embassies and consulates. ^b The industry vacancy rate is calculated as the number of vacancies divided by the sum of vacancies and employment for an industry.

Source: ABS (*Job Vacancies, Australia*, Cat. no 6354.0).

4.3 Industry composition and types of employment

The industrial composition of the economy affects the demand for different types of workers. While some industries may be more reliant on a permanent and higher-skilled workforce, others may be more dependent on casual workers (for example, seasonal workers) due to their volatile nature. Some industries may require a more mobile workforce because of the project based nature of their work.

The types of jobs available are inextricably linked to broader changes in labour demand wrought through demographic, technological and structural changes. For example, technological change has led to the creation of new jobs and has made others obsolete (box 4.1). It has also contributed to the growing demand for higher-skilled workers.

Box 4.1 Changes in technology are making some jobs obsolete but also creating new ones

Technology can make existing jobs obsolete and lead to the creation of new jobs. In mining for example, new technologies and large-scale automation are likely to result in fewer mine-related jobs in regional areas. However, there will be new job opportunities in areas related to the installation, operation and maintenance of autonomous and remote operation equipment:

Some operations roles, such as driving trucks and trains and manually operating drilling rigs and underground equipment, are likely to disappear over the longer term. In an open pit mine, in-pit roles could be reduced by around one-half. New roles in equipment maintenance, data processing, systems and process analysis, operational control and mine planning are likely to emerge. (McNab et al. 2013, p. vii)

The impact of technology on jobs goes beyond the mining industry. For example:

- in the retail industry, businesses are increasingly using social media, internet, mobile technologies and data analytics to gain customers and increase their strategic advantage (KPMG 2013a). This can increase the demand for IT professionals in the industry
- in the film industry, the digitisation of the post-production process has enabled Australian companies to work on movies shot overseas. For example, even though most of the photography for the movie Iron Man 3 was undertaken in the United States, a Sydney-based company provided some of the digital effects for the film (Ausfilm, sub. 28)
- in the agriculture industry, farmers have invested in capital equipment needing less labour, but they still require highly skilled workers to operate this equipment (AgriFood Skills Australia, sub. 18).

Temporary, casual and seasonal workers

The use of temporary workers allows employers to source particular expertise when required for specific projects, offers them the flexibility of filling short- and long-term vacancies at short notice, and provides support for their permanent workforce (BCA, sub. 31; Hays 2012). Employers also use temporary employment to meet peak demands in a fluctuating market or to address uncertainty associated with structural adjustment (Ai Group, sub. 19; D’Arcy et al. 2012).

A recent survey found that the industries most reliant on temporary workers were the public sector (28.9 per cent of employers), construction, property and engineering (21.9 per cent of employers) and resources and mining (17.1 per cent of employers) (Hays 2012). The oil and gas sector relies on a large temporary workforce, especially during the construction phase (APPEA, sub. 24). However casual and temporary employment are used in a range of other industries. For

example, the film post-production sector uses a high proportion of freelance and casual workers, due mostly to the project-based nature of the work (Ausfilm, sub. 28).

Seasonal employment is central to various parts of the tourism industry as well as the agriculture, forestry and fishing industry (AgriFood Skills Australia, sub. 18; Austrade, sub. DR41). During harvest season, farmers and fruit growers increase their employment of casual workers, including family members and local workers, as well as people from overseas through the Seasonal Worker Program and the Working Holiday Maker Program (DAFF 2013).

Highly mobile workers

Industries such as construction, defence, mining and film production are characterised by very mobile employers and workers, meaning that ongoing employment is not tied down to a particular location. This can be explained by the inherent project-based or seasonal nature of the work in some of these industries, requiring employers and/or workers to shift their location on a regular basis.

Employment arrangements vary across industries involving highly mobile work. Workers can be employed under various forms of work such as permanent employees (for example in defence), casual employees (for example in tourism), fixed-term employees (for example in construction), independent contractors and labour hire workers. For example:

- construction roles are mostly short term, involving the movement of semi-skilled and skilled workers from one project to another (APPEA, sub. 24; MCA, sub. 6). Master Builders Australia (sub. DR45, p. 8) stated that ‘a plumber specialising in resources sector construction work could be highly mobile and work in different states and territories including remote areas over the course of a year’. Project managers and engineers may also leave a project for another once their expertise is no longer required
- employers and workers in the film industry move on a regular basis, for example when shooting on location for a movie. ‘In organizational terms it means there are almost no permanent production units, instead there is a permanent network of skilled people (writers, actors, directors, etc.) available to be used in the process of film and video production’ (Ausfilm, sub. 28, p. 3).

The appeal of highly mobile jobs will vary according to a worker’s family circumstances, personal characteristics and degree of risk aversion. For example, a contracting role might appeal to a worker who requires more flexibility with their

work arrangements, while a fly-in, fly-out job in a remote region might appeal more to a worker with a sense of adventure.

Higher-skilled workers

Higher-skilled employment has grown strongly over recent decades, and will continue to grow.⁷ Workers with middle to higher skills are employed in a range of industries including mining, health care and social assistance, and professional, scientific and technical services.

Technological change generally increases the demand for higher-skilled workers across the economy because it tends to be biased towards this group of workers (de Laine, Laplagne and Stone 2000). Moreover, as technology changes, employers will increasingly seek workers with relatively higher skills. In agriculture, for example, ‘the complexity associated with new growing practices (hydroponics, continuous seed trialling, no till, perennial cropping etc) combined with high-tech machinery in cropping, growing, harvesting and packing all point to significant job role changes’ (NFF, sub. 33, p. 38). According to the Australian Workforce and Productivity Agency (2012, p. 24):

... this change is occurring both in the services sectors and the traditional trade areas. For example, employers in the hospitality sector have reported a clear link between the quality of their employees’ interactive skills and the success of their businesses. Similarly, electricians are increasingly dealing with more complex domestic and industrial technologies such as programmable logic controllers and home security systems ...

The expansion of the resources sector has resulted in strong demand for higher-skilled workers (APPEA, sub. 24). Demand is particularly strong in the mining, gas and oil regions on major resource and infrastructure projects.

Conversely, the demand for lower-skilled workers is declining since many low-skilled tasks have been automated by new technologies and low-skilled manufacturing has been replaced by imports from low-wage countries. Lower-skilled workers are employed in a range of industries such as agriculture, forestry and fishing, and transport, postal and warehousing where they fill diverse

⁷ The Commission has previously defined higher-skilled, middle-skilled, and lower-skilled occupation groups according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) (Shomos, Turner and Will 2013). The eight broad occupations were allocated as follows: higher-skilled — managers and professionals; middle-skilled — technicians and trade workers; community and personal services workers; and clerical and administrative workers; and lower-skilled — sales workers; machinery operators and drivers; and labourers.

roles ranging from labourers and meat processing workers to drivers and machinery operators. For example, the primary industries workforce has a relatively high share of workers without post-school qualifications, at 54 per cent compared to 35 per cent for all industries (DAFF 2013).

Contractors

Contracting offers flexibility to business operations and may facilitate greater geographic labour mobility. Study participants indicated that the use of contracting businesses is increasing. For example, the Construction, Forestry, Mining and Energy Union (sub. 26) reported a trend towards the use of contractors in mining. In another example, AgriFood Skills Australia (sub. 18, p. 1) reported that in the agriculture sector ‘the labour model is increasingly turning to contract workers, outsourced technical and advisory services provided by a new generation of small businesses’. According to the Building Services Contractors Association of Australia (nd), there are a number of reasons behind this trend, such as the increasing burden of labour on-costs and the relatively greater flexibility that contracting provides.

Previous work by the Commission suggests that the prevalence of *independent* contracting and labour-hire workers has not increased in recent years.⁸ Analysis by Shomos, Turner and Will (2013) indicated that the prevalence of independent contracting has been roughly unchanged over the period 2008 to 2011. This is despite an increase of approximately 6 per cent in the absolute number of independent contractors during that period. Moreover, the ABS (2010a) estimated that in 2008, 5 per cent of employed people aged 15 years and over obtained their job through a labour-hire firm, down from 8 per cent in 2001.

Analysis in chapter 5 indicates that self-employed individuals, like farmers or general practitioners, tend to be less mobile than employees, presumably because they have higher fixed costs of operation. On the other hand, independent contractors with lower or negligible fixed costs of business, could potentially be more mobile and offer their services in different locations. For example, the Housing Industry Association (sub. DR52) estimated that over 60 per cent of firms in the residential construction sector are independent contractors as opposed to employers. They usually work on projects of short duration and are consequently highly mobile in order to conduct their trade.

⁸ Prevalence estimates illustrate the relative shares of different forms of work in Australian employment.

4.4 The location of jobs in Australia

When deciding where to locate their activities, employers consider a range of factors including proximity to target markets, proximity to other businesses, or proximity to inputs required for production, such as labour and natural resources (chapter 2). Employers in the government sector, such as the Australian Defence Force, may make their location decisions based on Australia's national interests and defence priorities. However, the majority of government employers (for example, schools and hospitals) choose their location based on the distribution of the population.

Employment levels and the availability of jobs vary across Australia's regions, including across major cities. While some regional labour markets have performed strongly over the past 10 years, others have struggled.

Major cities

Cities have an important role to play in geographic labour mobility (box 4.2). As services began to replace manufacturing as the main source of new jobs in the 1980s, more employers became concentrated in Australia's central business districts, inner suburbs of major cities, and secondary employment hubs that often exist around sites such as airports, universities and major hospitals (Kelly and Mares 2013). Concentration of employers in cities and the resulting increase in employment opportunities across a range of occupations can act as a major attractant for unemployed workers relocating to seek new employment opportunities following a regional economic shock (box 4.3).

Employers choose whether to locate in city centres or in the surrounding suburbs depending on their activities. For example, employers engaged in high-knowledge activities generally locate in major city centres where there are deep labour markets (markets where many employers and workers are in close proximity to one another) and they have access to high-skilled workers (Kelly and Mares 2013). On the other hand, employers in the health care and social assistance industry tend to be clustered around secondary employment hubs rather than city centres (DIT 2013). Services jobs, including financial, professional and government services, account for the majority of jobs in major cities (Ai Group, sub. 19). In cities such as Perth and Brisbane, growth in mining sector employment has resulted in the creation of additional services jobs such as electricians, police officers, cleaners and baristas (DIT 2013).

Box 4.2 The role of cities

Cities can play an important role in the efficient matching of workers and employers. They have deep labour markets that benefit both workers and employers. If one business fails, an employee has a better chance of finding an alternative job nearby. Equally, if an employer loses staff, or wants to expand production, a deep labour market makes recruiting easier. Other benefits of cities, or more precisely agglomeration, include economies of scale and information spillovers. As such, agglomeration can reduce the need for geographic labour mobility and is likely to reduce the incentive for labour to move to regional and remote areas. This matters for Australia because its natural resources are often located away from the major cities.

The extent of agglomeration varies by industry and occupation. For example, population-serving occupations such as nurses, teachers and mechanics are needed wherever people live, and cannot be concentrated solely in big cities.

Sources: Kelly and Mares (2013); Krugman (1990); Ottaviano and Thisse (2004).

The distribution of jobs across industries varies across Australia's major cities and has changed over the past decade. For example, the Department of Infrastructure and Transport (2013) reported that:

- the employment share of manufacturing and retail trade declined in all major cities between 2001 and 2011, while the employment share of public administration and safety, and accommodation and food services increased in most major cities
- Canberra and Darwin have a high share of public sector employment
- Sydney and Melbourne have the highest share of employment in financial and insurance services, possibly reflecting the agglomeration of businesses, the cities' connection with global markets and the large population bases.

While job growth is strong in major cities and surrounding regions, significant variation in employment opportunities within these regions can still exist. This is illustrated by a case study of employment growth in four capital cities between 2001 and 2011 (box 4.4).

Outside major cities

Employers who locate outside major cities tend to be those providing local services, and those engaged in manufacturing, mining and agricultural activities. For example, over 90 per cent of employment in agriculture and seafood, and almost 50 per cent of employment in food processing is located in regional Australia (AgriFood Skills Australia, sub. 18).

Box 4.3 **Where do workers go?**

Of interest to the Commission's analysis of geographic labour mobility is where workers go following a regional economic shock, such as the closure of a major local employer, an extreme weather event, or the collapse of a local industry.

To illustrate the expected movement of workers following such a shock, consider a hypothetical decline in activity in an industry located in Melbourne that uses tradespersons relatively intensively. Data from the ABS and The Enormous Regional Model (TERM) database from the Centre of Policy Studies could be used to illustrate this.

Initial effects

The shock results in a short-term rise in unemployment and a corresponding decline in regional economic activity. While some workers find new employment in Melbourne in similar or other roles (some of which may require retraining), others are likely to seek new employment opportunities elsewhere.

Determinants of movement

Geographic labour movements are influenced by employment opportunities across the country. These opportunities depend on the occupational mix of industries and the relative importance of different industries in a region's aggregate economic activity. For example, an electrician may be attracted to a region in which construction accounts for a large proportion of economic activity (such as a remote region in the construction phase of the mining boom) or they may be attracted to a large city (such as Sydney) with relatively large residential and commercial construction sectors. In the first case, the region displays a large employment share of electricians and other construction workers. In the case of Sydney, electricians may not account for a large proportion of employment but the large number of construction and employment opportunities means that the demand for electricians is likely to be strong.

Hence, there are two types of influences on the geographic mobility of workers: a 'specialisation effect', where a region's economy is dominated by a few activities that are intensive in certain occupations; and an 'economic size' effect (or gravity effect), where the sheer size of cities offers many employment opportunities for a particular occupation. Given the high concentration of Australia's population and economic activity in a small number of cities, the gravity effect is likely to dominate geographic labour mobility.

Regions outside major cities exhibit more variability in their employment patterns, reflecting their often unique and specialised industry emphasis. For example:

Albury-Wodonga and Geelong both specialise in manufacturing, while Cairns, the Sunshine Coast and the Gold Coast have the highest proportion of workers employed in the accommodation, cafes and restaurants sector than the other major cities, a reflection of their tourism focus. (DIT 2013, p. 133)

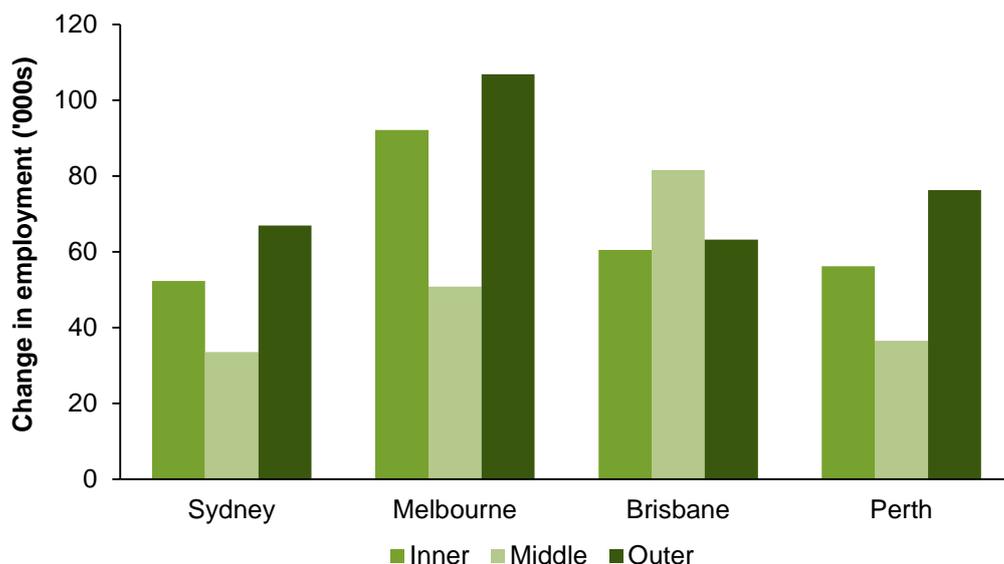
Box 4.4 Employment growth in Sydney, Melbourne, Brisbane and Perth

The industry where employment increased the most between 2001 and 2011 was not the same in all capital cities. Health and community services was the main contributor to employment growth in Sydney, Melbourne and Brisbane, while property and business services was the main contributor in Perth. Construction and education also made important contributions to employment growth across several cities. In contrast, the largest employment decline in Melbourne and Sydney was recorded in manufacturing while in Brisbane and Perth, it was in agriculture, forestry and fishing.

Employment grew in all geographic sectors in all four cities, with Outer Melbourne recording the largest increase in employment (figure below). In each city, employment grew the most in the Outer sector, with the exception of Brisbane. This reflects a process of suburbanisation of employment and a decline in the centralisation of jobs within the Inner sectors of several capital cities. The main industry contributors to employment growth across city sectors were:

- Inner — property and business services in Melbourne, Brisbane and Perth, and finance and insurance in Sydney
- Middle — health and community services in Sydney, Melbourne and Brisbane and construction in Perth
- Outer — health and community services in Sydney, Melbourne and Brisbane and retail trade in Perth.

Employment change by city and sector, 2001–2011^a



^a Map 1.2 in Bureau of Infrastructure, Transport and Regional Economics (2013a) shows the Inner, Middle and Outer sectors of each capital city.

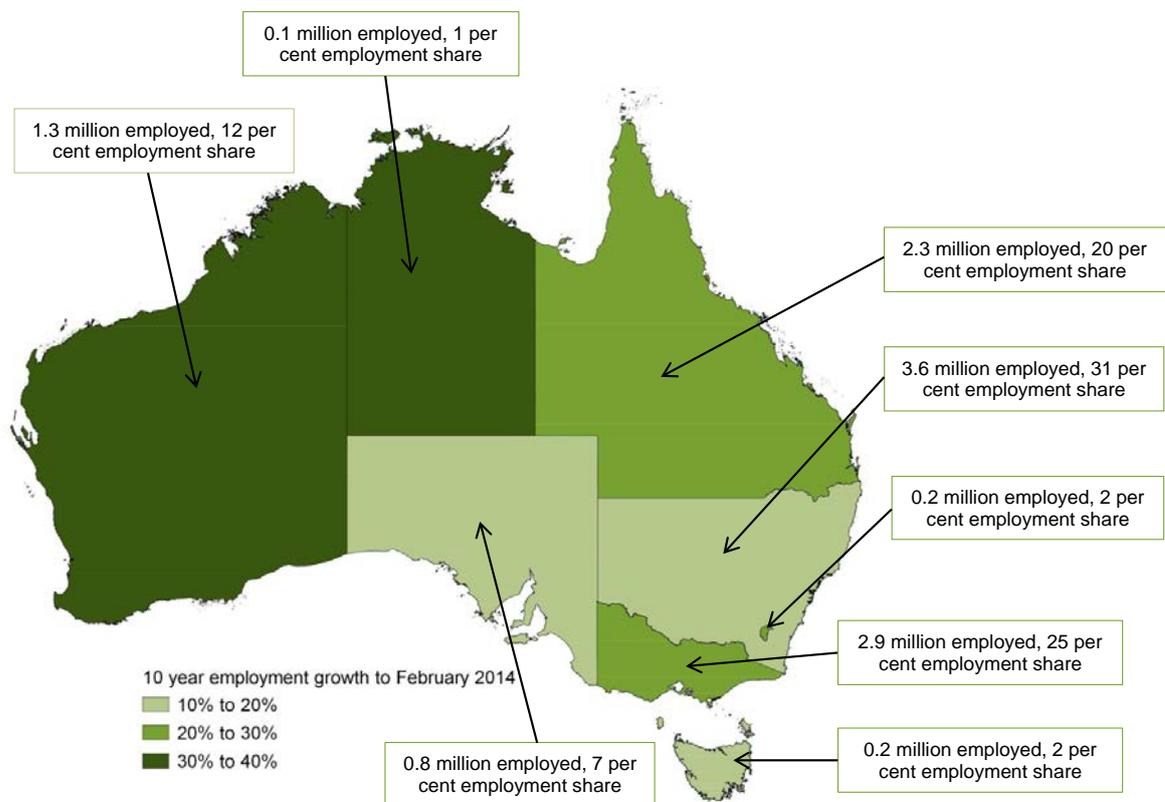
Source: BITRE (2013a).

Regions that are more dependent on agriculture, food or tourism industries tend to display seasonal variations in patterns of employment. Employment in the horticulture sector usually increases during harvest periods as employers hire seasonal workers, and declines thereafter. Similarly, employment in coastal towns dependent on tourism usually increases during the summer months and the school holidays.

Regional patterns of employment

In absolute terms, Queensland saw the greatest increase in employment in the past decade (517 100), followed by Victoria (504 300) and New South Wales (485 900) (ABS 2014d). While New South Wales remains the largest employing state with 3.6 million workers in February 2014, employment in that state has grown more slowly than the 10-year national average of 22 per cent. The mining states of Western Australia, Queensland and the Northern Territory recorded the strongest employment growth rates, at over 25 per cent over the past decade (figure 4.6).

Figure 4.6 **Employment statistics by state and territory, February 2014**



Source: ABS (*Labour Force, Australia*, Cat. no. 6202.0).

South Australia and Tasmania recorded the lowest rates of employment growth, at less than 15 per cent. These states have a high reliance on agriculture and manufacturing and are suffering from the reduction in competitiveness brought about by the high Australian dollar and the resources boom. Other regions reliant on manufacturing have lost jobs recently. For example, Western Sydney, Australia's largest manufacturing region, lost 6842 manufacturing jobs between 2006 and 2011. The job deficit in Western Sydney was compounded by a net job loss in the wholesale trade sector over the period plus limited growth in construction jobs, retail trade and private sector transaction industry jobs (DIT 2013).

While employment in all major cities and the balance of states (the group of regions outside major cities) grew over the past decade, the rate of employment growth varied across regions (table 4.2). Benefiting strongly from the resources boom, the regions of Perth, the Northern Territory and balance of Queensland are the regions where employment grew the most in percentage terms — well above 25 per cent over the past decade. Sydney and Melbourne remain the largest employing regions, and the number of jobs created in these cities indicates that employment growth was not confined to the mining regions.

Regional patterns of unemployment

The unemployment rate also varies across regions (table 4.2). Some of the lowest unemployment rates (averaged over the period March 2013 to February 2014) were recorded in the ACT and regions within the mining states. In contrast, Hobart and the balance of Tasmania, which are suffering from weak labour demand, recorded average unemployment rates of 6.7 per cent and 8.6 per cent respectively, well above the national rate of 5.8 per cent (ABS 2014b). Some areas may also suffer from persistent regional unemployment (box 4.5).

Table 4.2 **Selected labour market statistics by major city–outside major city, February 2014**

<i>Cities and regions</i>	<i>Employment</i>	<i>10 year change to Feb 2014</i>		<i>Major employing industry</i>	<i>Unemployment rate^a</i>
	<i>'000</i>	<i>'000</i>	<i>%</i>	<i>no.</i>	<i>%</i>
Sydney	2 410.2	363.1	17.7	Health care and social assistance (312 400)	5.4
Balance of NSW	1 185.8	122.8	11.6	Health care and social assistance (150 600)	6.2
Melbourne	2 189.7	413.7	23.3	Health care and social assistance (276 700)	6.2
Balance of Vic	663.6	90.7	15.8	Agriculture, forestry and fishing (82 900)	5.4
Brisbane	1 135.7	248.8	28.0	Health care and social assistance (152 100)	5.8
Balance of Qld	1 188.9	268.4	29.2	Retail trade (146 400)	6.1
Adelaide	620.8	73.3	13.4	Health care and social assistance (92 800)	6.4
Balance of SA	177.4	13.1	8.0	Agriculture, forestry and fishing (35 200)	6.4
Perth	1 054.0	309.3	41.5	Health care and social assistance (115 600)	4.5
Balance of WA	286.6	60.0	26.5	Mining (41 400)	5.9
Hobart	100.7	11.9	13.5	Health care and social assistance (16 400)	6.7
Balance of Tas	132.1	9.9	8.1	Health care and social assistance (15 800)	8.6
NT	132.9	35.8	36.9	Public administration and safety (22 400)	4.9
ACT	214.8	37.9	21.4	Public administration and safety (69 300)	3.9
Australia	11 493.0	2 058.6	21.8	Health care and social assistance (1 434 300)	5.8

^a The unemployment rate refers to the average unemployment rate over the period March 2013 to February 2014.

Source: ABS (*Labour Force, Australia*, Cat. no. 6291.0).

Box 4.5 Persistent regional unemployment

Some Statistical Local Areas have recorded quarterly unemployment rates of over 15 per cent for most of the past five years. Examples include the region of Mount Morgan (Queensland) with a five-year average unemployment rate of approximately 22 per cent and the region of Playford – Elizabeth (South Australia) with approximately 21 per cent.

There are a number of reasons why some regions suffer from persistent regional unemployment. For example:

- there may be a lack of job opportunities in regions where agricultural or manufacturing industries were traditionally prominent
- even if there are high vacancy rates in a region, employers may have difficulty filling available jobs with local labour because of a mismatch between employers' requirements and potential workers' skills
- existing high unemployment may reduce consumption expenditure and encourage out-migration of skilled workers, which in turn hinders business confidence, investment and job growth, and perpetuates high unemployment in the region
- poor transport infrastructure may prevent workers in high-unemployment regions from accessing available jobs (RAI, sub. 25).

In a number of regions, persistent unemployment may be associated with labour immobility — unemployed people are unwilling or feel unable to leave high-unemployment regions (perhaps because they currently have access to low-cost housing and family and community support networks) and look for a job in another region. However, other areas of high unemployment may experience high mobility. This is discussed in chapter 7.

Source: DoE (2014c).

Job vacancies and unemployment

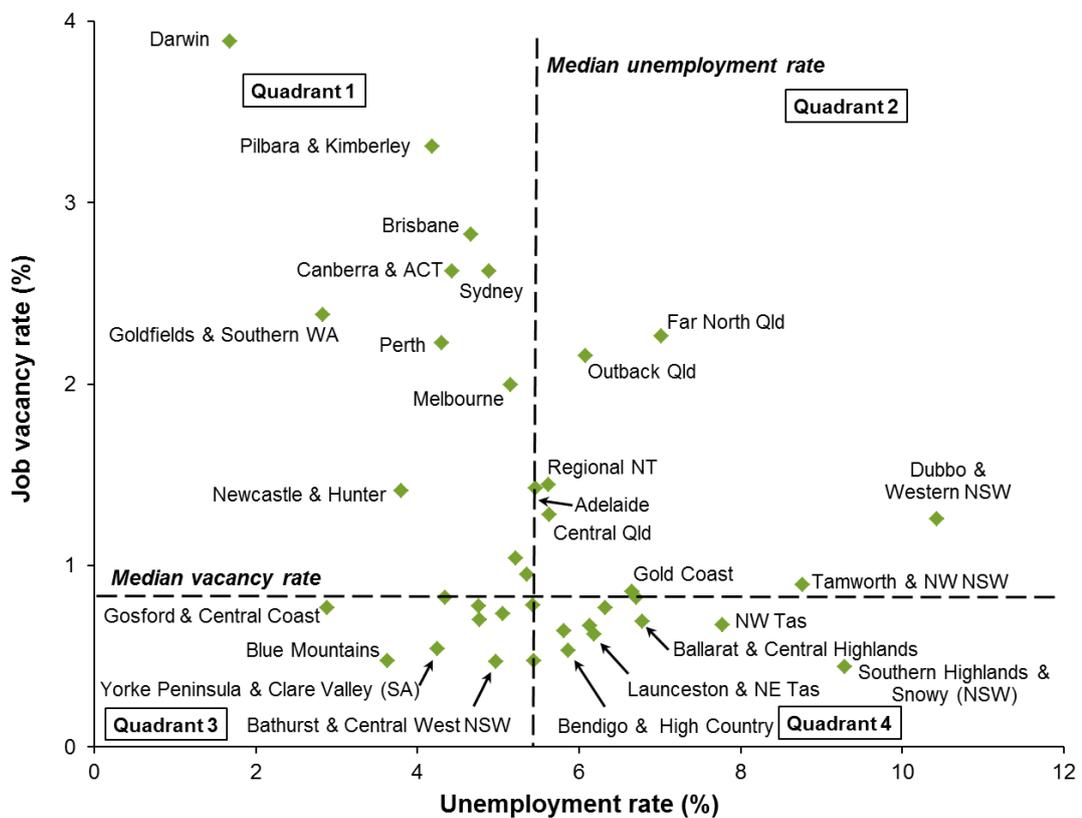
The job vacancy rate provides some indication of the availability of job opportunities within a region. The unemployment rate provides an indication of the extent to which the regional pool of available labour could potentially take up these job opportunities. Collectively, these indicators can paint a picture of the state of the labour market in each region (box 4.6).⁹

⁹ The ABS defines the job vacancy rate as the number of job vacancies, as a percentage of the number of employee jobs plus vacancies (ABS 2006b). However, the data required for this computation are difficult to obtain at the regional level. Consequently, the job vacancy rate in box 4.6 is computed as the number of job vacancies, as a percentage of the total number of people in the labour force in each region.

Box 4.6 Correlation between unemployment and vacancy rates

Each region can be classified as having either a high or low unemployment rate, and either a high or low job vacancy rate, relative to the median values for all regions. The correlated values of these variables for each region can then be plotted on a scatter diagram. The distribution of these points can be divided up either side of the median values, giving rise to four quadrants — each with a different combination of a high/low unemployment rate and a high/low vacancy rate. These four quadrants can be used to examine the correlation between the unemployment rate and vacancy rate in Australia's regions.

Correlation between unemployment and job vacancy rates by region, 2010–13^{a, b}



^a Unemployment and vacancy rates based on values from July 2010 to March 2013. Not all regions are labelled. ^b The regions contained in each quadrant are characterised as follows: quadrant 1 — low unemployment and high vacancy rates; quadrant 2 — high unemployment and high vacancy rates; quadrant 3 — low unemployment and low vacancy rates; quadrant 4 — high unemployment and low vacancy rates.

Source: Productivity Commission estimates using Department of Employment's Vacancy Report and Small Area Labour Markets Data Tables (DoE 2013c, 2013d).

(Continued next page)

Box 4.6 (continued)

- In quadrant 1, Western Australia's mining regions (Pilbara and Kimberley, and Goldfields and Southern Western Australia) have had high vacancy rates but also low unemployment rates. This suggests that there were relatively few people in the local population who were searching for, but unable to find, work. (Indeed, in Darwin, the absolute number of job vacancies exceeded the number of local job seekers). In these regions, it appears that the local population has been an important source for meeting at least part of the region's high demand for labour.
- In quadrant 2, simultaneous high vacancy and high unemployment rates in Far North Queensland and Outback Queensland allude to the possibility that employers in these regions have been having difficulty filling available jobs with local labour.
- In quadrant 3, the coexistence of low vacancy and low unemployment rates in several regions in New South Wales suggests that employers in these regions have been able to fill their job vacancies with the local workforce, but that there might also be relatively few new job opportunities available for the local population. It is also possible that, facing low vacancy rates, job seekers moved to another region or dropped out of the labour force completely.
- In quadrant 4, regions with low vacancy and high unemployment rates are mainly located in New South Wales, Victoria and Tasmania. Many of these regions were formerly reliant on agricultural or manufacturing industries. The combination of low vacancy and high unemployment rates suggests that job losses in these industries have not been offset by an expansion of job opportunities in other industries within the region or by a sufficient increase in geographic labour mobility.
- The figure also shows that a number of regions in quadrants 3 and 4 are clustered around the median vacancy rate.

Some parts of the labour market are experiencing acute shortages

In some regions and occupations, employers are unable to fill (or have significant difficulty filling) vacancies or particular skill needs for an occupation at current conditions of employment.

Study participants reported that labour shortages are common in different parts of Australia, especially in regional areas (for example, APPEA, sub. 24; Austrade, sub. DR41; BCA, sub. 31; Business SA, subs. 11, DR42; DoE, sub. DR60). Employers in these areas face more difficulties in recruiting skilled workers than those in capital cities, and they usually attract a smaller number of applicants and fill a lower share of their vacancies (DEEWR 2013). Research by the DoE (2013b, sub. DR60) indicated that, in 2013, 67 per cent of regional vacancies were filled, compared to 74 per cent of filled vacancies in metropolitan areas. The hardest locations to recruit in were Darwin, regional New South Wales and regional South

Australia. Study participants also indicated that some regional employers face difficulties recruiting lower-skilled workers (box 4.7).

Box 4.7 Unfilled vacancies for lower-skilled workers

Study participants argued that some industries, especially tourism and agriculture, face difficulties in recruiting lower-skilled workers in regional areas.

- AgriFood Skills Australia (sub. 18) reported regional shortages of lower-skilled workers in the agrifood industry that are adversely impacting food production as well as industry competitiveness and efficiency.
- Jobs Australia (sub. 20) reported regional shortages of lower-skilled workers in meat processing, for example in Central Queensland. To address these shortages, some employers have recruited people that were in Australia under humanitarian refugee programs. Hugo, Feist and Tan (2013) noted the important role that overseas migrants have played in addressing regional shortages of lower-skilled workers.
- Austrade (sub. DR41) reported persistent regional labour shortages in the tourism industry, including of lower-skilled workers. International workers are an important labour supply channel that employers in the industry use to overcome labour constraints.

While employers in these industries often argue that their recruitment difficulties are due to ongoing skills shortages, these difficulties can in fact be the result of particular mismatches between the demand for, and supply of, lower-skilled workers.

- Geographic mismatch — employers are offering lower-skilled jobs but unemployed workers looking for such work are located in different regions and are unwilling or unable to move.
- Preference mismatch — employers are offering lower-skilled jobs that unemployed workers are unwilling to do even if they have the required qualifications and are located in the same region.

Geographic mismatches are common in industries characterised by seasonal employment, such as tourism and agriculture. Even if there are vacancies in regional areas, available lower-skilled workers, particularly those who are unemployed, may not want to move there because the high costs of moving outweigh the short-term benefits from seasonal employment.

Submissions to this study suggest that not all employers face difficulties recruiting lower-skilled workers. For example, Business SA (sub. 11, p. 2) reported that ‘members that we consulted in regional areas also highlighted that for the lower skilled jobs, such as factory work, they found it relatively easy to source these employees from people already living in the area’.

While the extent of skills shortages across Australia has reduced due to the cooling of the economy, shortages are still significant for some occupations such as automotive trades, engineering professions and associates, food trades and

resources-sector occupations (BCA, sub. 31; DEEWR 2012c). For example, the Australian Mines and Metals Association (sub. 29) commented that around two-thirds of its members are currently facing a skills shortage (particularly for engineers and project managers) and have considered recruiting employees from interstate and overseas to fill key roles. In another example, AgriFood Skills Australia (sub. 18) reported shortages of high-skilled professional and para-professional workers in various key roles in the industry. Further, the National Farmers' Federation (sub. 33) argued that the trend towards 'corporate style farming' has increased the need for higher-skilled workers and it indicated that employers are reporting a shortage of such workers.

Some occupations are in short supply nationwide (for example, sonographers (DoE, sub. DR60)), while others experience shortages mostly in regional and remote areas. These include health professionals, community services employees, emergency services employees, police officers, and teachers. For example, the Health and Community Services Workforce Council (sub. 8) identified the attraction and retention of a high quality workforce in remote regions as one of the biggest challenges facing the health and community services industry in Queensland. Avana (sub. 14) also noted the long waiting lists for accessing services provided by allied and other health professionals in regional New South Wales. More broadly, Business SA (sub. DR42) contended that employers in regional areas face numerous difficulties in attracting and retaining employees for senior/managerial roles. The Commission has previously examined shortages in some of these occupations (box 4.8).

Why do these shortages persist?

In a number of regions, especially in remote ones, shortages persist because people do not want to move there, even if they have good employment prospects with high salaries. There may be a number of impediments to mobility in such cases (discussed in chapter 8), including inadequate access to, and availability of, housing and local amenities such as childcare, schools, hospitals and recreational facilities (AMMA, sub. 29; Business SA, subs. 11, DR42; Health and Community Services Workforce Council, sub. 8; NFF, sub. 33; WA Government, sub. 32).

Other reasons for regional labour shortages mentioned by study participants (for example, Austrade, sub. DR41; Business SA, sub. DR42; DoE, sub. DR60; HHMAC, sub. 22; NFF, sub. 33; Police Federation of Australia, sub. 2; WA Government, sub. 32) are:

- demographic changes such as population ageing
- mismatches between the skills demanded and the skills people possess

- high accommodation and living costs in remote towns and the lack of employment prospects for family members of employees
- inadequate transport infrastructure for commuting to work
- limited access to training opportunities.

Box 4.8 Previous Commission work on skills shortages in remote areas

Teachers

In 2012, the Commission found that there were shortages of mathematics and science teachers, and shortages of teachers more generally in remote communities (PC 2012c). It was estimated that 66 per cent of remote secondary school principals had major or moderate difficulty filling staff vacancies in 2010 (McKenzie et al. 2011).

There are a number of reasons for these shortages. For example, in remote areas, teachers have restricted access to amenities (physical and cultural), support networks and professional development.

The Commission recommended that the Australian, state and territory governments should encourage the trialling of measures that enable principals to use remuneration-based incentives to fill hard-to-staff positions.

Health workers

A 2006 Commission inquiry into the health workforce found that shortages exist across several health professions, particularly in remote areas (PC 2005). These include general practitioners, medical specialists and some allied health professionals.

The factors contributing to this regional shortage of health workers are varied and include:

- generally lower remuneration levels than in metropolitan areas
- longer working hours than in cities and a heavier workload
- inadequate community infrastructure, supporting health care infrastructure and access to other health professionals
- limited professional development opportunities and career pathways.

Recent research by Health Workforce Australia (2012) indicates that some of these shortages are likely to persist. This is despite a range of financial incentives to attract and retain health professionals in remote areas such as the General Practice Rural Incentives Program (chapter 10).

Characteristics of particular industries can also contribute to the persistence of regional shortages. For example, Austrade (sub. DR41, p. 3) indicated that labour shortages persist in the tourism industry because of ‘the highly seasonal nature of the industry, competition for labour from other industries, lack of local workers,

undesirable hours for some workers, and remoteness of many tourism destinations and workplaces from large population centres’.

The resources boom has affected the severity of regional shortages. Employers in a range of sectors, from resources to community services, are struggling to find adequately skilled employees, especially in resource-intensive regions (AgriFood Skills Australia, sub. 18; APPEA, sub. 24; Health and Community Services Workforce Council, sub. 8). Recruiting problems are compounded by the high wages offered in the resources sector, and the inability of employers outside of the resources sector to match those wages (chapter 3). However, the DoE (sub. DR60) contended that skills shortages have reduced over the past six years and employers around Australia are attracting workers who have returned from the resources sector.

4.5 What does the future hold?

The Australian economy is evolving and will continue to evolve due to structural, environmental, demographic and technological changes, affecting employment, the location of jobs and the way employers operate. For example, in the future:

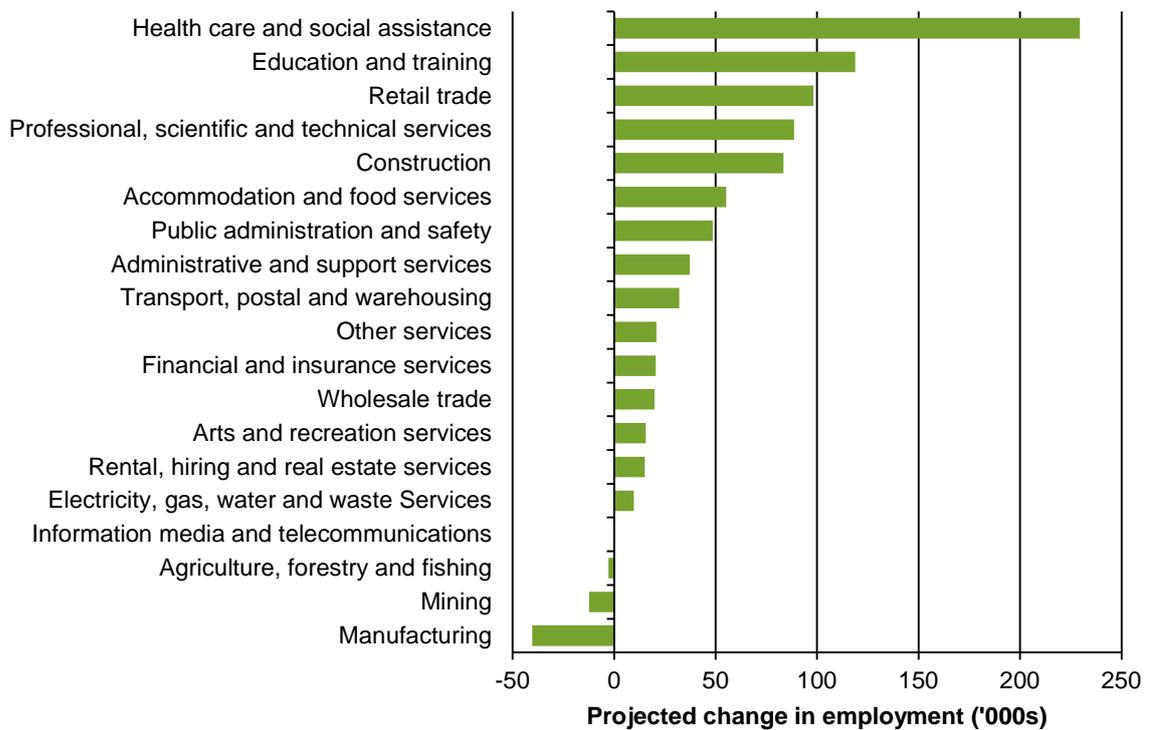
- population ageing will continue to drive demand for workers in the health care and social assistance industry, and these jobs will need to be located where the population is located. It is also expected to result in a fall in aggregate labour force participation rates
- the expected continued growth of the services sector may lead to a larger proportion of workers engaged in telecommuting
- climate change may affect the location of agricultural production.

The Australian economy is also undergoing a number of changes which could affect labour demand in the short term. For example, the:

- demand for residential construction workers is likely to increase following the rise in new building approvals. In contrast, the demand for construction workers in mining might ease as the sector transitions from the construction phase into the operational phase. The WA Government (sub. 32) has already projected a reduction in the construction workforce for mining regions in Western Australia over coming years
- end of passenger motor vehicle manufacturing in Australia in 2017 is likely to result in higher unemployment in some regions, with lower-skilled workers and those with no formal qualifications more vulnerable (PC 2014a).

Projections by the DoE (2014a) suggest that, between November 2013 and November 2018, employment will increase in 16 major industries but will decrease in manufacturing, mining and agriculture, forestry and fishing (figure 4.7). Reflecting the long-term growth of service-based industries, the largest projected gains in employment will come from health care and social assistance (up by 229 400) and education and training (up by 118 800).

Figure 4.7 Projected change in employment by industry, November 2013–18



Source: DoE (2014a).

The mining sector will continue to play an important role in the Australian economy.

- As current mining projects, largely in coal and iron ore, transition from the construction phase into the operational or production phase, the type and quantity of labour demand will change, affecting employment growth in the mining regions.
- The liquefied natural gas industry is likely to generate a substantial number of jobs in the future. Liquefied natural gas projects require a large number of construction workers in early stages, and these projects are often located in

remote or offshore locations. This may increase the demand for fly-in, fly-out workers.

5 Residential mobility

Key points

- Australians move residence frequently. About 16 per cent of people in the labour force move each year. However, most moves are over short distances.
 - About 3.3 per cent of people in the labour force move residence to another regional labour market — and a much smaller proportion (1.7 per cent) move interstate.
- People's characteristics are related to their propensity to move. Younger people, unemployed people, Indigenous people, recent overseas migrants, single people, females without children, more highly educated and skilled people, and workers in certain industries such as mining all move residence between regional labour markets more than the rest of the labour force.
- People are generally moving out of capital cities and inland regional areas, and into coastal regional areas. However, the trend is not as strong for people in the labour force — they have a greater propensity to move to areas with better job prospects, namely capital cities and mining regions.
- A person's characteristics also influence where they move. For example, while younger people are more likely to move to capital cities, older people are more likely to move from capital cities.
- Mobility tends to be higher in Australia and other English-speaking countries than in many continental European countries.

Residential mobility is a key component of geographic labour mobility. This chapter presents data on high-level trends in residential mobility in Australia (section 5.1), identifies who is more likely to undertake residential moves (section 5.2) and where they move (section 5.3), and discusses international comparisons (section 5.4).

5.1 Residential mobility in Australia

To estimate geographic labour mobility in Australia, the Commission has analysed residential moves by people in the labour force — people aged 15 years and over who are either employed or unemployed and looking for work, primarily using data from the 2011 Census of Population and Housing (appendix B). The focus is on people in the labour force (except for analysis of moves by industry and occupation,

which is focused on employed people), because moves by people who are not in the labour force are less likely to influence labour market activity. Data are based on people who have changed their usual place of residence in the one year or five years prior to the Census. The Commission has supplemented this analysis with data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, and other research.

Analysis of the 2011 Census indicates that about 16 per cent of the labour force change residence each year and about 40 per cent of the total population change residence over a five-year period (tables 5.1 and 5.2). Examining earlier Census data for the total population suggests that residential mobility has been relatively stable for the past 25 years (table 5.2).

Table 5.1 Proportion of people who moved residence in the year prior to the Census^{a, b}
Per cent

	<i>All moves</i>	<i>Labour market moves</i>	<i>Interstate moves</i>
Population	14.6	3.0	1.5
People in the labour force	16.4	3.3	1.7
People aged 15 years and over	14.5	3.1	1.5
People aged 15–64 years	16.3	3.5	1.7

^a Excludes people who were overseas a year prior to the Census, or whose answers are recorded as not stated or not applicable. ^b Movements between labour markets are measured using the methodology described in appendix B, box B.1.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

Table 5.2 Proportion of people who moved in the one year and five years prior to the Census^{a, b}
Per cent

	<i>One year</i>	<i>Five years</i>
1986 Census	16.7	41.2
1996 Census	18.2	39.9
2001 Census	18.7	44.7
2006 Census	16.8	43.1
2011 Census	15.9	41.7

^a Estimates are for all people, not just people in the labour force. Estimates include people who lived overseas. ^b Single year data were only collected in the 1991 Census at the state level (Bell 1996).

Sources: ABS (*2011 Census Community Profile: Time Series Profile*, Cat. no. 2003.0); Bell (1996); Bell and Stratton (1998).

Residential mobility varies across Australia. For example, a relatively larger proportion of people in the labour force in Queensland, Western Australia, the Northern Territory and the ACT reported living at a different address one year

earlier (table 5.3). In addition, a larger proportion of people who lived in remote and very remote areas reported living at a different address one year earlier compared to cities and regional areas (table 5.4). The Australian Council of Trade Unions (sub. 21) looked at mobility over the five-year period to 2011, and found that the mobility of the population was lowest in regions in Tasmania, New South Wales and Victoria.

Table 5.3 Place of residence of people in the labour force one year earlier, by state and territory^a

Per cent

<i>Residence in 2011</i>	<i>Same residence in 2010</i>	<i>Lived elsewhere in 2010</i>	<i>Overseas in 2010</i>	<i>Not stated</i>
NSW	83.3	14.7	1.4	0.6
Vic	83.1	14.9	1.4	0.6
Qld	79.0	18.9	1.5	0.6
WA	79.9	17.3	2.2	0.6
SA	84.1	14.4	1.0	0.5
Tas	83.9	14.9	0.6	0.6
ACT	79.1	18.6	2.0	0.4
NT	74.5	22.6	2.1	0.8
Australia ^b	81.9	16.0	1.5	0.6

^a Includes migratory and offshore regions. ^b Excludes other territories.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro, 2011, Cat. no. 2073.0*).

Table 5.4 Proportion of people in the labour force who moved in the year prior to the Census, by remoteness area^{a, b, c}

By location in 2011, per cent

Major cities	15.8
Inner regional	15.8
Outer regional	16.3
Remote	20.0
Very remote	22.7
Australia	15.9

^a Appendix C discusses remoteness areas in more detail. ^b Excludes people who moved from overseas.

^c Excludes migratory and offshore regions.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro, 2011, Cat. no. 2073.0*).

Most residential moves are over short distances — about two-thirds of all moves are 10 km or less (Clark 2012) — indicating that people generally move within cities or regions, rather than between them (BITRE 2011b). Moves over short distances are less likely to affect labour supply in a regional labour market. However, moves over a certain threshold (for example, based on distance, commuting time or administrative boundaries) often result in labour supply also moving, and it is these moves that the Commission is interested in.

Only a small proportion of people move between regional labour markets. While about 16 per cent of people in the labour force moved residence in the year prior to the Census, only 3.3 per cent of the labour force moved across regional labour markets (table 5.1). Mobility rates also varied between labour markets — rates were lowest mostly in larger capital cities and highest in outback labour markets (table 5.5). While the proportions of entries into, and exits from, capital cities are low, these areas experience the largest number of absolute movements, due to the relative size of the population, their large and diverse labour markets and residential options. More information on net internal migration between regional labour markets, including where people with different characteristics move, is presented in section 5.3.

Table 5.5 Entry into and exit from labour markets by proportion of the labour force, 2010 to 2011^a

Per cent

<i>Proportion who entered</i>		<i>Proportion who exited</i>	
Highest rates of entry		Highest rates of exit	
Western Australia — Outback	14.6	Greater Darwin	10.7
Northern Territory — Outback	13.3	Northern Territory — Outback	10.4
Queensland — Outback	10.2	Queensland — Outback	9.3
Greater Darwin	9.2	Western Australia — Outback	8.5
Mackay	8.2	Mackay	6.6
Lowest rates of entry		Lowest rates of exit	
Greater Sydney	1.4	Greater Melbourne	1.8
Greater Melbourne	1.8	Greater Sydney	1.8
Greater Adelaide	2.0	Greater Adelaide	2.4
Greater Perth	2.5	Greater Perth	2.6
West and North West (Tasmania)	3.2	Greater Brisbane	3.3

^a Other territories are not included.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

An even smaller proportion (1.7 per cent) of the labour force move interstate in a given year (table 5.1). This is consistent with data that show very few people who change jobs move interstate — of the 10 per cent of workers who change jobs each year, only one in 20 relocate interstate (D’Arcy et al. 2012). Gross interstate migration as a proportion of the overall population has declined over the past decade, from about 2 per cent of the population through the 1990s to about 1.5 per cent more recently (Borland 2014). Over the same period there has been an increase in overseas migration and long-distance commuting (section 5.2 and chapter 6). Interstate mobility has also declined in the United States and Canada (section 5.4 and appendix C).

5.2 Who moves?

A variety of personal characteristics are correlated with a person's tendency to move. This section presents data on which groups of people are more likely to move, focusing on moves between regional labour markets and people who are in the labour force.

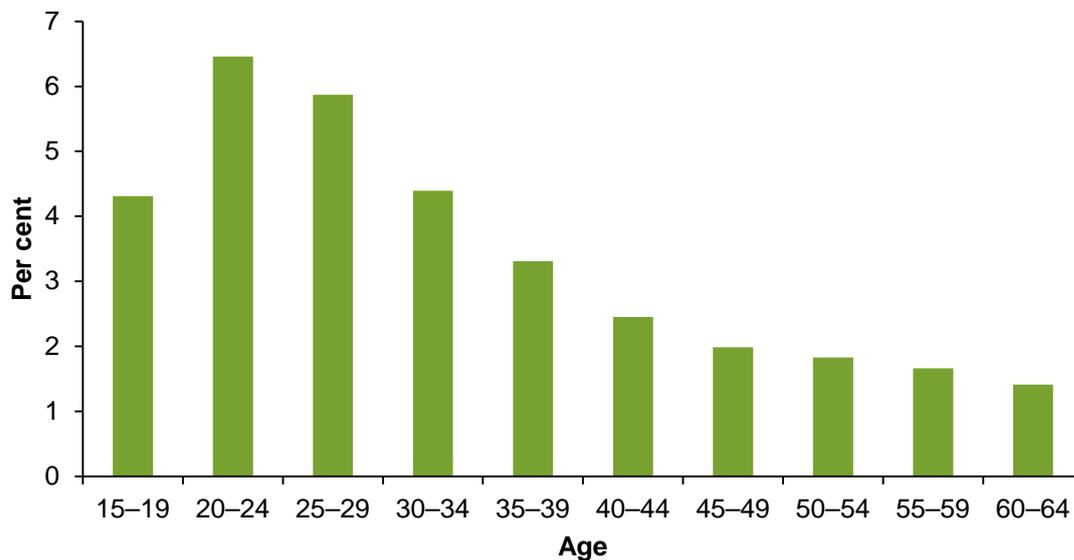
The observable characteristics of movers, however, do not necessarily provide an understanding of the determinants of moving. For example, age is likely to be correlated with mobility but this is not the same as causation. People of similar age often experience similar life events (such as the development of family and community ties, and home ownership) and it is these events that might significantly influence mobility. Chapter 8 discusses possible determinants of mobility for many of the characteristics identified in this chapter, drawing on evidence from submissions, academic research and the Commission's own analysis.

The characteristics analysed, such as marital status, employment status and industry of employment, are the status of individuals on Census night. Census analysis is supplemented with other sources such as the HILDA Survey and previous literature.

Age

Young people are more likely to move than other age groups. Around 6.5 per cent of 20–24 year olds and 5.9 per cent of 25–29 year olds moved residence between labour markets in the year prior to the Census, compared to 3.3 per cent of the total labour force (figure 5.1). The higher propensity of young people to move residence is consistently observed in the literature (for example, ABS 2010b; Bill and Mitchell 2006; Clark 2012). In contrast, about 1.4 per cent of 60–64 year olds in the labour force moved in the year prior to the Census. This number increases to 1.8 per cent when all 60–64 year olds in the population are included. This could be due to people moving for retirement reasons.

Figure 5.1 **Proportion of people in the labour force who moved residence between labour markets in the year prior to the Census, by age^{a, b}**



^a Movements between labour markets are measured using the methodology described in appendix B, box B.1. ^b For place of usual residence one year ago, capital city labour markets include Capital City undefined.

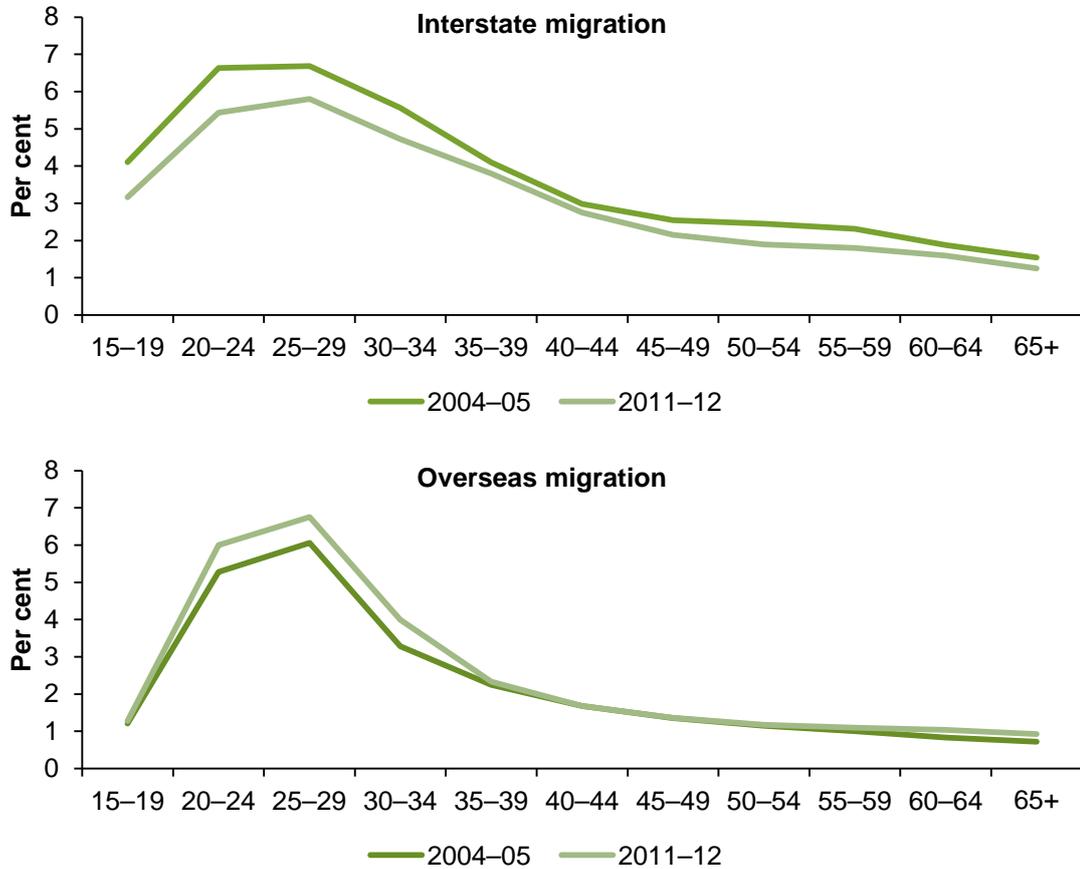
Source: Productivity Commission estimates using ABS (*TableBuilder Pro, 2011, Cat. no. 2073.0*).

The decline in gross interstate migration (section 5.1) has been driven by young people. At the same time, overseas migration by young people has increased (figure 5.2).

Ethnicity and background

Indigenous people move more than non-Indigenous people, with over 5 per cent moving between labour markets in the year prior to the Census. Other researchers have found similar results (for example, Biddle and Yap 2010; Dr Nicholas Biddle, sub. 13; Bill and Mitchell 2006). Indigenous Australians also have higher rates of temporary mobility, as measured by those who are away from their usual place of residence on Census night (Dr Nicholas Biddle, sub. 13).

Figure 5.2 Proportion of the population who moved interstate and overseas in 2004–05 and 2011–12, by age^a



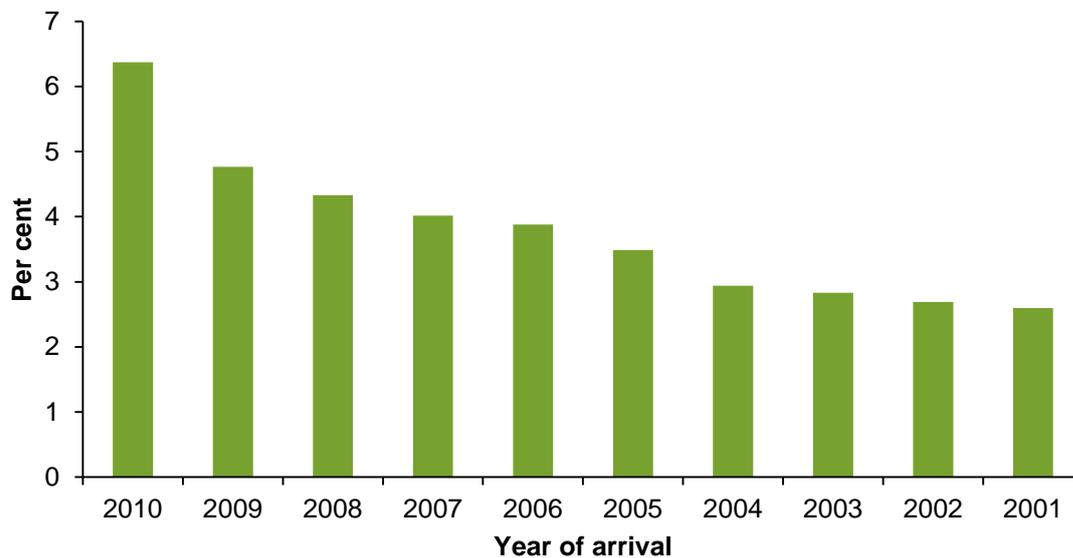
^a People are counted as being overseas migrants if they spend 12 months or more within a 16-month period outside Australia.

Source: Productivity Commission estimates using ABS (*Migration, Australia, 2011-12 and 2012-13*, Cat. no. 3412.0).

Recent international migrants to Australia also move more than the rest of the labour force (figure 5.3). Over 6 per cent of people who arrived in Australia in 2010 moved in the year prior to the Census, compared to about 3 per cent of people who arrived earlier in the decade, which is similar to the total labour force.

Hugo and Harris (2011) found a similar pattern when looking at recent immigrants' moves between statistical divisions. They also found that recent immigrants were more likely to undertake interstate moves than the rest of the population.

Figure 5.3 **Proportion of people in the labour force who moved residence between labour markets in the year prior to the Census, by year of arrival in Australia^{a, b}**



^a Movements between labour markets are measured using the methodology described in appendix B, box B.1. ^b For place of usual residence one year ago, capital city labour markets include Capital City undefined.

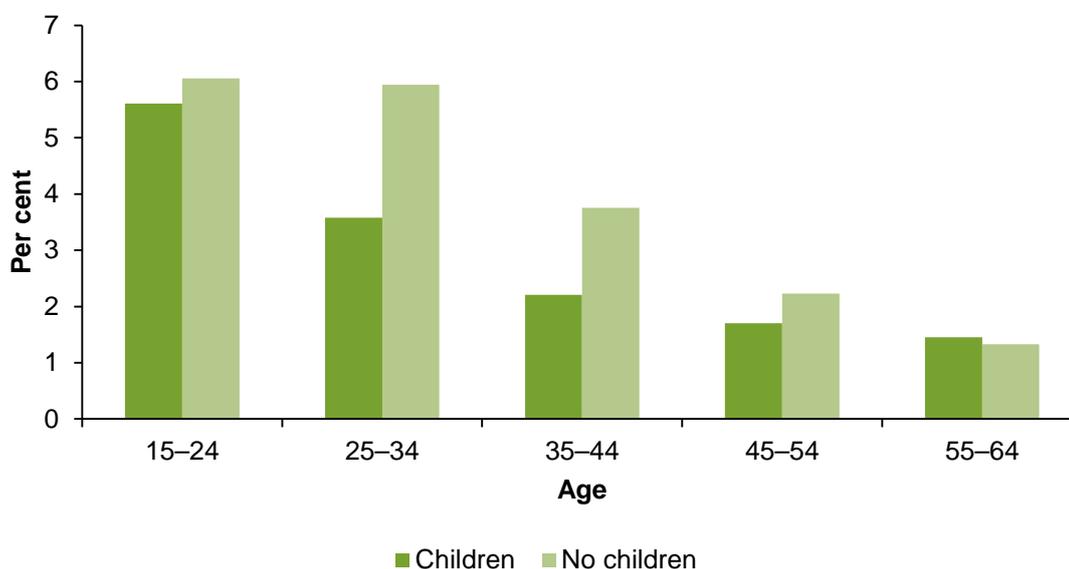
Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

Family

Mobility differs by family characteristics. Females in the labour force are more geographically mobile if they do not have children, with 5.2 per cent of females without children moving in the year prior to the Census, compared to 2.1 per cent of mothers. This trend is similar across most age groups (figure 5.4). As the Census does not ask males about their number of children, the Commission also looked at data in the HILDA Survey on all residential moves by people in the labour force by number of children. Similar results were found for males and females.

While people with children generally move less, some parents have relatively high rates of mobility. For example, previous literature has shown that sole parents move much more than married couples with children (ABS 2010b; Mitchell 2008b).

Figure 5.4 **Proportion of females in the labour force who moved residence between labour markets in the year prior to the Census, by presence of children and age^{a, b}**



^a Movements between labour markets are measured using the methodology described in appendix B, box B.1. ^b For place of usual residence one year ago, capital city labour markets include Capital City undefined.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

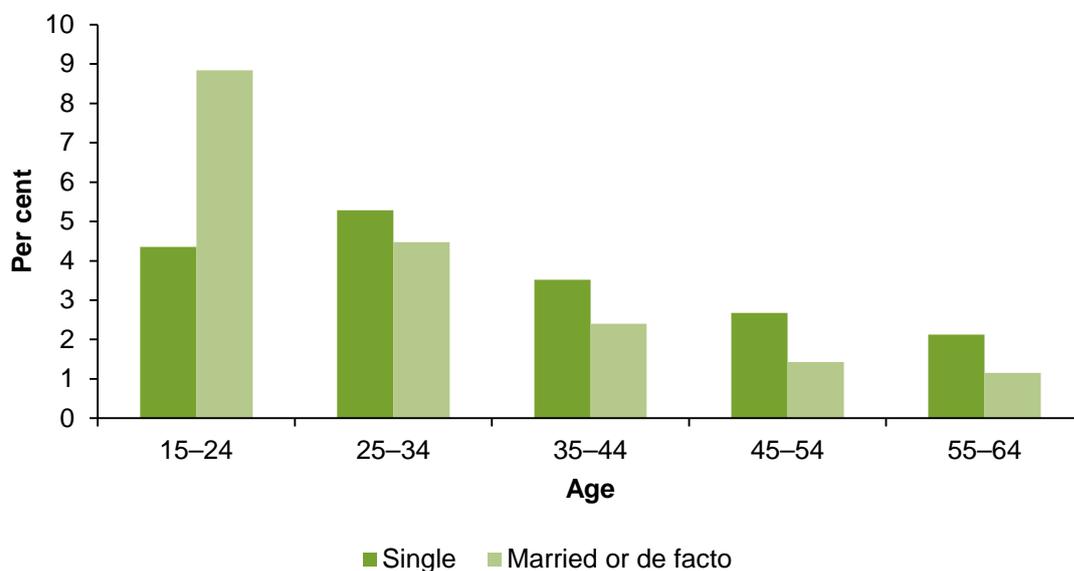
Single people are also more likely to move between labour markets than those who are married or in a de facto relationship. About 3.9 per cent of single people in the labour force moved in the year prior to the Census, compared to 2.5 per cent of people in a married or de facto relationship. However, this finding varies with age, with a much higher proportion of young (aged 15–24 years) people in a relationship moving compared to young single people (figure 5.5). This could be due to young people not in a relationship living with their parents, while young people in a relationship are establishing their own household, further illustrating the impact of life events on individuals' mobility (chapter 8).

Housing

Housing tenure is related to mobility. As information about housing tenure in the Census is collected on a per dwelling (rather than a per person) basis, information cannot be derived about the movements between labour markets of people living under different housing arrangements. However, general residential comparisons can still be made. About 36 per cent of rented dwellings surveyed on Census night had at least one resident who lived somewhere else a year prior to the Census. This compares to 11 per cent of dwellings owned outright or with a mortgage. The

Commission also analysed residential moves by the labour force using the HILDA Survey and found that people in rental accommodation moved more frequently than home owners. Previous research has also found this result (for example, ABS 2010b; Bill and Mitchell 2006; Mitchell 2008b). However, while renters move more overall, public housing tenants have been found to move less than private renters (ABS 2010b; Bill and Mitchell 2006; Mitchell 2008b).

Figure 5.5 **Proportion of people in the labour force who moved residence between labour markets in the year prior to the Census, by marital status and age^{a, b, c}**



^a Movements between labour markets are measured using the methodology described in appendix B, box B.1. ^b Marital status is defined using the social marital status indicator. Married or de facto includes married in a registered marriage and married in a de facto relationship. Single is defined as not married. ^c For place of usual residence one year ago, capital city labour markets include Capital City undefined.

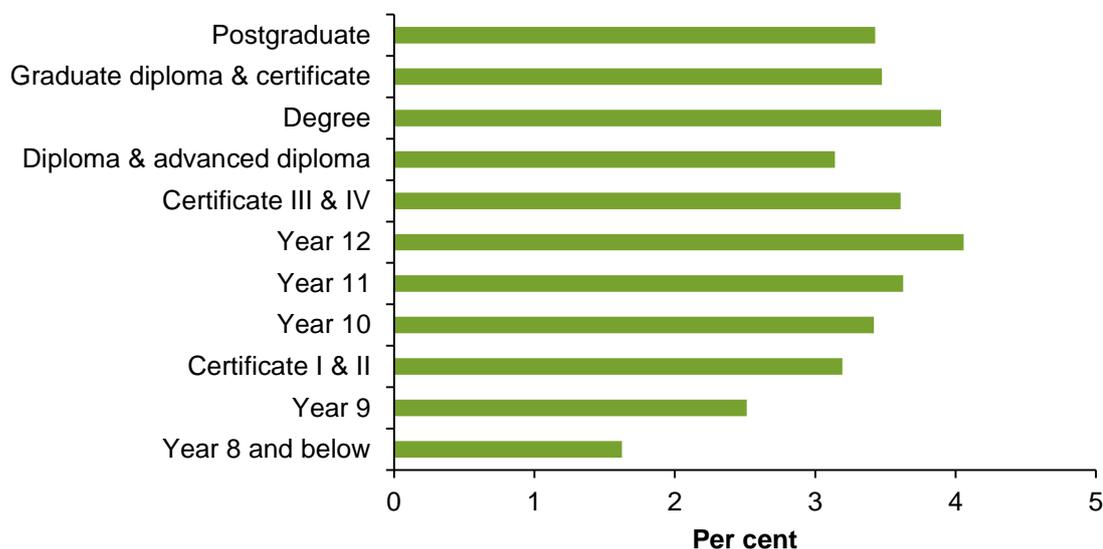
Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

Education and skills

Mobility is correlated with education and skills. An individual's mobility appears to increase with completion of school years (figure 5.6), although at higher education levels the relationship is less clear.

Other researchers have also found a correlation between education and mobility. For example, Mitchell (2008b), using data from the HILDA Survey and the 2006 Census, found people with low educational attainment moved less. Bill and Mitchell (2006), also using HILDA data, found that people who did not finish high school are significantly less likely to move than those who did.

Figure 5.6 **Proportion of people in the labour force who moved residence between labour markets in the year prior to the Census, by highest qualification attained^{a, b}**

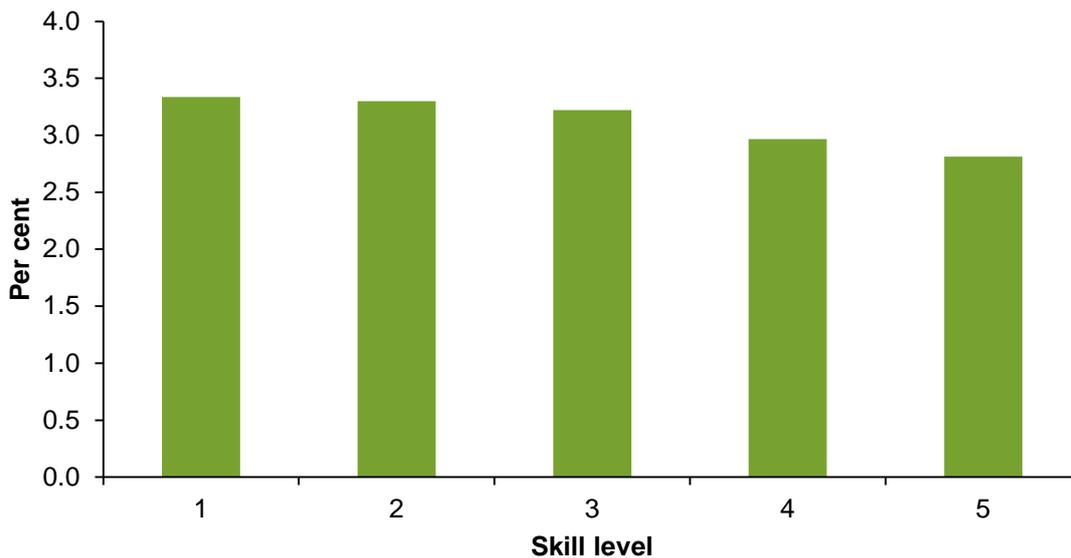


^a Movements between labour markets are measured using the methodology described in appendix B, box B.1. ^b For place of usual residence one year ago, capital city labour markets include Capital City undefined.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

Mobility also increases, albeit only slightly, with the skill level of an individual's occupation (figure 5.7). About 3.3 per cent of employed people in occupations classed as skill level 1, the highest skill level category (which includes mostly manager and professional type occupations), moved between labour markets in the year prior to the Census. This compares to 2.8 per cent of people in skill level 5 occupations (the lowest skill level category, which includes occupations in the community and personal services, clerical and administrative, sales and labourers categories).

Figure 5.7 Proportion of employed people who moved residence between labour markets in the year prior to the Census, by occupation skill level^{a, b, c}



^a Movements between labour markets are measured using the methodology described in appendix B, box B.1. ^b Occupations are grouped at the unit group level into skill level groups as per the Australian and New Zealand Standard Classification of Occupations. ^c For place of usual residence one year ago, capital city labour markets include Capital City undefined.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

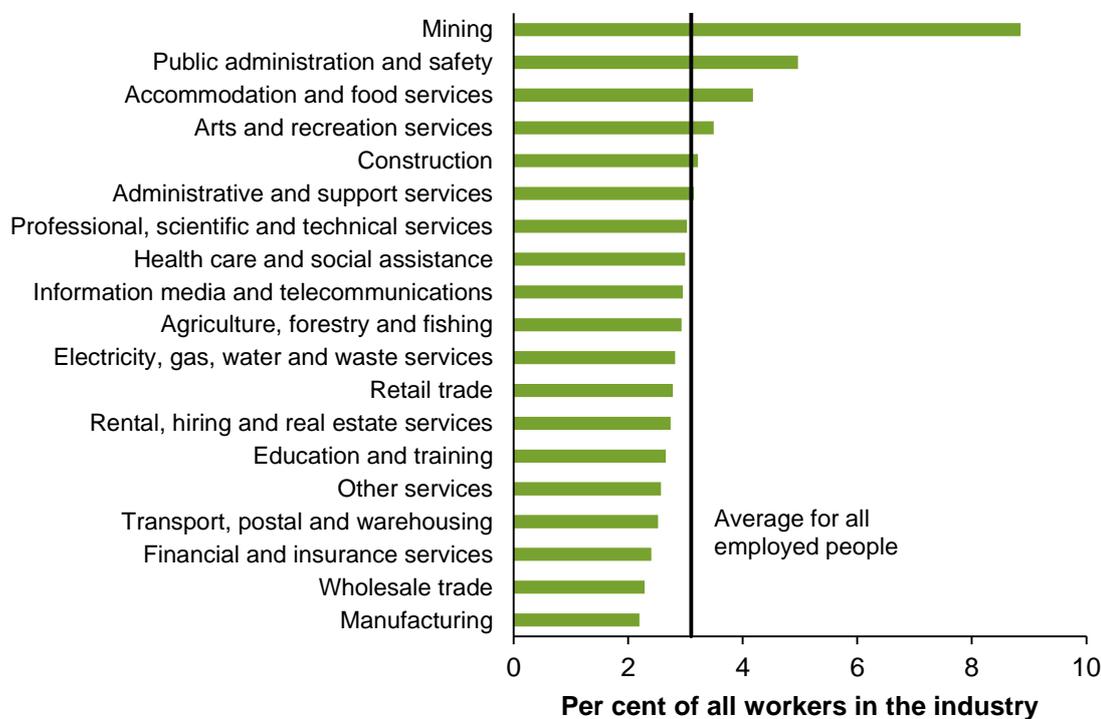
Type of labour market activity

Mobility varies by industry of employment (figure 5.8). The mining industry has the most mobile workforce, followed by public administration and safety and the accommodation and food services industries.¹⁰ Bell (2002) had similar findings using the 1996 Census and a former industry classification structure. Workers in these industries may be more geographically mobile because of the project-based or seasonal nature of the work, and because some jobs in these industries are located in regional and remote areas.

Geographic labour mobility also varies by labour market status. As discussed further in chapter 7, unemployed people are much more likely to move residence than both employed people and people who are not in the labour force. Of those who are employed, employees are more than twice as likely to move labour markets than the self-employed.

¹⁰ The Census records the industry an individual works in at the time of the Census, not a year earlier. As a result, the data are capturing people who moved between labour markets and in some cases, also between industries. These people cannot be identified using Census data.

Figure 5.8 **Proportion of employed people who moved residence between labour markets in the year prior to the Census, by industry^{a, b}**



^a Movements between labour markets are measured using the methodology described in appendix B, box B.1. ^b For place of usual residence one year ago, capital city labour markets include Capital City undefined.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

Seasonal work

While seasonal workers do not generally change their usual place of residence, as a result of their job they often move temporarily between regional labour markets. As such, they are an important component of geographic labour mobility. However, due to the nature of their work, detailed data on the size and characteristics of the seasonal labour force are limited (Hanson and Bell 2007).

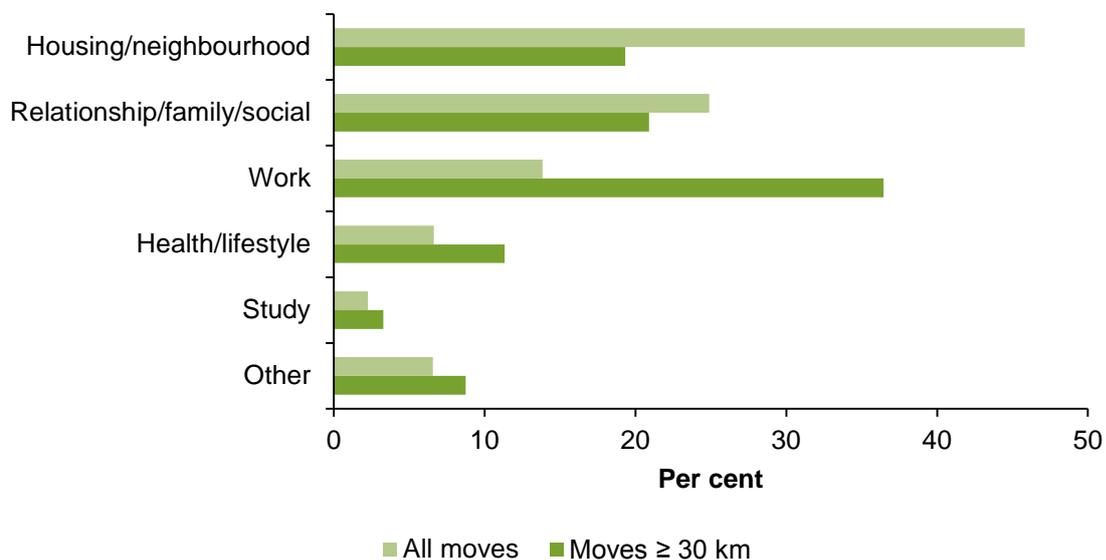
Seasonal workers are often employed in industries that are dominant in regional and remote areas, such as tourism and hospitality, agriculture, horticulture, aquaculture and food processing (Kilpatrick and Bound 2005). Hanson and Bell (2007) studied the characteristics of agricultural seasonal workers in three harvest locations in Queensland. They found that the composition of the seasonal workforce varies between locations. However, they identified five key groups of people that dominate the seasonal workforce: career full-time farm labourers; retirees supplementing their income while travelling; Australian working holiday makers

taking time out of the full-time workforce; working holiday makers from overseas; and Australian students working during vacation. While traditionally men have comprised the majority of the seasonal workforce, the share of women has increased in recent years (Hanson and Bell 2007). Women now dominate some regions and industries (Tasmanian Food Industry Training Board 1999, cited in Kilpatrick and Bound 2005).

Reasons given for moving

People in the labour force give a variety of reasons for moving and they differ by distance moved (figure 5.9). In 2012, housing and neighbourhood, and relationship, family and social reasons were the main reasons given for moving. Work-related reasons are more common for moves over longer distances than shorter distances. Previous research has found similar results, with estimates of the proportion of the population who move primarily for work purposes ranging between 10 and 17 per cent of all moves depending on the data source used (ABS 2010b; Watson 2011).

Figure 5.9 Reasons given for moving, by distance^a



^a Main reasons given for moving. Survey respondents could give more than one main reason.

Source: Productivity Commission estimates using HILDA Survey, In-confidence Release 12.0.

These reasons were also the most commonly given in the ABS 2007-08 Survey of Income and Housing. Reasons given were also found to differ by a person's characteristics. For example, couples with children were most likely to move because they wanted a bigger or better home, whereas one-parent families and lone person households were most likely to move for reasons such as family conflict,

breakdown of relationships and to be independent. In addition, renters were more likely to move for employment reasons than home owners (ABS 2009a).

5.3 Where are people moving?

There is significant variation of movement between regional labour markets. This section identifies which regional labour markets people are moving in and out of (net internal migration), and the personal characteristics associated with moving to certain areas.

Previous analysis of residential moves between 2001 and 2006 by the Bureau of Infrastructure, Transport and Regional Economics (BITRE 2011b) using the 2006 Census, found that people are commonly moving out of capital cities and to regional coastal areas. In addition, Hugo and Harris (2011) analysed residential movements between statistical divisions from 2001 to 2006 and found that coastal Queensland areas had generally experienced high positive net internal migration, while capital cities and many inland regional areas had experienced high negative net internal migration. This is a longer-term trend driven by lifestyle and life cycle reasons (BITRE 2011b).

The Commission's analysis of net internal migration of the population (over one-year and five-year periods) using the 2011 Census shows similar results. People are generally moving out of capital cities, particularly Melbourne, Sydney and Adelaide,¹¹ and inland regional areas, and moving to coastal regional labour markets. It should be noted that net internal migration is only one component of population change. While some areas may lose people via net internal migration, this is being offset by natural increase and net overseas migration. Regional labour markets did not experience outright declines in population.

While people in the labour force are also moving out of some capital cities (particularly Sydney and Adelaide) and from inland regional labour markets, and into coastal regional labour markets, they are doing this less than the broader population. The labour force is relatively more likely to move to capital cities, where there are richer labour markets. For example, while Melbourne experienced negative net internal migration in aggregate between 2006 and 2011, it experienced positive net internal migration of people in the labour force. Similarly, people in the labour force are more likely to be moving to regions with high mining activity than

¹¹ Namely the capitals in the south-east; Brisbane and Perth had positive net internal migration between 2006 and 2011.

the general population. In contrast, regional Tasmania is losing a disproportionate number of people in the labour force.

Age is correlated with where people move. Younger people (aged 15–24 years) are experiencing somewhat different mobility patterns to the overall population, and closer to the labour force trends. Younger people were much more likely to move to capital cities compared to the general population. This is most likely due to young people seeking the education and employment opportunities available in cities (BITRE 2011b). They were also moving to regional Western Australia and some areas of coastal Queensland in the year prior to the Census.

In contrast, older people (aged 55–64 years) are more likely to move out of capital cities and into regional coastal markets. These moves have been attributed to the amenities of many coastal areas, such as mild weather, being close to the coast, low crime rates and higher concentrations of other older people (BITRE 2011b). This trend may be accentuated over time by the ageing of the population.

Where people move also differs by their relationship status. While the capital city labour markets of Melbourne, Perth and Brisbane receive the most single people, those who are married or in a de facto relationship are moving out of most capital city labour markets and into labour markets in regional New South Wales, Victoria and Queensland.

Unsurprisingly, where people move is also correlated with the industry they work in. For example, mining workers are experiencing different trends to the rest of the population and have a higher propensity to move to labour markets with mining activity, such as regional Western Australia and Mackay (which includes the Bowen Basin). Workers in the wholesale trade, retail trade and arts and recreation industries were more likely to move to capital cities than the general population in the year prior to the Census.

Where people move also varies by income. In particular, people on higher incomes move out of capital cities and into labour markets with significant mining activity such as Western Australia — Outback, Fitzroy, Mackay and the Hunter Valley. This is probably because workers in the mining industry earn high wages relative to workers in other industries (ABS 2013d). People on higher incomes are also more likely to move between capital cities (as a proportion of all moves by people on higher incomes) than people on lower incomes.

5.4 Geographic labour mobility overseas

International comparisons of geographic labour mobility can shed further light on the patterns and trends in mobility, including who moves and why people move, especially where Australian literature is limited. The Commission has briefly reviewed overseas literature and compared estimates of residential mobility in Australia and other OECD countries. Due to data availability, these comparisons are made with respect to residential mobility, not moves between labour markets. The key findings from this comparison are:

- Australia has relatively high rates of residential mobility
- there is consistency across countries in terms of who moves — young people, higher-skilled people and people without children are more likely to move. Private renters are more mobile than home owners and social housing tenants
- the effectiveness of geographic labour mobility as a mechanism for adjusting to regional shocks is relatively higher in Australia.

International comparisons can be problematic for a number of reasons, including different data sources, inconsistent definitions of regional labour markets, differences in the size of regions that are used to measure mobility and data collection periods. It is also likely that mobility varies because of the different characteristics of countries. There are some unique features about Australia's population distribution and its economy and society, which mean that some developed countries offer a more suitable comparison than others. Canada is a useful country with which to compare Australia and is discussed in more detail below and in appendix C.

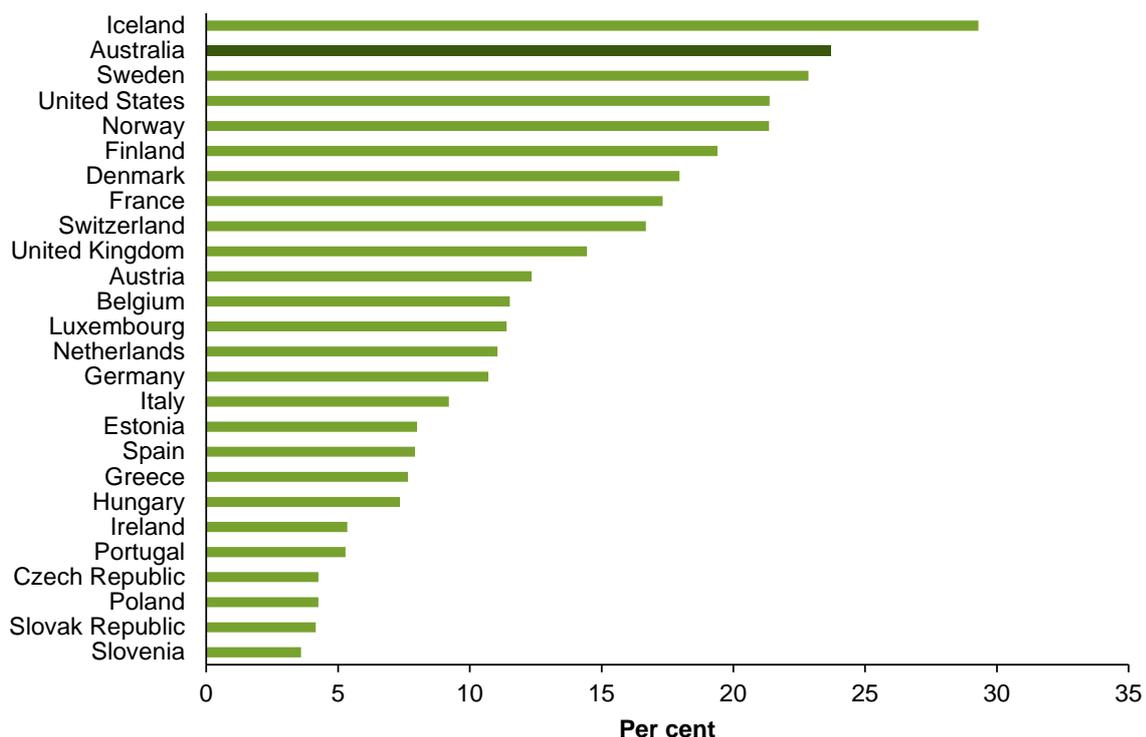
Residential mobility overseas

It appears residential mobility is high in Australia relative to other OECD countries, based on a number of studies.

- In 2007, residential mobility, as measured by the proportion of households that changed residence in the past two years, was highest in the Nordic countries, Australia and the United States. Mobility tended to be lowest in southern and eastern European countries (figure 5.10).
- Comparisons of residential mobility over one-year and five-year periods also suggest that residential mobility is high in Australia relative to other developed countries (table 5.6).

- The OECD (2005) found that in 2003, the proportion of the working-age population who changed region of residence in the previous year in Australia was lower than in the United States but higher than in Canada.
- Bell and Charles-Edwards (2013), using Census data from a number of countries, found that internal migration is generally highest in Australia, Canada, New Zealand and the United States, and lowest in Asian countries.
- Mobility in the European Union, on average, appears to be lower than in English-speaking countries (Shah and Long 2009).
- Rees et al. (2000) found that people living in Australia were more likely to move residence than people living in Great Britain.
- Bell (2002) found that New Zealand had higher mobility rates than Australia over one- and five-year intervals.

Figure 5.10 **Proportion of households that changed residence, by OECD country, 2005–2007^a**



^a Data for some countries are from different years. The authors noted that low mobility rates estimated for some eastern European countries did not seem reasonable and might reflect problems with the underlying data. However, the authors also noted there were no alternative data sources with which to verify this.

Source: Caldera Sánchez and Andrews (2011b).

Table 5.6 Residential mobility in different countries
Per cent of the population who changed usual residence

	<i>One-year interval</i>	<i>Five-year interval</i>
Australia (2011)	14.6	37.7
Canada (2006)	13.3	38.5
England (2001)	10.7	na
Ireland (2006)	10.1	na
Italy (2001)	5.1	na
Cyprus (2001)	3.8	na
New Zealand (2006)	na	54.7
United States (2000)	na	44.3
Switzerland (2000)	na	36.1
France (2006)	na	34.0
Israel (1995)	na	28.2
Japan (2010)	na	22.4
Malaysia (2000)	na	17.1
Mauritius (2000)	na	12.0

na Not available.

Source: Regional Australia Institute (forthcoming).

Australia's relatively high mobility rate was also noted in a number of submissions (AMMA, sub. 29; BCA, sub. 31; Jobs Australia, sub. 20; RAI, sub. 25).

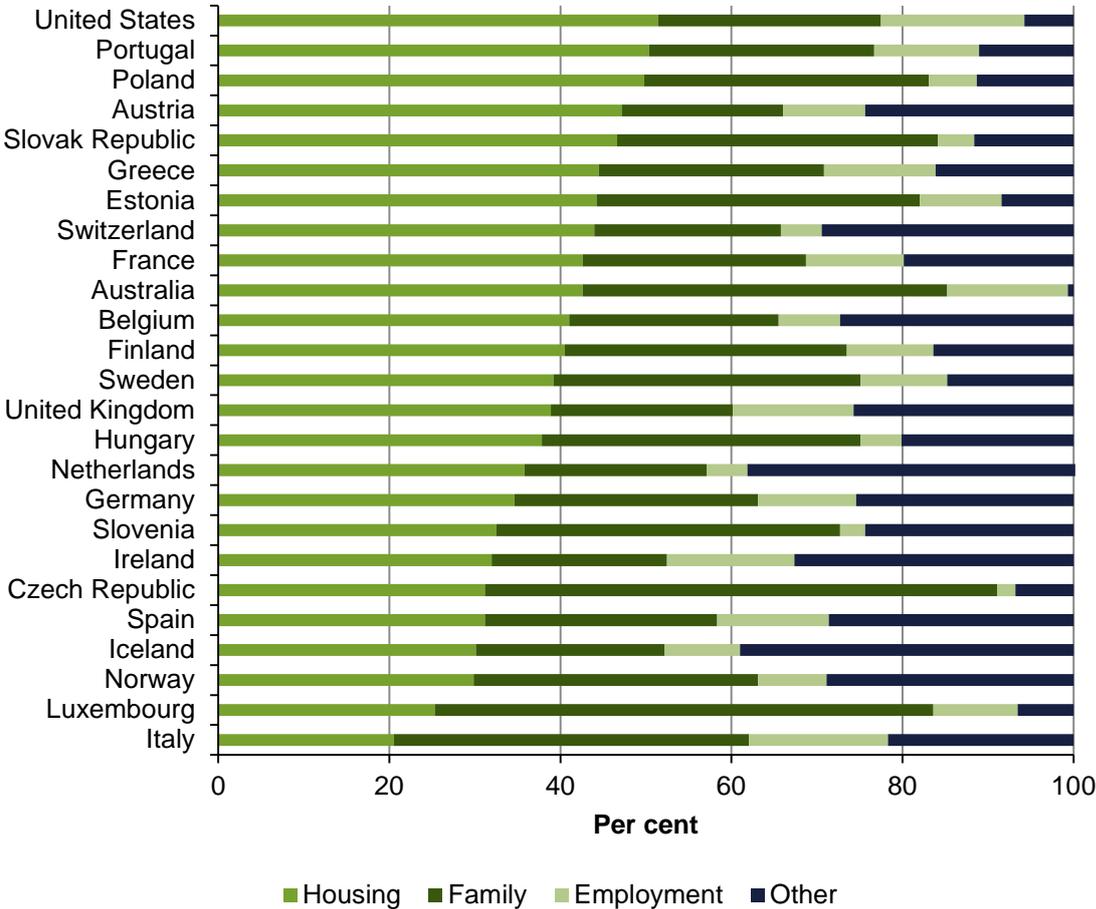
Canada has experienced broadly similar residential mobility trends as Australia in recent years. Trends in interprovincial migration in Canada (equivalent to interstate migration in Australia) reflect varying economic performance across provinces. There has been positive net internal migration to provinces with large endowments of natural resources, as well as British Columbia, with the latter attracting migrants because of its climate and lifestyle. Some resource regions have also experienced increases in long-distance commuting (chapter 6). Smaller provinces have lost population to other provinces, reflecting their poorer economic performances. Total interprovincial migration has declined as a proportion of the population, as it has in Australia.¹²

In recent decades, Canada has had high rates of immigration like Australia. Immigration flows were broadly consistent with interprovincial migration patterns. The share of permanent and temporary immigrants entering the faster growing provinces of Alberta and British Columbia was higher than their population share (appendix C).

¹² Interstate migration has also declined in the United States, from about 3 per cent of the population moving interstate annually in the late-1980s, to around 1.5 per cent currently (Productivity Commission estimates using United States Census Bureau 2013).

A number of common factors appear to influence residential mobility in different countries. Housing policies have a significant influence on mobility. Caldera Sánchez and Andrews (2011b) found that after controlling for household and country-specific factors, residential mobility was higher in countries with lower moving-related transaction costs, lower rent controls and tenant protection, a more responsive housing supply and greater access to credit. Across OECD countries, home owners tended to be less mobile than private renters. Mobility among social housing tenants was low, particularly in countries where social housing is targeted towards those most in need. Across countries, housing and family reasons appear to be a much more important motivation for moving than employment (figure 5.11).

Figure 5.11 Main reason for moving, 2007^a



^a Includes all residential moves.

Source: Caldera Sánchez and Andrews (2011b).

Labour market policies also affect residential mobility. Strong labour protections and high unemployment benefits can reduce incentives to move jobs and can lead to lower residential mobility (Caldera Sánchez and Andrews 2011b). There are other

institutional factors. In the European Union, a lack of cross-border portability of social security and pensions and a lack of cross-border skills recognition impede mobility (OECD 1999). These impediments also exist within countries. For example, a more general lack of portability of pensions and other entitlements between jobs can impede mobility. Inter-jurisdictional skills recognition can also be an impediment, particularly in federations.

There are also consistent patterns across countries with respect to who moves. Better educated people and younger people tend to be more mobile in most OECD countries (OECD 2005). People who are cohabiting are less likely to move, reflecting the fact that two people, and in many cases two careers, are shifted (Caldera Sánchez and Andrews 2011b). Berger-Thomson and Roberts (2012), who compared mobility in Australia, Germany, the United Kingdom and the United States, found that higher-income earners, young people and people without children were more likely to move.

Regional inequalities in incomes, employment and growth exist in all developed countries, and often persist (OECD 2005, 2011a). Residential mobility is a potential adjustment mechanism to regional shocks. Residential mobility can reduce regional economic disparities and enhance overall efficiency through labour moving to where it is most highly valued (Coppel 2005). The OECD (2005) found that in most developed countries, net internal migration tended to be from low-employment to high-employment regions. However, in some European countries, including France and the Netherlands, migration flowed in the other direction. In addition, the OECD (1999, p. 129) found that ‘... labour mobility plays a relatively important role in existing currency areas like the United States and Australia, compared to the Euro area, in response to factors that affect employment’.

Residential mobility is only one of a number of adjustment mechanisms to regional economic shocks. For labour mobility to be an effective adjustment mechanism, it needs to be accompanied by other institutional settings. For example, wage rigidities and certain housing policies can limit the adjustment process (OECD 1999, 2005).

6 Commuting

Key points

- Commuting is an important component of geographic labour mobility. It is an alternative to residential mobility.
- While long-distance commuting, in its various forms, is a small part of the workforce (2 per cent in 2011), it has made an important contribution to labour market efficiency. Long-distance commuting appears to be increasing.
 - Long-distance commuting occurs in a range of industries and occupations, but has been particularly important in the resources sector.
- Intra- and intercity commutes are important for geographic labour mobility and efficient job matching.
- New technologies have enabled more workers to telecommute. However, while comparable to other countries, the proportion of Australians telecommuting is still small and does not appear to have grown in recent years.
- The greatest challenge to the uptake of telecommuting may not necessarily be technology, but rather management practices and cultural norms in workplaces.

The Commission has adopted a broad interpretation of geographic labour mobility. Under this interpretation, geographic labour mobility entails people's work relocation. Mobility includes both residential moves (chapter 5) and commuting. This chapter discusses three types of commuting — long-distance commuting (section 6.1), intra- and intercity commuting (section 6.2) and telecommuting (section 6.3). It focuses on commuting in Australia and briefly discusses available evidence on commuting overseas.

While long-distance commuting are a small component of the total workforce, this type of geographic labour mobility is important at the margin in meeting labour demand and facilitating efficient job matching (D'Arcy et al. 2012). While not uniformly regarded as a positive development by stakeholders (chapter 3), it appears that fly-in, fly-out (FIFO) work practices have been instrumental in attracting sufficient mining and construction workers to mining areas during the resources boom, and spreading the benefits of the boom across the economy more broadly. FIFO has also moderated the boom–bust cycle that mining towns might otherwise experience if all employees had to be residential.

6.1 Long-distance commuting

Long-distance commuting in Australia

Long-distance commuting is a component of geographic labour mobility. In some cases, it could be a substitute for permanent residential moves (chapter 2). D'Arcy et al. (2012, p. 9) noted that:

An alternative to permanent relocation that allows workers to take advantage of stronger labour market conditions without incurring all the costs is long-distance commuting ... particularly when the work is not long term.

There is a perception that long-distance commuting is growing, especially in the resources sector. However, there is no one accepted definition of long-distance commuting or way to measure it. Conceptually, long-distance commutes are commutes that exceed a distance or time threshold between a person's place of residence and their workplace. For most workers, travel time is likely to be a more important consideration than distance travelled.

The regularity of long-distance commuting is relevant for assessing the number and characteristics of long-distance commuters. For example, few people would identify someone who travels interstate once per month for meetings as a long-distance commuter but most would identify a FIFO miner as a long-distance commuter. Long-distance commuting includes a range of travel modes, including FIFO, drive-in, drive-out (DIDO), bus-in, bus-out (BIBO) and ship-in, ship-out (SISO).

Appendix B discusses the various approaches that have been used to estimate long-distance commuting in Australia.

Estimates of long-distance commuting

The number of people undertaking long-distance commuting is increasing, although it is still a small proportion of the workforce (NCVER, sub. 3). Various studies have estimated the number of long-distance commuters (table 6.1). The most recent and substantial study (KPMG 2013c) estimated that about 2 per cent of the workforce undertook a long-distance commute at the time of the 2011 Census, defined as commutes of 100 km or greater. About 20 per cent of long-distance commutes were by mining workers (excluding mining-related construction), demonstrating that long-distance commuting occurs in many sectors.

The number of long-distance commutes has grown since 2006, particularly in the resources sector. However, due to growth in the resources workforce the proportion of mining workers long-distance commuting has increased only slightly (from

22 per cent in 2006 to 25 per cent in 2011).¹³ The overall number of long-distance commuters was also estimated by de Silva, Johnson and Wade (2011), based on a 100 km threshold. The authors estimated that there were about 140 000 long-distance commuters in 2006 — similar to KPMG’s estimate for 2006.

Other attempts to estimate long-distance commuting have focused on the resources sector (table 6.1). These yielded different estimates given their different approaches. The numbers are small in absolute terms, but may represent a significant part of the workforce in certain mining regions.

Table 6.1 Estimates of long-distance commuters, 2006 and 2011^a
Number of workers and per cent of workforce

	2006		2011	
	<i>no.</i>	%	<i>no.</i>	%
Relative to total workforce				
de Silva, Johnson and Wade ^b	141 671	1.6	ne	ne
KPMG	155 610	1.7	213 773	2.1
Relative to resources sector workforce^c				
D’Arcy et al. ^d	ne	ne	50 000	28.3
KPMG ^e	23 961	22.4	44 610	25.3
Productivity Commission ^f	ne	ne	34 000	19.3
Construction, Forestry, Mining and Energy Union	ne	ne	17 405	9.9
Department of Employment ^g	ne	ne	29 900	16.9
Relative to WA resources sector workforce				
Chamber of Minerals and Energy of Western Australia ^h	ne	ne	46 800	52.0
Relative to remote areas workforce				
de Silva, Johnson and Wade ⁱ	40 634	7.0	ne	ne

^a Each paper has used the Census to estimate the number of long-distance commuters. ^b The denominator used to calculate the per cent of the workforce is from KPMG’s study. ^c All denominators for 2011 are from KPMG’s study. Percentages are of the mining sector’s workforce, excluding mining-related construction. ^d Includes mining and mining-related construction. This estimate should be interpreted as a lower bound. D’Arcy et al. (2012, p. 9) noted that ‘there are currently upwards of 50 000 FIFO/DIDO workers’. ^e KPMG classified Australian regions into six different types including mining regions. ^f This estimate is of mining and construction workers employed under FIFO arrangements in the main mining regions of Western Australia, Queensland and New South Wales. This estimate does not capture most DIDO workers. ^g The Department of Employment’s estimate is the number of mining workers who were not at their usual residence on Census night. ^h The denominator is the number of workers in the resources sector in Western Australia. ⁱ The denominator used is the number of workers in remote areas. **ne** Not estimated.

Sources: CFMEU, sub. 26; D’Arcy et al. (2012); DoE sub. DR60; KPMG (2013c); PC (2013c); de Silva, Johnson and Wade (2011); WA Government, sub. 32.

¹³ KPMG also undertook a survey of nonresident beds used by mining and mining-related workers in mining regions in November 2012 to supplement its 2011 Census estimates. Using this approach, KPMG estimated a lower bound of 100 000 long-distance commuters in the resources sector, much higher than their Census-based estimate for August 2011.

Patterns of long-distance commuting

Capital cities and mining regions appear to be the most common destinations for long-distance commuters. KPMG (2013c) estimated that Sydney was the most common place of work for long-distance commuters in both 2006 and 2011. The Pilbara and Bowen Basin, both mining regions, were the second and third most common places of work in 2011. There were large increases in long-distance commuters to both of these mining regions from 2006 to 2011 (table 6.2).

Table 6.2 Most common destinations for long-distance commuters, 2006 and 2011

<i>Place of work</i>	<i>2006</i>	<i>2011</i>	<i>Change from 2006–2011</i>	
	<i>no.</i>	<i>no.</i>	<i>no.</i>	<i>%</i>
Sydney	16 868	19 681	2 813	16.7
Pilbara	6 840	18 703	11 863	173.4
Bowen Basin	9 804	16 554	6 750	68.8
Melbourne	11 599	15 592	3 993	34.4
Balance–NSW	11 296	12 246	950	8.4
Balance–Qld	10 679	12 061	1 382	12.9
Balance–WA	8 772	9 825	1 053	12.0
Brisbane	6 942	9 150	2 208	31.8
Balance–Vic	6 742	7 728	986	14.6
Perth	4 305	7 366	3 061	71.1

Source: KPMG (2013c).

Common commuting routes were also analysed. KPMG estimated that the most common commuting route in 2011 was from Perth to the Pilbara. In addition to Perth, many of the most common commuting routes had their origin in ‘balance regions’ (regional areas), suggesting that the benefits of the resources boom might be spread widely (table 6.3). In recent years FIFO has grown rapidly on particular routes, often from a very low base. This is in part due to the mining industry establishing new FIFO routes. In a study commissioned by Regional Development Australia Gold Coast Inc., KPMG (2013b) found that long-distance commuting from the Gold Coast to mining regions increased dramatically from 2006 to 2011.

The Department of Infrastructure and Transport (2013) has also analysed patterns of long-distance commuting and noted the importance of Perth. It analysed commutes of over 400 km between local government areas and found that six of the top 25 route pairs had Perth as the place of residence and the Pilbara or northern Western Australia as the place of work.

Table 6.3 Most common long-distance commuting routes, 2006 and 2011

<i>Place of usual residence</i>	<i>Place of work</i>	2006	2011	<i>Change from 2006–2011</i>	
		<i>no.</i>	<i>no.</i>	<i>no.</i>	<i>%</i>
Perth	Pilbara	4 290	10 604	6 314	147.2
Balance–Qld	Bowen Basin	2 693	5 125	2 432	90.3
Balance–Qld	Balance–Qld	4 200	4 755	555	13.2
Perth	Balance–WA	4 301	4 696	395	9.2
Balance–NSW	Sydney	4 320	4 585	265	6.1
Balance–Vic	Melbourne	3 172	3 978	806	25.4
Balance–NSW	Balance–NSW	4 255	3 958	-297	-7.0
Perth	Kalgoorlie–Boulder	2 577	3 201	624	24.2
Mackay	Bowen Basin	2 083	3 025	942	45.2
Sydney	Balance–NSW	2 625	2 918	293	11.2

Source: KPMG (2013c).

Aviation data demonstrate the impact and growth of FIFO. For example, Perth Airport (2014) estimated that between 2011 and 2012, 30 per cent of domestic passenger movements at its airport were related to FIFO workers in the resources sector. Passenger numbers at Karratha airport, a hub for FIFO workers, increased fivefold in the decade to 2012 (BITRE 2014).

Characteristics of long-distance commuters

There is limited information about the characteristics of long-distance commuters. Using the 2006 Census, de Silva, Johnson and Wade (2011) analysed the characteristics of long-distance commuters on five different routes and found marked differences in the characteristics of commuters across these routes.

- Long-distance commuters from Melbourne to Sydney were more likely to be managers and professionals.
- Long-distance commuters from Perth to East Pilbara were more likely to be technicians, trades workers or machinery operators and drivers.
- About 70 per cent of long-distance commuters from Sydney to the Snowy River (New South Wales ski fields) were aged under 30. Commuters were disproportionately employed in community and personal services.
- Long-distance commuters from Esperance to Ravensthorpe or Dundas (both mining regions) were more likely to be technicians, trades workers or machinery operators and drivers. More than 75 per cent were male (table 6.4).

Table 6.4 **Profile of long-distance commuters, 2006**

Analysis based on 2006 Census, per cent

	<i>Esperance to Ravensthorpe or Dundas^a</i>	<i>Loddon to Melbourne^b</i>	<i>Melbourne to Sydney^c</i>	<i>Perth to East Pilbara^d</i>	<i>Sydney to Snowy River^e</i>
Occupation					
Managers	20.8	15.8	25.4	5.4	8.4
Professionals	10.8	23.7	31.6	10.6	6.5
Technicians and trades workers	11.5	14.8	6.3	31.9	15.8
Machinery operators and drivers	32.3	6.7	1.6	34.5	6.5
Community and personal service workers	0.0	8.9	9.6	2.8	37.4
Clerical and administrative workers	10.8	16.5	7.7	3.6	4.8
Sales workers	0.0	7.4	13.9	0.2	11.9
Labourers	8.5	5.0	3.2	10.2	7.7
Age					
15–29 years	20.8	15.6	20.7	27.7	69.4
30–39 years	23.9	22.5	31.4	27.8	13.6
40–49 years	31.3	31.1	27.1	26.0	7.7
50–59 years	14.9	24.6	16.0	15.2	6.2
60+ years	5.2	6.3	4.8	3.2	3.0
Gender					
Males	78.1	59.8	52.2	61.1	57.3
Females	21.9	40.2	47.8	38.9	42.7

^a Typical commutes from Esperance to Ravensthorpe or Dundas are 220–230 km. Ravensthorpe and Dundas are both mining regions. Esperance, Ravensthorpe and Dundas are located in southern Western Australia.

^b The Loddon Statistical Division is north west of Melbourne. Major towns include Bendigo, Castlemaine and Kyneton. Typical commutes are 100–200 km. ^c Melbourne Statistical Division to Sydney Statistical Division. ^d Perth and surrounds to East Pilbara (a mining region). Typical commutes are 1300–1400 km. ^e Sydney Statistical Division to Snowy River (where the New South Wales ski fields are located). Typical commutes are about 500 km.

Source: de Silva, Johnson and Wade (2011).

The Commission has used the 2011 Census to analyse the characteristics of FIFO workers in the mining or construction industries who worked in mining regions in New South Wales, Queensland and Western Australia. The definition of mining regions and the methods used are based on Productivity Commission (2013c), which identified about 34 000 FIFO workers (details are discussed in appendix B). These workers:

- were overwhelmingly male (91 per cent) — a higher proportion than in the mining and construction industries (83 and 85 per cent, respectively) and a much higher proportion than the overall workforce (53 per cent)
- had a similar age profile to the mining industry and an older age profile than the construction industry. Compared with the overall workforce, these workers were

more likely to be aged 30–49 years, and less likely to be in younger or older age groups

- earned slightly higher incomes, on average, than all mining industry workers and much higher incomes, on average, than workers in the construction industry and the overall workforce
- were much more likely to have a certificate qualification and less likely to have a bachelor qualification than the overall workforce. The broader mining and construction workforces were also much more likely to have a certificate qualification than the overall workforce (table 6.5).

The Department of Employment (sub. DR60) analysed the characteristics of mining industry workers who were not at their usual place of residence on Census night in 2011. The Department found that these workers were similar to the mining industry as a whole. They tended to work full time and long hours, were mostly male, were more likely to be aged 25–44 years and on average earned high incomes. These findings are similar to findings from the Commission’s analysis of FIFO workers (table 6.5).

Why has long-distance commuting increased?

A number of factors have contributed to the increase in long-distance commuting practices, especially in mining and construction (MCA, sub. 6). These include:

- the high cost of living in regional and remote areas
- the lack of accommodation and facilities in regional and remote areas
- worker preferences for living in metropolitan or coastal areas, and close to family and friends
- workers not wanting to disrupt the schooling of their children or the career of their partner
- the short-term nature of construction projects
- more widely available flights to regional areas
- intense competition for workers with particular skills, such as engineers and project managers, leading to higher staff turnover
- newer mines being increasingly located in more remote areas.

Table 6.5 Characteristics of FIFO workers in the mining and construction industries working in mining regions, 2011

Per cent of workers within each state or industry with these characteristics

	<i>FIFO workers, by place of work^{a, b}</i>				<i>Australia-wide workforce</i>		
	<i>NSW</i>	<i>Qld</i>	<i>WA</i>	<i>Sum^c</i>	<i>Mining</i>	<i>Const.</i>	<i>All industries</i>
Gender							
Male	93.7	92.0	89.3	90.5	82.6	86.8	53.4
Female	6.3	8.0	10.7	9.5	17.4	13.2	46.6
Age							
15–29 years	24.6	22.6	24.5	23.8	23.4	29.1	26.4
30–39 years	23.6	26.0	27.0	26.4	27.9	23.7	22.0
40–49 years	23.6	25.9	26.3	26.0	26.0	22.9	23.3
50–59 years	20.3	19.8	17.8	18.6	17.6	16.9	19.4
60+ years	7.9	5.8	4.4	5.1	5.2	7.4	9.0
Weekly income							
Less than \$1000	16.1	9.3	3.7	6.3	9.7	48.1	56.4
\$1000–\$1499	25.0	19.0	11.3	14.7	17.9	28.8	22.2
\$1500–\$1999	21.4	25.7	22.4	23.4	22.3	12.4	11.0
\$2000+	37.5	46.0	62.6	55.6	50.1	10.8	10.4
Highest qualification^d							
No post-school qual.	33.6	36.9	35.2	35.6	34.4	36.9	39.0
Certificate	48.9	47.7	45.4	46.4	37.0	49.0	23.6
Diploma	5.6	5.5	7.4	6.7	7.1	6.0	10.4
Bachelor degree	9.7	8.1	9.5	9.1	15.6	6.5	19.2
Graduate diploma	0.4	0.5	0.8	0.7	1.4	0.4	2.5
Postgraduate degree	1.8	1.3	1.7	1.6	4.5	1.1	5.3

^a The definition of mining regions and the methods used are based on Productivity Commission (2013c) (details are discussed in appendix B). ^b For this analysis, the Commission identified about 34 000 workers (about 2000 in New South Wales, 11 000 in Queensland and 20 000 in Western Australia). ^c This is a weighted average of these three states, weighted by the number of FIFO workers in each state. ^d Excludes inadequately described or not stated. 'Diploma' includes diploma and advanced diplomas. 'Graduate diploma' also includes graduate certificate.

Source: PC estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

Changing work arrangements such as the shift away from the traditional eight-hour working day have been an important factor in the rise of long-distance commuting, especially in the mining industry. The Construction, Forestry, Mining and Energy Union (sub. 26, p. 12) reports:

... [a] rapid growth of FIFO and associated compressed rosters, with the most common roster in Western Australian mining involved 14 days or more of 12 hours shifts.

While the use of long-distance commuting is more common in mining and construction, it is also used in a number of service industries. For example, long-distance commuting practices:

-
- have been used by police services to overcome difficulties in attracting and retaining police officers in regional and remote areas of Australia (Police Federation of Australia, sub. 2)
 - are commonly used in the health industry to provide health services in small remote communities where there is not an adequate supply of health professionals (HRSCRA 2013).

Long-distance commuting overseas

There is very limited literature on long-distance commuting overseas. Price (cited in Haslam McKenzie 2011) noted that FIFO practices have been widely adopted throughout the world, particularly in remote mining regions such as Scottish and Norwegian oil fields, the Canadian mineral sands regions and parts of Africa. Storey (2010) suggested that over the past 25 years, the ‘no town’ model of mining development has replaced the mining town model, particularly in Australia and Canada. Storey argued that long-distance commuting in the resources sector had its origins in the 1950s oil industry in the Gulf of Mexico in the United States. Onshore use of FIFO increased in the 1970s in Australia and Canada. FIFO models are also used in other industries overseas, for example by the Royal Canadian Mounted Police (Police Federation of Australia, sub. 2). The Commission has gathered information on recent patterns and trends of long-distance commuting in the Wood Buffalo region, in the oil sands region of Alberta, and prepared a brief case study (box 6.1).

The OECD (2005) suggested that commuting flows, including long-distance commuting, were more important in labour markets than migration flows, and were increasing. Between 1 and 16 per cent of workers in OECD countries commuted between regions every day.

Box 6.1 Long-distance commuting in the Wood Buffalo region in Alberta, Canada

The Regional Municipality of Wood Buffalo is in north-eastern Alberta, Canada. It is about 450 km from Alberta's largest city, Calgary (population 1.21 million) and 750 km from Alberta's second largest city, Edmonton (population 1.16 million) (Statistics Canada 2012). The region has vast oil sands deposits, which are critical to the local economy. Large-scale commercial development began in the late 1970s and was followed by a period of stagnation in the 1980s and 1990s, before strong growth resumed as mineral prices boomed (Storey 2010).

The permanent and long-distance commuting population in the region, and its major city Fort McMurray, has grown rapidly in recent decades (Regional Municipality of Wood Buffalo 2013; Storey 2010). The permanent population of the region more than doubled in the decade to 2006 (to 75 000) (Storey 2010), increasing further to 116 000 in 2012 (Regional Municipality of Wood Buffalo 2013). The Regional Municipality of Wood Buffalo (2013) estimated that, in 2012, there were about 40 000 people residing in temporary worker accommodation in the region, and that there had been growth of 17 per cent per annum in the decade prior. Reasons for increases in long-distance commuting to the region might include the municipality struggling to increase housing supply and services to keep pace with demand, preference for living in larger cities and the inhospitable climate — winters are long and cold with average maximum temperatures of below minus 10 degrees (Environment Canada nd; Storey 2010).

As in Australia, there have been concerns about the impacts of long-distance commuting on workers, including increased drug use, fatigue and family breakdown, and the impacts on the local community, including pressure on existing services and infrastructure, high housing prices, traffic and other safety concerns. Traffic, and accidents, particularly on the 'highway of death' between Edmonton and Fort McMurray, have been a concern (Storey 2010).

Average incomes in Alberta are the highest of all large Canadian provinces (Statistics Canada 2013d). Incomes are even higher in Fort McMurray and the wider Wood Buffalo region. Average household income is about Can\$ 180 000 per year, more than double the national average. However, the cost of living in the region is also high (McDermott 2013; Moving 2 Canada nd).

6.2 Intra- and intercity commuting

The terms of reference note the importance of geographic labour mobility in helping people in outer metropolitan and non-metropolitan regions connect with job opportunities — referred to as intra- and intercity commutes, respectively, in this study. Many of these intra- and intercity commutes are unlikely to be captured in the previous analysis of long-distance commuting as they do not meet distance thresholds.

Intra- and intercity commutes can have positive and negative effects on wellbeing. In addition to allowing people access to job opportunities, intra- and intercity commutes might allow people to be closer to family, access lower-cost housing or pursue other lifestyle goals. And people make use of commuting time. They might work, socialise (in-person with other commuters or via information technology), sleep or simply take ‘time out’ between work and home responsibilities. Some people who commute long distances might enjoy aspects of their commute and feel part of a ‘community’ of commuters (Dr David Bissell, sub. DR56). However, there are concerns about the negative effects of commuting on wellbeing (Kelly 2012). There are concerns that in some regions and areas of cities there are few job opportunities locally, which means some people commute long distances to work when they would prefer to work locally. There are also broader concerns about the effects of long commutes on wellbeing, because long commutes reduce the time commuters have available to spend with family and friends and pursue other activities (BITRE 2011b). Business SA (sub. 11) reports that long commute times combined with shift work can have adverse effects on retention. It is difficult to verify the net effect of long daily commutes on wellbeing.

The ease of intra- and intercity commuting can influence participation and productivity. The Commission has heard concerns that people living in outer metropolitan areas and regional areas might have difficulty accessing a wide range of jobs, especially ‘knowledge-intensive’ jobs, which can be clustered, particularly in central areas of major cities (DIT 2013). This could reduce participation and/or reduce productivity due to people being unable or unwilling to commute long distances to high productivity jobs. This is of particular concern for people with carer responsibilities. However, it is difficult to isolate the specific effects of distance from the centre of a city on workforce participation as there are many other factors that affect participation. Kelly and Mares (2013) found that participation rates in many outer suburbs are just as high as in the inner city. There is limited evidence identifying productivity losses due to people being unable or unwilling to commute long distances within a city.

One significant factor that affects the ease of intra- and intercity commuting is transport infrastructure. The Commission was told that lack of access to transport, particularly public transport, could make it hard to access jobs, especially for those who are unemployed or disadvantaged. Lack of access to public transport might also be problematic for apprentices and trainees as they might not be able to afford a car or are underage and cannot drive unsupervised. The Commission is currently undertaking an inquiry into public infrastructure, which covers transport infrastructure. Other factors, such as the geographic distribution of housing, including affordable housing, taxation policies and land-use policies, can influence

geographic labour mobility (chapter 12), including by influencing intra- and intercity commuting.

Intracity commuting

Analysis of average commuting times for people in outer, middle and inner suburban areas suggest that the extent that long commute times negatively impact on wellbeing, particularly for people living in the outer suburban areas, might be overstated. While there can be considerable variation, average commute times for people in outer suburban areas are only slightly longer than for people in inner suburban areas and citywide average commuting times and distances appear to have increased only moderately in the past decade (discussed below). Further, many people who live in outer suburban areas work in outer suburban areas, and as shown in chapter 4, outer suburban areas have recorded large increases in employment.

In Sydney, Melbourne, Brisbane and Perth, residents of outer suburban areas commute longer distances on average than residents of middle and inner suburban areas — the average distance commuted from outer suburban areas is more than double that from inner suburban areas. However, despite this difference in distance, average commute times for people in outer suburban areas are not much longer than for people in inner suburban areas — only 5 to 7 minutes longer (data from 2006–09) (table 6.6). This is likely to reflect the greater average speed of travel, lower levels of traffic congestion, differences in mode choice and a more dispersed set of work destinations. For example, only 9 per cent of commutes in 2006 by outer Sydney residents were to the City of Sydney local government area while 21 per cent of commutes by middle Sydney residents and 41 per cent by inner Sydney residents were to the this area (BITRE 2012).

Consistent with these data, Ai Group (sub. 19) suggested an individual worker will face essentially the same commute time, regardless of which suburb they move to, even in inner city areas. Similar travel times in outer and inner suburban areas might also reflect the ‘travel time budget’ principle, which states that there is a threshold beyond which people are not willing to spend additional time or money on travel. This principle is based on anthropological evidence, which suggests that through history people have spent a relatively constant amount of time and a relatively stable proportion of their disposable income on travel (Marchetti 1993, 1994; Zahavi and Ryan 1980).

Table 6.6 **Average commute distance and time from place of residence to workplace across Australian cities^{a, b, c}**

Various years

	<i>Inner</i>		<i>Middle</i>		<i>Outer</i>	
	<i>Distance (km)</i>	<i>Time (min)</i>	<i>Distance (km)</i>	<i>Time (min)</i>	<i>Distance (km)</i>	<i>Time (min)</i>
Sydney	7.5	30	11.5	32	18.8	35
Melbourne	7.5	32	12.5	36	19.1	38
Brisbane	7.2	28	12.0	32	19.6	35
Perth ^{d, e}	6.5	na	8.2	na	13.5	na

^a Estimates are comparable within cities but not across cities. ^b 'Inner' refers to residents of inner suburban areas. 'Middle' refers to residents of middle suburbs. 'Outer' refers to residents of outer suburban areas. ^c Sydney distance data are for 2006. Sydney time data are for 2007. Melbourne data are for 2006. Brisbane time data are for 2009. Brisbane distance data are for 2006. Perth data are for 2006. ^d Commuting time estimates were not available for Perth. ^e Estimates of commuting distances for Perth are straight line distances from a worker's residence to place of work. Estimates for Sydney, Melbourne and Brisbane are road network distances, reflecting the distance of the journey. **na** Not available.

Sources: BITRE (2010, 2011a, 2012, 2013b).

Have commuting distances and times increased in recent years?

There are a number of data sources, including state-specific sources, that can be used to examine whether commuting distances and times have changed in recent years. The Bureau of Infrastructure, Transport and Regional Economics (2013c) surveyed previous commuting distance and time estimates for Sydney, Melbourne, Brisbane and Perth and found that most data showed moderate increases in average commuting distances and times in recent years for these cities. Analysis of changes in commuting distances and times for inner, middle and outer suburban areas was not available. Only citywide data were available. In general, average commuting times for these cities increased at a faster rate than commuting distances, implying average travel speeds have fallen.

- Analysis of the Census showed that average commuting distances changed little between 2001 and 2006 for Sydney, Melbourne, Brisbane and Perth. Analysis of commuting distances using the 2011 Census is not available.
- Analysis of commuting times using the Household, Income and Labour Dynamics in Australia Survey suggested that from 2002 to 2010 commuting times increased in Australia's four largest cities. Average commuting times were estimated to have increased by four minutes in Sydney, three minutes in Melbourne, seven minutes in Brisbane and six minutes in Perth.
- The NSW Household Travel Survey showed a 0.9 km increase in the average commute distance for Sydney residents from 2000-01 to 2011-12 and a two minute increase in the average commute time (BITRE 2013c).

-
- The Victorian Integrated Survey of Travel Activity shows that the average commute times for Melbourne residents remained unchanged from 2007-08 to 2009-10 (at 36 minutes).
 - The South East Queensland Household Travel Survey shows that the average commute distance for Brisbane residents fell by 1 km from 2007 to 2009 and the average commute time also fell (by two minutes).

Intercity commuting

Many people commute from regional cities to capital cities to work. These commuters make up a small proportion of the workforce in capital cities but make up a much larger proportion of the population of some regional areas and are critical for these economies. In 2006:

- for Sydney, the main places of origin of workers outside of Sydney were Wollongong (16 000 workers) and Newcastle (8400 workers). Commuting to Sydney was particularly important for the Wollongong and Wingecarribee regions (15 and 17 per cent of employed residents, respectively). Between 2001 and 2006, the proportion of employed Illawarra residents working in Sydney increased slightly (from 12.4 to 13.0 per cent) (BITRE 2012)
- Melbourne attracted 23 600 workers or 1.4 per cent of its workforce from regional Victoria, particularly from Geelong, Ballarat, the Latrobe Valley and Bendigo. Between 2001 and 2006, long-distance commuting patterns from regional areas to Melbourne were largely unchanged (BITRE 2011a)
- long commutes were common within South East Queensland. For example, more than 10 per cent of employed Gold Coast residents commuted to Brisbane (more than 22 000 workers) and about 7 per cent of employed Sunshine Coast residents commuted to Brisbane in 2006 (more than 6500 workers). Between 2001 and 2006, commuting from the Gold Coast to Brisbane increased strongly (BITRE 2013b).

KPMG (2013b) analysed commuting patterns from regional areas to capital cities at the time of the 2011 Census. KPMG (p. 5) found that the Gold Coast-to-Brisbane corridor was the ‘leading inter-city commuting flow in Australia with 26 000 workers making the trip daily’ and noted that the second biggest flow was from Wollongong to Sydney (18 000 workers made the trip daily). Little more up-to-date evidence has been located.

6.3 Telecommuting

Telecommuting means working from a distance, in any location other than the traditional workplace. This can include working from home, in another office, at a client's office or on the road.

Long-run social and economic trends have reshaped the Australian labour force and workplaces (chapter 4). Some of these trends, such as increased labour force participation by women and an ageing population, have meant that flexible work practices have become more important. Telecommuting is a type of flexible work arrangement and can also enable other aspects of flexibility, such as non-standard working hours (APSC 2013).

Telecommuting does not require sophisticated technology but can be enabled by it (Department of Transport (WA) and Department of Environment and Conservation (WA) 2012). Telecommuting has become more feasible with new information technology and because access to high-speed broadband has improved and become cheaper. Many work tasks can now be performed anywhere and do not need to be performed in a traditional workplace. While telecommuting practices are already used by employers in the technology and professional services sectors (for example, CISCO, Microsoft and IBM), they are progressively extending to other industries (Ai Group 2012). However, industries characterised by highly location-specific jobs such as construction and mining, and customer service-centric industries, such as accommodation and food services, are less amenable to telecommuting (Access Economics 2010).

If telecommuting arrangements become more prevalent, the locational aspect of a job will become less of an issue in some industries. For example, the Ai Group (sub. 19, p. 12) stated that 'the potential long-term effect of flexible working arrangements and teleworking, for some workers at least, is to permanently remove geographic location as a factor in the labour market'. As part of the National Digital Economy Strategy, the Australian Government aims to at least double the level of telecommuting in Australia by 2020, so that a minimum of 12 per cent of employees have a telecommuting arrangement with their employer (DBCDE 2011).

Telecommuting has advantages and disadvantages

Telecommuting reduces the need for workers to be in a particular location to do a job, and therefore opens up the job to a larger potential pool of workers. Telecommuting offers flexible working arrangements and can help alleviate regional skills shortages and low participation rates. It can:

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- make job opportunities available to people outside the labour force who could have difficulties with mobility, such as people with disabilities and dependents
 - Colmar Brunton Research and Deloitte Access Economics (2012) found that 60 per cent of mature workers (aged 45 years and over), 73 per cent of part-time workers, and 74 per cent of people not in the labour force would telecommute if this form of work was available to them.
 - help overcome skills shortages in regional and remote areas by widening the pool of labour from which employers can recruit. Telecommuting can also increase job opportunities for people living in regional and remote areas (Parliament of Victoria, Rural and Regional Committee 2014). For example, National Disability Services (sub. 7, p. 1) reported that ‘there is scope for the development of remote service delivery and work options for some skilled practitioners’
 - allow people to work flexible hours
 - reduce absenteeism
 - avoid the need for permanent relocation and can reduce the time and costs associated with commuting, which can reduce traffic congestion
 - reduce costs (such as office space) for employers and might improve productivity due to an absence of distractions typical in an office environment.

While telecommuting has many potential benefits, it also has potential downsides. These include:

- the lack of personal interaction with co-workers which can increase the risk of loneliness and lead to a reduction in teamwork opportunities
- lower productivity due to a lack of motivation or distractions at home
- costs involved in setting up adequate health and safety arrangements (Access Economics 2010)
- difficulties in monitoring and measuring performance.

These issues suggest that the greatest challenge to the uptake of telecommuting may not necessarily be technology, but rather management practices and cultural norms in workplaces. These issues are relevant to both the private and public sectors and across industries and occupations. In an analysis of employment practices in the Australian Public Sector (APS), the Australian Public Service Commission (2013, p. 194) noted that ‘for a relatively large segment of the workforce, agency and/or workplace characteristics are perceived as the main inhibitors [of telecommuting] ...’. Telecommuting practices at IP Australia, an Australian Government agency,

illustrate some of the advantages and disadvantages of telecommuting, and barriers to telecommuting (box 6.2).

Box 6.2 **Telecommuting at IP Australia**

IP Australia is the Australian Government agency that administers intellectual property rights and legislation. Its headquarters are in Canberra. IP Australia has four categories of telecommuters:

- *Outposted workers* — where employees work permanently from home and log in to IP Australia's computer network. This type of work is offered to employees who live more than 90 minutes from the office by car. This allows IP Australia to retain high performing employees.
- *Home-based workers* — where employees work from home and log in to IP Australia's computer network but live within 90 minutes of the office. These employees work in the office on a regular and agreed basis. They may be called into the office more regularly if required.
- *Ad hoc workers* — where employees work from home on a one-off or irregular basis and log in to IP Australia's network.
- *Day-extender workers* — where employees work in the office during normal business hours and perform additional work from a home office while logged in to IP Australia's network.

Telecommuting agreements must satisfy the following conditions: be suitable for the work performed; additional cost to IP Australia must be recoverable through higher productivity (for example, through the attraction and retention of high-skilled employees); be technically viable; not adversely affect teamwork; be mutually agreed by both employer and telecommuter, and be reviewable at the request of either party; and meet OH&S requirements. Managers of telecommuters must monitor feelings of isolation by the telecommuter. Managers must also make regular contact with the telecommuter, include them in team meetings, be able to manage their performance remotely and provide the telecommuter with training opportunities.

IP Australia appears to have benefited from telecommuting — for example, separation rates for patent examiners have decreased significantly since telecommuting was introduced. In addition, IP Australia has estimated that outposted or home-based patent examiners were generally more productive than office-based workers. Telecommuting within IP Australia has increased from about 7 per cent of employees in 2007 to 12 per cent in 2013.

Source: APSC (2013).

How many people telecommute?

It is difficult to estimate how many people telecommute. There is no precise and agreed definition of who is a telecommuter. Few employees have formal

telecommuting arrangements with their employers — most telecommute informally. Some employees telecommute regularly while others telecommute irregularly (sometimes referred to as ‘hybrid telecommuting’). It is unclear what threshold should be applied when estimating the number of telecommuters.

Data on Australians working from home have been collected for many years (ABS 1996, 2001, 2006c, 2009b). However, only some people who work from home are telecommuters. People who operate businesses from their home are not generally considered to be telecommuters. Wooden and Fok (2013) found that employees only accounted for 23 per cent of people who work the majority of their hours at home. Not all telecommuters work from home. Telecommuters can work in libraries, in hotels or while travelling on public transport. While data on home-based work are widely available, there are limited and inconsistent data on telecommuting.

Available estimates do not suggest that telecommuting has become more prevalent in Australia in the past decade, despite advances in information technology.

- According to the ABS 2006 Time Use Survey, 6 per cent of Australian employees had a formal telecommuting agreement with their employer (cited in Deloitte Access Economics 2011b).
- According to the Sensis Business Index (2009), 24 per cent of owners of small and medium enterprises (SMEs) surveyed in 2009 reported that either they or some of their employees telecommuted.
- According to the ABS Locations of Work Survey (2009b), 14 per cent of employees surveyed worked some hours of their main job at home.
- Deloitte Access Economics (2011b) analysed the Household, Income and Labour Dynamics in Australia Survey from 2002–09 and found that:
 - in 2009, about 18 per cent of Australian employees undertook some work from home and 7 per cent had a formal arrangement with their employer. Most telecommuters did so on a part-time basis (they telecommuted for fewer than eight hours per week) and worked otherwise at their employer’s location
 - rates of telecommuting among employees decreased slightly during this period.
- Wooden and Fok (2013) found that from 2001 to 2010:
 - the proportion of employees who worked some hours at home decreased from 17.9 per cent to 15.0 per cent
 - the proportion of employees who worked most of their hours at home decreased slightly from 1.5 per cent to 1.3 per cent

-
- the percentage of total hours worked by employees at home decreased from 3.8 per cent to 3.2 per cent.
 - The Australian Public Survey Commission (2013), based on an employee census, found that 10 per cent of Australian Public Service employees telecommuted in 2013, down from 15 per cent in 2012.

Potential for growth in telecommuting

Available estimates do not suggest telecommuting has become more prevalent in Australia in the past decade. However, improvements in information technology appear to have increased the scope of work that can be performed outside of a traditional workplace — many work tasks can literally be performed anywhere. This apparent gap between the take-up and potential of telecommuting is puzzling. And it is unclear whether this gap should be a concern and whether government policy to address this gap should be put in place.

The gap might simply reflect current economic conditions, which are not as buoyant as they were in the years leading up to the global financial crisis — employees might be reluctant to request telecommuting arrangements because of perceived job insecurity and/or employers might be under less pressure to offer these arrangements because of the state of the labour market. Telecommuting may increase as labour market conditions improve. Over the longer term, the ageing of the workforce and potential to further increase female labour force participation may also give greater impetus to telecommuting.

As discussed above, management practices and cultural norms appear to be a barrier to telecommuting. Further improvements in information technology will increase the scope of tasks that can be performed outside of a traditional workplace, and might also address cultural barriers. For example, improved information technology might address management concerns about the security of information accessed remotely by telecommuters. There are a number of emerging international trends, such as ‘co-working’, which might influence telecommuting patterns in Australia in coming years and address some of the cultural barriers to telecommuting (box 6.3).

Box 6.3 'Co-working' and smart work centres

'Co-working' involves working in a shared space, not necessarily with others in the same organisation. Advocates of co-working suggest that it can encourage collaboration and innovation. Co-working has led to the development of smart work centres — first established in Amsterdam. Smart work centres provide office space for telecommuters, available on a short-term basis, and include facilities found in a traditional office. Smart work centres can be part of a broader geographically dispersed network. They can be 'curated', where the tenant mix is actively managed, to facilitate collaboration and innovation. Smart work centres provide an alternative to working from home for telecommuters, and can address OH&S issues associated with home-based work. Smart work centres have been established in Australia in recent years and there have been a number of studies on the feasibility of establishing a network of centres.

Sources: Institute for Sustainable Futures (2014); RDA Sunshine Coast, sub. DR58; RDA Sunshine Coast et al. (2013).

Who is telecommuting?

Propensity to telecommute differs by workers' characteristics. A small number of studies in the past decade have analysed telecommuters' characteristics. These studies have found that, relative to other workers, telecommuters are:

- more likely to be working full-time and more likely to work in the public sector (ABS 2008b; Sensis 2013)
- more likely to work in the information media and telecommunications; financial and insurance services; professional, scientific and technical services; or mining industries (ABS 2013e)
- much more likely to have higher levels of income (Sensis 2013) and education (ACMA 2013)
- about as likely to be male. In other words, females and males have similar rates of telecommuting (Sensis 2013).

The relationship between remoteness and telecommuting is unclear. Sensis (2009) found that SMEs in metropolitan areas had higher rates of telecommuting than SMEs in regional areas and ACMA (2013) found similar patterns for the broader workforce. In contrast, Sensis (2013) found that metropolitan areas and regional areas had similar rates of telecommuting.

Telecommuting is important to small and medium enterprises. Sensis (2009) found that about one-quarter of SMEs had telecommuters in 2009. These telecommuters worked in a variety of locations — 58 per cent worked at home, 44 per cent worked

while travelling, 27 per cent worked at a client's premises and 10 per cent worked at other locations. Most SMEs with telecommuters had about 60 per cent of their workforce telecommuting (Sensis 2009). ACMA (2013) found that telecommuting in SMEs was most common in the communication services sector.

Telecommuting might be particularly appealing to some groups in the population. If telecommuting becomes more prevalent, labour force participation could increase among these groups. Colmar Brunton Research and Deloitte Access Economics (2012) investigated the degree to which labour force participation could be lifted with the rollout of the National Broadband Network, focusing on groups with lower participation rates, such as mature workers. The authors found that 47 per cent of mature workers (aged 45 years or over) did some work from home or remotely and 16 per cent had a formalised arrangement with their employer to work from home on a regular basis. They posited that promoting increased use of telecommuting by this group could increase participation among mature workers. This is particularly relevant given Australia's population is ageing.

Telecommuting overseas

The prevalence of telecommuting does not appear to be higher or lower in Australia than in other developed countries. Data are not collected on a consistent basis across countries, or frequently, so estimates vary and in some cases are dated.

- In the United States, about 26 million people (nearly 20 per cent of the workforce) worked from home or remotely at least once per month in 2010. Among these people, 39 per cent worked from home or remotely at least one day per week and 45 per cent did so almost every day. Rates had declined from 2008, which was attributed to the economic downturn. Telecommuting tended to be offered informally rather than through a formal arrangement. Telecommuters were usually 'knowledge workers' (WorldatWork 2011).
- In Canada, 11 per cent of employees indicated they did some work from home in 2008, an increase of 1 percentage point from 2000. These people were more likely to be university educated and work in managerial or professional jobs (Turcotte 2010).
- In the United Kingdom, 13 per cent of the workforce reported they worked mainly from home in 2009. Two-thirds of these workers were self-employed. An additional 20 per cent of workers indicated that they did some work from home each week but not the majority of their work (Deloitte Access Economics 2011b).

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- In the European Union, rates of telecommuting varied across countries. In 2006, about 45 per cent of employees across 27 EU countries worked some hours away from business premises and accessed IT systems remotely. Rates were much higher in Scandinavian countries and the United Kingdom (about 70 per cent) (Deloitte Access Economics 2011b). In the original 15 EU countries, 23 per cent of enterprises offered telecommuting in 2006, up from 18 per cent in 2004 (OECD 2011b).

7 Mobility and unemployment

Key points

- Unemployment, particularly of an extended duration, imposes costs on individuals, their families and the wider community.
- There is strong evidence that unemployed people are more geographically mobile than employed people. But the extent and type of mobility varies with length of unemployment.
 - Compared to short-term unemployed people, long-term unemployed people have high rates of short distance residential moves, but this may reflect more ‘involuntary’ moves (such as moves due to eviction). Such moves are likely to make finding work harder.
 - Longer distance moves for the purpose of finding work are likely to be challenging for many long-term unemployed people due to lower levels of education and skills, poorer health, less access to affordable transport and greater reliance on family networks for support.
- Unemployed people who move between labour markets tend to spend less time on income support. However, the available evidence suggests that this is due to differences in the underlying characteristics of unemployed people who move that make them more likely to find employment than their non-moving peers, regardless of whether they had moved.
- In areas of high unemployment and disadvantage the mobility of employed and unemployed people varies widely. In some areas, mobility rates are far above the national average, in other areas mobility rates are far below.
- The places where unemployed people move to, and from, are very diverse.
- The evidence is mixed as to whether unemployed people are more inclined to move to areas with strong employment prospects or to areas with low living costs.
- Given the wide variation in rates of mobility and the diversity of regions where unemployed people move to and from, policies should take a ‘people-based’ approach to addressing long-term unemployment and not rely solely on ‘place-based’ initiatives.
- Long-term unemployment is a complex problem and geographic labour mobility is by no means a comprehensive solution, but reducing impediments to mobility may help to prevent some long-term unemployment.

While the geographic labour mobility of all groups is important, of particular concern are people who struggle to find work. Some temporary unemployment, as a result of people moving between jobs, is a normal part of a dynamic labour market. However, longer periods of unemployment impose costs on individuals, their families and the wider community. Longer periods of unemployment can occur due to a lack of demand for workers or a mismatch between job vacancies and the location or skills of workers. While some of this unemployment is visible in official unemployment statistics, some is ‘hidden’ (box 7.1).

For individuals and their families, long periods of unemployment can result in economic hardship, reduced social status, and poorer health and relationships. The loss of skills associated with long periods of unemployment can also make re-employment more difficult. For the wider community, unemployment imposes economic costs (for example, through forgone production and increased government spending on health, justice and welfare services) and social costs (to the extent that high unemployment results in reduced trust and civic engagement, and higher rates of crime) (McLachlan, Gilfillan and Gordon 2013).

This chapter looks at the geographic mobility of unemployed people and discouraged job seekers. It examines the migration of people in and out of regions characterised by relatively high unemployment and what role geographic mobility can play in improving the employment prospects of those without work.

7.1 How mobile are unemployed people?

The mobility of unemployed people tends to be higher than that of both employed people and people outside the labour force.¹⁴ Almost one in four people who were unemployed on the date of the most recent Census (9 August 2011) had moved house in the twelve months prior.

This relationship is robust to the scale of the move. Not only were unemployed people more likely to have moved in the past year, they were also more likely to have moved between regional labour markets (as defined in appendix B) and more likely to have moved between states and territories (figure 7.1).

A limitation of using the Census for analysing mobility is that it only has data on labour force status *after* moving. If labour force status often changes before, or as part of, a move, this could provide a misleading indication of the mobility of unemployed people. To examine the significance of this limitation, the Commission

¹⁴ ABS labour force status classifications include the population aged 15 years and over.

analysed data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, which includes labour force status both *before* and *after* a move.

Box 7.1 Visible and hidden unemployment

According to international standards followed by the ABS, to be counted as unemployed a person must be:

- completely without work (not employed at all),
- actively seeking work, and
- currently available for work.

While this definition is well established and useful for international comparisons, it does not capture everyone who cannot find enough work.

Hidden unemployment is used to describe involuntary joblessness and underemployment not captured by unemployment statistics. Major components of hidden unemployment include discouraged job seekers (people who want to work but are not actively looking because they do not believe they will find a job) and underemployed people (people working part-time hours who would prefer to work more). Counted together, visible unemployment and hidden unemployment provide a measure of the total amount of underutilised labour in an economy.

In September 2012, there were 1 645 300 people across Australia who could be considered part of the underutilised but potential labour force. This included 670 400 officially unemployed and 106 600 discouraged job seekers.

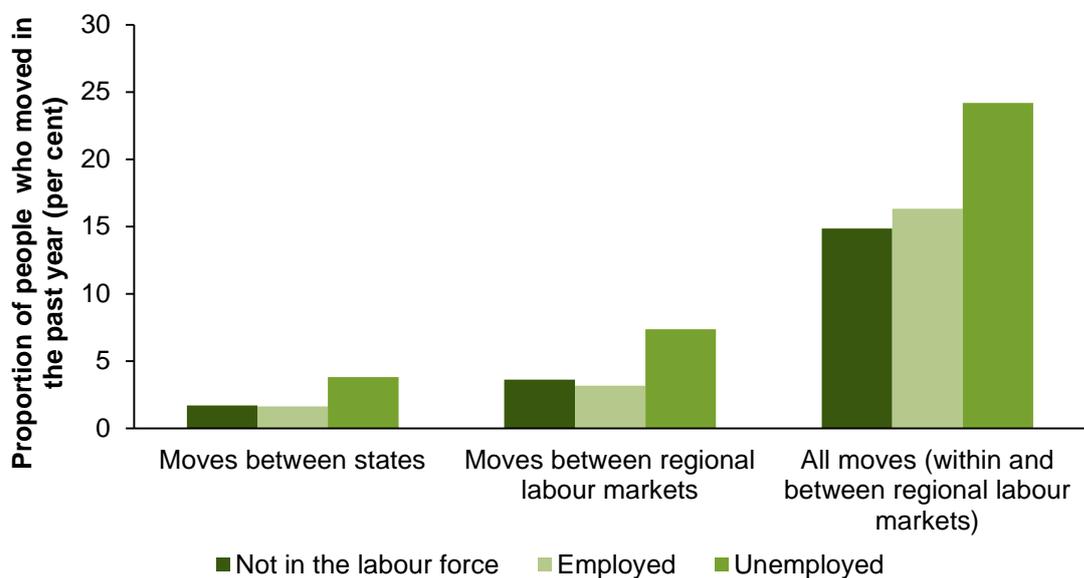
Underutilised labour, September 2012

<i>Type of labour</i>	<i>Number of people</i>	<i>Proportion of the extended labour force (%)^a</i>
Officially unemployed	670 400	5.4
Hidden unemployed		
Underemployed ^b	784 000	6.3
Actively seeking work and available soon but not now ^c	84 300	0.7
Discouraged job seekers	106 600	0.9
Total underutilised labour force	1 645 300	13.2

^a The extended labour force is the employed and officially unemployed (the labour force) augmented by those actively seeking work and available soon, and discouraged job seekers. ^b Includes part-time workers wanting to (and available to) work more hours and full-time workers who worked part-time hours in the reference week for economic reasons initiated by their employer. ^c Not available to start in the reference week but available to start within four weeks.

Sources: ABS (*Labour Statistics: Concepts, Sources and Methods*, Cat. no. 6102.0.55.001; *Measures of Labour Underutilisation*, Cat. no. 6296.0; *Persons not in the Labour Force*, Cat. no. 6220.0; *Retrenchment and Redundancy*, Cat. no. 6266.0); ACOSS (2003).

Figure 7.1 **Residential mobility by labour force status and scale of move^a**
Census 2011



^a These estimates are restricted to the population aged between 15 and 64 years.

Source: Productivity Commission estimates using ABS (*Tablebuilder Pro*, 2011, Cat. no. 2073.0).

Despite the smaller sample size (the most recent HILDA wave includes about 700 unemployed people), mobility estimates from HILDA data roughly align with those from Census data. Across the 11 annual waves of the HILDA Survey since 2002, rates of mobility are consistently higher among unemployed people than among employed people or people outside the labour force regardless of whether labour force status relates to the year a move takes place or the preceding year (before moving) (table 7.1).

Table 7.1 **Rate of mobility by employment status before and after moving^a**
HILDA waves 2 to 12 (2002 to 2012)

	<i>Proportion of people who moved (%)</i>	
	<i>Employment status in year before move</i>	<i>Employment status in year of move</i>
Employed	14	15
Unemployed	19	23
Not in labour force	12	14

^a Calculated by taking the average of the proportion of people who moved between consecutive waves of the HILDA Survey. Data on moves in wave 1 were excluded due to differences in the way the survey item was constructed for this wave. The original figures were weighted using the cross-sectional responding person weight for the respective wave. For unbiased comparisons between groups, these estimates include only the population aged between 15 and 64.

Source: Productivity Commission estimates using HILDA Survey, In-confidence Release 12.0.

The HILDA Survey also asks respondents about their expectations for moving in the next 12 months. In line with differences in actual moves, the results suggest unemployed people expect to move more than employed people or people outside the labour force (table 7.2). Notably, when compared to employed people and people outside the labour force, a significantly higher proportion of unemployed people are also uncertain about their likelihood of moving.

Table 7.2 Expected mobility by employment status^a
HILDA waves 2 to 12 (2002 to 2012)

	<i>Proportion of respondents by self-reported likelihood of moving in the next 12 months (%)</i>		
	<i>'Likely' or 'very likely'</i>	<i>'Unlikely' or 'very unlikely'</i>	<i>'Not sure'</i>
Employed	18	71	11
Unemployed	26	58	16
Not in labour force	14	76	10

^a For unbiased comparisons between groups, these estimates include only the population aged 15–64 years. Data from HILDA wave 1 were omitted for comparability with estimates in table 7.1 and figure 7.2.

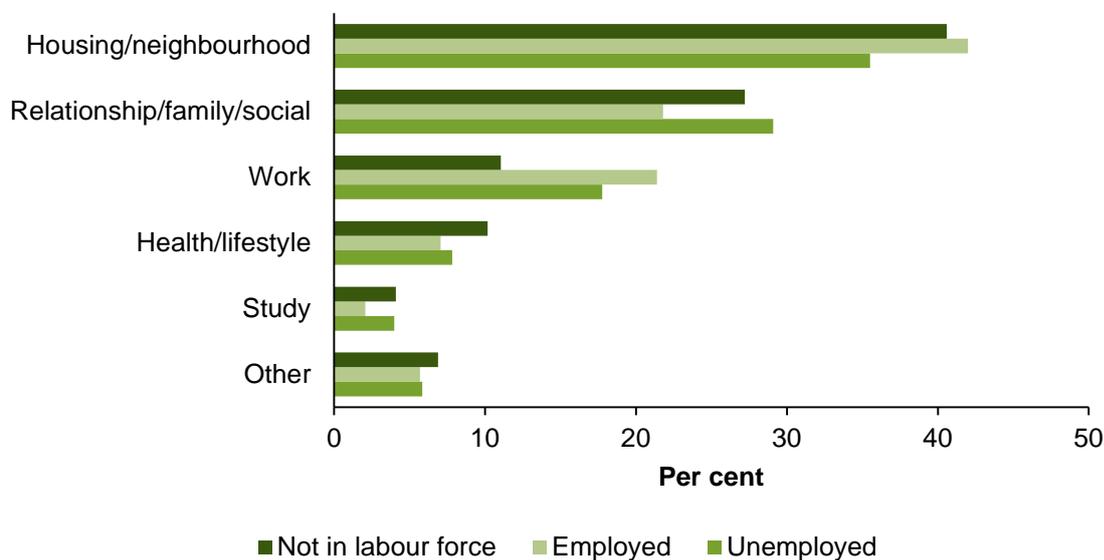
Source: Productivity Commission estimates using HILDA Survey, In-confidence Release 12.0.

Differences in mobility rates between unemployed people and others reflect more than just differences in underlying characteristics. Controlling for a wide variety of demographic, occupational and regional factors, both Bradbury and Chalmers (2003) and Bill and Mitchell (2006) found that being unemployed had a statistically significant positive relationship with a person's propensity to move. The Commission's own econometric modelling of the decision to migrate also suggests unemployment increases a person's likelihood of having moved in the previous year between residences, between labour markets and between states (appendix D).

Analysis of HILDA data also shows that the mix of reasons that unemployed people give for moving is similar to those given by employed people (figure 7.2). Moves primarily for work reasons constitute about 21 per cent of all residential moves by employed people and 18 per cent of all residential moves by unemployed people.

The finding that unemployed people are highly mobile is broadly consistent with the conceptual framework presented in chapter 2, whereby an individual will move if the expected net benefits of moving exceed those of not moving. All else equal, a lack of secure local employment means unemployed people have less reason to stay in their current location. This makes the prospect of moving relatively more attractive (Bill and Mitchell 2006).

Figure 7.2 Main reason for changing residence by employment status^a
 HILDA waves 2 to 12 (2002 to 2012)



^a For unbiased comparisons between groups, these estimates include only the population aged between 15 and 64. Data from HILDA wave 1 were omitted for comparability with estimates in tables 7.1 and 7.2.

Source: Productivity Commission estimates using HILDA Survey, In-confidence Release 12.0.

Long-term unemployed people and discouraged job seekers

While unemployed people as a group are highly mobile, it is less clear whether the same can be said for *long-term* unemployed people (box 7.2) and discouraged job seekers. It is not possible to calculate estimates of mobility for these groups using Census data because the Census does not capture the duration of a person’s unemployment nor does it capture the reasons for absence from the labour force.

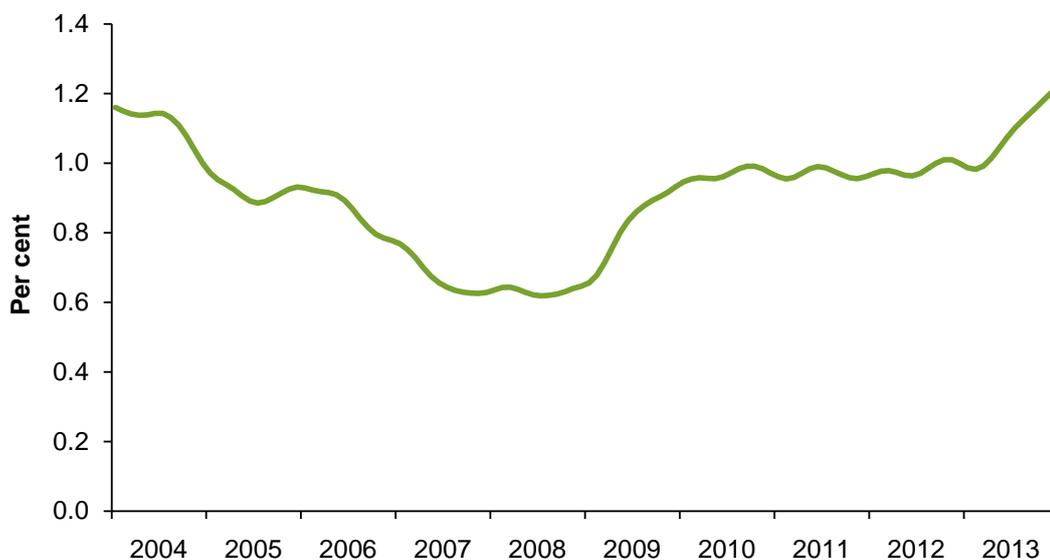
The mobility of long-term unemployed people

To assess the mobility of long-term unemployed people, the Commission used administrative data on recipients of Newstart Allowance — the main form of financial assistance provided to unemployed people — drawn from the Department of Employment’s Research and Evaluation Database (appendix B).

Box 7.2 Long-term unemployment in Australia

Long-term unemployment is defined as being continuously unemployed for over 52 weeks. In July 2013, there were 135 200 long-term unemployed people in Australia. Long-term unemployed people accounted for about 20 per cent of all unemployed people and 1.1 per cent of the total labour force. Over the past decade, the rate of long-term unemployment has varied between 0.6 per cent and 1.2 per cent.

Long-term unemployment rate^a, January 2004 to December 2013



^a Calculated using trend data.

Source: Productivity Commission estimates based on ABS (*Labour Force, Australia*, Cat. no. 6202.0; *Labour Force, Australia, Detailed*, Cat. no. 6294.0.55.001).

Who are the long-term unemployed?

In July 2013, males represented 57 per cent of all long-term unemployed people (compared to 55 per cent of all unemployed people). The higher rate of long-term unemployment among men may be partly because women are more likely to drop out of the labour force after stints of unemployment.

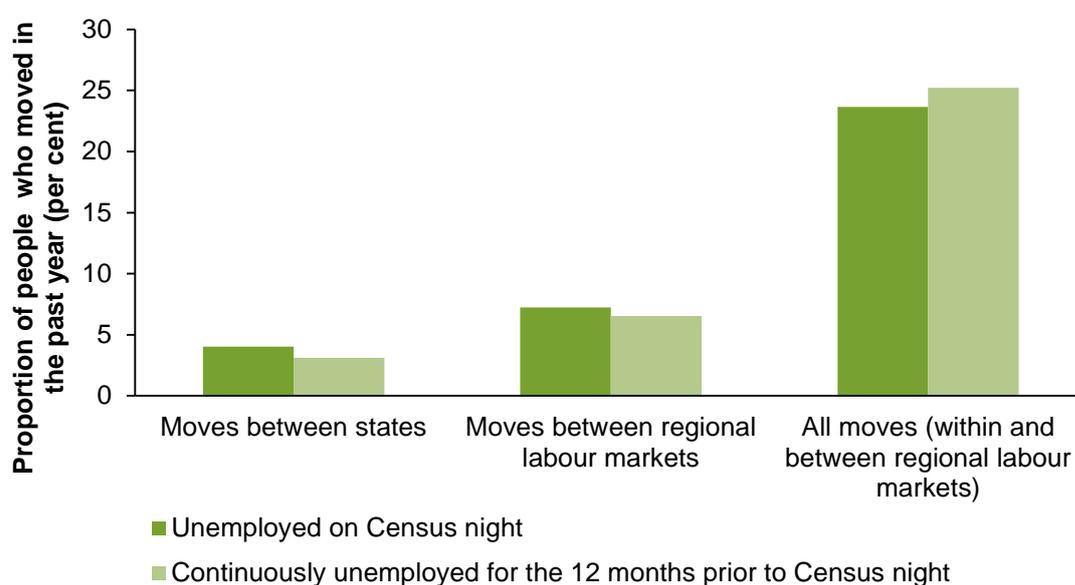
Older people are over-represented among long-term unemployed people. In July 2013, 38 per cent of unemployed people aged between 55 and 64 years had been out of work for more than a year, and 25 per cent had been out of work for more than 2 years.

Long-term unemployed people tend to have less formal education than employed people or short-term unemployed people. In July 2010, 49 per cent of all long-term unemployed had not completed Year 12 or above as their highest level of educational attainment. This compared to 41 per cent for people unemployed for less than a year and 24 per cent for employed people who started their current job in the past year.

Sources: ABS (*Australian Social Trends*, Cat. no. 4102.0; *Labour Force, Australia*, Cat. no. 6202.0).

To provide estimates comparable with the Census, the Commission calculated rates of mobility for people who were continuously receiving Newstart Allowance for the one year period prior to the 2011 Census. Comparing these estimates suggests that people who have been continuously unemployed for more than 12 months (and received Newstart Allowance during that period) moved slightly more than unemployed people overall (figure 7.3). However, long-term unemployed people seem to move less between labour markets and much less between states and territories.

Figure 7.3 Mobility of long-term unemployed people compared to all unemployed people^a
 Census 2011 and Department of Employment Research and Evaluation Database

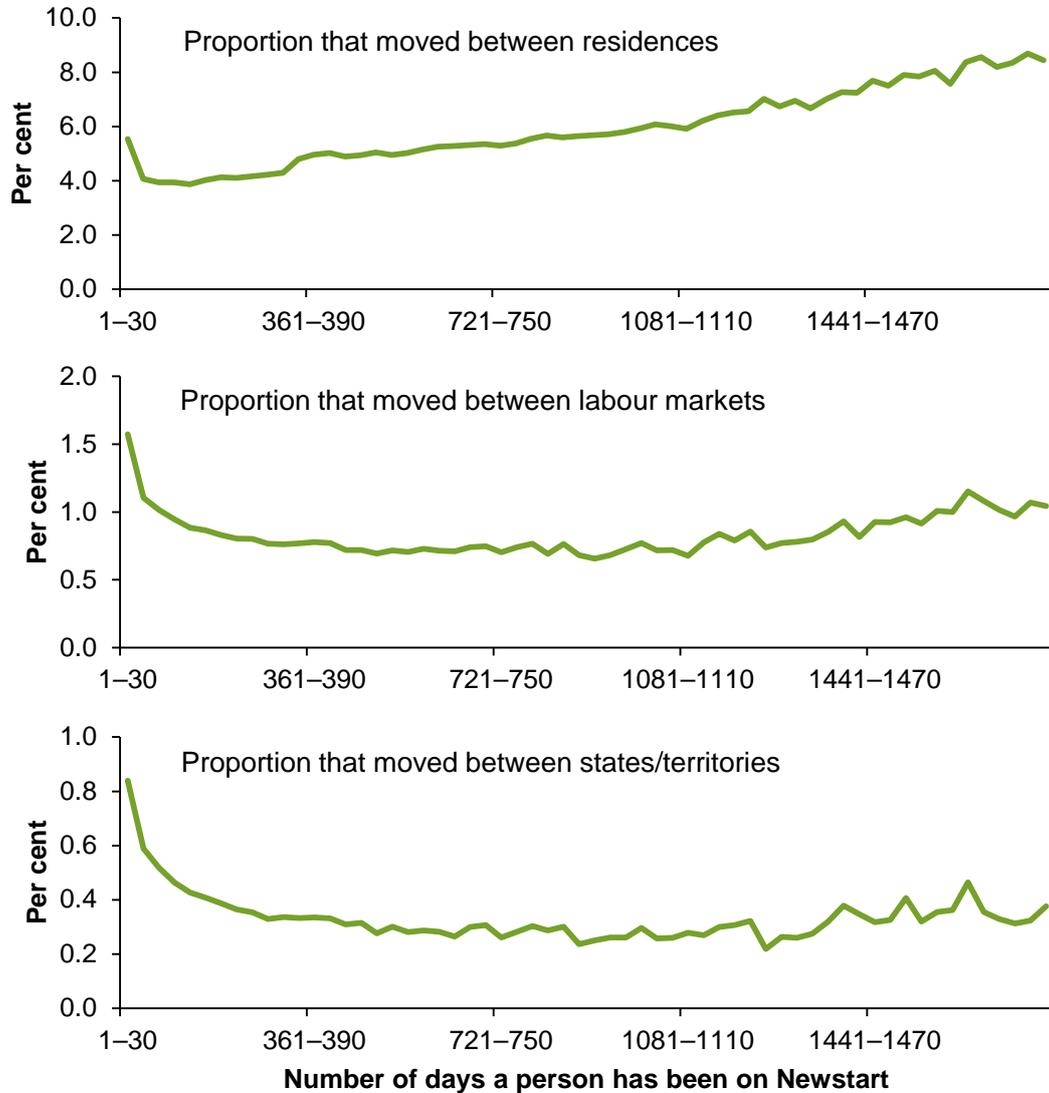


^a Census estimates are restricted to people age between 22 and 64 years to align with the age group eligible for Newstart Allowance. Consequently, these estimates differ slightly from those presented in figure 7.1.

Source: Productivity Commission estimates using ABS (*Tablebuilder Pro*, 2011, Cat. no. 2073.0) and the Department of Employment's Research and Evaluation Database.

Analysing the Research and Evaluation Database further, the relationship between time on Newstart Allowance and the probability of moving (between residences, labour markets or states) appears to be nonlinear (figure 7.4). The mobility of Newstart recipients declines with time on Newstart until it reaches a low point and then rises again. In other words, short-term unemployed people seem to be more mobile than long-term unemployed people, particularly over long distances, but not necessarily more mobile than *very* long-term unemployed people.

Figure 7.4 **Proportion of Newstart recipients who moved by 30-day period**
Movers as a proportion of total recipients^a



^a Proportions refer to the number of people who moved at least once during a given 30 day period divided by the total number of people on Newstart during that 30 day period.

Source: Productivity Commission estimates using the Department of Employment's Research and Evaluation Database.

The initial decline in mobility between short-term and long-term unemployed people may reflect the effect of time on Newstart (or time unemployed) on a person's willingness and capacity to move for work. Using an earlier version of the dataset analysed here, Dockery (2000) assessed the effect of time on unemployment benefits on the likelihood of a person moving between regions. Controlling for factors such as age, marital status, housing tenure and Indigenous status, Dockery

found that a person's duration on unemployment benefits had a significant negative effect on a person's likelihood of moving (but only for men).

However, this does not explain the high rates of residential mobility among very long-term unemployed people. One possible reason for these high rates is that long-term unemployed people may move often for reasons that make them less likely, rather than more likely, to find work (VCOSS, sub. 27). For example, very long-term unemployed people may be more likely to move as a result of eviction (or other factors such as unstable relationships), which 'usually result ... in the mover making hurried and therefore less informed choices' (Marshall et al. 2003, p. 11).

Such 'involuntary' moves tend to result in a change in residence, but not necessarily a change in labour market or state. Hence, this would not only explain why mobility among very-long term unemployed people is so high, but also why the increase in mobility shown in figure 7.4 is much sharper for moves between residences than for moves between labour markets or states.

Analysis of HILDA data provides some support for this hypothesis (although sample sizes are too small to draw strong conclusions). Relative to short-term unemployed people, long-term unemployed people moved more due to relationship breakdown or eviction, to find cheaper accommodation and because a property is no longer available. They are also less likely to move for a change of lifestyle, to be closer to amenities or a place of study, and to get better accommodation.¹⁵

If very long-term unemployed people have higher rates of involuntary movement, this could be because long periods of unemployment make involuntary movements more likely. Alternatively, it could be that the people who tend to be unemployed for long periods have other characteristics that make them more likely to make these types of moves.

Regardless, there are good reasons to expect that moving for work reasons is likely to be more challenging for long-term unemployed people. The financial and psychological stress of unemployment can negatively affect a person's mental and physical health, relationships and life satisfaction (Kessler, House and Turner 1987; Mathers and Schofield 1998; McLachlan, Gilfillan and Gordon 2013). ABS (2011a) surveys indicate long-term unemployed people are more likely than short-term unemployed people to rate their health as poor, to have mental or behavioural problems, and to have a disability.

¹⁵ This analysis is based on reasons for moving given by HILDA Survey respondents who moved residences between HILDA waves. Respondents were counted as long-term unemployed if they stated that they were unemployed for at least 90 per cent of the preceding financial year.

The challenges of moving for work for people on low incomes (including long-term unemployed people) were highlighted by the Regional Australia Institute (sub. 25, p. 6):

Those on low incomes are less likely to have the capital to enable them to move and seek other work and because of lower skill sets, the outlay of relocating is less likely to be compensated by wage gains.

Anglicare Australia (sub. DR48, pp. 1–2) also emphasised the lack of discretionary income available to unemployed people to cover the costs of moving for work:

Research by [the University of Canberra’s National Centre for Social and Economic Modelling] commissioned by Anglicare Australia ... found that people living on the lowest levels of support, the Newstart and Youth allowances, spend on average 122% of their weekly income, about two thirds of which goes on very basic needs. Any relocation, or even exploratory visit to a distant city or state, could be well beyond their reach.

The mobility of long-term unemployed people may also be hampered by a lack of access to affordable private and public transport. Inadequate access to transport not only makes it more difficult to move or long-distance commute between regional labour markets, it also makes it more difficult to find, and commute to, jobs within a regional labour market (Rosier and McDonald 2011). A number of American studies indicate that having (or gaining) access to a car has a statistically significant positive association with the probability of an unemployed person finding a job (Baum 2009; Gurley and Bruce 2005; Sandoval, Cervero and Landis 2011).

Moving for work may also be more difficult for long-term unemployed people and other disadvantaged groups due to a greater reliance than the general population on family networks for childcare and other communal types of cost sharing (Mitchell 2008a). Building social networks in a new location can also be difficult without secure employment. A reluctance to move for work may also reflect a lack of affordable housing in areas of high employment growth (Jobs Australia, subs. 20, DR39).

Discouraged job seekers

Analysis of HILDA data suggests the mobility of discouraged job seekers is similar to the mobility of employed people. On average, across the past 11 annual waves of the HILDA Survey, about 14 per cent of discouraged job seekers reported moving

in any one year.¹⁶ However, the small number of discouraged job seekers sampled in the HILDA Survey means this estimate has limited reliability.

That discouraged job seekers have rates of mobility more similar to employed people than long-term unemployed people is not surprising — discouraged job seekers are more likely to be supported by a secondary income earner in the family than the long-term unemployed. Analysis by Elliott and Dockery (2006) suggests discouraged job seekers are less financially stressed than the average unemployed person, have higher ratings of self-assessed life satisfaction and higher reservation wages.

7.2 Patterns of moves by unemployed people

Evidence from the Census suggests that the places where unemployed people move to are very diverse. The regional labour markets that received the highest number of unemployed net migrants in the previous 12 months included:

- regions with high unemployment rates (such as Illawarra) and low unemployment rates (such as Newcastle)
- regions with high house prices (such as Melbourne) and low house prices (such as Wide Bay, Queensland)
- capital cities (such as Brisbane) and regional areas (such as Lismore).

However, as with the Census figures discussed in section 7.1, care needs to be taken in interpreting these figures as they refer only to labour force status after migration. In some cases, people may have only become unemployed after migrating to a region, rather than moving to a region when unemployed. Conversely, some unemployed people may have become employed after migrating to a region.

In determining where to live, unemployed people have to balance employment prospects with cost of living considerations. Regions with stronger economic growth may offer better employment prospects, but these same regions also tend to have higher rents and house prices.

¹⁶ This estimate was calculated using the same approach as described in the note below table 7.1. Discouraged job seekers were classified using a method similar to that used by Elliott and Dockery (2006). A HILDA respondent was counted as a discouraged worker if they were not in the labour force, responded they wanted to (or ‘maybe’ wanted to) work, and gave a main reason for not seeking work in the past four weeks that suggested discouragement.

As the Regional Australia Institute (sub. 25, p. 6) noted:

... some regions attract unemployed migrants because of a combination of lower living costs and lifestyle advantages. These moves are rational decisions but serve to take unemployed people away from opportunities to be employed ...

Evidence on the extent to which unemployed people choose regions with low living costs over regions with strong employment prospects is mixed. On the one hand, Dockery (2000) found that unemployment payment recipients were more likely to move to regions with lower rents and that lower unemployment rates had at best no effect, and at worst reduced the likelihood of a move.

On the other hand, Bradbury and Chalmers (2003) found that, while unemployment payment recipients living in high housing costs regions were more likely to move, the difference was negligible for long-distance moves. Further, Bradbury and Chalmers found that a one percentage point increase in the unemployment rate of a region was associated with a one per cent increase in the outflow of unemployment payment recipients from that region. Bradbury and Chalmers argued that the difference in results stems from Dockery's use of too-small labour market regions that fail to account for the possibility of long commutes within major cities, something explicitly accounted for in the methodology of Bradbury and Chalmers.

A more consistent finding is that factors other than employment prospects tend to dominate the decision to move for unemployed people. Both Dockery, and Bradbury and Chalmers point to personal characteristics such as age as more important factors. As discussed in chapter 8, in aggregate, personal characteristics rather than employment prospects tend to dominate the decision to move for all people, employed and unemployed.

7.3 Mobility in regions of high unemployment

Another way to look at the mobility of unemployed people is to focus on mobility in regions of high unemployment. A regional focus may be justified to the extent that the characteristics of different places (such as industry composition, and poor availability of social services and local infrastructure) compound the challenges of both finding a job and moving to another area for work (Australian Social Inclusion Board 2010).

Mobility in high unemployment areas

While unemployment rates do not vary significantly across regional labour markets (the primary unit of analysis in this report), there is significant variation in

unemployment rates *within* regional labour markets. Hence, to isolate high unemployment areas requires a smaller spatial unit.

Statistical Areas Level 2 (SA2s) divide Australia into 2214 regions and provide a unit for analysis that illustrates the large degree of variation in unemployment rates across Australia. At the time of the 2011 Census, unemployment rates across these regions varied between 1 per cent and 62 per cent.

The 40 regions that make up the top two per cent of SA2s by unemployment rate are very diverse. Every state and territory is represented. Some regions are located in major cities while others are in regional and remote areas. However, remote and very remote areas are over-represented — these areas make up about 4 per cent of all SA2s, but 32 per cent of those in the top 40.

Nine of the ten regions with the highest unemployment rates in Australia are located in outer regional and remote parts of Queensland and the Northern Territory, where Indigenous Australians represent 80 per cent or more of the population (table 7.3).¹⁷

Table 7.3 High unemployment areas by state and remoteness
Census 2011

<i>Area</i>	<i>State</i>	<i>Remoteness classification^a</i>	<i>Unemployment rate (%)</i>
Yarrabah	Queensland	Outer regional	62.1
Palm Island	Queensland	Remote	26.3
Acton	ACT	Major city	25.0
Thamarrurr	Northern Territory	Very remote	23.4
Aurukun	Northern Territory	Very remote	22.5
Gulf	Northern Territory	Very remote	20.2
West Arnhem	Northern Territory	Very remote	19.4
Sandover - Plenty	Northern Territory	Remote/very remote	19.2
East Arnhem	Northern Territory	Very remote	19.0
Yuendumu - Anmatjere	Northern Territory	Very remote	18.1

^a According to the Australian Bureau of Statistics' Remoteness Area classification structure.

Sources: ABS (*Correspondences*, Cat. no. 1270.0.55.006; *Tablebuilder Pro*, 2011, Cat. no. 2073.0).

The mobility of residents in the 40 regions that make up the top two per cent of SA2s with the highest unemployment rates varied widely (figure 7.5). The proportion of unemployed people in these regions who moved to another region in the 12 months prior to the 2011 Census ranged between 0 per cent and

¹⁷ The remaining region in the top ten, Acton, is located in North Canberra. Acton's high rate of unemployment reflects the location of the Australian National University within its borders and a high number of full-time students looking for part-time work.

38.9 per cent. For employed people, the range was between 0 per cent and 44.9 per cent. In other words, in some high unemployment areas people frequently move in and out, while in others areas there is little movement.

Figure 7.5 Residential mobility in high unemployment areas^a

Rates of residential mobility among employed and unemployed people in the two per cent of SA2s with the highest unemployment rates, Census 2011



^a The region of Yarrabah is excluded from the figure due to space constraints. Yarrabah had an unemployment rate of 62.1 per cent and mobility rates for employed and unemployed people of 8.8 per cent and 3.8 per cent respectively. ^b Refers to the proportion of employed/unemployed who moved house to a different SA2.

Source: Productivity Commission estimates using ABS (*Tablebuilder Pro*, 2011, Cat. no. 2073.0).

Mobility in high disadvantage areas

Looking at high unemployment areas alone may not always capture all of the areas of concern to the wider community. Some regions may have high rates of discouraged job seekers or high rates of long-term unemployment without having high rates of overall unemployment. Data on discouraged job seekers and long-term unemployed people are only available at a highly aggregated level. However, measures of socio-economic disadvantage, which may provide good proxies for areas with a high number of long-term unemployed people and discouraged job seekers, are available at the SA2 level.

The ABS produces a range of socio-economic indexes for areas. One of the more commonly used is the Index of Relative Socio-economic Disadvantage (IRSD) (Byron 2010). The IRSD ranks areas according to the proportion of relatively

disadvantaged people in the area.¹⁸ A low score indicates a high proportion of relatively disadvantaged people (ABS 2012e).

The mobility of employed and unemployed people in the top two per cent of areas of high disadvantage (figure 7.6) has a similar variability as that in the high unemployment areas previously discussed. Many highly disadvantaged areas have mobility rates below the average, while others have mobility significantly above the average. In part, this probably reflects the overlap between high unemployment and high disadvantage — 26 of the 40 most disadvantaged regions were among the 40 highest unemployment rate regions.

Figure 7.6 Residential mobility in high disadvantage areas

Rates of residential mobility among employed and unemployed people in the two per cent of SA2s with the lowest scores on the Index of Relative Socio-economic Disadvantage, Census 2011



^a Refers to the proportion of employed/unemployed who moved house to a different SA2.

Source: Productivity Commission estimates using ABS (*Tablebuilder Pro*, 2011, Cat. no. 2073.0).

Regional variation in mobility rates does not imply that disadvantage has no impact on a person's capacity to move. Econometric modelling by the Commission found that workers who live in regions with higher levels of socio-economic disadvantage tend to move less on average (appendix E).

¹⁸ IRSD is made up of a number of variables with different weightings. Heavily weighted variables include: the proportion of people with stated annual household equivalised income between \$1 and \$20 799; the proportion of families with children under 15 years of age who live with jobless parents; the proportion of occupied private dwellings with no internet connection; and the proportion of employed people classified as 'labourers' (ABS 2012e).

However, it does indicate that in many places with high levels of unemployment or disadvantage, there is a high level of population turnover. This suggests that there is a need to address unemployment via ‘people-based’ approaches rather than relying solely on ‘place-based’ approaches, particularly where these policies try to address unemployment by encouraging geographic labour mobility.

An area for future research is the extent to which different types of high unemployment and high disadvantage areas serve different functional roles in terms of geographic mobility. Analysis by UK researchers distinguishes between areas that serve as ‘escalators’ (where out-migrants move to less disadvantaged areas), and areas that serve to ‘isolate’ (where out-migrants move to equally disadvantaged areas) (Robson, Lymeropoulou and Rae 2009). In both types of areas, the level of disadvantage remains high, but the impacts on the employment prospects of residents differ significantly.

While people who move to less disadvantaged areas may do so to pursue opportunities, people who move to equally disadvantaged areas may be more likely to do so out of necessity, for example, as the result of a lease ending (Marshall et al. 2003). Moves between areas of high disadvantage may also occur in response to differences in living costs between areas and opportunities unrelated to employment. For example, Marshall et al. (2003) noted that many low-income earners are on waiting lists for public housing and move to occupy public housing when it becomes available.

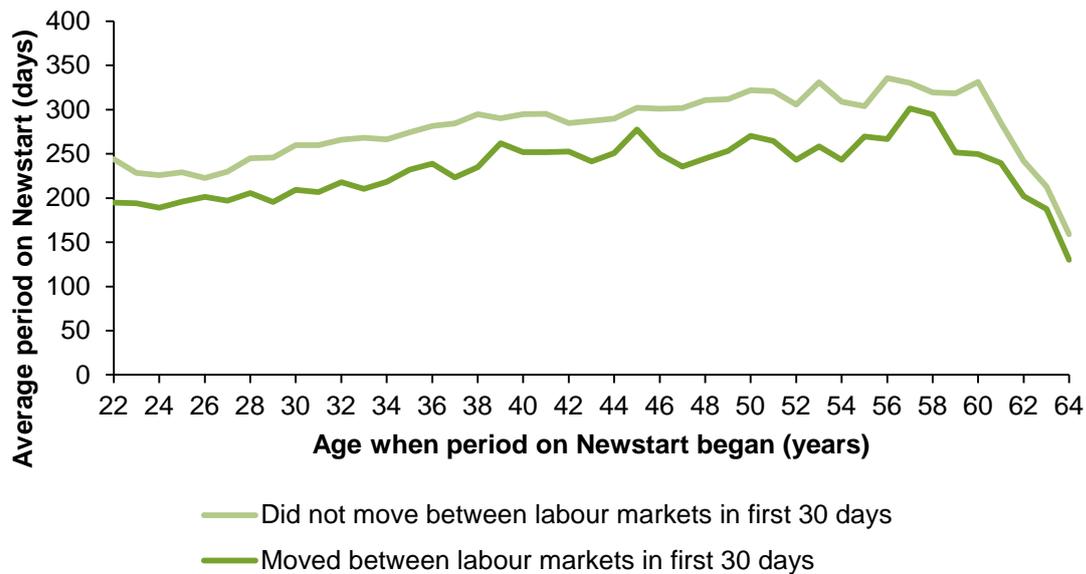
7.4 Does moving improve employment outcomes?

To examine the relationship between movement and employment outcomes, the Commission used data from the Department of Employment’s Research and Evaluation Database on changes of address by Newstart Allowance recipients and exits from Newstart Allowance. This analysis was undertaken on the assumption that most people who leave Newstart, particularly in younger age groups, do so because they have gained employment. However, it should be noted that a number of people are likely to have left Newstart because they stopped looking for work and dropped out of the labour force.

The Commission’s analysis showed that Newstart recipients who moved between labour markets during their first 30 days on the allowance tended to have shorter periods on Newstart, regardless of age (figure 7.7). For example, on average, a person who was 30 years old when they began receiving Newstart (and received the allowance for more than 30 days) spent 51 fewer days on the allowance in total if

they moved between labour markets in the first 30 days. Similar differences exist for moves between states in the first 30 days.

Figure 7.7 Movers spend less time on Newstart Allowance
Average period on Newstart by age and move status in the first 30 days^a



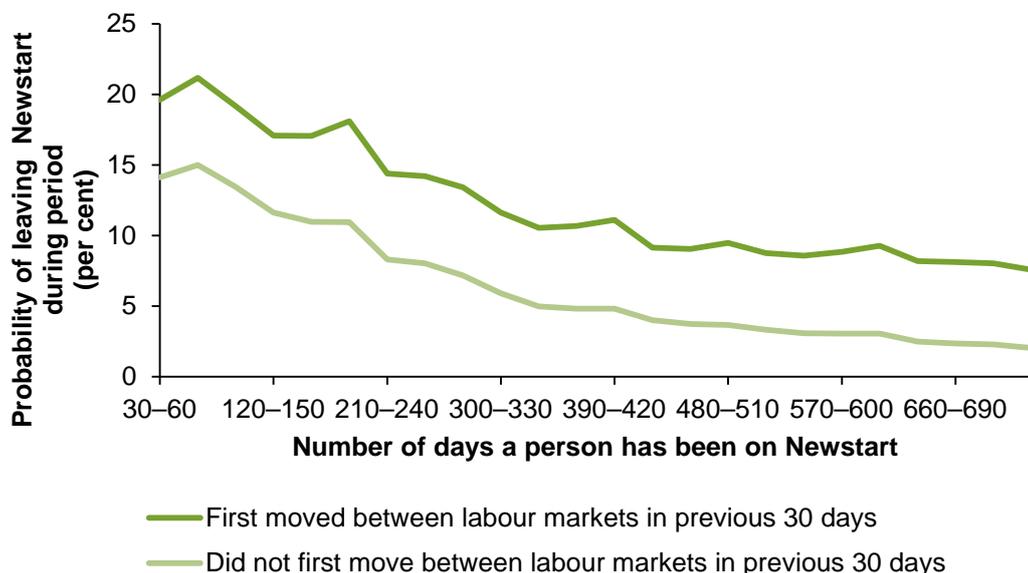
^a Estimated averages only include people who received Newstart Allowance for more than 30 days.

Source: Productivity Commission estimates using data from the Department of Employment's Research and Evaluation Database.

The difference in average time on Newstart between movers and non-movers is mainly due to an increased likelihood of a person leaving Newstart soon after moving. This effect is not restricted to first moves that occur early in a person's period on Newstart. The likelihood of a person leaving Newstart in any given 30-day period declines with each period that passes, but people who move between labour markets in any 30-day period consistently have a higher probability of leaving in the following 30-day period. For example, 8 per cent of people who had been on Newstart for more than 12 months and first moved between labour markets during their 12th month, left Newstart in their 13th month. By comparison, only 5 per cent of those who had not moved labour markets in the previous month left Newstart (figure 7.8).

Figure 7.8 **Movers leave earlier more often, regardless of when they move**

Probability of leaving Newstart by 30-day period and move status in previous period^a



^a For a given 30-day period, the probability of leaving Newstart is equal to the total number of people who left Newstart during that period divided by the total number of people in receipt of Newstart for at least that period.

Source: Productivity Commission estimates using data from the Department of Employment's Research and Evaluation Database.

In summary, there is a clear correlation between moving labour markets and leaving Newstart. However, this does not mean that moving between labour markets *causes* people to leave Newstart as the analysis above does not control for underlying differences in the characteristics of movers and non-movers (aside from age).

Indeed, previous studies suggest that it is these differences, rather than the act of moving, that explain any observed differences in labour market outcomes between movers and non-movers (Bill and Mitchell 2006; Black, Kalb and Kostenko 2009). Black, Kalb and Kostenko (2009), for instance, found that moving had no significant effect on the likelihood of re-employment for unemployed men and a significant negative effect on re-employment for unemployed women.

However, these previous studies only looked at moves between postcodes. The labour market regions used for analysis in this report are much larger than postcodes and it is possible that moves between labour markets may improve employment outcomes even if moves between postcodes do not. Most moves between postcodes usually take place within (rather than between) labour markets and would not necessarily alter the employment opportunities available to a job seeker. Research is yet to be conducted to test this possibility.

Regardless, it is important to note that there are significant risks associated with moving for work, particularly for long-term unemployed people (DoE, sub. DR60). As Jobs Australia (sub. 20, p. 4) noted:

The reality is that many job seekers on income support already face enormous barriers to finding and keeping work. These often include low levels of school attainment and multiple personal barriers such as homelessness, mental illness, and drug and alcohol dependence. For people in this situation who already face severe disadvantage and frequently have histories of long-term unemployment, the challenges associated with relocating a considerable distance to find work represent serious risks.

These risks take many forms. For example, frequent movement in search of low-skill, casual jobs has been identified as a common path to homelessness. In particular, speculative moves to metropolitan areas and other areas of strong employment growth where living costs are high can increase the risk of entering poverty or homelessness if the job search proves unsuccessful in the first few months (Marshall et al. 2003; McCaughey 1992).

Frequent movement can also undermine the effectiveness of community-based programs and employment training and make it more difficult to get accurate information about community services, employment opportunities and health care (Marshall et al. 2003). Furthermore, high mobility can negatively affect educational outcomes for children, increasing the risk of intergenerational unemployment (Hattie 2013).

7.5 Improving prospects for unemployed people

Unemployment, particularly of an extended duration, is a complex policy problem. Aggregate unemployment is an outcome that predominantly reflects macroeconomic factors such as economic growth and real wages. Skill deficits and mismatches, industry structural change and incentives and assistance for job searching also play a role, particularly in influencing the duration and pattern of unemployment. At the individual level, a heightened risk of unemployment and an extended duration on unemployment benefits is associated with poor health, lower education levels, being young or old, being unmarried, having lower English proficiency and being Indigenous (Borland and Johnston 2010; Carroll 2006; Le and Miller 1999).

Many of the same personal characteristics that make long-term unemployment more likely also make moving to get a job more difficult. Even where opportunities for employment are available and moving for work is financially feasible, poor health, difficulties obtaining transport and reliance on family networks for support may

sometimes limit the capacity of long-term unemployed to take advantage of these opportunities.

Improving employment prospects for long-term unemployed people requires a suite of responses that increase the availability of employment opportunities while reducing labour market disadvantage. Some government programs that remove financial barriers to mobility for unemployed people are worthwhile and can assist some people to gain employment, but their overall effect is small (chapter 10).

There are a number of reforms, discussed in chapter 12, that could both improve geographic labour mobility and reduce unemployment. Reforms to Australia's social support arrangements, such as altering the design of employment services and reducing the effective marginal tax rates faced by many income support recipients could directly reduce long-term unemployment. The removal of broader impediments to geographic labour mobility (such as improving housing affordability through rent assistance changes) may also indirectly reduce unemployment.

8 Impediments and enablers

Key points

- Personal, locational and transitional factors interact to affect the likelihood of a person or household moving. Some factors tend to impede movement, while others tend to enable movement.
- Of the many personal factors that affect mobility, life events seem to be the most significant. In particular, being a parent of school-age children is a major impediment to movement. Education is an enabler of mobility.
- A range of locational factors affect where people choose to move. These include proximity to family and friends, housing prices, wages, career prospects, commuting times, climate, quality and availability of infrastructure, and lifestyle.
 - These factors can also influence whether people choose to live and work in the same region, or to live a considerable distance from their location of work by undertaking long-distance commuting or telecommuting.
 - The interaction of personal and locational factors related to family circumstances pose some of the most significant impediments. These include a desire to stay close to family, the challenges of juggling career prospects in dual-income households, and the availability of social infrastructure such as childcare facilities and schools in any given location.
 - Housing prices also seem to be particularly important in mobility decisions.
- Employment is usually not the main reason people give for moving, but employment is still a significant enabler of movement. People tend to move long distances only if the prospects of secure employment are strong at their intended destination.
- Transitional factors refer to the one-off impediments and enablers associated with the act of moving. Transitional factors include search costs, adjustment costs, and legal and administrative costs.
 - Stamp duty stands out as the most significant transitional impediment, however, other transitional factors (such as moving expenses) can also serve to impede geographic labour mobility depending on personal circumstances.

Deciding where to live and work is a highly individual judgment (Ai Group, sub. 19). Each person will have different reasons for the choices they make reflecting their personal preferences and the options available to them.

The factors that influence a decision to relocate can be divided into three categories: personal factors (the characteristics and circumstances of the individual), locational factors (the characteristics of the regions where the person is considering moving

from and to) and transitional factors (the costs and benefits arising from the act of moving).

Insofar as a factor makes relocation harder (or less likely) for a given individual, it can be regarded as an ‘impediment’ to mobility. Insofar as it makes relocation easier (or more likely), it can be considered an ‘enabler’ of mobility. The inclination of a person to move will depend on the combined effect of a range of different factors (chapter 2). In many cases, the greatest impediments occur when different factors interact.

This chapter discusses how different personal, locational and transitional factors can impede or enable mobility, focusing on mobility decisions from the point of view of an individual or household. However, at an aggregate level (particularly over the longer term), most personal factors and locational factors cancel out. Large-scale movements of people over time are instead driven by broader economic and social forces. These include gravity (a region’s size), the distance between regions and the economic opportunities available in different regions (chapter 2; appendix E).

Conclusions in this chapter are supported by evidence provided by study participants, academic literature and the results of two econometric modelling exercises conducted by the Commission (box 8.1).

8.1 Personal factors

Personal characteristics, personal circumstances and personality traits all shape the preferences of individuals, in terms of their inclination to relocate, where to relocate to, and how to relocate.

The analysis in chapter 5 found that people who move the most often are those who are young, well-educated, single, childless, working in high-skilled employment, recent immigrants and those with Indigenous backgrounds. But which of these personal factors actually impede or enable geographic labour mobility, and how? This section addresses these questions by drawing on, and extending, the analysis from chapter 5 and using evidence from submissions, academic research and the Commission’s modelling.

Life events and life course stages

A key finding of chapter 5 was that mobility is closely correlated with age. Numerous studies from Australia and other developed countries have shown that residential moves (including moves between labour markets) are most common for

people aged in their mid to late twenties and that frequency of movement gradually declines as people get older (ABS 2010b; Bill and Mitchell 2006; Clark and Dieleman 1996; Dieleman 2001). The Commission's econometric modelling concurs with this finding (appendixes D and E).

Box 8.1 **Modelling migration decisions and patterns**

To assist in identifying impediments to geographic labour mobility, the Commission undertook two econometric modelling exercises.

- A **model of the individual decision to migrate**, based on a discrete choice framework, was developed to assess the relative importance of different personal factors in an individual's decision to move between labour markets.
- A **model of regional migration**, based on a gravity model framework, was developed to identify the impact of locational and transitional factors on people's mobility decisions. This was achieved by comparing the relative attractiveness of different regions while taking account of the transaction costs of moving.

Both models used 2011 Census data and were based on moves between regional labour markets within Australia in the 12 months prior to August 2011.

The results of the individual decision model suggest that movement between labour markets is positively related to a person's income and level of education. The results also suggest that movement between labour markets is inversely related to having children who are attending school, home ownership and being a public housing tenant.

The results of the regional migration model suggest that people are attracted to areas with higher real wages, lower unemployment rates, stronger employment growth and better access to services; and avoid areas with relatively high costs of living. The results also suggest that people from regions with more older people, higher rates of home ownership and higher relative socio-economic disadvantage tend to move less. Moves tend to be less common between regions that are far apart, possibly because the psychological, social and financial costs of moving rise with distance.

The results of these models are discussed further throughout this chapter. Details of the methodology, data and results are available in appendix D (for the individual decision model) and appendix E (for the regional migration model).

Prior studies have suggested that younger people move more because moving is an investment, and younger people have a longer period over which to reap the benefits of moving (Bill and Mitchell 2006; Sjaastad 1962). However, there is also evidence that the relationship between age and mobility is reflective of 'life events' — that is, major events that are part of a person's life course. Life events that often coincide with a change of location include completing formal education, entering the labour market, getting married, having children, becoming separated and getting divorced (Clark and Dieleman 1996).

Indeed, analysis by Clark (2012) suggests that life events and life course stages can fully explain the negative correlation between age and geographic labour mobility. After taking account of life events such as the birth of a child, marriage, separation, divorce and getting fired, Clark found that age was no longer statistically significant in explaining the probability of moving more than 30 km.

Most life events are difficult to definitively classify as enablers or impediments. Sometimes the long-term effect of a life event is different from the immediate impact. For example, Clark (2012) found that the birth of a child is associated with an increase in the probability of a household moving (which may be due to the need for different accommodation). However, Clark also found that, in general, households with children were *less* likely to move than those without children (discussed below).

Furthermore, life events can have different effects depending on the distance of move under analysis. For example, separation and divorce are both associated with an increase in the probability of moving in general, but they are associated with a decrease in the probability of moving (long distances) between major metropolitan areas (Clark 2012). This may be because the end of a marriage usually involves the breakup of a household and at least some family members changing residence. However, if there were children in the household, parents may be reluctant to move too far away. Recently divorced or separated people may also be reluctant to move long distances, out of a desire to be close to family and friends who can provide support.

Nonetheless, a clear finding from Clark's (2012) research is the strong relationship between mobility and the presence of children. Across all distance thresholds, households with children were less likely to move than households without children. In other words, of all life events and life course stages, the presence of children in a household poses the clearest impediment to geographic labour mobility. The Commission's modelling suggests this effect is strongest when children are at an age when they are attending school (appendix D).

While empirical evidence is limited, life events and life course stages are also likely to influence a person's inclination to undertake other forms of geographic labour mobility, such as long-distance commuting. Overall, parents with young children are probably less inclined than other groups to commute long distances just as they are less inclined to move house. However, for some parents who do consider relocating their work, long-distance commuting may be the relatively more attractive option. For instance, the Minerals Council of Australia (sub. 6) stated that mining industry employees have embraced long-distance commuting as a way to

take advantage of higher wages in mining regions without disrupting family life through relocation.

Female labour force participation and dual-income households

Rising female labour force participation over time, and the resulting rise of dual-income households, means that, more than ever, decisions about where to live and work are jointly determined and need to take into account the employment prospects of both partners (Montgomery and Curtis 2006). The traditional model of a male breadwinner supporting a wife and children no longer describes most Australian families (DPMC 2008). In more than two-thirds of Australian couples, both partners work. For those without dependent children, two full-time workers is the most common arrangement. For those with dependent children, one full-time worker and one part-time worker is most common (ABS 2013n).

Study participants suggested that this can act as an impediment to geographic labour mobility. As the Australian Mines and Metals Association (sub. 29, p. 6) noted, ‘when both partners work or have their own careers, it becomes more difficult and less attractive to relocate to regional areas where jobs or career opportunities may not be available for both’.

The limited evidence available from the academic literature supports the view that dual-income households have lower rates of mobility than single-income households (Clark and Withers 2009; van Ommeren, Rietveld and Nijkamp 1998). This is consistent with the results from the Commission’s modelling which suggest that people with employed partners are less likely to have moved (appendix D). However, the rise in dual-income households may also be contributing to growth in long-distance commuting and telecommuting which allow partners to live together while working in different labour markets.

The rise of dual-income households is not the only way in which higher female labour force participation affects mobility. Rising participation levels among women are also associated with lower fertility rates due to delayed childbearing and smaller family sizes (Clark and Withers 2009). As discussed above, households with children tend to be less mobile. Hence, if increased female labour force participation leads to fewer households with children, it could also enable mobility. Higher rates of female labour force participation are also closely related to higher rates of educational attainment, the effects of which are discussed below.

Education and occupation

Chapter 5 suggests education enables mobility. The Commission's econometric modelling (appendix D) and a number of studies using data from Australia and other countries support this finding (Bill and Mitchell 2006; Clark and Dieleman 1996; Clark and Maas 2013; Clark 2012). This may be because more educated people tend to be more highly skilled and the economic returns to migration rise with a person's level of skill (Clark 2012).

Education aside, a person's occupation also clearly has an influence on their geographic labour mobility. Some occupations are inherently more mobile due to the nature of the work undertaken. For example, Ausfilm (sub. 28, p. 7) indicated that workers in the film and television sector understand that:

employment is likely to be freelance and involve periods where they will be living and working away from their homes and their families. Sometimes this will be in other parts of Australia and sometimes this may be in other parts of the world.

In fact, some of the most mobile occupations of all are low-skilled occupations. For example, the Commission's analysis of Census data found that construction and mining labourers (an occupation classified as low skilled) had a higher rate of residential mobility than almost any other occupation. This at least partly reflects the project-based and location-specific nature of work in these industries. High geographic mobility among many other low-skilled occupations — such as bar attendants, baristas, waiters and telemarketers — probably reflects the prevalence of casual working arrangements in these occupations. These are jobs that otherwise mobile people can easily pursue, rather than jobs that require people to be mobile.

Indigenous status

Indigenous Australians move between labour markets much more frequently than non-Indigenous Australians (chapter 5). However, this does not necessarily imply that being an Indigenous Australian enables geographic labour mobility or that non-Indigenous Australians face impediments to mobility that are not faced by Indigenous Australians.

Much of the difference in mobility rates between Indigenous Australians and non-Indigenous Australians can be explained by differences in other personal factors that are correlated with mobility and Indigenous status. For example, Biddle and Markham (2013) have shown that most of the difference in mobility rates between Indigenous and non-Indigenous Australians is attributable to differences in the age profiles of the two groups. Lower rates of home ownership and differences in the timing and frequency of some life events may also play a part. For instance,

Kinfu (2005) noted that rates of marital dissolution (a life event positively associated with movement) are much higher among Australia's Indigenous population.

Nonetheless, the Commission's modelling, which controls for age, partner status, income and a range of other socio-demographic variables, finds that people with Indigenous ancestry are much more likely than others to move between labour markets and between states (appendix D). This does not necessarily indicate that Indigenous people are more likely to move long distances to seek employment. People with Indigenous backgrounds may have culturally-specific reasons for moving long distances, such as attending traditional ceremonies, visiting country and maintaining kinship networks (Dockery and Colquhoun 2012).

Measurement issues also make comparisons between the mobility of Indigenous and non-Indigenous Australians difficult to interpret. For example, Dockery and Colquhoun (2012) have pointed out that it is not uncommon for Indigenous people to have several places of residence that they call home. However, the Census only asks about one place of usual residence. This may serve to overstate the rate of mobility among Indigenous people.

Housing tenure

Housing tenure is another personal factor which is difficult to identify definitively as an impediment or an enabler. Rates of residential mobility are higher among private renters than home owners, and lowest among public housing tenants (chapter 5). These differences may be partly attributable to other personal factors that are correlated with tenure type (VCOSS, sub. 27). However, Clark (2012) and Bill and Mitchell (2006) have shown that (private) renting is positively correlated with mobility even after controlling for variables such as life events, age, income, education and occupation.

The Commission's own econometric modelling also found that higher rates of home ownership tended to be associated with lower rates of inter-regional immigration (appendix E) and that, at an individual level, home owners were less likely to have moved in the prior year than private renters (appendix D). To some extent, this may be because people who are more mobile are more inclined to rent so that they are not locked into long-term housing arrangements — the transaction costs associated with moving are lower for renters than home owners (section 8.3). However, higher mobility among renters could also be due to involuntary residential movement as a result of eviction or leases ending. To the extent that people move between labour

markets involuntarily, this may contribute to geographic labour mobility without improving the efficiency of the allocation of labour between markets.

Personality traits and risk preferences

There is a growing body of evidence showing that personality can influence a person's decision to relocate, independent of other personal characteristics and circumstances. Using a longitudinal study of American adults, and controlling for a range of other personal characteristics, Jokela (2009) found that respondents who considered themselves to be 'open to experience' were more likely to move both within and between states. Respondents who described themselves as extroverts were also more likely to move within states. Similar results have been found in Finland (Jokela et al. 2008) and Italy (Camperio Ciani et al. 2007).

Similar econometric analysis has not yet been conducted for Australia. However, descriptive analysis by the Commission of the Household, Income and Labour Dynamics in Australia survey supports these findings. There is a positive correlation between changing residences and being extroverted or open to new experiences. Watson (2011) has also examined the effect of different personality types on non-geographic aspects of labour mobility. Controlling for a range of personal factors, Watson (2011) found that being an extrovert had a positive effect on a person's likelihood of changing jobs. For women (but not men), openness to experience was also positively related to the incidence of changing jobs.

The benefits and costs associated with moving are often uncertain (chapter 2). For people who are risk averse, this uncertainty might serve as an impediment to mobility. Overseas research suggests that more risk averse individuals (and households) are less likely to move and change jobs. For example, using data from a longitudinal study of families living in the United States, Kan (2003) found that people who were risk averse were somewhat less likely to change jobs, move house or do both at the same time. Using home loan-to-value ratios as a proxy for household risk aversion, Tu and Li (2011) reported similar results for Chinese households.

Risk aversion may partly explain some of the variation in rates of mobility across different demographics. Recent analysis of survey data on the financial risk attitudes of Australians suggests that those with low levels of educational attainment (year 11 or below) and those with young children tend to be less tolerant of risk (West and Worthington 2013). Lower levels of risk tolerance may contribute to the tendency for people with young children and people with lower levels of educational attainment to move less frequently.

8.2 Locational factors

Locational factors are the features that distinguish one regional labour market from another. People decide where to live and work trading off different locational factors including employment prospects, expected wages, career prospects, housing costs, commuting times, proximity to family and friends, climate, quality and availability of infrastructure, and lifestyle.

The significance of different locational factors often depends on their interaction with personal factors and subjective preferences. For example, proximity to good schools and family is likely to matter more for people caring for children.

Historically, people have usually lived in the region where they work, so the locational factors that influence where they work have been the same as those that influence where they live. However, new technologies and declining travel costs are creating opportunities for people to commute long distances and telecommute, and thus live in a region different from where they work (chapter 6). Increasingly, this means locational factors influence not only where people choose to work, but also whether they choose to work in the same location as where they live.

The following discussion highlights the key locational factors and the role they play as impediments and enablers of geographic labour mobility.

Wages and employment

In the past, researchers have placed relative wages at the forefront of economic models of migration decisions (Clark and Maas 2013). However, recent surveys of the labour force consistently find that most moves are made for reasons other than employment (chapter 5). At an individual level, most moves are not seen as a way of increasing income but rather as a way of ‘adjusting consumption or realigning social relationships’ (Morrison et al. 2010, p. 14).

However, even if employment is not usually the main reason that people give for moving, it can still enable geographic labour mobility. Employment is usually crucial to long-distance movements because it makes them *possible*. Few long-distance moves are undertaken unless secure employment is expected at the destination region (Morrison et al. 2010). Morrison et al. (2010) suggested that employment is not often given as a justification for moving because it is usually regarded as a necessary but not sufficient reason to make a move.

At an aggregate level (particularly over the long term), economic opportunities tend to be central to patterns of movement. Indeed, the results of the Commission’s

regional migration model suggest that people tend to move to regions with lower unemployment rates, stronger employment growth and higher real wages (appendix E).

Working conditions and career prospects

Even for people who place a high weight on employment when considering where to move, wages are not the only factor to consider. Conditions of employment and career prospects also matter.

In some industries and occupations, difficult working conditions and a lack of career prospects appear to impede movement to regional and remote areas. This is well documented in the health sector. A recent Senate inquiry into the regional health workforce heard from multiple participants that, in comparison to working in cities, working in regional areas involved longer hours, more demanding rosters, less professional development and limited career progression. The inquiry heard that young professionals who do move to non-metropolitan areas typically leave after one or two years to pursue specialist careers in metropolitan areas (SCARC 2012).

The Western Australian Government (sub. 32, p. 15) made a similar point about employment in regional and remote areas more generally:

Employees often see regional employment as a ‘stepping stone’ in the workforce ladder, rather than a place to build a long-term career. As a result, employment is often transitory, with significant implications for employers in terms of recruitment costs and training.

On the other hand, employers with strong reputations for maintaining good working conditions and promotion opportunities can enable geographic labour mobility in regional areas (chapter 9). For example, AgriFood Skills Australia (sub. 18, p. 2) noted that ‘few “employers of choice” report difficulty in recruiting workers as their reputation within the sector or locally makes them a first choice for those seeking employment’.

The permanency of available employment in a region can also be a factor in a person’s decision to relocate:

[W]here available work is precarious — because it is casual, seasonal, only available for short periods of time, or subject to high demand fluctuations, there is not enough certainty for people to be able to commit to higher levels of housing costs — as the high cost of relocating and length of standard rental tenure means there may be little benefit in moving. (VCOSS, sub. 27, pp. 7–8)

Housing and living costs

In some cases, labour markets with high wages also have high housing and living costs. These high costs can dampen the incentive to move provided by higher wages. To take advantage of higher wages without suffering higher living costs people may choose to long-distance commute or telecommute rather than changing residence (where these options are available).

The Western Australian Government (sub. 32) pointed to the north-west region of Western Australia as an example of an area where housing costs pose a large impediment and a very high salary is necessary as compensation. In Port Hedland, for instance, the median weekly rent in the March quarter of 2013 was \$1675. At this level, a person earning \$270 000 a year (before tax) would need to devote roughly half their after tax salary to rent payments.

Research commissioned by the Australian Mines and Metals Association (sub. 29) suggested that the high cost of living and high cost of rental accommodation are key reasons why workers from the eastern states of Australia are reluctant to move to work in Western Australia (Bahn, Yap and Barratt-Pugh 2012).

Housing and living costs are a major impediment for those on fixed incomes and those on salaries that do not vary across regions to reflect such living costs. For example, the Police Federation of Australia (sub. 2, p. 2) noted that in many remote mining towns where fly-in, fly-out workers are common:

... the cost of housing, family essentials (groceries and other services) and other infrastructure is extremely expensive. This places a great financial burden on police officers and their families, as well as their respective state/territory police departments/governments ... [T]he extra competition for housing, owned or rented, pushes up the price of housing for police officers and other service providers in the community.

Housing and living costs may also affect geographic labour mobility within major cities and between major cities and regional areas. For example, analysis of suburban house prices between 1976 and 2009 shows that lower-cost housing is increasingly concentrated in urban fringe and peri-urban locations. This may encourage movement to these locations, even though transport options tend to be more limited and fewer jobs are within easy reach than in inner suburban locations (Dodson and Sipe 2008; Kelly and Mares 2013; Taylor and Watling 2011).

The evidence provided by study participants on the effect of housing prices is supported by the results of the Commission's econometric modelling. The Commission found that regions with relatively high median house prices tend to have lower inflows of people (appendix E).

Another factor is housing choice (BCA, sub. 31). When deciding where to live, people consider not only the cost of housing, but also the quality and type of housing stock available. Not all locations have the same number of accommodation choices and this may reduce a person's willingness to move to a given area.

Family and community ties

Proximity to family and friends can be an important consideration when a person (or household) is deciding whether to move (and where to move to). Often, family ties can impede mobility by holding people to their location of origin. Depending on the strength of family bonds, people who do move may be more inclined to move a short distance from family than a long distance, or to regions with transport links that allow easy access to family. The Australian Mines and Metals Association (sub. 29) pointed to research that suggested that the preference to stay relatively close to friends and family is a key reason given by workers in the eastern states for not moving to Western Australia, even though more attractive employment opportunities might be on offer there (Bahn, Yap and Barratt-Pugh 2012).

However, there is also evidence that in certain circumstances, family ties can act as an enabler of movement through a phenomenon known as 'chain migration' (Taylor 1989). For example, in examining why people moved to the Gold Coast during the 1990s, Stimson and Minnery (1998) found that people were often moving to re-establish family connections after family members had moved to the region at an earlier date. Several participants to the study have also pointed to examples of refugee resettlement in regional areas, where the gradual development of an ethnic community has made it easier for other refugees to relocate at a later date (Jobs Australia, sub. 20; Taylor and Stanovic 2005).

Proximity to family is a case where locational and personal factors strongly interact. For example, proximity to family is likely to be a major factor for people with ageing parents who require care, for people with young children, and for people on low incomes or in other circumstances that mean they rely heavily on family or community networks for support (chapter 7). Studies from South Australia and Tasmania have shown that family circumstances can prompt return migration (Hugo et al. 2000 cited in Department of Premier and Cabinet (SA), sub. 34; Verdich 2010). For example, Verdich (2010) interviewed 18 people who had recently moved to Launceston, Tasmania. In examining the reasons people gave for migrating, she noted that:

Several respondents cited the desire to live with their partner as the prime reason they migrated. Upon having children, there are strong motivations to be closer to one's

immediate family for support as well as enabling family members to participate in childcare and upbringing. (Verdich 2010, pp. 134–135)

Using US data, Kan (2007) estimated the effect of social ties on the propensity of a person to move. Social ties were proxied using responses from a survey question about whether a respondent had someone living nearby who they could call on to help out in the event of a serious emergency. Kan found that being near assistance was associated with a 6 per cent reduction in the probability of moving to a different county, comparable to the effect of being a home owner (which was associated with a 9 per cent drop in the probability of an inter-county move).

Choice experiments by Nicholas and Shah (forthcoming) have also shown that knowing someone at a destination region is strongly related to the financial compensation that a person would hypothetically require to take up a job in that region. Nicholas and Shah surveyed more than 2000 people about their willingness to move to accept a job in two major mining regions — Emerald in central Queensland and Karratha in northern Western Australia. They found that, on average, a person who did not know someone in the destination region would need to receive a wage premium of \$43 884 above that required for a person who did know someone in the region. This premium was much larger than that associated with being female, married or a home owner.

Climate

The climate of a location may also factor into a decision to move. An inhospitable climate may deter movement to a location while a pleasant climate can encourage it.

Evidence from Stimson and Minnery (1998) suggests the pleasant climate of the Gold Coast relative to some other parts of Australia was a factor in the region's growth during the 1980s and 1990s. Stimson and Minnery surveyed 299 migrants (one-third of whom were retired) who had moved more than 200 km to reside in the region. They found that the climate was the most common reason cited by migrants for leaving their previous place of residence. In some cases, the benefits of a warmer climate were linked to personal factors such as the health of a family member with asthma or arthritis (Stimson and Minnery 1998).

What constitutes an ideal climate is largely subjective, but some climates are objectively inhospitable. This can serve as an impediment to geographic labour mobility. For example, in Williston, North Dakota (a region in the United States experiencing a resources boom comparable to that in many parts of Australia), bitterly cold winters are contributing to skills shortages (Davies 2012). In a similar

sense, the harsh desert climate of the Pilbara could deter workers from moving to the region.

In certain sectors, such as agriculture, climate also affects mobility through its impact on economic conditions. For example, the Western Australian Government (sub. 32) noted that a drying climate is leading to deteriorating growing conditions in the state's central wheatbelt and people are migrating away from this area as a result. Similarly, Hugo (2012b) pointed out that during recent periods of drought in the northern Eyre Peninsula of South Australia, many workers began long-distance commuting to the mining community of Roxby Downs about 400 km north east.

Economic and social infrastructure

The quality and availability of economic and social infrastructure — such as education facilities, health services, communications services and transport — influence a person's decision about where to live and work. Some types of economic and social infrastructure are relevant for the population generally, such as the quality of roads and the availability of emergency services in an area. Other types of economic and social infrastructure matter more for people with specific needs (CFMEU, sub. 26). For example, people with young children are likely to care more about the quality and availability of childcare services in an area.

The importance of economic and social infrastructure featured heavily in responses from study participants (Ai Group, sub. 19; Business SA, sub. 11; CFMEU, sub. 26; eS4W, sub. 4; Isaac Regional Council, sub. 16; VCOSS, sub. 27; Western Australian Government, sub. 32). Submissions often focused on how a lack of infrastructure in regional and remote areas reduced movement to these regions. For example, the Western Australian Government (sub. 32) noted that a lack of affordable childcare facilities in regional Western Australia impeded women with children relocating there for work. Participants also pointed to transport infrastructure, in both cities and regions, as an enabler of workforce participation, productivity and mobility. A lack of access to affordable transport (both private and public) was also noted by participants as an impediment for certain disadvantaged groups (such as unemployed people) (chapter 7).

In some cases, a lack of infrastructure can be so acute that employers adopt strategies to work around it (chapter 9). Business SA (sub. 11, p. 2) gave the example of a business in the town of Millicent (400 km south east of Adelaide) that offers to subsidise the costs of their employees' children's secondary and tertiary education in Adelaide:

[T]he business believes it is an important aspect of attracting employees to the region as secondary and tertiary education options are limited in the area.

Economic and social infrastructure not only affect the attractiveness of a location for work, but also influence the mobility of people already living in a region. For instance, Isaac Regional Council (sub. 16, p. 7) argued that the low uptake of telecommuting in the region may be because:

... mobile broadband and voice service black spots are a feature of the region and many rural businesses are only able to access dial up internet, despite hosting a significant resident population.

More broadly, the Victorian Council of Social Service (sub. 27, p. 9) pointed out that, in some cases, poor social infrastructure can impede the capacity of residents to pursue opportunities elsewhere:

For instance, if access to education is limited by under-resourced local schools or distant tertiary education facilities, then local residents will have less chance to gain transferable skills that allow them to be more mobile. Thus, 'service equity' is an important element of geographic labour mobility.

Environmental, lifestyle and demographic factors

A range of environmental, lifestyle and demographic factors can influence where people choose to live and work, often reflecting personal preferences and circumstances. To many, metropolitan locations are attractive destinations due to the richness of cultural amenities, recreational opportunities, the 'buzz' of the local arts and music scene, and the ethnic, linguistic and gender diversity (AMMA, sub. 29). On the other hand, metropolitan areas are also associated with congestion, noise and air pollution, and crime which can discourage people from working and living there. In non-metropolitan areas, regional and coastal landscapes can also serve as drawcards.

Once again, the impact of these types of locational factors is likely to be borne out through their interaction with personal factors. Evidence from the United States suggests that the relevance of different environmental and lifestyle factors varies with age and family status. Younger people without children appear to value living in locations with plentiful jobs in proximity to entertainment venues such as

restaurants and theatres, while those with young children prefer areas with more family-oriented features such as larger backyards, playgrounds and parks (Kim, Horner and Marans 2005).

Environmental and lifestyle factors appear to be driving high levels of migration to many non-metropolitan coastal areas, a phenomenon encapsulated by terms like ‘sea changing’ and ‘downshifting’. Over recent decades, many non-metropolitan coastal areas (which offer more natural open spaces than cities) have experienced strong population growth driven by internal migration (Gurran and Blakely 2007). Retirees make up a large proportion of this growth, but in aggregate, recent migrants to high-growth coastal areas have a younger age profile than Australia as a whole (Gurran and Blakely 2007). Similar patterns of migration to ‘high-amenity regions’ have been reported across many developed countries including the United States, Canada and parts of Europe (Beyers and Nelson 2000; Brown 2010; Dahms and McComb 1999).

8.3 Transitional factors

Transitional factors refer to the one-off costs and benefits associated with the act of moving which can serve to impede or enable movement. Transitional factors tend to pose greater impediments to residential mobility than they do to long-distance commuting or telecommuting. Hence, transitional factors may have the effect of increasing the use of alternative forms of geographic labour mobility at the expense of residential relocation (although locational and personal factors may count for more in these decisions).

The relevance of many transitional factors depends on their interaction with locational and personal factors. For example, family size and composition may affect both the financial and psychological costs associated with adjusting to a new location. The costs of a removalist are likely to be higher for a large family with many possessions.

Some transitional impediments are also likely to be larger for moves to more remote locations. Results from the Commission’s regional migration model suggest that distance is negatively associated with inter-regional immigration (appendix E).

Transitional impediments can be classified into three categories: search costs, adjustment costs, and legal and administrative costs (Quigley 2008). The following discussion details the key transitional impediments within these categories.

Search costs

Search costs refer to the effort, expense and forgone leisure time associated with finding work in a new location. The available evidence suggests search costs related to finding employment have fallen over time due to declining travel and communication costs (chapter 4). In particular, the internet has made it easier to access information about job opportunities in other regional labour markets (Kaplan and Schulhofer-Wohl 2012; Rhode and Strumpf 2003).

However, search costs continue to pose an impediment when a change of work location also involves a change of residence. Although the internet may have helped to reduce housing search costs, most people still physically inspect a number of properties across disparate locations before deciding to rent or buy (Quigley 2008). The available evidence from the United States suggests that the average duration of a housing search is about 1–2 months for rental properties and anywhere between 2–6 months for purchased properties (Anglin 1997; Chernobai and Hossain 2012; Weinberg, Friedman and Mayo 1981). Even if only a few hours each week are devoted to searching, this amounts to a substantial cost (Quigley 2008).

Changing residence can also involve additional search costs in terms of finding a range of new location-specific services such as schools, childcare services and medical services. Depending on location, and the characteristics of the household, these searches could be even more costly than those associated with finding accommodation.

Adjustment costs

Adjustment costs are those directly associated with the relocation process, such as hiring a removalist. Over long distances, the financial costs of moving can be considerable. These costs are likely to pose the greatest impediment for low-income households with little savings to cover such ‘lumpy’ expenses (VCOSS, sub. 27).

Moving residence can also involve psychological costs such as a temporary sense of social dislocation that diminishes as a person adjusts to their new surroundings. These costs can also be a factor for long-distance commuters and telecommuters. For example, families of long-distance commuters may face psychological adjustment costs associated with coping with the absence of a household member (Taylor and Simmonds 2009).

Legal and administrative costs

Perhaps the largest transitional impediments to relocation are the associated legal and administrative costs. The bulk of these costs relate to buying and selling a home.

Legal and administrative costs associated with home sales and purchases include conveyancing fees, real estate agents' fees and a range of government fees of which stamp duty is the biggest. Across Australia's capital cities, government fees payable on the purchase of a median-priced established home to be used as a primary residence range from 1.8 per cent to 5.0 per cent of the total purchase price (table 8.1).

Table 8.1 **Government fees payable on home purchases in capital cities^a**
December 2013

<i>City</i>	<i>Median house price (\$)^b</i>	<i>Stamp duty (\$)</i>	<i>Mortgage registration fee (\$)</i>	<i>Transfer fee (\$)</i>	<i>Total fees (% of median house price)</i>
Sydney	650 000	24 740	105	209	3.9
Melbourne	497 000	21 790	85	1 332	4.7
Brisbane	443 000	6 755	157	962	1.8
Adelaide	395 000	16 080	148	2 825	4.8
Perth	529 000	19 143	160	270	3.7
Hobart	330 000	11 135	125	191	3.5
Darwin	540 000	26 730	133	133	5.0
Canberra ^c	512 500	17 725	121	234	3.5

^a Calculated fees are for established homes used as primary residences and do not include any discounts for first home buyers or pensioners. The mortgage registration and transfer fees for Victoria assume an electronic transaction. ^b Median house prices are for established homes for the June quarter 2013. ^c The ACT Government has committed to gradually phasing out stamp duty over a 20 year period beginning in 2012.

Sources: ABS (*Residential Property Price Indexes: Eight Capital Cities*, Cat. no. 6416.0); Productivity Commission estimates.

The legal and administrative costs associated with purchasing housing were frequently noted by study participants as an impediment to mobility (Ai Group, sub. 19; AMMA, sub. 29; BCA, sub. 31; Business SA, sub. 11; CFMEU, sub. 26). For example, Business SA (sub. 11) consulted with member businesses in South Australian regional areas about impediments to geographic labour mobility. It found that a common concern among members was that 'potential employees were unwilling to sell their property and purchase another due to the high burden of stamp duty' (sub. 11, p. 2).

Household surveys also suggest that legal and administrative costs (together with other transitional costs) can make people more reluctant to move. A 2007–08 survey by the ABS (2009a) found that 26 per cent of households reported that they were

unlikely to move in the 12 months following the survey as they were unable to afford the costs associated with moving.

More recently, Kelly, Weidmann and Walsh (2011) surveyed 700 residents in Sydney and Melbourne about their housing preferences. Of those who had not recently moved and were not happy with their current home, 23 per cent agreed with the statement that ‘the hassle and cost of finding and moving into a new house is prohibitive’. A further 10 per cent gave the reason that ‘it would not make financial sense, because of government charges (e.g. stamp duty) or tax arrangements’.

Evidence from surveys and study participants is strengthened further by the findings of recent academic research on the effects of stamp duty on housing turnover. Using data on Australian house sales between 1993 and 2005, Davidoff and Leigh (2013) found that a 10 per cent increase in stamp duty lowered housing turnover by 3 per cent in the first year and 6 per cent over a three-year period. Davidoff and Leigh (2013) estimated that the 37 per cent increase in the average rate of stamp duty between 1993 and 2005 resulted in a reduction in home sales of about 11 per cent — equivalent to roughly 39 000 forgone sales per annum.

There are some caveats to make before drawing too strong a conclusion from the results of recent surveys and studies. The surveys cited above relate to residential mobility rather than geographic labour mobility. Many of the residential moves impeded by transitional costs may have taken place within the same labour market and not led to any changes in regional labour supply. Similarly, the study by Davidoff and Leigh (2013) related to housing turnover not geographic labour mobility. Housing turnover is not directly equivalent to geographic labour mobility because many properties are investment properties and many people may have moved house without changing jobs. Nonetheless, these findings reinforce the idea that transitional costs (and stamp duty especially) influence relocation decisions.

Risk aversion may play a role in exacerbating the negative effects of legal and administrative costs on mobility. While stamp duty and other housing transaction costs are more or less certain, the benefits associated with moving are frequently uncertain (van Ommeren 2008). Hence, if households are risk averse, legal and administrative costs can have an outsized effect on a person’s inclination to move.

Loss aversion — the tendency for people to be more sensitive to losses than gains — may have a similar effect (Tversky and Kahneman 1991). Loss aversion tends to be more apparent for large and infrequent decisions, and there is some evidence that it plays a role in the housing market (Engelhardt 2003; Genesove and Mayer 2001). Loss aversion may magnify the effect of legal and administrative costs on mobility

because home owners may be reluctant to move unless they can be confident that the sale price of their home will cover the purchase price *and* the associated legal and administrative expenses (van Ommeren 2008).

While the costs associated with buying and selling a home may be the most noteworthy legal and administrative impediments associated with geographic labour mobility, they are not the only impediments. Study participants also pointed to regulatory inconsistencies between states and territories. For example, the Australian Mines and Metals Association (sub. 29, p. 29) argued that there is ‘a patchwork of minimum and compulsory school starting ages across the states and territories, along with a patchwork of minimum leaving ages and requirements’ which serve to impede geographic labour mobility. State-based licencing of many occupations is another example (RAI, sub. 25). The range of government policies and regulations that impede (and in some cases enable) geographic labour mobility are discussed in chapters 10 and 12.

8.4 Which impediments and enablers are the most significant?

It is challenging to determining which factors impede or enable mobility the most, because deciding where to live and work is a complex process. Choices usually depend on the cumulative effect of a variety of interacting personal, locational and transitional factors, and preferences are often constrained by the available employment opportunities in different regions, a person’s knowledge about those opportunities and their capacity to pursue them. Decisions also tend to be made by households, rather than individuals acting in isolation.

In some cases, as mentioned above, people may consider alternatives to residential movement such as long-distance commuting and telecommuting which allow a person’s location of work to be distant from their location of residence. However, the availability of these options is likely to be constrained by the nature of their job.

Deciding where to live and work is a dynamic process which often comes with uncertain outcomes. The factors that matter most will change over time as circumstances change and different opportunities arise. Frequently, people make decisions without knowing for certain whether a move will improve their employment prospects or how they and their family will adjust to life in a different location. In these circumstances, the personality traits and risk preferences of those involved in the decision-making process also matter.

There are also methodological and empirical challenges in weighing up the relative significance of different factors. Econometric models (both those developed by the Commission and those present in the literature) tend to focus on either individual mobility decisions or aggregate movements of people. They also tend to be limited to basic demographic and economic variables. These limitations mean they cannot capture the full range of personal, locational and transitional factors discussed above or the relationships between them. Consequently, it is not possible to fully quantify and prioritise all the possible impediments and enablers discussed from least important to most important. Nonetheless, by bringing together the results of econometric analysis with evidence from qualitative studies and the input of study participants, it is possible to draw broad conclusions about the significance of different factors.

With regard to personal factors, life events and family circumstances can act as both enablers and impediments of mobility. In particular, the presence of children in a household is a major impediment. The results of econometric analysis also suggest housing tenure and to a lesser extent, education, have an impact on mobility. Indeed, education is one of the few personal factors that has a clear enabling effect (even if its direct effect on mobility may not be large).

The significance of locational enablers and impediments is more difficult to determine because few studies provide a comprehensive analysis. Evidence from study participants suggests that locational factors are most influential when they interact with personal factors related to family. A desire to stay close to family is a key impediment to movements that would draw a person a long distance away.

Other locational factors that affect family life also matter. These include the employment prospects of a person's partner and the availability of social infrastructure such as childcare facilities and schools in any given location. The results of the Commission's econometric analysis also suggest that house prices (and in some regions, limited housing choice) have an impact on which labour markets people move to (appendix E). The costs of housing and transport may be particularly important in the mobility decisions of low-income households.

While relative wages may not be the driving force behind most moves, securing employment in a given location appears to be a necessary (but not sufficient) condition for moving in most cases. Employment is therefore a crucial enabler of geographic labour mobility, because people usually only consider moves to locations where they expect to get a job. The results of the Commission's econometric analysis also suggest that a person's employment status matters (appendix D).

In general, transitional factors are unlikely to impede people who are strongly swayed to move by other factors, but transitional factors can still influence people, especially those who are unsure about their decision. Stamp duty imposed on housing purchases stands out as the main transitional impediment. However, in certain circumstances, a range of other transitional factors may carry weight in relocation decisions (chapters 10 and 12). For instance, the search costs and financial adjustment costs associated with moving may pose sizable impediments for those on low incomes.

Empirical evidence about how people choose between residential moves, long-distance commuting and telecommuting is limited. However, anecdotal evidence from study participants does seem to suggest that family considerations are crucial once again. While still imposing some challenges, long-distance commuting and telecommuting can provide flexibility for workers who are unwilling or unable to uproot their families and move to work locations with less desirable amenities and infrastructure.

Not all impediments to geographic labour mobility are insurmountable. Businesses can and do employ strategies to overcome, or compensate for, many impediments (chapter 9). Government policies (intentionally and unintentionally) also play a part in altering the impediments and enablers that people face under different circumstances (chapters 10 and 12).

FINDING 8.1

At the individual level, personal and locational factors interact to influence whether and where people move. Life events and family circumstances appear to be the most important factors in mobility decisions, but factors related to housing, employment, local infrastructure and a person's level of education also play a prominent role.

9 Employer strategies

Key points

- Employers use a range of strategies to recruit and retain workers, particularly in regional and remote areas where sourcing suitably qualified workers can be difficult.
- Strategies target one or more elements of an individual's decision to supply labour in a particular location. Strategies can be financial or non-financial in nature, such as subsidising accommodation or providing family support.
- Recruitment is often more difficult in regional and remote areas. More successful strategies employers have used include:
 - resources sector employers using fly-in, fly-out work arrangements and international migrants on 457 visas to alleviate skills shortages in regional and remote areas
 - health care sector employers targeting international medical graduates and people originally from regional and remote areas.
- Employers in regional and remote areas might face difficulties attracting and retaining workers because the incentives provided are not sufficient and are not appropriately targeted at those individuals who might be prepared to work in such areas.

Employers influence people's decision about where and when to move through the jobs, wages and conditions they offer. Employers can encourage workers to relocate by offering financial and non-financial incentives that target one or more elements of a person's decision to supply labour in a particular location in order to tip the balance towards moving (chapter 2). This chapter discusses the strategies employers use to attract and retain workers that influence geographic labour mobility (section 9.1). Strategies can result in workers being sourced from the local area, or from other labour markets within Australia or overseas.

This issue is particularly relevant to employers in regional and remote areas as it is often more difficult to source labour in these areas compared to metropolitan areas. Regional and remote labour markets are generally not as deep and people are often reluctant to move to these areas for a number of reasons, including their lack of amenities, attractions and services, and a perception that future career options are limited (DoE, sub. DR60; Haslam McKenzie 2007, sub. 30).

Where governments implement strategies in their role as an employer (for example, employing teachers in public schools), these strategies will be discussed in this chapter. Other government policies that affect geographic labour mobility are discussed in chapters 10 and 12.

Whether or not employer strategies are successful has important implications for geographic labour mobility. This chapter will discuss the effectiveness of strategies, where information is available, and the common elements of successful strategies (section 9.3).

Sometimes the practices employers use to recruit labour (and to operate in particular areas) can have negative impacts on community wellbeing (chapter 3). The strategies used by employers to mitigate impacts are covered in section 9.2.

The information presented in this chapter is drawn heavily from submissions and employers' own reports and documentation on the strategies they have used. There is limited comprehensive evaluation of employer strategies with respect to geographic labour mobility. The chapter is also heavily focused on the resources sector given many submissions focused on this sector — partly due to the increase in certain forms of geographic labour mobility in recent years.

9.1 Strategies that affect geographic labour mobility

As discussed in chapter 2, employers can source labour through:

- the local population
- residential mobility
- long-distance commuting
- international migration
- job relocation, including telecommuting.

Strategies for recruiting local workers

While most employers will attempt to recruit locally in the first instance, employers in regional and remote areas in particular often face difficulties recruiting local workers (DoE, sub. DR60). Three strategies that employers use to recruit local workers, and that have been raised by stakeholders, are training local workers, recruitment of Indigenous people and grow-your-own strategies.

Training

Employers have stated that a key reason for recruitment and retention difficulties in regional and remote areas is that local workers do not possess the required skills (for example, Austrade, sub. DR41). Training is therefore an important strategy in sourcing labour locally. Training can be provided in different ways: by the employer directly; funded by the employer and provided through nationally accredited providers; or undertaken independently by the worker. Gaining adequate training can be more difficult in regional and remote areas as there are fewer training providers, and those that do exist are generally considered to be of lower quality than those located in metropolitan areas (Garnett and Lewis 2000; Haslam McKenzie 2007).

Employer investment in training in metropolitan and non-metropolitan areas differs across industries and employers, both in the amount of training undertaken and the type of training (Cully 2005; NCVET 2013a; Smith et al. 2008). However, given limitations of data and the different types of training available, comparing training across industries is difficult (Smith et al. 2008). The 2013 survey of *Employers' use and views of the VET system* indicates that a significant proportion of employers in industries such as public administration and safety, and education and training have reported using most kinds of training. These include accredited and unaccredited training, informal training, and employing apprentices and trainees. Employers who reported using no training were more prevalent in the agriculture; transport, postal and warehousing; and accommodation and food services industries (NCVER 2013a). This could reflect the lower skill requirements of occupations in these industries, and the fact that jobs in some of these industries are often casual and/or seasonal in nature (chapter 4). Employers might be less willing to train these workers compared to permanent employees, as the more temporary nature of their employment could mean the employer does not receive the benefits of the training (Shomos, Turner and Will 2013).

The issue of what is the appropriate level of training that should be provided by employers has been raised by a number of stakeholders, mainly in relation to the resources sector. The Australian Council of Trade Unions (sub. 21) argued that resources companies have not done enough to recruit and train local workers and instead have a preference for recruiting overseas workers on 457 visas when skilled labour is not available. In addition, the Construction, Forestry, Mining and Energy Union argued that fly-in, fly-out (FIFO) work arrangements have also been used at the expense of training local workers (CFMEU Mining and Energy and Construction and General Divisions 2011).

However, the Minerals Council of Australia (MCA) argued that the mining sector invests a significant amount in training. Citing work it commissioned by the National Centre for Vocational Education and Research (NCVER), the MCA (sub. 6) has asserted that the mining sector (excluding oil and gas) spends more on training than most industry sectors. NCVER (2013b) also found:

- the mining industry spent over 5 per cent of its payroll on training
- 65 per cent of mining companies employed apprentices and/or trainees
- 5 per cent of its workforce was apprentices and trainees
- about 75 per cent of mining companies offered nationally recognised training
- about 80 per cent of mining companies offered support for structured training.

This study was based on a survey that was heavily focused on larger mining companies (NCVER 2013b). As a result, some of these figures could overrepresent the total mining sector. The 2013 NCVER survey of *Employers' use and views of the VET system* (NCVER 2013a), which included a randomly-selected sample, found that of mining companies (including oil and gas companies) about:

- 39 per cent used apprentices and/or trainees
- 73 per cent used the vocational education and training system
- 46 per cent offered nationally recognised training
- 70 per cent offered informal training.

Some examples of resources companies' use of training follow:

- Bechtel has a commitment to support 400 apprentices through the National Apprenticeship Program for three liquefied natural gas (LNG) plants being constructed in Gladstone, Queensland.
- The Gladstone LNG venture has opened the Santos GLNG and Skills Tech Australia Training Institute in Brisbane to train workers in the skills to convert coal seam gas to LNG for export (Deloitte Access Economics 2012).
- Leighton Mining has an apprenticeship program, which includes training, mentoring, housing assistance and transport. The program has high attraction and retention rates (AMMA, sub. 29; Kinetic Group nd).
- Shell has re-trained employees displaced by the winding down of its operations at its Clyde, New South Wales oil refining plant to work at its Prelude Floating LNG project in north-west Western Australia (Deloitte Access Economics 2012).

The mining sector generally performs well when compared to other industries, ranking highly on most of these types of training, including the number of employers using the vocational education and training system, employing apprentices and trainees, and using unaccredited training. However, Karmel and Mlotkowski (2010) found that the resources sector employs fewer apprentices than would be expected, given its share of trade employment. This points to the difficulty in assessing whether resources (and other) sector employers provide sufficient training. The adequacy of education and training opportunities for local people, particularly in regional and remote areas, remains a key issue related to geographic labour mobility, and the efficient operation of the labour market more generally. This is discussed further in chapter 10.

Recruiting Indigenous people

Regional and remote employers often recruit local Indigenous workers. Employers do this both in response to recruitment and retention difficulties and as part of their broader social responsibility practices (section 9.2).

The MCA (sub. 6) has stated the mining sector is the largest private sector employer of Indigenous Australians. The MCA has a Memorandum of Understanding with the Australian Government which aims to increase employment and business development opportunities in mining regions.

Indigenous people can face multiple barriers to obtaining employment in the mining industry, including:

- lack of education and relevant training
- lack of exposure to the mainstream workforce and employers' expectations
- geographic isolation
- the challenges involved in balancing family and community obligations with the demands of full-time employment
- poor health and difficulties complying with drug and alcohol testing regimes (Tiplady and Barclay 2007).

Resources sector employers use many strategies to recruit and retain Indigenous workers including work readiness programs, cultural awareness training, mentoring, flexible work rosters and family support (Tiplady and Barclay 2007). For example, Argyle Diamonds has developed a program to assist Indigenous people to participate in employment. It includes initiatives focused on enhancing the workplace readiness of Indigenous people and apprenticeships and traineeships (Davies et al. 2009). In addition, Pilbara Iron has an Aboriginal Training and

Liaison unit and has had some success creating education, training and job opportunities for Indigenous people (Haslam McKenzie 2007). More generally, Arrow Energy, Australia Pacific LNG, GLNG and QGC have committed to funding Education Queensland Industry Partnerships for Indigenous students to gain workplace learning opportunities and obtain employment in the industry (APPEA, sub. 24).

Indigenous employment in the mining sector increased substantially between 2006 and 2011 (Gray, Hunter and Howlett 2013; Gray, Hunter and Lohoar 2012). However, while acknowledging that resources companies have made progress in employing local Indigenous people and implementing supportive work arrangements, some stakeholders have stated that employers should be doing more to prioritise local Indigenous labour (ACTU, sub. 21; CSRM 2011). Haslam McKenzie (2007) has found that resources companies' strategies have been only moderately successful, and that strategies will only be successful where Indigenous family and cultural values are taken into account.

Indigenous workers have also been targeted by other industries. Tourism industry employers use strategies to recruit local Indigenous people in regional and remote areas. For example, the Voyages Ayers Rock Resort has a target of 50 per cent of its workforce being Indigenous by 2018. As part of recruiting and retaining these employees, it implements a number of strategies, including using Indigenous Employee Relations Coordinators and Indigenous mentors, cultural awareness training, career pathway planning and a cultural leave policy (The University of Queensland and EC3 Global 2013).

The Australian Government has commissioned a review of Indigenous training and employment, which includes an examination of the role of employers and best practice employment and training programs. The review was to report to the Prime Minister in April 2014 (Australian Government 2013c).

Grow-your-own strategies

Indigenous and non-Indigenous people have also been recruited by employers as part of 'grow-your-own' strategies. These strategies target people that are currently living in regional and remote areas, or who are originally from these areas, in the expectation that these people might be more willing to live and work in the area. The education and health care sectors have used these strategies to recruit Indigenous and non-Indigenous employees. For example, the Queensland Remote Area Teaching Education Program allows Indigenous people to remain in their community while completing their tertiary studies (James Cook University 2013; PC 2012c).

As discussed in chapter 10 and later in this chapter, targeting local people has been found to be one of the more successful strategies for recruiting health care and education workers to regional and remote areas. The Commission (PC 2012c) has also found that grow-your-own strategies could be an effective way to increase the share of teachers from disadvantaged and under-represented backgrounds.

Residential mobility

Where employers face difficulties recruiting locally, they can use strategies to encourage workers to relocate from other regions, either permanently or temporarily. Again, employers often need to use such strategies more in regional and remote labour markets due to the difficulties discussed earlier.

In relation to interstate recruitment, research undertaken by the Department of Employment (sub. DR60) indicates there are a range of factors that influence employers' hiring practices from interstate, including:

- interstate applicants not having the required local- or sector-specific experience or knowledge. Employers often reject otherwise suitably-qualified applicants on this basis
- state-based registration requirements and licensing (chapter 12), which make it difficult to recruit interstate for some occupations
- training not being available where employers are located. In these cases, employers rely on workers moving after they have completed training.

To encourage workers to move, employers use both pre- and post-move incentives, which often take into account the circumstances of workers and their family members. Pre-move strategies generally target the costs of moving, and can include subsidising travel expenses, removal and storage costs, the costs of selling or buying a house (such as stamp duty), and temporary accommodation expenses while moving. For example, a business in Millicent, South Australia, provides a stamp duty refund to select employees who buy a house in the area within a year of taking up full-time employment (Business SA, sub. 11).

Post-move incentives target the immediate and longer-term benefits of the move as well as the costs of residing in the new location. Strategies used to reduce the cost of living in the new area include providing free or subsidised accommodation, and allowances for other costs of living. Incentives and support to increase the benefits of moving can include additional pay, flexible leave conditions, subsidised holiday travel, induction programs, professional development opportunities and training,

and mentors. Assistance can also be provided to families, and include community family events and spouse employment support and training.

Employers also use the promise of better future working conditions to encourage workers to move, such as providing a metropolitan-based position after working in a regional area for a certain amount of time. Return of service obligations — whereby a person is provided training or other benefits such as a scholarship, and is then required to work for the organisation for a certain period of time — are also used.

Strategies encouraging residential mobility are commonly used in the resources, agriculture, tourism, education and health care sectors, state and territory police forces, and the Australian Defence Force (box 9.1). Employers in these industries often require employees to live in regional and remote areas. In these industries, there is often an expectation that employers will provide other benefits on top of wages, such as subsidised accommodation.

Resources sector employers

Resources companies provide a range of incentives to encourage relocation. They have a long history of providing accommodation support for their workers, given much of their operations are in regional and remote areas. In the past, companies often established towns near mines to accommodate their workforce. However, in recent years, companies have moved away from building towns due to the relatively high costs of construction and maintenance and employees' preferences for living in larger metropolitan areas (Storey 2001). At the same time, there has been a shift towards FIFO work arrangements (discussed below).

Resources companies also provide or subsidise accommodation in already established towns and provide cost of living allowances. For example, at its ERA Ranger Mine, Rio Tinto provides subsidised rental accommodation and a Family Location Allowance to its residential employees (Rio Tinto 2011b). Another resources company offers an allowance to employees who live locally (AMMA, sub. 29).

Box 9.1 Australian Defence Force benefits and conditions

The Australian Defence Force (ADF) requires a mobile workforce due to the nature and locations of its operations. Most ADF members will relocate a number of times during their career (Defence Force Recruiting 2013). The ADF provides a variety of incentives to encourage and help its members to relocate. If members meet certain requirements the ADF subsidises many of the costs of moving, including:

- the transaction costs of buying and/or selling a home
- childcare costs when moving
- pet relocation
- removals and storage
- travel when relocating (Department of Defence 2013).

The ADF also uses incentives to retain people in remote locations, including remote location allowances and additional recreation leave. Separation allowances and reunion fares are provided to compensate members where they must be geographically separated from their families (Department of Defence 2013).

Incentives are also used more broadly to recruit and retain members. The ADF provides a range of benefits to eligible members, such as subsidised accommodation (including home purchases), meals and utilities, and health care and education assistance for dependents. Bonuses are also used to retain employees at certain ranks. Payment of the bonus usually requires the member to complete extra years of service (Department of Defence 2013).

The ADF also provides education and training for its members. In return for this, members are generally required to serve for a certain period of time depending on the education and training provided, under a return of service obligation, which can make it easier for the ADF to relocate members (Department of Defence 2013).

The Australian National Audit Office conducted a review into retention of military personnel in the ADF in 2000. It found that while ADF members had a positive perception of some aspects of military service such as pay and recent improvements in housing, there was dissatisfaction with other areas, including the impacts of transfers on family life and spouses' careers, long working hours and inadequate career progression. It also found that retention bonuses did not address the reasons personnel wanted to leave (ANAO 2000).

A follow-up review in 2003 found that the ADF had made some progress in implementing recommendations from the 2000 review and had implemented a range of initiatives that target retention (ANAO 2003).

Other studies that have examined the payment of retention bonuses in the ADF found that many bonuses are paid to people who had no intention of leaving the ADF and that the money might be better used directly targeting areas that affect retention (Hoglin et al. 2011; Nunn, Kennedy and Cupper 2001, cited in Hoglin et al. 2011).

Strategies used by government as an employer

In their role as employers, state and territory governments use strategies to recruit and retain education and health care employees, particularly in regional and remote areas where workforce shortages are most prevalent. The Department of Employment (sub. DR60) has noted that health professions and nursing are particularly difficult occupations to recruit for. Strategies used for teachers include university scholarships, allowances, subsidised accommodation and guarantees of employment in an urban area once teachers have worked for a certain amount of time in a regional or remote area (box 9.2). However, the use of remuneration differentials to attract teachers to hard-to-fill positions is limited (chapter 4).

Box 9.2 Incentives used by governments to attract teachers to regional and remote areas

State and territory governments use a range of incentives to attract teachers to positions in government schools in regional and remote areas. For example:

- the Western Australian Department of Education offers a final year teaching scholarship to students at select universities who are willing to work in a regional public school once they graduate. The scholarship amount offered depends on the length of employment contract and subjects taught
- the Western Australian Remote Teaching Service is a group of teachers living and working in remote communities in Western Australia. Teachers are provided with benefits including free housing, subsidised relocation costs, allowances, flexible leave conditions, and are offered a position in the location of their choice after two years
- the Queensland Remote Area Incentive Scheme provides a range of benefits to teachers employed in remote Queensland state schools including subsidised travel expenses, annual cash incentives, location-based incentives and an induction program
- the Northern Territory's Remote Teaching Service provides incentives to teachers for working in remote Indigenous schools, including additional allowances, bonuses after 12 months of continuous service, free housing, special study leave and access to mentoring.

Sources: Curtin University (2012); Department of Education, Training and Employment (Qld) (2013); Department of Education (WA) (2013); Myfuture (2012); PC (2012c); Northern Territory Government (2010).

In the health care sector, governments have relied more on offering financial grants and incentives than in the education sector.¹⁹ For example, the Victorian

¹⁹ Strategies used by governments to attract health care professionals to regional and remote areas where they are not the employer are discussed in chapter 10.

Government's Rural Relocation Grants program assists public hospitals and health care service providers that find it difficult to attract staff. Under the program, rural services can provide incentives for relocation of up to \$25 000 per doctor. This money can be used for:

- a sign-on fee, which can take into account relocation expenses, car rental, accommodation and childcare fees
- spouse employment support, such as retraining
- medical registration fees and/or private medical indemnity costs for the first year
- professional development activities undertaken in the first two years (Department of Health (Victoria) 2012b, 2013d).

The health care sector also uses strategies that are similar to those used in education including bonded scholarships, and improved leave and conditions and other non-financial support (AMA 2007).

Overall, there is a lack of evidence on the effectiveness of state and territory governments' strategies used to encourage health care and education workers to relocate and stay there long term. Many state and territory government strategies are not evaluated (PC 2005, 2012c). However, some Australian Government strategies and international strategies have been evaluated. Overall, the effectiveness of these strategies appears to be mixed (Buykx et al. 2010; Humphreys et al. 2009; Mason 2013). However, evidence exists that some types of strategies have more potential than others.

In both the education and health care sectors, targeting students from regional and remote backgrounds appears to have been effective (Laven and Wilkinson 2003; Mason 2013). Also, some research suggests that students who have had exposure to these areas while studying are more likely to work there (Mason 2013; White et al. 2008).

In the health care sector, scholarships that require service in regional and remote areas appear to be effective in getting workers to these areas, but not for long-term retention, with many workers leaving once the contracted time period is finished (Humphreys et al. 2009; Sempowski 2004). However, while workers might leave that particular area, research suggests they are still more likely to work in areas of need in the long term than those who do not receive scholarships (Bärnighausen and Bloom 2009). Requiring international medical graduates to work in regional and remote areas as part of the conditions of the visa has been used effectively. This is discussed in more detail later and in chapter 10.

Financial incentives, such as grants, appear to have had mixed success (Humphreys et al. 2009). Research suggests the barriers health care workers face in moving to these areas are varied and many are non-financial (Humphreys et al. 2009; PC 2005). As a result, it has been suggested that non-financial strategies or a combination of financial and non-financial incentives would be more effective in addressing the range of factors that influence location decisions of health care sector workers (Buykx et al. 2010; Humphreys et al. 2009; Mason 2013).

State and territory police forces also offer incentives to encourage police officers to work in regional and remote areas. For example, the Queensland Police Service offers extra recreation leave, location-based allowances, travel concessions, an allowance for serving in a small station and, in some cases, free or subsidised accommodation (Queensland Police Recruiting 2010; Police Federation of Australia, sub. 2). However, the Police Federation of Australia (sub. 2) has indicated that even with these strategies in place, the ability to attract and retain police officers has not improved.

Agriculture sector employers

For agriculture sector employers, recruitment and retention strategies are influenced by the seasonality of activity and perceptions of unattractive working conditions, making sourcing labour difficult (AgriFood Skills Australia, sub. 18; Kilpatrick and Bound 2005). A significant proportion of seasonal workers are sourced internationally on temporary visas such as the Working Holiday Maker Program and the Seasonal Worker Program. This is discussed in more detail later in the section.

Cooperative cross-employer strategies have been used to address issues of high labour turnover and insufficiently trained workers in seasonal agricultural work. For example, a fruit and vegetable growers' cooperative in Wide Bay-Burnett, Queensland has organised a region-wide approach to training. State Government grants were used to pay for part of the training and the rest of the costs were spread across employers. Since workers often move around the region, all employers benefit from having a pool of skilled labour (Cully 2005; Kilpatrick and Bound 2005).

Another example of a cooperative strategy involves the AgriFood National Regional Initiatives, aimed at increasing attraction and retention of skilled workers in regional and remote areas. These initiatives facilitate partnerships between industry, government and training providers to develop region-based strategies (AgriFood Skills Australia, sub. 18). The initiatives began as a pilot conducted in Narrabri, New South Wales. A key strategy of the pilot included the local council

developing a full-time labour pool that was subcontracted out to employers who needed extra workers. About 20 workers initially participated in this program (ACIL Tasman 2010; Foster and Schulze 2011).

Employers in the East Kimberley region of Western Australia have also used strategies to attract and retain seasonal workers, including targeting ‘grey nomads’ and offering seasonal workers a retainer to stay in the region during periods of low activity. This strategy is seen as more cost-effective than recruiting and training new starters (Davies et al. 2009). This is likely due to the retainer costing less than recruitment and training costs.

Tourism sector employers

Similar to the agriculture sector, employers in the tourism sector can have recruitment and retention difficulties due to the seasonal nature of the work, a lack of required skills and experience, and a perception of unattractive working conditions (Austrade, sub. DR41; Deloitte Access Economics 2011a). About 16 per cent of the tourism workforce is sourced from interstate and intrastate. A significant, but smaller, proportion is also sourced internationally (Austrade, sub. DR41) (discussed later in this section).

Labour exchanges are one strategy the tourism sector has used to improve recruitment and retention. This involves partnerships between employers who have peak demand periods at different times and ‘swap’ workers so they both have access to labour when needed. Partnerships have existed between tropical resorts and ski resorts, between remote resorts and coastal or ski resorts, and between Australian resorts and overseas resorts (Austrade, sub. DR41).

Long-distance commuting

As discussed in chapter 6, long-distance commuting practices are undertaken in a number of industries, most commonly in the resources, construction, professional, scientific and technical services, and public administration and safety industries (KPMG 2013c).

FIFO work practices, in particular, are commonly used in the resources sector. FIFO workers are generally provided with free accommodation, either in a FIFO camp or, less commonly, in accommodation in the local town. FIFO camps have a range of amenities and services such as sporting facilities, dining facilities, internet connections in rooms and room cleaning services. FIFO workers also generally receive extended recreation leave and commuting allowances (MCA 2011). Some

employers offer workers a number of different work rosters. Common rosters include 14 days on, 7 days off; 7 days on, 7 days off; 8 days on, 6 days off; and 9 days on, 5 days off (MCA, sub. 6). The Australian Council of Trade Unions (sub. 21) reported that resources companies designed rosters to specifically attract more females into the workforce during the height of the resources boom.

The resources sector also uses other types of long-distance commuting such as drive-in, drive-out (DIDO) and bus-in, bus-out (BIBO). For example, Rio Tinto's Hail Creek mine in Central Queensland employs a predominantly DIDO/BIBO workforce that commutes from Mackay and surrounding areas. Buses are used to move workers to and from the mine for safety reasons. These workers receive similar accommodation to FIFO workers at other sites (Rio Tinto 2011b).

FIFO work can be arduous. For example, roster arrangements have been raised by participants as a potential issue for workers' wellbeing (ACTU, sub. 21; CFMEU, sub. 26). Some studies suggest that longer rosters could have a detrimental effect on both workers' and their families' wellbeing and workers' performance (AIFS 2014). FIFO workers are more likely to experience higher stress levels than non-FIFO workers, for a variety of reasons such as being separated from their family for long periods or feeling isolated in remote regions (Morris 2012). A study of FIFO workers at a Queensland mine site found that a roster consisting of 10 consecutive 12-hour shifts led to significant deteriorations in workers' performance, with the effects setting in after the eighth shift and exacerbated by night shifts (Muller, Carter and Williamson 2008). Another study of the stress levels of FIFO workers revealed that the most common stress factor was being separated from their home and family (Henry et al. 2013). Furthermore, the study found that working long shifts can lead to disruptions in sleep, which led to fatigue.

However, the Australian Mineral and Mines Association (AMMA 2011) surveyed resources sector workers and found that workers are generally happy with their roster cycles. Additionally, most workers reported receiving training that included fatigue awareness. Many resources sector employers use strategies to promote wellbeing and mitigate any negative effects of FIFO work practices on workers and their families, such as induction programs, employee assistance programs, chaplaincy services for family members and facilitating networks for family members. Companies also implement strategies to manage fatigue. For example, some Western Australian-based operations require FIFO workers to stay overnight in Perth before commuting to the mining site (MCA 2011, sub. 6).

There have been cases where resources companies have specifically targeted Indigenous people for FIFO work, many of whom reside in regional areas (HRSCRA 2013). The House of Representatives Standing Committee on Regional

Australia's Inquiry into the use of 'fly-in, fly-out' workforce practices in regional Australia heard how resources companies are supporting the training and employment of Indigenous FIFO workers. Companies have used specific training programs and tailored work arrangements, such as adopting culturally sensitive leave allocation (HRSCRA 2013). For example, Rio Tinto recruits FIFO workers from Meekatharra, Western Australia, which has a significant Indigenous population, for the Hope Downs mine (HRSCRA 2013; MCA 2011).

Resources companies have also sourced Indigenous workers through the Pathways to the Pilbara program. This program, funded by the Australian Government, provides Indigenous people from the Kempsey region in New South Wales with training, mentoring and support, and has arranged FIFO jobs for over 150 workers. It has a retention rate of over 90 per cent (MCA, sub. 6; Pathways to the Pilbara 2013).

The resources sector has reported that FIFO work arrangements have been successful in helping companies to develop new projects and increase output in a tight labour market and in remote areas (MCA, sub. 6). FIFO work practices have been particularly important in the construction phase of projects which are relatively labour intensive and short term in nature (AMMA, sub. 29). However, other stakeholders have been critical of FIFO work practices, in addition to the issues related to shift work discussed above. These issues are discussed in more detail in chapter 3.

FIFO and DIDO work arrangements are also used in the health care sector in regional and remote areas. The National Rural Health Alliance (2011) has stated that FIFO and DIDO health services are important for people who would otherwise have no access to essential health services. Avana (sub. 14) argued that there is potential to use incentives to attract allied and other health care professionals to work in regional areas on a FIFO basis.

The Northern Territory Police Force and South Australia Police have used FIFO work practices for hard-to-staff stations. The Northern Territory Police Force is currently trialling FIFO work in Maningrida, an Indigenous community in the Arnhem Land region. Police officers work eight-day shifts then spend their time off in Darwin. However, the Police Federation of Australia (sub. 2) has heard the arrangement might not be cost-effective. South Australia Police have also used FIFO work practices at the Anangu Pitjantjatjara Yankunytjatjara Lands to supplement the local police force, but facilities for a permanent workforce have since been constructed and FIFO arrangements are now no longer used (Police Federation of Australia, sub. 2). The Queensland Police Service is investigating

using a FIFO workforce to service communities in regional and remote Queensland (Viellaris 2014).

International migration

International migrants are common in a number of industries and can be engaged on permanent or temporary visas. Employers' use of international migrants is shaped by government policy, with quotas and requirements on the different visa categories. Working holiday visas are common in the agriculture and tourism industries and 457 visas are most commonly used in the other services, mining, construction and health care and social assistance industries (appendix C). Horticulture employers, and some tourism, aquaculture, sugarcane and cotton employers, also have access to workers through the Seasonal Work Program (DIBP 2014a). Use of international migrants in the health care, resources, agriculture and tourism industries is discussed in more detail below.

Health care industry

State and territory governments often employ international medical professionals to address shortages, mainly in regional and remote areas.²⁰ For example, the Victorian Government has a number of programs and support packages to attract health care professionals from overseas.²¹ Those packages include financial incentives and assistance to obtain general registration and other accreditation (Department of Health (Victoria) 2013d) (box 9.3). In addition, remote medical services in New South Wales have had success advertising job vacancies to Australians working overseas in developing countries, who are interested in coming back to Australia but are keen to maintain a sense of 'frontier medicine' (Haslam McKenzie 2007).

As discussed in more detail in chapter 10, recruiting international medical graduates has been an important tool in alleviating shortages in regional and remote areas (RHWA 2012).

Resources sector

Many resources sector companies employ international workers, with the worker either relocating to Australia for the length of their employment contract or

²⁰ Australian Government strategies to assist private and public employers to recruit and retain international medical graduates are discussed in chapter 10.

²¹ Interstate health care workers can also access some of these initiatives.

long-distance commuting (such as from New Zealand or Indonesia (Rickard 2011)). International resources sector workers are commonly employed on 457 visas. About 3 per cent of the mining workforce is employed under these arrangements (MCA, sub. 6). The number of 457 visas granted appears to be related to the economic cycle (chapter 3). While the number of 457 visas granted in the mining and construction industries increased considerably between 2009-10 and 2011-12, there has been a marked drop in 2012-13 (Department of Immigration and Border Protection, pers. comm., 18 March 2014).

Box 9.3 Victorian Government programs to recruit international health care professionals

Victorian Government programs to attract health care workers, often to work in regional and remote areas, include the:

- International Medical Graduate Support Package — outer metropolitan, regional and remote public health services can access up to \$30 000 per medical graduate for a support package to encourage them to migrate (Department of Health (Victoria) 2013b)
- Allied Health Professional Recruitment Support Package — non-metropolitan public health care providers can offer up to \$10 000 to encourage an allied health care professional to migrate from overseas or interstate. This money can be used for relocation costs, recruitment costs and start-up costs (such as registration fees and professional development) (Department of Health (Victoria) 2013a)
- Transition to General Registration Program — provides funding to public health providers to help international medical graduates to obtain general registration (Department of Health (Victoria) 2013c)
- Specialist Registration for International Medical Graduates — provides funding to public hospitals to help overseas-trained specialists to gain the accreditation to work as specialists in Australia (Department of Health (Victoria) 2012a).

International workers are generally provided with similar benefits to Australian workers who relocate or commute long distances, and can include accommodation, transport, removals and storage, health insurance and higher rates of pay (AMMA, sub. 29, att. 2). Some resources companies also use bonding incentives to improve retention rates. For example, one resources company has reported having a payback policy for certain costs such as flights if the worker leaves within 12 months (AMMA, sub. 29, att. 2).

The resources sector has contended that employing international workers on 457 visas has been effective in helping the sector overcome skills shortages, and that without skilled migration, the sector might not have been able to respond as well to demand over the past decade (MCA, sub. 6). It has also been noted that skilled

immigrants play an important part in improving the local workforce through general knowledge and skills transfers (AMMA, sub. 29). The costs of sponsoring and employing a 457 visa holder can be significant and there are a number of requirements businesses need to meet (AMMA 2013; DIAC et al. 2013; MCA, sub. 6). Research by NCVET (sub. 3) suggests that employers also generally prefer Australian workers or foreign workers already living in Australia with qualifications from a recognised and familiar provider.

Some stakeholders have been critical of the use of workers on 457 visas, arguing that it reduces training of local workers and that these workers are at risk of exploitation (Deegan 2008; Jockel 2009; Toner and Woolley 2008). However, the National Resources Sector Employment Taskforce and the Senate Inquiry into the Framework and Operation of Subclass 457 visas, Enterprise Migration Agreements and Regional Migration Agreements have indicated that there is a lack of evidence that the use of workers on 457 visas reduces skills investment (NRSET 2010; SSCLCA 2013). The Construction, Forestry, Mining and Energy Union (sub. 26) argued that some employer-sponsored migration, including 457 visas, can actually impede geographic labour mobility by tying the worker to a particular employer in a specific location. The Australian Government has announced a review of the 457 visa program, which is to be completed by mid-2014 (Cash 2014).

Agriculture sector

Temporary visa holders are an important source of workers for agriculture employers. The agriculture sector sources workers through a number of visa programs including the Working Holiday Maker Program, the Seasonal Worker Program and the 457 Visa Program.

The Seasonal Worker Program allows all horticulture employers, and aquaculture, sugarcane and cotton employers in some regions to recruit workers from a number of Pacific countries (DIBP 2014a).²² An evaluation of the pilot program that ran from 2008 to 2012 indicated that while take-up was initially low, it met its objective of assisting employers recruit labour where they had unmet demand (TNS Social Research 2011).

A significant proportion of temporary workers in the Working Holiday Maker program work in the agriculture sector. About 26 per cent of working holiday makers are employed in the agriculture, fishing and forestry industry and 27 per cent list their occupation as 'farm hand' (Tan et al. 2009). The National Farmers'

²² The countries included are Kiribati, Nauru, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu (DIBP 2014a).

Federation (sub. 33, p. 25) has stated that ‘the industry regards temporary working holidaymakers as critical to meeting seasonal demand for a number of agriculture commodities’. A review of the Working Holiday Maker Program found some evidence that these workers contribute to reducing skills shortages in the agriculture sector, but not other sectors (Tan et al. 2009).

Tourism sector

The tourism sector also employs international workers, particularly 457 visa holders and working holiday makers. About 7 per cent of the tourism workforce are working holiday makers and 2 per cent are 457 visa holders (Austrade, sub. DR41; Deloitte Access Economics 2011a). The number of 457 visa holders employed in the accommodation and food services industry increased significantly between 2009-10 and 2012-13. Much of this rise has been driven by an increase in the number of cooks, and café and restaurant managers being granted primary visas. Cooks, in particular, were the highest nominated occupation for primary visas in 2012-13 (Austrade, sub. DR41; Department of Immigration and Border Protection, pers. comm., 18 March 2014). Some accommodation employers are also currently participating in a seasonal workers trial (DIBP 2014a). Austrade (sub. DR41) noted that international workers are an important source of labour for the tourism sector where local labour cannot be sourced.

Moving the job to the worker

Instead of workers having to relocate, employers can move the job to the worker. This could entail relocating the work premises or the worker telecommuting.

Employers take into account a range of factors when deciding where to locate, including proximity to product markets, other businesses, and inputs used in production (chapters 2 and 4). As such, employers might choose to relocate their business in order to have access to a suitable pool of labour. This could involve locating or relocating within Australia or relocating offshore. The Commission has not received much information on this topic.

Telecommuting and increasing use of technology

Many employers offer telecommuting arrangements to attract and retain workers (chapter 6). In some cases, telecommuting results in individuals working in a different regional labour market to where they live, substituting for them having to relocate residence. With improvements in technology, telecommuting has been

raised as a possible solution to labour shortages in regional and remote areas in industries such as health care and education (PC 2005, 2012c).

Technology has been used to deliver remote education services to students in regional and remote areas since the 1950s (Australian Government 2007). There are now many schools funded by Australian, state and territory governments that provide distance education services including the Schools of the Air and Schools of Distance Education (Australian Government 2007; PC 2012c).

The health care sector is using telecommuting for hard-to-staff positions and to provide services to regional and remote areas. For example, Medibank first introduced telecommuting arrangements when it faced difficulties attracting doctors and nurses. Now over 1600 health care professionals deliver services from home and another 1000 of the rest of Medibank's workforce regularly telecommute (DBCDE 2013).

The University of Sydney is also using telecommuting to provide health care services to people living with multiple sclerosis in New South Wales. The university has established a telemedicine room in Sydney through which specialists consult with patients located in regional areas. Similar programs are being trialled by other providers in Victoria and the Northern Territory (McDonald 2012).

Resources sector employers are increasingly using automated and remote operated technologies in mining operations. For example, Rio Tinto's Mine of the Future program was launched in 2008 with the goal of fully automating its iron ore operations. Some of the technology Rio Tinto has introduced includes driverless haul trucks, driverless trains and tele-remote controlled ship loaders. In some cases, it has resulted in arrangements that are similar to telecommuting, as much of this technology can be controlled from Rio Tinto's operations centre in Perth (McNab and Garcia-Vasquez 2011). The MCA (sub. 6) has noted that the move towards automated machinery will see some mining jobs move from regional and remote areas to urban areas. McNab et al. (2013) have noted that this could have a negative effect on local communities, particularly Indigenous communities, due to the reduced need for workers in these areas.

9.2 Strategies to mitigate any negative effects of geographic labour mobility

Along with strategies to attract, retain and support workers, many employers also implement initiatives that are intended to deal with any negative impacts of their operations on the wider community (including the impact of geographic labour

mobility) (chapter 3). Employers implementing these strategies will generally be larger employers with market power or regional employers with activities of significance to the local economy. Strategies might be employer-initiated as part of corporate social responsibility activities, in response to an informal arrangement between the employer and community stakeholders (such as local government), or be formally required through legislation and/or approval processes. The latter arrangements are discussed in chapter 12.

Resources companies, in particular, often invest a significant amount in the local community. Some companies have a set amount of money that they invest each year. For example, both BHP Billiton and Xstrata group spend 1 per cent of their pre-tax profit on community programs (BHP Billiton 2013b; Franks et al. 2009). Examples of strategies used by resources sector employers include:

- funding local infrastructure and services
- sponsoring community events
- developing agreements and plans with local Indigenous communities
- supporting local and regional suppliers
- allowing local residents access to FIFO camp facilities (MCA, sub. 6; The MAC Services Group, sub. 9).

Resources companies often contribute to the funding of infrastructure and services in regional and remote communities, such as schools, childcare centres, aged care facilities and services, health care facilities and recreational services (MCA, sub. 6). For example, Anglo American's recent initiatives have included providing funding for local recreational facilities, such as pools, gyms and skate parks (Anglo American nd).

Resources companies develop agreements and plans with local Indigenous communities. For example, Rio Tinto negotiates binding agreements with Indigenous communities in all the locations they operate in. These agreements cover topics such as:

- management and distribution of mining benefits
- employment, training and contracting opportunities
- cultural heritage protection, land management and access
- environmental management and protection
- cross-cultural training
- broad-based support for operations and new projects (Rio Tinto 2011a).

Resources companies often also report having a policy of supporting local suppliers where possible. BHP Billiton Mitsubishi Alliance has implemented a Local Buying Program. Local businesses with fewer than 25 employees can register online and respond to work requests from operations in the Bowen Basin (BHP Billiton 2013a). Fortescue Metals implemented its *Billion Opportunities Program* in 2011 which was a commitment to award \$1 billion worth of contracts to businesses that are at least 25 per cent owned by Indigenous people. This target was met in 2013 (Davidson 2013).

Research indicates that some employer strategies used to mitigate the effects of their activities are not perceived by the local community and some stakeholders to be as beneficial as they could be. Cases exist where a lack of community consultation has led to recipients receiving support that they did not want or need (Bice 2013). Early consultation with community stakeholders and governments, including the development of formal agreements, is very important to ensure the best possible outcomes for all parties (Bice 2013; McNab et al. 2012).

9.3 Have these strategies been effective?

The effectiveness of employer strategies to promote geographic labour mobility will have important implications for broader efficiency and community wellbeing (chapter 3). Employers are generally the best placed to assess the effectiveness of the recruitment and retention strategies they implement. In the case of profit-maximising firms in particular, it would be expected that any strategies that are continually used have been deemed to be effective by the employer. Overall, the Commission is limited in its ability to assess employer strategies. However, the Commission has drawn on previous literature and evaluations of strategies and identified that successful interventions appear to have some common elements.

Employer strategies to attract and retain workers in various locations appear to have had mixed success. However, the resources sector has indicated that many of its strategies have been effective, such as:

- offering FIFO work practices to overcome the difficulties of the short-term nature of construction projects and preference of workers to live in metropolitan areas
- using 457 visas to address skills shortages.

International migration appears to have been used effectively to address shortages in other sectors too, including health care, agriculture and tourism.

Where state and territory governments are employers, such as in the police force, education and health care sectors, they appear to have had less success using strategies to encourage relocation. However, targeting workers originally from regional and remote areas and using bonded incentives appear promising. The Productivity Commission (2012c) has argued that the absence of sufficient market drivers, such as wage differentials, could be an impediment to attracting more public sector employees to hard-to-staff areas.

Overall, many successful strategies have included more than one component and targeted both financial and non-financial reasons for moving, such as working conditions and providing family support. Support is also often provided both pre- and post-move, which could be important for not just recruiting people, but retaining them over the long term. Some sectors, such as the resources sector, have also had success by targeting groups that are underrepresented in the labour force such as Indigenous people.

Lessons on what could be effective can also be drawn from other areas such as employment services providers' experiences in relocating job seekers. Jobs Australia (sub. 20) has indicated that successful relocations generally include a number of components. For example:

- workers need to be given realistic and adequate information
- workers need to be given sustained post-placement support
- relocating groups of workers of similar backgrounds has worked well.

Employers have indicated that they face a number of impediments to recruiting workers which can reduce the effectiveness of strategies. Some impediments are related to conditions of employment. In these cases, it is generally up to the employers to overcome them, through better wages and conditions. Other impediments are related to government policy and regulation. Employers in sectors such as resources, agriculture and tourism have raised concerns about requirements around the use of temporary visas, such as labour market testing requirements on 457 visas and time and industry restrictions on working holiday visas (BCA, sub. 31; NFF, sub. 33; The University of Queensland and EC3 Global 2013).

Other government policy and regulation-related impediments raised include:

- the lack of national licensing for some occupations
- differences in school starting ages across jurisdictions
- a lack of affordable housing in regional and remote areas
- transaction costs levied when buying and selling properties

-
- the flexibility of the workplace relations regime (Ai Group, sub. 19; BCA, sub. 31).

These topics are discussed in more detail in chapter 12.

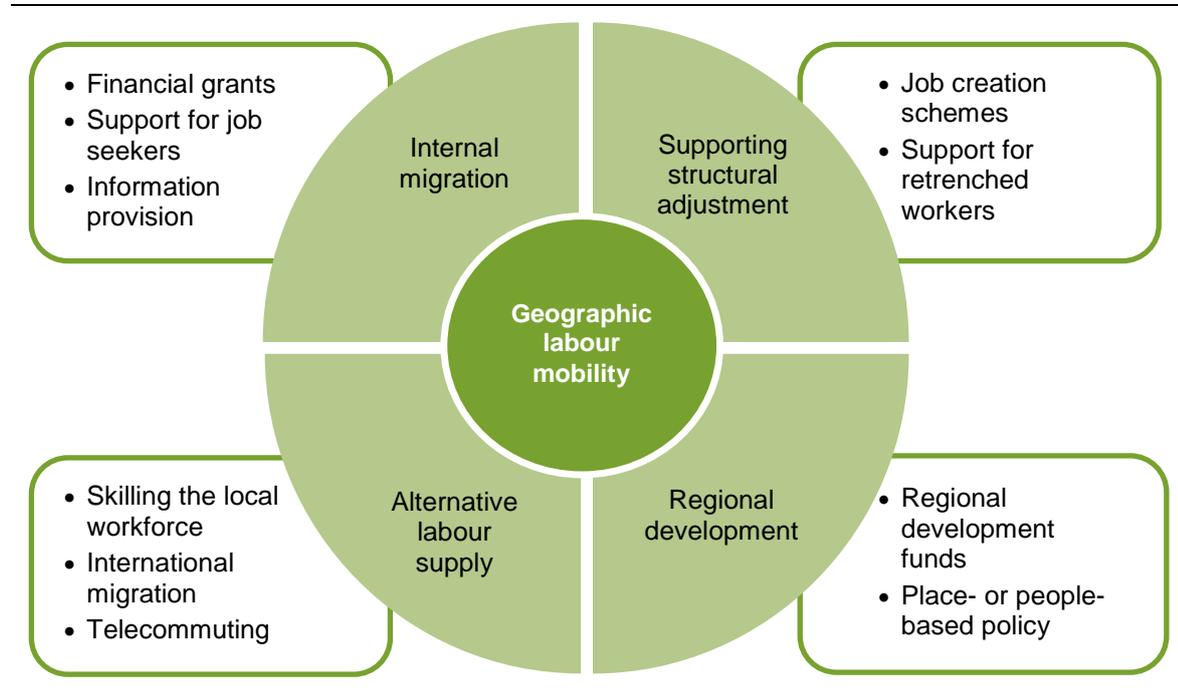
10 Government strategies

Key points

- Governments use a range of policies to directly influence where people live and work. To assist internal migration, they provide relocation incentives and attempt to address information gaps.
- Generally, government policies intended to directly facilitate geographic labour mobility have had limited effectiveness. Where governments need to attract essential service employees to specific areas of shortage, highly targeted approaches are more likely to succeed.
- Other government policies that attempt to address labour market issues have an indirect effect on geographic labour mobility. Examples include structural adjustment, regional development, international migration and skills development policies.
- Structural adjustment and regional development policies can attempt to influence the location of economic activity, and may affect geographic labour mobility. Despite the large number of policies that have been implemented, evaluations and evidence of policy effectiveness are rare.
- An education and training system that is of high quality, flexible and responsive to the changing needs of individuals and firms is important to the efficient operation of the labour market, and complements geographic labour mobility.
- Temporary immigration has been a valuable tool in addressing skills shortages in regional and remote regions, and occupations experiencing significant skills shortages. Governments should ensure the benefits of temporary immigration are maximised by maintaining flexible regulatory arrangements and the integrity of the system.

Australian governments have a long history of attempting to influence where people live and work. This has been in response to perceptions of market failure and inequalities in the distribution of population and economic activity across Australia. Government policies can target an individual, and the costs and benefits they weigh up in choosing their location, to encourage them to relocate. Alternatively, they can target a specific region to increase its attractiveness to both employers and workers (figure 10.1).

Figure 10.1 **Various policies attempt to influence geographic labour mobility**



These policies have been classified along the following lines:

- Internal migration policies, which intentionally affect individuals' or firms' mobility decisions, by addressing information asymmetries or providing incentives and support for moving.
- Structural adjustment policies, which are implemented in response to labour market shocks, such as closure of a major employer. Geographic labour mobility is an important mechanism in adjusting to structural change.
- Regional development policies (often closely related to structural adjustment policies) are put in place to address the effects of ongoing changes in the economy, as well as equity concerns. These policies aim to influence the location of economic activity, which affects geographic labour mobility trends.
- Policies focusing on sources of labour supply that can complement and act as an alternative to geographic labour mobility. While geographic labour mobility is important to meeting Australia's continually changing workforce and employment needs, education and skills and overseas migration, including temporary overseas migrants, are also important. These sources of labour supply may complement internal migration, and therefore have an influence on the role of a geographically mobile workforce in addressing labour market imbalances (chapters 2 and 11).

The success of these policies can be measured in terms of efficiency and wellbeing (chapter 3). An efficient policy will support efficient job matching across labour markets. At the same time, policies can aim to ensure geographic labour mobility reduces disadvantage and contributes to an overall increase in wellbeing in the economy.

10.1 Internal migration policies

Promoting internal migration is a complex policy area, which needs to take into account many factors that influence individuals' and firms' decisions. While governments cannot directly influence many of these (such as the personal factors that dominate decisions), they have attempted to alter the costs and benefits of moving by offering financial incentives, and to redress an information deficit through information provision.

Financial incentives have been offered to attract individuals with specific skills, to encourage people to move to some regional areas, and to assist job seekers moving for work.

Financial incentives for skilled workers

Financial incentives by Australian and state governments have been used where persistent skills shortages affect the provision of essential services in certain regions. In many cases, such as the incentives available to teachers and police officers, these are offered by governments as employers that provide public services. Generally, these strategies have not been effective in attracting employees to areas of need (see chapter 9 for a detailed discussion of the strategies used by governments where they act as employers).

Incentive payments offered to skilled individuals who are not employed by government are most often used to address the shortage of doctors in regional areas. These programs offer incentives to individual doctors who relocate to set up or join private practices in regional and remote areas.

For example, the Australian Government manages the 'General Practice Rural Incentives Program' (GPRIP), which is aimed at general practitioners. The program includes a one-off grant of between \$15 000 and \$120 000 and annual payments of between \$2500 and \$47 000 to doctors who relocate to regional and remote areas. The payment depends on the remoteness classification of the origin and destination

region (RRHA 2013a).²³ Doctors in remote areas can also benefit from government funded locum programs, which are seen as important contributors to retention. Locum programs provide replacement doctors, allowing those working permanently in remote areas to take leave or attend professional development activities (RHWA 2012).

The GPRIP has been in operation since 2010. An evaluation of the program has found that:

it is difficult to determine if the GPRIP on its own has generated rural workforce increases as the overall rural package contains a range of initiatives including rural education programs, support for rural and remote general practitioners and various locum support schemes ...

While the *retention* component of GPRIP has clearly been embraced by rural doctors, the results for the *relocation* element have been disappointing. Program data shows that only 33 doctors qualified for relocation payments in 2011-12, against a target of 70. (Mason 2013, pp. 150–1 , emphasis in original)

A number of aspects of the GPRIP have been criticised by stakeholders. Rural Health Workforce Australia (2012, p. 19) commented that ‘the eligibility criteria of GPRIP prevents it from being as useful as it should be in recruiting doctors’. According to Cessnock City Council (sub. 1), there are situations where the geographic classification used by governments does not accurately reflect remoteness levels, and therefore grants are not distributed appropriately.

Some of these arguments have been supported by the recent Review of Australian Government Health Workforce Programs, which stated that ‘[s]takeholders gave strong evidence ... that the process [to apply for the GPRIP] was frustrating and overly bureaucratic’ (Mason 2013, p. 151). The review recommended extensive changes to the GPRIP program in order to address stakeholders’ concerns while improving the program’s efficiency and cost-effectiveness. Recommended changes included new allocation methods, different geographical definitions and the extension of the program to nurses and other health professionals.

Rural Health Workforce Australia (2012, p. 4) has highlighted the importance of non-financial measures in designing relocation programs:

Incentives often only work when offered in conjunction with other elements of a package. Some incentives are not operating to their potential and could be amended, or

²³ Smaller grants are offered to doctors moving to outer metropolitan areas (Department of Health and Ageing 2013). Further, the Dental Relocation and Infrastructure Support Scheme is a new initiative introduced in 2013, which includes a relocation grant similar to the one available to general practitioners, and an additional infrastructure grant of up to \$250 000 to set up dental practices (Department of Health 2013).

better implemented, to increase their efficacy. It should also be recognised that while incentives to pull GPs to rural areas will always be important, the policies that have often had the greatest impact on GP numbers have involved a level of coercion.

In addition to offering incentives to practicing doctors, governments support medical students in undertaking training and working in regional and remote areas (RHWA 2012). As part of the rural health workforce incentive programs, the Australian Government offers fee reimbursements for medical graduates who work in regional areas. Bonded medical places and scholarships provide funding for medical students who commit to working in regional areas after graduation (RRHA 2013b).

Programs that are targeted to medical students seem to be more successful in filling skilled vacancies than attempts to relocate trained practitioners. The number of students participating in these programs is significantly higher, compared with the number of doctors relocating. For example, in 2011-12, 748 medical students participated in the reimbursement programs, compared with a program target of 520 (Department of Health and Ageing 2012). The programs are expected to make an important contribution to the regional medical workforce, although the major increase in labour supply will be through international migration (Deloitte Access Economics 2011c).

Overall, however, it is difficult to establish the cost-effectiveness of workforce programs in the healthcare sector. A recent Senate inquiry into rural health services found that ‘it appears difficult to establish which initiatives offer the best value for money for meeting the needs of regional healthcare patients’ (SCARC 2012, p. 62). It called for new programs to include an evaluation strategy to assess their impact on service delivery and their cost-effectiveness.

While the number of health professionals in regional and remote areas has been increasing, skills shortages persist. Supporting internal geographic labour mobility is only one of the strategies adopted to address this, alongside attracting doctors from overseas, who are then required to work in regional areas for up to 10 years (Department of Health and Ageing 2012). In fact, overseas trained doctors have accounted for most of the increase in health professionals in regional areas. As such, immigration policies are seen as vital in addressing skills shortages in the health workforce (section 10.4). A number of other alternatives for addressing this issue have been suggested, including expanding the role of pharmacists and nurse practitioners in providing health care (Duckett, Breadon and Ginnivan 2013). For locally trained doctors, appropriately tailored financial and non-financial incentives, such as professional support and development, could operate as efficient market signals to promote geographic labour mobility.

FINDING 10.1

Where governments need to attract essential services employees to specific areas of skills shortages, they need to use highly targeted approaches. Programs targeting students, international migrants and those with return of service obligations seem to be most effective.

Other financial incentives

At times, relocation incentives have been offered to individuals who move to regional areas regardless of their skills or labour market status. A recent example is the ‘Regional Relocation Grant’, introduced in 2011 in New South Wales in order to encourage population and economic growth in regional parts of the state. Originally, the scheme offered grants of up to \$7000 to people who moved from metropolitan to regional areas (NSW Government 2013b).

The program has had low take up rates, with only 2303 recipients in the first two years (the government had anticipated 40 000 grants over the four years of the program). Most recipients were over 51 years of age (NSW Government 2013b).

An evaluation of the program found that stakeholders perceived it operating ‘more as a bonus rather than an incentive for people to relocate to regional NSW’ (NSW Decentralisation Taskforce 2013, p. 10). The NSW Decentralisation Taskforce (2013, p. 6), which reviewed the program, recommended increasing the grant amount so that it provides a ‘meaningful incentive for regional relocation’. It also called for more restrictive eligibility criteria, including targeting people with specific skills and linking the grant payment to employment status (NSW Decentralisation Taskforce 2013).

In response to the evaluation, the New South Wales Government adjusted the program’s conditions. Initially targeted to home owners, the scheme was expanded to include renters, and required individuals to move more than 100 kilometres away from their original residence (previously there was no minimum distance requirement and individuals received the grant after moving one kilometre). In addition, a new program was announced that offers \$10 000 to people who move to regional New South Wales to take up a job (NSW Government 2013b).

Migration from metropolitan centres to non-metropolitan areas has been a longstanding trend in New South Wales, and has been primarily linked to lifestyle and cost of living considerations (Hugo 2012a). Against this backdrop, it is difficult to assess whether the ‘Regional Relocation Grant’ has contributed to additional geographic labour mobility and addressing regional skills shortages, over and above

relocations that would have occurred without the grant. The ongoing operation of this policy may not represent the best use of public funds.

Financial incentives and support for unemployed people

The Australian Government offers financial incentives for job seekers who relocate for work, and imposes penalties on income support recipients who move to areas with lower employment prospects.

Currently, incentives are available through the ‘Move 2 Work’ program, and its predecessor, ‘Connecting People with Jobs’.²⁴ Both programs provide financial assistance of up to \$6500 to job seekers looking to relocate for ongoing work or apprenticeships. Funding can be used for a range of relocation purposes including removalist and travel costs, accommodation assistance, and some employment related expenses. ‘Connecting People with Jobs’ also included a \$2500 wage subsidy. ‘Move 2 Work’, which does not offer wage subsidies, will be available until mid-2014. From July 2014, a new ‘Relocation Assistance to Take Up a Job’ program will begin, and will offer up to \$9000 in funding for job seekers who move for work (DoE, sub. DR60).²⁵

The number of job seekers receiving assistance through these programs has been low. Only 330 people accessed funding through ‘Move 2 Work’ between July 2013 and February 2014, and another 450 have indicated that they intend to use the program to assist them in relocating.²⁶ Job seekers who moved were mostly male, 37 years old on average and without dependants. They were considered to have higher barriers to employment than the average population of job seekers. The average assistance provided was significantly below the maximum available per individual (DoE, sub. DR60).

‘Connecting People with Jobs’ was originally designed to assist up to 4000 job seekers over two years. However, only 1383 individuals relocated as part of this

²⁴ Financial support can also be sourced from the Employment Pathway Fund, a flexible pool of funds that job service providers use to assist job seekers to overcome vocational and non-vocational barriers to employment. However, according to the Department of Employment, job service providers access such funding for relocation purposes very rarely, due to competing demands on the fund. From July 2009 to June 2013, only 0.2 per cent (\$3.2 million) of the fund were used for relocation assistance (DoE, sub. DR60).

²⁵ The Australian Government will also offer one-off payments to young people on unemployment benefits who find a job and remain employed for at least 12 months (DoE, pers. comm., 18 March 2014).

²⁶ The program was capped at 600 places. According to the Department of Employment (sub. DR60, p. 27), it is ‘currently on track to achieve the expected number of placements’.

program, mostly to regional areas to take up unskilled jobs. Similarly to those accessing ‘Move 2 Work’, most program participants were males with no dependants and with higher barriers to employment. By June 2013, 61 per cent of participants were no longer receiving income support (DoE, sub. DR60).

According to Jobs Australia, the national body representing not-for-profit job service providers, the reasons for the low participation rates have been a lack of interest from job seekers, substantial costs and administrative burden and insufficient linkages between job service providers and employers in other regions (see chapter 12 for a discussion on the job services system). Where relocations are successful, it is often because they are initiated by individuals, who receive pastoral support as well as financial assistance. The relocation of groups of people from similar cultural backgrounds has also been successful (Jobs Australia, sub. 20).

While offering support to job seekers who relocate for work, penalties may also be imposed on some income support recipients who move to areas with lower employment prospects. Where Centrelink considers that they have lowered their job opportunities as a result of a move, income support payments such as Newstart Allowance may be deferred for 26 weeks. Preclusion periods are only applied in rare cases — in 2012-13, only 33 job seekers had a preclusion period applied and between 2009 and 2013, the average annual number of preclusion periods applied was 62 (DoE, sub. DR60).

Although only few job seekers have applied for government support to move for work, Jobs Australia (sub. 20) has argued that a relocation strategy for the unemployed is warranted. This sentiment was echoed by the Department of Employment (sub. DR60, p. 23):

[‘Connecting People with Jobs’] had lower than expected take up over the life of the programme primarily because disadvantaged job seekers find it difficult to overcome social barriers to relocation ... However, [‘Connecting People with Jobs’] has shown that there remains an incentive for government to provide labour mobility programmes because there is a need to provide relocation assistance to individuals.

Submissions to the current review of the job services system, undertaken by the Department of Employment (2013), have also called for financial support for job seekers relocating and settling in new communities(2013a). However, according to Jobs Australia (sub. 20, p. 4, emphasis in original):

While there are some examples of successful relocations ... , the evidence and the experience of our members in delivering services to disadvantaged job seekers over many years has convinced us that successful outcomes with this group are likely to be limited and costly to implement ...

It would therefore be unwise to design a policy that seeks to encourage people to relocate in search of a job with unemployed job seekers *as its primary pool of candidates*. At its simplest, it is not good policy to try to force people to act in ways that are not in their own best interest.

Long-term unemployment is a highly complex policy problem. Supporting geographic labour mobility may contribute to more positive outcomes in some cases, particularly before people become unemployed for long periods, but it is unlikely to be a comprehensive solution (chapter 7). Nonetheless, policies that provide assistance to job seekers who would benefit from moving, but may not have the financial capacity to do so, should be maintained (and improved where relevant), as they are likely to contribute to improved outcomes for these individuals.

Addressing information asymmetries

Some stakeholders have highlighted governments' role in addressing information asymmetries that prevent efficient geographic labour mobility. When job seekers are unaware of potential job opportunities and amenities in other regions, or of the support available when relocating, this can result in market failure. As the Regional Australia Institute (sub. 25, p. 7) comments:

[d]isseminating information with respect to market signals to the wider population is also an important task of both the private and public sectors. The fast dissemination of information allows faster reaction to trends, more efficient allocation of labour resources and hence improved productivity outcomes. Importantly, in the more remote areas of Australia, even with the current speed of communications, the adequate provision of information is essential to keeping people in Australia's outer regions engaged and able to make decisions in the here and now.

Governments undertake a wide range of activities in order to overcome information asymmetries. For example, as part of the Priority Employment Area initiative, the Australian Government funds the activity of local employment coordinators, which aim to assist workers and employers by providing them additional information and support in identifying new opportunities and available government services (DoE, sub. DR60). Similarly, the 'Fly-in/Fly-out Coordinators' project aims to connect suitable workers from their local area to fly-in, fly-out (FIFO) job opportunities in other regions (DIICCSRTE, sub. 23). The OECD (2014) has recently examined the local employment coordinator model, and found that it has had a positive effect on the local collaboration between government, employers and community organisations. It recommended expanding this model.

State and territory governments have also attempted to fill information gaps, by using marketing tools. For example, ‘Workforce Growth NT’ is a Northern Territory Government strategy aiming to draw skilled employees from other parts of Australia and overseas to work for local employers. The ‘Jobs in the NT’ campaign forms part of this strategy, and includes participation at national careers and employment events and operating a database that connects local employers with people considering a move to the Northern Territory (Department of Business (NT) 2013).

At times, policies that have focused on information provision have encountered significant difficulties. For example, in 2009, the Australian Government provided funding to the Regional Skills Mobility project in South Australia, which aimed to connect unemployed people from metropolitan areas with regional employers. It provided information on job opportunities and services available in regional areas, such as schools and recreation facilities. However, only 9 per cent of vacancies that were identified as part of the project were filled (DIICCSRTE, sub. 23).

An evaluation of the project found that ‘[o]nly a few job placements were made as job seekers did not want to relocate from the city and the employers wanted to use local employees’ (DEEWR 2011, p. 38).²⁷ The Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (sub. 23, p. 8) stated that ‘[c]ultural and technical changes would be required before regional employers were willing to use recruitment support services and engage workers from outside the region’.

Providing appropriate information on job opportunities and services available in other regions may facilitate individuals’ mobility decisions (PC 2013c). This is an area where government action may be warranted, particularly where firms and individuals may find it difficult to access information themselves. Information provision programs are generally fairly low-cost policies, compared with relocation incentives. However, cultural and technical barriers, such as poor skills matching or lack of management capabilities, can impede success.

10.2 Structural adjustment policies

Geographic labour mobility has been shown to play a role in the structural adjustment of the economy following labour market shocks, such as large scale retrenchments when major employers close down (Debelle and Vickery 1998;

²⁷ In more recent research, the Department of Employment (sub. DR60) reported that some regional employers were reluctant to hire people who were not local.

PC 2013c). Government policy responses to these shocks aim to facilitate this change and assist those affected by it, but poor design and targeting can make them costly and ineffective.

Governments have often set up structural adjustment funds, aiming to support retrenched employees and promote diversification in affected regions. On the labour demand side, since 2004, the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education has managed 15 structural adjustment funds, which focused on creating new jobs. During this period, 12 funds operated in Victoria, South Australia, New South Wales and Tasmania, with individual budgets of up to \$30 million. Three funds are currently open to applicants in Tasmania and Victoria (DIICCSRTE, sub. 23; PC 2012e).

On the supply side of the labour market, governments have tended to augment existing support schemes (such as training programs and other labour market assistance) and tailor them to the needs of employees affected by large scale closures, rather than create specific new policies. These support schemes operate alongside job creation funds, and may include relocation support. For example, in 2011, after BlueScope downsized its operations in Port Kembla, the Australian Government set up the Illawarra Region Investment and Innovation Fund to create jobs in the local area (PC 2012e). At the same time, retrenched employees were eligible for funding and support under a range of existing programs, such as ‘Connecting People with Jobs’ and the Employment Pathway Fund. Of the former BlueScope employees who registered with job service providers, 8 per cent used government assistance to relocate (DoE, sub. DR60).

The role of structural adjustment policies has received heightened attention following the announcements by Ford, Holden and Toyota that they will cease automotive manufacturing in Australia. The closures are expected to directly affect over 6500 employees in Victoria and South Australia (PC 2014a) and the Australian and state governments are still developing policy responses (box 10.1).

Box 10.1 Australia’s car manufacturing industry: a current example of structural adjustment

Australia’s automotive industry is undergoing significant changes, which are likely to result in adjustment pressures. In May 2013, Ford Australia announced its decision to close its manufacturing facilities in Victoria in 2016. About 1200 manufacturing employees are expected to be made redundant (Ford Australia 2013).

(Continued next page)

Box 10.1 (continued)

In December 2013, Holden declared it will close its manufacturing facilities in Victoria and South Australia, resulting in 2900 job losses (General Motors Co. 2013). Shortly after, in February 2014, Toyota announced it will end its manufacturing activities in Victoria by 2017, resulting in an additional 2500 redundancies (Toyota Australia 2014).

In response to the Ford closure, the Gillard Government put in place a number of initiatives intended to boost the number of new jobs created in affected regions and to support retrenched Ford employees to find work. These initiatives were in line with previous structural adjustment packages, consisting of support measures for affected employees and general funding for job creation schemes. Total government funding for these initiatives is \$66 million.

- Affected employees will have access to a number of programs, such as career advice and training through the National Workforce Development Fund, and support for looking for a new job, as part of the Automotive Industry Structural Adjustment Program and the Employment Pathway Fund (Gillard 2013).
- The Australian and Victorian Governments have set up two structural adjustment funds — the Geelong Region Investment and Innovation Fund and Melbourne's North Investment and Innovation Fund — that will offer funding to employers to create jobs in affected areas. The first round of funding was completed in early 2014 (AusIndustry 2014). The new Geelong Region Investment and Innovation Fund is very similar in its design to a previous program, the Geelong Investment and Innovation Fund, which operated in 2007-08. The effectiveness and efficiency of this fund have not been evaluated since it operated.

The Abbott Government has taken a different approach in its response to Holden's announcement of its forthcoming closure. The Australian Government is currently reviewing the economies of Victoria and South Australia and developing a \$100 million 'growth fund' to support regions affected by changes in the manufacturing industry. The review will consider a number of strategies intended to boost the state economies, including investments in infrastructure, diversification and relocating public service functions to affected regions (Department of Industry 2013).

In the past, targeted labour adjustment programs offered to displaced automotive manufacturing employees have had limited success (PC 2014a). Research has found that government support offered to retrenched employees was not always appropriate to their needs. For example, following the closure of Mitsubishi plants in Adelaide in 2004, which led to nearly 1200 redundancies, governments provided funding for job creation across South Australia, rather than targeting it to the affected region. This approach did not take into account the fact that the retrenched employees looked for work locally. There were also significant risk aversion, information barriers and misconceptions about regions where jobs were available and, as a result, the affected employees were unwilling to move (Beer 2008).

Past research has cast doubts on the overall efficacy of structural adjustment programs (Daley and Lancy 2011; Daley 2012). The Commission has examined structural adjustment assistance on a number of occasions in the past two decades (for example, IC 1993; PC 1999, 2012d, 2014a). Throughout this period, it has come to similar conclusions regarding the ineffectiveness of structural adjustment policies:

The scope, eligibility criteria and duration of regional funds vary, but all funds share, to some extent, a lack of detailed pre- and post-evaluation, and monitoring. Their effectiveness in retaining or creating employment has generally been limited, with regions receiving assistance not appearing to adjust better to structural change than their unassisted counterparts. (PC 2012d, p. 24)

The Commission's recent inquiry into Australia's automotive industry found that generally available assistance measures are preferable to ad hoc or special adjustment packages. Using generally available assistance measures targets the assistance to all individuals in need, rather than offering it to a particular industry or activity, and minimises costs to government. However, the Commission has also stated that governments should ensure that generally available welfare, training and employment services are adequately resourced to deal with the effects of structural adjustment in the automotive manufacturing industry (PC 2014a).

There is a general need for evaluation of structural adjustment policies, and in particular their long-term effects on retrenched employees. The lack of evaluation makes it difficult to assess the extent to which these policies facilitate, rather than hinder, geographic labour mobility and more efficient labour markets.

The closure of car manufacturing plants in Victoria and South Australia affords the opportunity of conducting a new study to understand the effects of structural adjustment on individuals over time, the mechanisms they use to adapt to the change in their circumstances (including the extent to which they are geographically mobile) and the effectiveness of policy measures. Such a study can add valuable insight to policy development, by providing information on the most effective ways to assist employees and firms to adapt to structural changes. Using these insights in developing future policies may prevent inefficient spending.

RECOMMENDATION 10.1

All governments, when developing structural adjustment programs, should have clear objectives and ensure that they are properly evaluated, including how they affect geographic labour mobility.

This should apply to the programs announced by the Australian and State Governments in response to the closures of car assembly plants in Victoria and South Australia.

A longitudinal study of the retrenched workers in these regions would be particularly beneficial in understanding the long-term impacts of structural adjustment and its implications for geographic labour mobility.

10.3 Regional development policies

Regional development policies aim to influence the location of economic activity — either to mitigate the effects of structural adjustment or address skills shortages outside urban areas — and may also have other objectives, such as equitable access to services. Geographic labour mobility can play an important role in this context:

In regional areas, where there are lower concentrations of labour resources, the mobility of labour is essential to allowing resources to be allocated where needed. Large and small movements of labour into and out of localities can have a large impact on regional areas as they have smaller economies and are therefore more sensitive to fluctuations and change.

Yet it is unlikely, due to the many determinants of migration decision making, that the spatial supply of labour will equal the demand for labour. This results in imbalances in the spatial distribution of labour supply and labour demand and ultimately inefficiencies in economic activity. (RAI, sub. 25, p. 2)

Australia has a long history of regional development policies, which often lack clear objectives due to being intertwined with industry policies and structural adjustment initiatives. Over time, the policy approach to regional development has changed from large scale decentralisation in the 1970s to more locally developed initiatives in recent times (appendix C). There are, however, ongoing policy debates about the goals of development policies, and the most appropriate ways to design and target the assistance (Maude 2004). One debate concerns whether the focus should be on developing the skills and capacities of individuals (more supply side or people-based approaches) or on the capacity of the area to grow and generate employment and income (which can be characterised as place-based policies) (Collits 2012a). Although many policies combine these approaches, place-based policies need to be carefully designed to ensure they are effective (chapter 7). Some researchers have suggested that regional policy may be more effective in reducing unemployment if some place-based policies were replaced with policies removing impediments to labour mobility (Dixon and Shepherd 2011).

Another debate concerns the distinction between development programs aimed at all regions, and those that prioritise certain places over others, favouring either the

fastest growing regions or those most in need of assistance. The OECD (2012b) has argued that governments should invest in all regions, including those that are lagging national economic growth. Such investments are likely to result in a more stable economy. In contrast, other researchers have maintained that the Australian Government should focus its efforts on growth areas, where government assistance can generate the best returns, as measured by increases in productivity and growth (Daley and Lancy 2011).

While the rationale behind regional development policies may have changed and different programs can have different objectives, there remains considerable investment into initiatives that support regional development (table 10.1 lists some examples). Many national policies devote a substantial share of their funding to supporting projects in regional communities (DRALGAS 2013b).

Table 10.1 Examples of regional development funding initiatives

<i>Program</i>	<i>Jurisdiction responsible</i>	<i>Key goal</i>	<i>Budget available</i>	<i>Timeframe</i>
Regional Development Australia Fund ^a	C'wealth	Allocate grants to infrastructure projects identified by local communities	\$1 billion	2011–2016
Resources for Regions	NSW	Support infrastructure projects in mining communities	\$120 million	2013-14
Regional Growth Fund	Vic	Support major projects in regional areas and fund local community initiatives	\$1 billion	2011–2019
Royalties for the Regions	Qld	Provide funding to regional councils for roads and infrastructure	\$495 million	2012–2016
Riverland Sustainable Futures Fund	SA	Support business investment and diversification in the Riverland region	\$20 million	2013–2017
Royalties for Regions	WA	Fund a wide range of infrastructure and community projects in regional areas	\$6.5 billion	2008–2013 ^b
Tasmanian Government Innovation and Investment Fund	Tas	Offer grants to local businesses and support new job creation	\$10 million	2012–2014

^a In October 2013, the new Minister for Infrastructure and Regional Development announced that all projects funded under the Regional Development Australia Fund will be reviewed. A new National Stronger Regions Fund will operate from 2015, with a total budget of \$1 billion over five years (Truss 2013). ^b The program is ongoing. An additional \$1.3 billion will be spent in 2013-14.

Sources: Department of Regional Development (2013); Department of State Development, Infrastructure and Planning (2013); DRALGAS (2013a); NSW Government (2013a); O'Byrne (2013); PIRSA (2013); Victorian Government (2011).

In addition to large-scale funding initiatives, governments support regional development through a number of other channels, such as community development and relocation of government departments.

There are cases in which governments support, and in some cases direct, the development of particular local communities and regions. For example, in New South Wales, the Evocities marketing campaign was developed by seven regional towns to promote the benefits of regional living and offer support to people considering moving. The initiative has received funding from the New South Wales and Australian Governments. Evocities (2012) contends that the strategy has generated \$48 million of additional annual spending in the participating cities.

The Western Australian Government has taken a different approach, designating nine regional towns as SuperTowns and providing them with funding and assistance to put in place expansion plans (Department of Regional Development and Lands nd). Similarly, Victoria has developed a State of Cities plan, to facilitate population growth and infrastructure development in regional towns (Victorian Government 2013).

Governments have used the relocation of public sector jobs as a means to promote regional development. The most notable example is Canberra, which started growing significantly as government departments were relocated there. Later initiatives were undertaken by state governments, particularly in New South Wales and Victoria (Daley and Lancy 2011). These relocations have received support from some local governments (LGAQ, sub. 5).

While these initiatives can increase employment in regional cities, doubts have been raised about their overall effectiveness. Moving government departments generates significant costs, both at the time of relocation and later on, when public servants need to travel to capital cities on a regular basis (IC 1993). The effect on regional communities tends to be limited as the number of jobs created is small — for example, when the Victorian Transport Accident Commission relocated to Geelong in 2010, the 600 jobs relocated represented only 0.6 per cent of the local workforce (Daley and Lancy 2011).

Overall, governments spend more than \$2 billion each year on regional development programs (Daley and Lancy 2011). While evaluations of some of these programs have been conducted, such evaluations have focused on the design and implementation of the policy, rather than their effectiveness in supporting economic development (for example, ANAO 2012). These evaluations can be very complex, particularly in terms of identifying specific costs and benefits (Leo Dobes, sub. DR35). It is also difficult to separate the direct effect of government

interventions from other economic and local factors that contribute to economic development, and compare it to the expected regional economic performance without government intervention (BITRE 2003).

Research suggests that investment in regional development has not been effective in boosting productivity in regional areas (Daley 2012). In part, this has been attributed to the fact that communities and local organisations are increasingly responsible for regional development activities, without appropriate funding flexibility (Maude 2004). Local organisations do not always have the capacity to direct funds to projects that will sustain long-term growth (Daley 2012).

Improvements in regional policy design and implementation, and better project evaluation would be beneficial. However, there is a need for more realistic expectations in this area; governments cannot reverse the continuous processes of agglomeration and structural adjustment:

In effect, to sustain regional economic growth, government policies need to be able to raise the productivity of a region or lower its costs to overcome any inherent locational disadvantage. Policies which serve to create an economic climate conducive to growth and investment across *all regions*, and for *all industries*, are the most likely way to achieve these objectives, with benefits both regionally and for the wider economy. Consequently, governments have a vital role to play in setting the scene for economic development. (PC 1999, p. 369, emphasis in original)

10.4 Alternative and complementary policies

An increase in the demand for labour can be met by various sources of labour supply. In addition to geographic labour mobility within Australia, skilled local labour and international migrants can fill job vacancies and ensure the labour market operates efficiently by complementing geographic labour mobility (chapter 2). In this context, governments have put in place a variety of policies, aiming to ensure adequate supply of skilled labour, locally and from overseas.

Skilling the local workforce

Stakeholders in a number of industries have reported challenges in finding suitably skilled local staff, and relying on commuters, itinerant people or relocating workers to fill vacancies (for example, BCA, sub. 31; MCA, sub. 6; NDS, sub. 7; NFF, sub. 33). Demand for skilled workers is expected to grow significantly in coming years, requiring an increasingly flexible, high quality education and training system that is responsive to industry needs (AWPA 2013).

Where demand for skilled workers grows, and local job seekers do not have the requisite skills, labour markets can experience skills shortages alongside high unemployment rates. Supporting geographic labour mobility is particularly important in such regions, in order to fill job vacancies (OECD 2014). Such skills mismatches often occur in regions affected by structural change. In adjusting to structural change, individuals need the opportunity to reskill and learn new skills that will enhance their chances of finding employment. Therefore, investing in the skills of the local labour force does not necessarily mean only equipping people with *higher* levels of skills. It is important that people are equipped with the *right* type of skills that are required in the labour force (OECD 2012a).

If skills development lags, this can lead to entrenched unemployment and disadvantage. For example, Tasmania has unemployment levels that are consistently higher than the national average, lower than average educational attainment, and much lower productivity than the national average (table 10.2). At the same time, employers report shortages of workers in a wide variety of skilled occupations (DoE 2014b).

Table 10.2 Low educational attainment and workforce participation inhibit economic growth^a

	<i>Year 12 completion rate (%)</i>	<i>VET completion rate (%)^b</i>	<i>Workforce participation rate (%)</i>	<i>Unemployment rate (%)</i>	<i>Proportion long-term unemployed (%)^c</i>	<i>Gross state product per capita (\$)</i>
NSW	72	14.1	63.5	5.2	21.6	63 739
Vic	78	18.3	62.0	5.4	18.1	58 806
Qld	69	17.8	67.0	5.5	16.8	62 943
SA	77	17.6	63.2	5.3	20.7	56 485
WA	72	15.7	68.6	4.0	13.9	100 697
Tas	43	12.7	60.6	6.3	23.1	47 547
NT	38	13.3	73.9	4.1	12.3	80 844
ACT	76	16.5	72.3	3.7	13.0	90 292
Australia	72	16.5	65.4	5.2	18.8	65 997

^a For comparability, data are from 2011, as this is the latest year available for Vocational Education and Training (VET) completion rates. Gross state product data refer to 2011-12. ^b VET completion rates are defined as VET qualification completions by all students with improved education/training status after training, as a per cent of course enrolments by all students undertaking Australian Qualifications Framework (AQF) qualifications. ^c The proportion of those who have been unemployed for a year or longer, out of all unemployed people.

Sources: ABS (2012a, 2013c); SCRGSP (2014).

Skills development, through schools as well as the vocational education and training (VET) system, has been the focus of significant policy and reform effort. For example:

- a range of national partnership agreements signed by the Council of Australian Governments (COAG) provide funding of over \$5 billion to improving school performance, including developing literacy and numeracy skills, attracting teachers and expanding learning opportunities in low socio-economic areas and supporting students with disabilities (COAG nd; PC 2012c)
- in 2012, COAG signed the National Partnership Agreement on Skills Reform, which allocates \$1.7 billion in funding to improve the VET system. The agreement includes a commitment that all working-age individuals will have access to subsidised training to achieve a Certificate III (COAG 2012)
- general skills development is supported by the National Foundation Skills Strategy for Adults, which aims to improve the literacy and numeracy skills of the workforce, and Skills Connect, a funding initiative that supports employers in improving their employees' skill sets (DIICCSRTE, sub. 23)
- industry specific skills development has in some cases been expanded to include cross-industry skills. For example, the Regional Agricultural and Mining Integrated Training project was designed to build transferable skills that could be used by job seekers in both agriculture and mining industries (DIICCSRTE, sub. 23)
- specific programs aim to boost the skills of unemployed people, supporting their chances of finding and retaining a job. Job Services Australia providers can access funding through the Employment Pathway Fund, to assist job seekers in gaining required work skills (DEEWR 2012a). Highly disadvantaged people, who face significant barriers to employment, can receive additional support and funding (Job Services Australia 2013).

Despite these ongoing reforms, students from low socio-economic backgrounds continue to experience educational disadvantage, which is reflected in poor literacy and numeracy outcomes (McLachlan, Gilfillan and Gordon 2013). Researchers suggested that young people in rural and remote areas are more likely to be affected by educational disadvantage, which limits their access to quality education and appropriate opportunities to enter the workforce (Alloway et al. 2004).

Disparities in educational outcomes can partly be explained by factors related to the demographic and socio-economic characteristics of the individual, their family circumstances and their community (McLachlan, Gilfillan and Gordon 2013). Government policies can have an important role in addressing such disparities by promoting quality and equity in the school education system (OECD 2012a). Lifting

educational attainment will increase individuals' net lifetime earnings, but can also deliver significant social benefits, in the form of higher productivity, reduced pressure on government welfare, and closing equity gaps (Deloitte Access Economics 2011d).

Beyond school education, concerns remain regarding the quality of training delivered by the VET system and its ability to respond to changes in the labour market (AWPA 2013). Stakeholders often raised the need for further government investment in skills development, in order to address shortages, support local workforce participation and facilitate geographic labour mobility (for example, AMMA, sub. 29; APPEA, sub. 24; RAI, sub. 25). They have also voiced the need for governments to boost commencement and completion rates in skills development programs (AMMA, sub. 29) and ensure the skills taught are relevant to industry needs:

Industry is sharply critical of government training/skills funding models which tend to focus almost exclusively on full qualifications as opposed to 'skill sets', which remains at odds with the agrifood learning culture which is typically incremental, socially embedded and occurs over a lifetime ...

Movement on this issue would provide significant alleviation to the negative effects of a lack of sufficient skilled labour in the regions. It would do this by providing skills in a more cost-efficient way, reflecting industry need and providing 'lubrication' for cross skilling and more mobile labour forces – which could move within and between regions. Such labour forces would be equipped with groups of skills sets suited to multiple industries within a region(s) and therefore would tend to be able to stay in or near a region for longer than would otherwise be the case. (AgriFood Skills Australia, sub. 18, p. 3)

Concerns about inconsistent quality and low completion rates were raised in a number of official reviews of the VET system, including Productivity Commission reports that called for government action to ensure quality training (PC 2011a, 2011b, 2011d). A recent report by the National Skills Standards Council, which was established by COAG in 2011, found that inconsistent quality undermines the value of VET qualifications. It concluded that:

A failure of confidence in these qualifications will not only waste the significant funding investment in training, but will also devalue the existing qualifications and undermine the functioning of the labour market ...

[W]hile many [registered training organisations] not only comply with the current standards but exceed them, there are too many examples of [registered training organisations] that issue nationally recognised vocational qualifications that are not consistently meeting the standards and are not valued by employers. (NSSC 2013, p. 16)

A training system that delivers high quality education and is responsive to industry needs is essential in the efficient operation of the labour market. Similarly, the school system is fundamental in developing the human capital of the population (PC 2012c). Supporting skills acquisition and development can have significant benefits across the economy and governments can use a wide range of policies to improve skills attainment (OECD 2012a). Higher skill levels will also support efficient geographic labour mobility, as individuals relocate to jobs that offer them the best return on their investment in education.

FINDING 10.2

Education is one of the enablers of mobility that is amenable to policy influence. Improving the quality, flexibility and accessibility of education and training, particularly for disadvantaged groups and regions, will support geographic labour mobility and have broader efficiency and wellbeing benefits.

International migration

The Australian Government has introduced a number of migration policies in order to ensure adequate supply of labour in areas of skills shortages. Examples include the regional sponsored migration scheme, temporary skilled migration (457 visas) working holiday and seasonal worker programs. These programs are subject to a range of checks and balances, such as capping, occupational restrictions and labour market testing (appendix C). The Australian Government is currently reviewing the 457 visa program, with a report due in mid-2014 (Cash 2014).

The importance of international migration to labour supply varies by industry and occupation. Often international migration makes a substantial contribution in particular areas. Health is a key example — according to Rural Health Workforce Australia (2012, p. 11), ‘the shortage of doctors [in rural and remote regions] would be far more severe if not for the effect of policies to recruit [international medical graduates]’. In the decade to 2011-12, the number of full-time equivalent GPs in regional and remote areas increased by 38 per cent, and doctors trained overseas accounted for over 98 per cent of the increase (PC calculations based on Department of Health 2012).

Other industries, particularly in regional areas, employ significant numbers of temporary immigrants and overseas visitors. For example, the National Farmers’ Federation (sub. 33, p. 25) submitted that ‘[t]he industry regards temporary holiday makers as critical to meeting seasonal demand for a number of agriculture commodities’. The working holiday program and the seasonal worker program have

also been identified as an important source of workers for the tourism industry (Austrade, sub. DR41; Australian Tourism Export Council 2012).

Research into regional skilled migration policies showed that the outcomes for immigrants are generally positive. However, it has been suggested that the schemes need to address social, cultural and information barriers in order to be more effective in alleviating skills shortages (Cameron 2011).

Industries that employ overseas workers were generally positive in their assessment of government policies. The Minerals Council of Australia (sub. 6, p. 1) stated that:

457 visas are effective in filling specific areas of identified skill shortages in the minerals industry, especially in the professional cohort. For example, the industry has had to rely on skilled migration for around half of its mining engineers in recent years. There is also evidence that 457 visa holders play a vital part in training Australian workers. Without temporary skilled migration, the Australian minerals industry would not have been able to respond to the significant investment demand in mining experienced over the past decade.

On the other hand, unions have warned that the increasing ease of employing workers on 457 visas will erode the local skill base (ACTU, sub. 21; CFMEU, sub. 26). Some study participants warned of the need to balance the various sources of labour supply, in order to ensure ongoing development of the local workforce:

The introduction of 457 visas as a replacement for investment in education and skills development poses significant threat to the Australian Labour markets capacity to respond to market signals through geographic labour mobility. An under-skilled workforce cannot meet the needs of industry regardless of employment options available. (Isaac Regional Council, sub. 16, p. 3)

Employers have called on the government to ensure regulatory requirements do not impede the efficient employment of temporary immigrants and overseas visitors. For example, study participants argued that the Australian Government should broaden the eligibility and lower the costs of working holiday and seasonal worker visas (Austrade, sub. DR41; NFF, sub. 33).

Furthermore, employers have voiced concern over the effects of additional labour market testing requirements introduced for 457 visas in 2013 (BCA, sub. 31). These requirements have recently been amended, and employers seeking 457 visas for highly skilled occupations are exempt from labour market testing. Technical and trade occupations, as well as engineering and nursing, will continue to be subject to labour market testing, and employers applying to sponsor applicants for 457 visas will need to provide information on their recruitment efforts as well as redundancies and retrenchments in their business (DIBP 2013b).

The intent of the amendments has been to assist employers and reduce red tape (Cash 2013). However, the Construction, Forestry, Mining and Energy Union (sub. DR46, p. 5) has argued that they are ‘ineffective and inadequate regulation that manifestly fails to achieve its legislative objective, namely to ensure that employers show that no suitably qualified and experienced Australian residents are available, before 457 visas are approved for foreign nationals’. As the amended regulations have only been implemented recently, the Commission considers that it is too early to establish their effect on demand for 457 visas as well as the broader labour market. These changes will be examined by the current review of the 457 visa program, which is also examining the integrity of the program.

Governments should aim to maintain flexibility within the labour market, across all appropriate sources of labour supply. Temporary migration has been an important source of labour, particularly in hard-to-staff regions and occupations affected by skills shortages. The benefits of temporary migration should be maximised by maintaining flexible regulatory arrangements while at the same time ensuring that the integrity of the system is such that it maintains community support and does not disadvantage local job seekers.

11 Is there a problem?

Key points

- Geographic labour mobility has been an important mechanism for adjusting to the broader forces shaping the Australian economy.
- In general, labour is moving to areas with better job opportunities and employers are using a range of sources of labour in order to attract workers with the required skills.
- While geographic labour mobility is assisting labour market adjustment, there is room for improvement.
 - Areas of skills shortages remain and high unemployment is persisting in some regions.
- There are no simple levers to affect geographic labour mobility. Many policies aiming to influence where people live and work in regional and remote areas have had limited effectiveness. Policies will be more effective if they are highly targeted.
- Life events and family circumstances appear to be the most important factors in individual mobility decisions and attempts by government to influence them are unlikely to be effective.
- There are some impediments to geographic labour mobility that arise from other government policies in areas such as housing, welfare and occupational licensing. While not directly targeting geographic labour mobility, these policies can affect individuals' and firms' mobility decisions.
- Large population shifts can impose external costs as well as benefits on affected communities. Governments have a role in addressing negative impacts where this generates broader efficiency and wellbeing benefits and lessens impediments to geographic labour mobility.

Geographic labour mobility can improve efficiency and community wellbeing by alleviating labour shortages and regional disparities in labour market conditions, and increasing skills utilisation and incomes (chapter 3). Yet, more geographic labour mobility is not always ideal. Very high rates of mobility can lead to costly levels of staff turnover and entail economic and social costs for individuals and their families, as well as for the broader community (ACTU, sub. 21; AMMA, sub. 29; Western Australian Government, sub. 32).

It is difficult to identify an optimal rate of geographic labour mobility, and it would be of limited use. Geographic labour mobility is only one form of labour mobility, and job, occupational and industrial mobility are also important in allocating labour

to its efficient use (Department of Employment, sub. DR60). Instead, the Commission has focused on assessing whether geographic labour mobility is as seamless as possible. This assessment has been made by analysing whether labour is moving across regional labour markets in a way that is consistent with responding to market signals, and whether there are impediments that distort efficient market operations. This has been achieved through an examination of current trends and patterns of geographic labour mobility and labour market outcomes as well as through econometric modelling. The community-wide impacts of geographic labour mobility on wellbeing have also been considered.

11.1 Are labour market signals working?

Geographic labour mobility occurs as employers seek to employ labour in the most efficient manner, and employees seek to obtain jobs in locations that are best suited to them and their families (box 11.1). In a well-functioning labour market, this occurs automatically as employers and employees respond to market signals (chapter 2). People move for a variety of reasons, not just employment (chapter 5). Nevertheless, market signals will factor into an individual's cost-benefit calculation regarding relocation decisions. Relevant factors include the probability of getting a job in the new location (for example, indicated by unemployment rates and vacancy rates), expected wages and relative living costs, including housing (chapter 8; appendix E) (VCOSS, sub. 27).

At an economy-wide level, broad trends indicate that people are moving across regional labour markets in a way that is consistent with responding to market signals. For example, on the whole, people appear to be moving to areas with better job and income opportunities at both state and regional levels (chapters 4 and 5). The Commission's econometric analysis shows that people tend to move to regions where real wages are higher and unemployment is lower (appendix E). When looking at the characteristics of those who move residence, the Commission found that, as expected, people who are likely to gain the most from moving are more likely to move. Young people, single people, recent overseas migrants, unemployed people and more highly educated and skilled people all move between labour markets more than other groups.

Box 11.1 The roles of individuals and employers in geographic labour mobility

Individuals

Individuals consider the range of options available to them regarding where to live and work and make rational choices about what is best for them based on their personal circumstances and preferences. Individuals will make these decisions by weighing up the factors affecting themselves and their families given the different work and living arrangements available (chapters 2 and 8).

When evaluating job opportunities, individuals will consider their skills relative to those sought by prospective employers in different locations. Depending on the expected returns, individuals may undertake training to acquire more skills, make other investments to enhance their ability or relocate to secure a better job.

There will always be varying levels of risk and uncertainty involved in relocating to take advantage of a job opportunity. Individuals must make tradeoffs regarding the risks and returns of these decisions.

Employers

Employers aim to maximise profits (or another organisational objective) by using labour (and other inputs) efficiently and effectively. This entails employers choosing from the different sources of labour supply, given the skills they require and locational imperatives of their operations (chapter 2). Employers shape the relocation decisions of workers in terms of the employment conditions they offer and there are a range of strategies they can adopt to attract a larger pool of workers (chapter 9). Employers will also consider longer-term factors in addition to once-off employment costs when sourcing employees, including training, retention and the relative productivity of different working arrangements.

Employers may take action to reduce any negative impacts from workforce movements across different locations. They may do so where they consider that these impacts are posing reputational risks or where they wish to guard against government intervention. In some cases, governments use regulation to require employers to minimise negative impacts.

Flexibility in the labour market

The Commission has observed considerable flexibility in the labour market, in part attributable to actions by both employees and employers. Australians move relatively frequently (chapter 5) and are often willing to undertake significant commuting to access jobs (chapter 6). On the other side of the equation, employers are offering an array of incentives and employment arrangements and are sourcing workers from a much wider geography than in the past (chapters 4 and 9).

Several study participants noted that geographic labour mobility has enabled labour shortages to be mitigated during the resources boom (Prof. Fiona Haslam McKenzie, sub. 30; RAI, sub. 25). Both temporary and permanent immigration have been important channels to mitigate labour shortages in recent times, particularly in the mining, construction, health and tourism industries (AMMA, sub. 29; APPEA, sub. 24; Austrade, sub. 41; MCA, sub. 6). Further, the increasing use of arrangements that allow workers to maintain their permanent residence, such as telecommuting and long-distance commuting, support the finding of flexibility in the labour market (chapter 6). In particular, long-distance commuting, such as fly-in, fly-out, has been instrumental in attracting sufficient workers to mine sites during the resources boom, and spreading the benefits of the resources boom across the economy more broadly.

These findings are generally supported in research. Earlier work by the OECD (1999) found that labour mobility plays an important role in currency areas like the United States and Australia in response to factors that affect employment. As noted by D'Arcy et al. (2012, p. 9), geographic labour mobility between Australian states has played an important role in accommodating differences in the pace of employment growth across Australia over the past decade:

Since early 2002, employment growth in Queensland and Western Australia has exceeded national employment growth by over 10 percentage points ... some of the extra workers have come from within each of these states ... Both states had higher rates of net immigration from overseas and interstate than the national average ... although interstate job moves are small compared with the aggregate number of job changes, they nevertheless have made a material contribution to the adjustment in the shares of employment across states.

Similarly, Sibma (2006) found a strong correlation between relative employment opportunities and interstate migration in Western Australia over the past three decades, and noted the significant contribution of the mining and construction sectors to interstate migration to Western Australia.

At the regional level, Lawson and Dwyer (2002) found that inter-regional migration has emerged as an important channel through which regions adjust to shocks. However, they noted that the relative strength of migration flows varies considerably across regions and that regional labour market outcomes can be disparate. This issue was also raised by the Regional Australia Institute (sub. 25). Generally, trends in population growth indicate that some workers are willing to move to regional and remote areas, at least for a period of time, if the compensation is sufficient. The Construction, Forestry, Mining and Energy Union (sub. 26) noted strong population growth between 2006 and 2011 in regional and remote mining

towns across Australia. For example, in Port Hedland in Western Australia, the population grew by 25 per cent over this period.

The Commission's analysis has also shown that while the general trend is for Australians to move to coastal regions, people in the labour force are more likely to move to capital cities. Cities can play an important role in efficient job matching as they contain a large number of both employers and workers and offer a diverse range of jobs. This type of agglomeration can reduce the need for certain types of geographic labour mobility. The distribution of jobs across industries varies between Australia's major cities and has changed over the past decade. Further, the extent of agglomeration varies by industry and occupation. For example, population-serving occupations such as nurses, teachers and mechanics are needed wherever people live, and cannot be concentrated solely in big cities. This is an important factor behind trends and patterns of geographic labour mobility in Australia.

The coexistence of skills shortages and unemployment

While geographic labour mobility is assisting labour market adjustment, there are some areas of ongoing skills shortages in regional and remote areas. These are largely essential service, government jobs where wage flexibility has been limited. There are also regions of high and persistent unemployment, such as Tasmania, western Sydney, parts of coastal Queensland and regions with a high proportion of Indigenous residents (chapter 4). The Commission's analysis suggests that areas of high unemployment and disadvantage vary in their mobility — some have high rates of mobility, while others have low rates of mobility (chapter 7). This suggests the need to proceed with caution when pursuing policies that attempt to address unemployment by encouraging geographic labour mobility (discussed below).

There are no simple levers to affect geographic labour mobility. Despite this, Australian governments have a long history of trying to influence where people live and work, as part of regional development and structural adjustment policies. The evidence suggests that these policies have had limited effectiveness. Benefits are likely to be higher if governments focus on creating an economic climate conducive to growth across *all* regions and *all* industries. Education is one of the few enablers of mobility that may be amenable to government policy influence, although the impacts are not immediate (chapter 10).

FINDING 11.1

Geographic labour mobility has been an important mechanism for adjusting to the demographic, structural and technological forces shaping the Australian economy. It has been assisted by the considerable flexibility shown by employers and employees in overcoming the effects of impediments to mobility. The increase in long-distance commuting and temporary immigration has been particularly important.

11.2 Are there any distortions?

While the study has found that geographic labour mobility is assisting labour market adjustment, there are some impediments that can make it harder (or less likely) for people to relocate for work (chapter 8). The Commission's econometric analysis points to the presence of potential impediments such as the social and financial costs of moving as indicated by home ownership and relative house prices (appendix E).

While an impediment may affect geographic labour mobility, it may not be amenable to influence by governments, nor would this be appropriate in all cases (box 11.2). Attempts by government to influence certain personal factors, even where these impede geographic labour mobility, are unlikely to be effective. For example, government is limited in its ability to directly influence life events, such as having children or getting divorced (chapter 8). In the same vein, the ability of governments to influence some locational impediments, such as climate, is also limited. This can be further complicated by the complex way in which personal and locational factors can affect mobility, particularly where they interact. While personal and locational factors may constitute a significant part of an individual's mobility decision, these factors will affect different people in different ways depending on their personal circumstances and risk preferences.

The objective of public policy should be to focus on impediments that are market distortions. Market distortions occur where a wedge is driven between demand and supply in a market and the price and quantity at which the market clears is different to that which would have occurred under perfect competition and perfect information. Geographic labour mobility could be impeded by distortions in the labour market or other markets, such as the housing market, which affect the costs and benefits of relocating for work. Market distortions can be caused by government, for example through the imposition of regulations or inefficient taxes (known as 'government failure'), or where there is market failure.

Box 11.2 **The role of government in geographic labour mobility**

Governments may have a role in addressing distortionary impediments that individuals encounter in moving for employment, or that employers experience when attracting workers. This could involve governments removing existing distortionary policies or introducing new policies that address market failure. Governments may also address instances where geographic labour mobility (and broader structural adjustment) has negative 'spillover' impacts on communities.

The existence of market distortions provides a rationale for government to act, in some cases, to influence the rate of geographic labour mobility. Yet, it is important to acknowledge that government intervention is never perfect and the cost of interventions will need to be weighed against their benefits, including the potential for unintended and adverse consequences.

The nature and impact of the market distortion and the extent to which it can be corrected through government policy must be considered. This involves evaluating whether government has the right information and instruments to improve market outcomes and also accounting for the practical realities of implementing government policy, such as the potential time lags involved and the need to work within existing jurisdictional systems.

Specific market distortions may not be permanent and could change over time. For example, improvements in technology may reduce information asymmetries about available jobs across Australia. Even if the rationale for government intervention existed at first, it is important to regularly assess the case for continuing government involvement.

Geographic labour mobility is unlikely to affect everyone equally, and governments may want to monitor its distributional impacts. For example:

- if there are serious inequalities arising due to impediments to geographic labour mobility that affect disadvantaged groups and regions
- where there is potential for spillover effects, usually as part of broad structural and demographic changes, to impact disproportionately on disadvantaged groups.

In most cases, addressing these sorts of distributional concerns is likely to be best managed through ensuring existing institutional arrangements operate effectively (for example, income support and employment services), rather than introducing separate arrangements (chapter 10).

The government is a major employer. In this case, its objective is not to maximise profit, but to deliver essential services to the population, on the basis of need. This involves attracting appropriately qualified workers to particular locations where labour supply is scarce. The role of governments in this respect is similar to that of employers in the private sector (chapter 9).

It is not in the community's interest for government policy to mitigate impediments that relate to market distortions in all cases. Efforts by governments to influence the rate of geographic labour mobility should only be undertaken where this leads to an increase in overall community wellbeing.

Some locational factors such as housing prices and economic and social infrastructure are more amenable to government policy. As other reviews have concluded (including previous Productivity Commission work), there is a potential for market distortion in both cases — although in different ways. In the case of housing, a number of existing government policies, such as planning and land release, could be contributing to distorted housing costs, which distort rental and purchase decisions. In contrast, economic and social infrastructure are generally public goods, which will be underprovided by the private sector. The nature of public goods makes it difficult to assess the extent of demand for them. Governments must make judgments regarding whether demand for economic and social infrastructure is sufficient to warrant government provision (or increased provision) in different areas of Australia.

Another set of influential impediments to geographic labour mobility relates to the transitional costs incurred when relocating for work (chapter 8). For example, a lack of recognition of skills and qualifications across jurisdictions is an impediment to geographic labour mobility and can distort labour markets. Further, differences in school education frameworks (leading to differing school starting ages and term times across states and territories) may also affect an individual's decision to move. While these cross-jurisdictional policy differences may be amenable to government intervention, the costs of securing agreement and consistency, or mutual recognition, across all jurisdictions in Australia could be high. Furthermore, some jurisdictional differences will always be present in a federation.

Many of the instances identified where government policy settings increase the costs of relocating for work relate to broad areas of government policy (chapters 8 and 12). This includes taxation, planning and occupational licensing. These policies have been put in place to address broader market failures or equity objectives and do not directly target geographic labour mobility. Where these policies are poorly designed, reform could have broader benefits in addition to lessening impediments to geographic labour mobility.

It is difficult to gauge the full impacts of any distortions. In some cases, the Commission has observed elements of labour market flexibility that have arisen in response to rigidity and distortions elsewhere. This is likely to offset some of the declines in efficiency. For example, the use of temporary work visas has increased in recent times in order to address skills shortages, and the increase of fly-in, fly-out

work practices is, in part, a response to high housing costs and lack of infrastructure in remote areas (chapter 6).

FINDING 11.2

The negative consequences of poorly designed policies, in areas such as taxation, housing and occupational licensing, include damage to efficient geographic labour mobility. Reforming these areas would lessen impediments to geographic labour mobility, and have broader benefits.

Modelling the effects of removing impediments to mobility

The terms of reference ask the Commission to estimate the prospective economy-wide impacts of reducing impediments to geographic labour mobility. This type of estimation is usually performed using a computable general equilibrium (CGE) model, whereby sectoral and aggregate impacts of a policy change can be quantified.

The Commission has not undertaken CGE modelling for this study as it has not identified any policies or distortions warranting policy intervention that *significantly* impede geographic labour mobility in Australia. While the Commission has identified some policy-related factors that affect geographic labour mobility, these generally result from broader policy arrangements that promote other objectives. Even if such policies were amenable to change, it is unlikely that modifications would bring about discernible changes in people's movements.

Illustrative CGE modelling could be undertaken based on arbitrary orders of magnitude of the possible effects of impediments or on hypothetical impediments. For example, the Commission's review of Mutual Recognition Schemes presented CGE modelling that compared the economic impact of perfect mobility of (registered) workers to zero mobility of (registered) workers (PC 2009c). The modelling was hypothetical and illustrative, and not reflective of any actual reform possibilities. Results suggested that perfect labour mobility of registered workers added about 0.3 percentage points to GDP growth relative to zero mobility in the context of increased demand for workers in certain regions because of a resources boom. These results should be interpreted with caution. As this study has found, labour mobility is currently far from the 'zero mobility' situation and 'perfect mobility' is improbable (not least because there are important non-financial reasons affecting mobility). Hence, the GDP effects of reducing an impediment (for the modelled cohort of registered workers) would be a fraction of what was projected in the Commission's 2009 report.

The Commission's modelling of patterns of regional migration presented in this study provides insights into the effects of various factors on mobility (appendix E). Further, the Commission's model of the individual's decision to migrate, based on a discrete choice framework, sheds light on the relative importance of different personal factors in an individual's decision to move between labour markets (appendix D). In particular, the Commission's model of regional migration can help identify factors that have a relatively large influence on inter-regional migration. Where these factors have linkages to government policy settings, the results can be used to make inferences about the possible impact of policies on mobility. For example, relatively high housing prices in a region are found to be negatively associated with migration from other regions. Accordingly, interventions that indirectly increase housing prices in regions where labour would otherwise migrate to could reduce mobility. While this analysis may suggest some general relationships between government policy and mobility, absent the capacity to model the policy change directly, the prospective impact of making a change to policy settings cannot be accurately measured. CGE modelling could capture broader economy-wide implications of a policy change, but would require a special purpose model to estimate the initial impacts of impediments to mobility.

11.3 Are there serious impacts on community wellbeing?

Geographic labour mobility is important to the community — from both an efficiency and wellbeing perspective — as it can result in people moving from weaker to stronger labour markets, increase incomes and reduce unemployment. Where this does not occur, overall wellbeing will be lower than it would otherwise. The extent and form of geographic labour mobility also have implications for community wellbeing. Movements of people across labour markets, in concert with structural adjustment, can lead to positive and negative spillover effects on communities.

Unemployment

The clustering of unemployed people in particular areas and extended periods of unemployment can reduce wellbeing from the perspective of individuals, their families, and the wider community. However, the Commission notes the need for caution in drawing conclusions in this area. For example, low levels of movement could indicate an inability to move or that the benefits of relocating do not exceed the costs (chapter 7) (Jobs Australia, sub. 20; VCOSS, sub. 27). Where opportunities for employment are available and moving for work is financially

feasible, low levels of education and skills, poor health and reliance on family networks for support may sometimes limit the capacity of jobless people to relocate and take advantage of opportunities.

Unemployment, particularly of an extended duration, is a complex policy problem. Increasing the efficiency of the labour market, and removing broader impediments to geographic labour mobility, may help to prevent some individuals from becoming long-term unemployed. However, other policy responses are required in order to address the challenges of long-term unemployment, particularly to improve the employability of disadvantaged groups.

Spillover impacts

Structural adjustment and geographic labour mobility can lead to small regional communities losing key services and contracting in size, as jobs become obsolete and people move away. In many cases, those who remain in these communities are the most disadvantaged (Ryan and Whelan 2010). High growth areas face a different set of issues. Some impacts may be positive, such as increasing demand for workers in service industries in regions that are attracting new residents and consequently greater job opportunities. Other impacts can be negative, such as increased traffic congestion, reduced housing affordability and increased demand on the natural environment.

The existence of negative impacts does not necessarily mean that geographic labour mobility is undesirable nor that governments need to mitigate all impacts in the interest of the community. The objective of public policy should be to focus on spillovers that result from a specific market or government failure rather than any type of negative impact experienced by individuals and communities (box 11.2).

Further, it is not clear that there is a role for government to mitigate these impacts in all instances. In some cases, mitigation is the purview of the employer (chapter 9). In other cases, identified negative effects are a result of functioning markets. For example, high wages in regions with high levels of mining activity, while making it difficult for non-resource companies to source labour, indicate the high value of labour in these areas.

Nevertheless, there is evidence to suggest that some negative impacts are imposing external costs on communities and that policy responses could be required. For example, increased congestion, road accidents and degradation of road infrastructure have been reported due to population growth in regional towns combined with an increase in commuter vehicles (chapter 3). Government action to internalise these costs has the potential to improve community wellbeing.

A lack of planning for population growth and insufficient provision of infrastructure could be resulting in outcomes that are not socially optimal. For example, The MAC Services Group (sub. 9, p. 1) noted that ‘many communities are unprepared to deal with the impacts of an increased number of resource projects and expansions in their area, particularly with regards to housing supply and infrastructure ... Public services infrastructure is often inadequate for the increased population’. The Master Builders Association (sub. DR45, p. 7) argued that ‘there is often an unacceptably large lag between the emergence of population growth in a region (such as the Kimberley or Bowen Basin) and the development of appropriate local infrastructure’. Further, the study has heard cases of local governments not being consulted on developments within their area, for example regarding approvals for large mining projects, or in some cases being ‘over consulted’ (Isaac Regional Council, sub. DR37, p. 4). Infrastructure provision and planning can be complicated at the local government level by a lack of capacity and clarity of roles and responsibilities of local governments (chapter 12).

The study has heard of lags in planning and delivery of physical and social infrastructure in growth areas more generally, not just mining regions, which can significantly affect the local community (CFMEU, sub. 26; Isaac Regional Council, sub. 16; Prof. Fiona Haslam McKenzie, sub. 30; VCOSS, sub. 27). The Grattan Institute has suggested that current government spending on regional services needs to be redirected to areas of rapid population growth and that current government spending is not sufficient for fast-growing regions (Daley and Lancy 2011).

11.4 Summary: what have we found so far?

Overall, the study finds that geographic labour mobility is assisting labour market adjustment in Australia. Labour is moving to areas with better job opportunities, while employers are using a range of alternative sources of labour in order to attract employees with the required skills. Geographic labour mobility has been an important mechanism for adjusting to the structural, demographic and technological forces shaping the Australian economy. It has accommodated differences in the pace of economic activity across Australia and enabled wealth to be more widely distributed across the country.

Nevertheless, there is room for improvement. There are indications that the labour market is not adjusting efficiently in all cases. The Commission’s analysis has identified pockets of persistent and concentrated joblessness across the country as well as acute skills shortages. Yet geographic labour mobility is not a panacea to unemployment and skills shortages. Skills shortages may be due to a skills mismatch (where there is a mismatch between employers’ requirements and

potential workers' skills) rather than an inability of appropriately skilled workers to relocate. Alternatively high vacancy rates could reflect a preference mismatch where available workers are not willing to work in particular jobs, for example menial, low-skilled jobs (chapter 4). In these cases, a focus on education and skills development, complemented by overseas migration, may assist.

There are some policies that governments could reform that would lessen impediments to geographic labour mobility and also have broader benefits. These policies have been put into place to address other objectives and do not directly target geographic labour mobility.

It is difficult to gauge the full impacts of distortions on geographic labour mobility. The Commission has also observed elements of labour market flexibility, such as long-distance commuting, that are likely to offset some of the declines in efficiency due to distortions.

Large population shifts can impose external costs on affected communities where there are market failures or an inefficient provision of public goods. In particular, the Commission's analysis suggests that local government capacity to manage population growth may be constrained, and more broadly, planning for population growth and provision of infrastructure may not be socially optimal (chapter 12).

12 Broader policy settings

Key points

- Policies introduced for objectives other than geographic labour mobility can inadvertently impede mobility, by distorting market signals or creating regulatory barriers.
- The effect of broader policies on housing supply and affordability represents the most significant policy impediment to geographic labour mobility.
- Stamp duties distort price signals in the housing market. State governments should consider removing or significantly reducing them, with greater reliance on more efficient taxes, such as broad based land taxes.
- Limited availability of affordable rental properties, and the structure of Commonwealth Rent Assistance payments, may be creating further barriers to mobility, particularly for low-income individuals. The Australian Government should consider reviewing the structure, eligibility and payment levels of Commonwealth Rent Assistance and policies that affect the supply of affordable rental housing, to ensure they do not act as a disincentive to geographic labour mobility.
- To improve employment opportunities for unemployed people and to assist geographic labour mobility, employment services providers should engage directly with employers including across regional labour markets through the adoption of a more demand oriented approach.
- Jurisdiction-based licensing is an impediment to mobility and competition. Following COAG's decision to abandon national occupational licensing, it is important that the development and implementation of alternative models for mutual recognition is expedited through efficient cooperation and communication between jurisdictions.
- State and local governments are responsible for managing the effects of geographic labour mobility. State governments should emphasise local consultation and knowledge as part of their planning and approval processes and review restrictions on local governments' capacity to raise their own revenue.
- The ability to plan for and manage the impacts of population growth requires a timely and adequate evidence base with improved definitions of service populations and more timely estimations of population levels and changes in regions. Relevant data collections should be expanded, greater use should be made of administrative data and the implications of different service populations for service delivery should be investigated.

Attempts by governments to directly support geographic labour mobility have had limited effectiveness in promoting movement of labour to areas of skill shortages (chapter 10). However, broader policies, developed for purposes other than geographic labour mobility, can also affect the mobility decision of individuals and firms.

These broader policies were enacted to raise revenue, address equity and wellbeing objectives or correct market failures in other parts of the economy. However, their consequences affect the costs and benefits people weigh up when deciding where to live and work, and the considerations of companies when deciding where to create jobs. Examples include taxation, housing, welfare, education and training, occupational licensing and industrial relations, among others (Sweet 2011).

These policies may create impediments to geographic labour mobility. They can do this by distorting market signals, such as house prices or wages, or by imposing regulatory barriers to mobility, such as jurisdiction-based occupational licensing (PC 2012b), which prevent workers and firms from responding to market signals.

Governments also put in place policies intended to manage the effects of economic and demographic growth, and geographic labour mobility.

12.1 National policy issues

Personal taxation arrangements

Different taxation arrangements have implications for the costs and benefits of moving for both individuals and firms. Taxpayers who live or work in remote areas can be eligible for the zone tax offset. In addition, other taxation measures, such as the fringe benefits tax, can have important effects.

Zone tax offset

The taxation system aims to recognise the higher cost of living in some places, and offers compensation in the form of the zone tax offset. This offset is available to employees who spend more than 183 days a year in remote areas. The boundaries of these remote areas have remained unchanged since 1956 (Treasury 2010).

Australia's Future Tax System Review (the Henry tax review) recommended a review of the zone tax offset, and in particular the measures of remoteness on which it is based (Treasury 2010). The House of Representatives Standing Committee on Regional Australia's Inquiry into the use of 'fly-in, fly-out' workforce practices in

regional Australia has also called for a review of the tax offset (HRSCRA 2013). According to the Western Australian Government (sub. DR57), the rebate would have to be increased significantly in order to adequately compensate individuals for the higher cost of living in regional and remote areas. The Australian Mines and Metals Association (sub. 29) suggested that personal income tax concessions could be a possible enticement to employees who might be considering relocating to regional areas for work.

Fringe benefits tax

Companies can provide employees with fringe benefits such as subsidised housing, in addition to their usual wages and salaries (ATO 2013). Fringe benefits tax (FBT) was introduced in 1986 as an anti-tax-avoidance measure because many of these benefits were not effectively taxed under previous arrangements (Keating 1986). FBT is paid by the employer, at a rate that is generally equal to the highest marginal tax rate plus the Medicare levy (currently 46.5 per cent) (ATO 2013).

Benefits provided for work purposes, as opposed to private use, can be fully exempt or receive a tax concession, reducing the amount of FBT. These can include temporary or permanent housing, and living away from home allowances (LAFHA).

Changes to taxation legislation in 2012 have raised the hurdles for gaining a FBT exemption for LAFHA provided to employees who do not work in a fly-in, fly-out (FIFO) job. As a result of these changes, in order to be eligible for tax concessions, non-FIFO employees must now maintain a home in Australia that is available for their immediate use (that is, not rented out to someone else) while receiving LAFHA. Further, they can only access tax concessions for 12 months in any given location. Both these requirements do not apply to employees in FIFO jobs (ATO 2013).

Stakeholders in mining communities claim that these FBT exemptions affect geographic labour mobility, by encouraging companies to use FIFO work practices rather than promoting permanent relocation of employees to regional areas (Isaac Regional Council, sub. 16). The Parliamentary FIFO Inquiry supported the view that the current taxation system encourages the use of FIFO. It called for a review of FBT arrangements, and in particular the LAFHA changes (HRSCRA 2013).

However, mining companies have reported that FBT is a minor consideration in their decision to use FIFO in surveys conducted in 1991 and 1998 (Storey 2001). According to the Minerals Council of Australia (sub. 6, p. 21), '[t]ax is a consideration, but it is not the driving factor influencing a mining company's

decision to source workers on FIFO arrangements'. Much of mining is located in remote areas, so employer provided accommodation can be eligible for FBT exemptions or concessions for both FIFO and resident employees.

Other study participants were critical of the recent changes to the LAFHA FBT exemption for non-FIFO employees. The Australian Mines and Metals Association (sub. 29) claimed the changes will lead to adverse effects for geographic labour mobility and increased labour turnover, as a result of the 12 months limit on claiming the exemption in a given location. Similar concerns were raised before the House of Representatives Standing Committee on Economics, as part of its analysis of the LAFHA changes. The Committee also heard that the requirement to maintain a home in Australia will have a negative effect on non-resident employees, particularly those on 457 visas. The Committee supported the changes to the LAFHA, such as limiting eligibility for 12 months in order to reflect the temporary nature of work relocation. However, it recommended that the definition of a FIFO employee be expanded, so that more workers would be eligible for tax concessions (HRSCE 2012).

The current FBT regulations aim to distinguish between genuine business operating costs (that is, cases where benefits such as housing or travel are essential for employees to perform their role) and other more private types of benefits. This approach appears appropriate in the context of broader fairness objectives. As the effect of recent changes to the LAFHA is yet to be assessed fully and it is probably too soon for their impacts to be clear, it may be useful to review their effects after a number of years to ensure they do not impede labour market flexibility. Other features of the tax system, such as depreciation rates and availability of GST input tax credits, may also be a consideration in how employers provide accommodation assistance to employees.

Social security

The social security system aims to provide Australians with a minimum adequate standard of living, taking into account individual circumstances and prevailing community standards (Treasury 2010). The social security system can affect geographic labour mobility, and incentives to work more broadly, through the provision of income support for people of working age and associated policies to assist unemployed people to find work.

Income support is provided to a range of different groups including the aged, people with disabilities, single parents with young children and the unemployed, and is subject to income and assets tests. Additional assistance is available, for example to

families through family assistance and child care payments, and to those renting privately through rent assistance.

Activity requirements to seek and take up suitable work (and to participate in related activities) are imposed on those receiving income support with a capacity to work. The Department of Employment (sub.DR60, p.18) noted that these requirements can affect labour mobility ‘by encouraging people to seek employment with greater urgency, and giving people stronger incentives to find jobs’. Historically, activity requirements have only applied to people receiving unemployment payments. More recently, these requirements have been extended to include other income support recipients such as some with parenting responsibilities and others with disabilities (Cortis, Bullen and Hamilton 2013).

In conjunction with the transfer system, Australia has increasingly pursued active labour market policies intended to improve unemployed people’s access to the labour market (Davidson and Whiteford 2012). These policies aim to assist job seekers to become more active in their efforts to find work and improve their employability. Common approaches include subsidies for job training, relocation and job searching, and increasing participation requirements (OECD 2006a). Active labour market policies have been implemented throughout the OECD with mixed results (box 12.1).

Box 12.1 The effectiveness of active labour market policies

There is a considerable body of literature that seeks to evaluate the effectiveness of active labour market policies.²⁸ While findings are mixed, job search assistance is consistently found to be the least costly active labour market program with positive results for short-term employment (Davidson 2011; Martin 1998). Job search programs are particularly effective when used in conjunction with conditions for job-search behaviour for income support recipients.

(Continued next page)

²⁸ Two types of studies are prevalent in this literature: (1) Macroeconomic evaluations seek to establish relationships between key macroeconomic variables (such as unemployment) and various measures of government spending on active policies by countries. (2) Microeconomic studies evaluate individual programs by monitoring outcomes for participants after they leave the program relative to a control group. However, the findings are mixed and there remain issues relating to the reliability and generality of this literature (Martin 1998).

Box 12.1 (continued)

Davidson (2011) finds that overall, the intensification of activity requirements combined with job search assistance in Australia has helped to reduce reliance on unemployment payments at a low cost to government. However, he concludes that job search assistance alone may be insufficient for the most disadvantaged unemployed people and that targeted capacity building may be beneficial for particular groups. This finding is consistent with international findings (Kluve 2006).

In contrast, vocational training and other work experience programs have significantly poorer outcomes (Davidson 2011; Martin 1998). However, Martin (1998) concludes that some government training programs do work where they are small in scale and well-targeted to the specific needs of job seekers and local employers. In an evaluation of Australian active labour market policies, Stromback and Dockery (2000) find that wage subsidy programs are the most effective form of assistance in increasing the exit rate from unemployment to employment.

Generally, studies that examine active labour market policies conclude that all have strengths and weaknesses, and that no one particular policy can serve as a universal tool for improving the labour market prospects of the unemployed (ECORYS and IZA 2012). Further, some studies argue that there is also a need for tailored policies that tackle the barriers to participation of particular disadvantaged groups (OECD 2006b; Watson 2008).

While the social security system can influence geographic labour mobility in different ways, it is important to note that relocation or long-distance commuting may not be a suitable option for all job seekers (chapter 7). The Department of Employment (sub. DR60, p. 21) posits that:

for those who are facing multiple barriers to employment (such as disability) and relying on good local support, including access to public housing, social services and their extended family, long distance commuting or relocation may not be a realistic option.

Transfer payments

Transfer payments can affect geographic labour mobility through the specific rules under which income support is provided and the extent to which these encourage or discourage relocation of job seekers (box 12.2).

Box 12.2 Activity test requirements for Newstart Allowance and job seekers receiving Youth Allowance

Job seekers have an obligation to be actively looking for paid work and/or be participating in another approved activity and be willing to take any suitable job, including full-time, part-time and casual jobs. A suitable job in this context may require commuting and even relocation under certain circumstances. Where a person does not meet activity test requirements, a penalty period may be applied, and their payment may be stopped for eight weeks. In 2012-13, 1726 penalties were applied where job seekers refused or failed to commence a suitable job (DoE, sub. DR60). This represented less than 1 per cent of job seekers.

'Suitable work' does not include work that involves commuting from home to work that would be 'unreasonably difficult'. Generally an unreasonably difficult commute is considered to be a one-way commute longer than 90 minutes for those who are not principal carers or people with a partial capacity to work.

Job seekers are also not required to accept work that will require a change in residence, unless the job seeker is offered a permanent full-time position and has indicated that they are willing to consider work outside their local area or if they are accustomed to undertaking employment that involves living away from home. There are a range of exemptions that can be accessed to prevent this rule from applying, for example where the acceptance of work out of the local area would jeopardise the current employment of the person's partner or where the person has a child under the age of 16 who is living with them.

Penalties may also be imposed on some income support recipients who move to areas with lower employment prospects (chapter 10). Further, non-payment periods may be applied where Newstart recipients find a job and then quit without a valid reason or are dismissed for misconduct.

Sources: Australian Government (2013b); Department of Employment (sub. DR60); Department of Human Services (nd).

Transfer payments may also impact on geographic labour mobility where income support creates disincentives for labour market participation more generally. This issue was addressed in the Henry tax review:

The higher the level of income support for people of working age, the more likely it is a disincentive to work. The point at which an individual will choose to work will vary with individual characteristics (such as skills, experience and capability reflected in a person's potential wage rate), work preferences (for example, to work full-time, part-time or not at all), and the design of the tax and transfer system (such as income support participation requirements and withdrawal rates as income from work increases). (Treasury 2010, p. 496)

Consequently, where individuals face high effective marginal tax rates, there may be little incentive to accept any job, let alone move for work. The Australian Social

Inclusion Board (2011), the Henry tax review (Treasury 2010) and others have drawn attention to the high effective marginal tax rates that many income support recipients face, which create a major financial barrier to employment. Reducing these rates would increase incentives for income support recipients to pursue employment, regardless of location.

Currently, there are considerable differences in rates and conditions of payment for people of working age within the transfer system, depending on the type of income support payment received. The Henry tax review found that this produces very different outcomes for people with similar capacities to work and can create disincentives to work or incentives to move to non-activity-tested payments (Treasury 2010). The review argued that restructuring income support (including providing higher levels of payment to people on Newstart Allowance) can reduce this risk, but only if it is clear that income support recipients are expected to find work and there is adequate investment in employment-related services.

In January 2014, the Minister for Social Services announced a review of the transfer system to examine the different welfare rules that may discourage people from taking a job, including rules relating to commuting times for suitable work (Karvelas 2014).

Employment services

Unemployed people are more likely to move than other individuals, and more likely to find work after they relocate (Watson 2011). However, long-term unemployed people, who account for about one-fifth of job seekers, face much higher barriers in finding work and are less likely to move between labour markets, even though they can have many changes of address (chapter 7).

Governments offer an array of services to unemployed people, including relocation support (chapter 10) and a number of different employment programs geared to different groups. Employment services are delivered through a range of channels, including Job Services Australia, Disability Employment Services and the Remote Jobs and Communities Program.

According to Jobs Australia (sub. 20), the peak body for not-for-profit providers of employment services, there are significant barriers to successful relocations of job seekers. Some of these relate to the characteristics of unemployed individuals, who stay in areas where they have support from family and other social services, as well as affordable housing (chapter 7).

However, some of the barriers are inherent to the design of employment services. For example, the Commission has heard that barriers may result from the way that providers work, including a lack of relationships with employers and a confinement to specific geographic areas. In addition, Austrade (sub. DR41) argued that the current system does not provide adequate incentives for placing job seekers in casual positions, which are becoming increasingly prevalent in a large number of industries.

According to the Department of Employment (sub. DR60, p. 20), ‘there is no barrier in the [job services] model to placing people in jobs in other areas. However, out-of-area placements do not attract higher outcome payments than comparable in-area placements’. About five per cent of placements involve a job outside the provider’s immediate region (DoE, sub. DR60).

There is an opportunity to address these barriers as the Australian Government develops new parameters for employment services, prior to renewing the contracts of job service providers in 2015 (DoE, sub. DR60). As Jobs Australia (sub. 20, pp. 7–8) says:

Employment service providers win business in geographic areas – Employment Service Areas (ESA). We believe that the next contract round should redefine the job placement role of providers to introduce a greater focus on their role within the national labour market, and provide incentives for them to look more broadly when sourcing both jobs and employers.

A stronger program orientation towards more direct servicing of employers and towards sourcing jobs across the whole of the Australian labour market would support the principles of greater labour market flexibility and would enlarge the pool of available jobs for job seekers. The logic and purpose of a program like Move 2 Work would be much more obvious and meaningful in an environment such as this.

Past reviews of employment services have found that the most effective providers engage directly with employers and use a wide range of strategies to identify and respond to their needs. This often involved ‘reverse marketing’ processes, where providers identify potential employers who may not have job vacancies, and ‘market’ individual job seekers directly to them. Successful providers also tend to cooperate often with other employment organisations (DEEWR 2012b).

The OECD (2014) has recently found that despite the fact that providers are required to work cooperatively with other local stakeholders, this does not occur consistently across the system. The local employment coordinator model, which acts as a broker that brings together governments, employers and community organisations, was found to have had a positive effect on local collaboration. The OECD has called on the Australian Government to expand this model and ensure employment services are adapted to local needs.

The issues of employer engagement and collaboration across employment services have been mentioned in a number of submissions to the current contract review (Brotherhood of St Laurence 2013; Jobs Australia 2013; National Employment Services Association 2013). Stakeholders have suggested that this could be achieved by establishing a more demand-led system that could also include brokers that work with employers, such as ‘an industry-specific job services provider to harness specialist industry advice with the ability to link employer and employee needs across and within regions’ (Austrade, sub. DR41, p. 12). An emphasis by providers on proactive engagement of employers, including those outside the immediate labour market, could promote geographic labour mobility, and improve outcomes for job seekers.

RECOMMENDATION 12.1

The Australian Government should make changes to employment services (including Job Services Australia, Disability Employment Services and the Remote Jobs and Communities Program) so that employment service providers have incentives to work directly with employers to identify work opportunities for job seekers, including opportunities outside their immediate labour market region where relevant.

The housing market

A well-functioning housing market is critical for labour mobility and efficient allocation of resources across the economy. Government interventions, as reflected by housing transaction costs, flexibility of housing supply and household access to credit, have an important effect on mobility (Caldera Sánchez and Andrews 2011a).

Stakeholders have voiced the view that government policies have not been successful in facilitating efficiency in the Australian housing market and may have had a negative effect on geographic labour mobility. Most commonly raised were issues regarding stamp duties and other transaction costs, housing supply and affordability, and the private rental market.

Housing transaction costs

While overall housing transaction costs (including legal, notary, registration and real estate agent fees as well as stamp duties) imposed on buyers in Australia are not high compared to other countries in the OECD, the average rate of stamp duty is among the highest (Ai Group, sub. 19; Warbuton and Hendy 2006).

The use of stamp duties has been widely criticised for its inefficient allocation of resources, and inflationary effects on the price of housing. It can also create accessibility issues in the housing market, making it much more difficult for younger age groups to buy a first home and impeding workers' access to the labour market (Kelly 2013; Wood et al. 2012).

Stakeholders have argued that stamp duties are likely to present a 'significantly larger barrier to internal labour mobility than is generally the case in other developed countries' (Ai Group, sub. 19, p. 17). Many have called for reforms in stamp duties, suggesting this will create a more equitable system, as well as encouraging mobility and regional investment in housing (ACTU, sub. 21; Ai Group, sub. 19; AMMA, sub. 29; CFMEU, sub. 26; Economic Security for Women, sub. 4; HHMAC, sub. 22; Master Builders Australia, sub. DR45; Prof. Fiona Haslam McKenzie, sub. 30).

Past Commission inquiries have recommended replacing stamp duties with a more efficient form of taxation, such as a broad based land tax, as this will improve flexibility and efficiency in the housing market (PC 2013b). A more flexible housing market will also support geographic labour mobility, allowing more workers to move to areas with better employment opportunities.

Stamp duty reform is occurring in some jurisdictions. The ACT is phasing out stamp duty, and replacing it with a broad property tax. Implementation is expected to be completed in 2032 (NHSC 2013b). Other jurisdictions should consider similar changes.

RECOMMENDATION 12.2

State and Territory Governments should remove or significantly reduce housing-related stamp duties, and increase reliance on more efficient taxes, such as broad based land taxes.

Housing supply and affordability

A responsive housing supply is important in facilitating geographic labour mobility, both permanent and temporary. A lack of supply can result in affordability issues, which have been widely observed across Australia, including metropolitan and regional areas (Austrade, sub. DR41; HHMAC, sub. 22).

On the supply side of the housing market, governments attempt to ensure sufficient land is made available for housing developments, and support the construction of new housing. On the demand side, they offer grants and subsidised loans to eligible home buyers (NHSC 2013b; Western Australian Government, sub. 32).

Stakeholders have raised concerns about the availability of appropriate land and the efficiency of planning and land release processes, including for new housing in established areas (for example, AMMA, sub. 29; BCA, sub. 31; HHMAC, sub. 22). Recent years have seen many attempts to reform this area (box 12.3), but the policies introduced are yet to deliver significant benefits.

Box 12.3 Planning and land release reforms

Land use planning is governed by an extensive and complex regulatory system, which varies in each jurisdiction (DIT 2013). In its review of planning practices, the Productivity Commission found that while significant differences exist between planning systems, they all suffer from 'objectives overload'. The Commission (2011c, p. XXVIII) found that:

These different and complex planning systems are difficult for businesses and citizens to navigate. They lack transparency, create uncertainty for users and regulators and impose significant compliance burdens, especially for businesses which operate across state and territory boundaries.

Planning reform has been on the policy agenda for a long time. In 2012, the Council of Australian Governments (COAG) signed the National Affordable Housing Agreement, which includes a commitment to ongoing planning reform to ensure greater efficiency in the supply of housing, improvements in the supply of land for new dwellings and increased capacity to match housing supply with underlying demand (COAG 2012a). COAG has also accepted the recommendations of the final report of the Housing Supply and Affordability Reform Working Party (HHMAC, sub. 22). The report outlined recommendations for more efficient planning and development principles, including the utilisation of land, housing programs and financial support to first home owners (NHSC 2013b).

In line with these recommendations, all state and territory governments have been working to improve and streamline planning and land release processes. Consultation and policy development are under way in New South Wales, Queensland, South Australia and Western Australia. New planning policies have been implemented in Victoria, while the Northern Territory and the ACT have focused on reducing transaction costs for home buyers (NHSC 2013b).

Planning restrictions, along with the effects of housing taxation, have been linked to deteriorating housing affordability in metropolitan areas (Hulse et al. 2012; Kelly 2013). According to the Urban Development Institute of Australia (sub. DR47, p. 2):

[C]onstrained land supply in most major Australian cities, combined with high levels of population growth has led to a large and growing shortage of dwellings, and extremely poor housing affordability. This distorts households' housing decisions, and excludes lower and middle income households from certain labour markets and jobs.

Housing affordability is also important in regional communities, particularly those affected by the resources boom. In these communities, a substantial influx of new residents as a result of positive demand shocks can result in substantial increases in both rents and house prices. This can have critical implications for the community, as low-to-middle income earners may no longer be able to afford local housing (HRSCRA 2013; Isaac Regional Council, sub. 16; HHMAC, sub. 22; Western Australian Government, sub. 32).

State and local governments in affected areas have been examining different land supply mechanisms to cope with changes in demand for housing, although this remains a highly complex regulatory area. For example, in Western Australia, the State's planning commission provides strategic direction and is working with local councils to plan future housing developments. LandCorp, the Government's land authority, is responsible for releasing residential, commercial and industrial land across the state (PC 2011c). However, Crown land rezoning for development in the state can take on average seven years, and the resulting accommodation shortages can have significant detrimental consequences for local communities (Prof. Fiona Haslam McKenzie, sub. 30). In Queensland, the central planning role has been given to Economic Development Queensland; its decisions to allocate residential land to the development of accommodation for FIFO employees have been questioned by the Isaac Regional Council (sub. 16).

The Parliamentary FIFO Inquiry has been very critical of governments' responses to housing affordability issues in resource communities. It recommended that the Australian Government 'task the National Housing Supply Council to urgently develop and implement a strategy to address the supply of affordable housing in resource communities' (HRSCRA 2013, p. 87).²⁹ Reforms to planning policies across all jurisdictions are important in ensuring an efficient housing market and facilitating a responsive labour market, including through geographic labour mobility. The Commission has pointed to a number of leading practices in planning and zoning policies; implementing these practices is likely to contribute to more efficient and effective planning processes (PC 2011c).

²⁹ The National Housing Supply Council ceased its operations in November 2013 (Treasury nd).

RECOMMENDATION 12.3

State and Territory Governments should facilitate a responsive housing supply through efficient planning and flexible land release. In its benchmarking study on planning, zoning and development assessments, the Commission identified a number of leading practices that can significantly improve the governance, transparency, accountability and efficiency of these processes. Where this is not already occurring, State and Territory Governments should implement these leading practices.

The rental market

Renters are much more likely to move than home owners; however, research has shown that a proportion of moves by renters are involuntary, due to factors such as eviction and leases ending (chapter 7). Nonetheless, a well-functioning private rental market is important in achieving an efficient level of geographic labour mobility (ACTU, sub. 21; CFMEU, sub. 26).

Influencing the supply of affordable rental properties

Australia's rental market is dominated by private, small-scale investors. The number of property investors has been steadily rising, which has led to an overall increase in supply in rental markets. However, the supply of affordable dwellings that are available to lower income households has been in long-term decline — the share of affordable properties³⁰ has declined from 50 to 37 per cent of the total stock in the rental market between 2001 and 2006 (Wulff et al. 2011). Despite ongoing changes in the market in recent years, households are still affected by shortages of affordable housing (NHSC 2013a).

The shortage in affordable rental housing has implications for labour mobility, as low-wage workers are unable to live close to their jobs, or in areas of employment growth (Kelly 2013; Milligan et al. 2013). A shortage of affordable rental properties will make it more difficult for job seekers to respond to demand for labour outside their local area, and create an impediment to geographic labour mobility (chapter 8). There are also concerns about security of tenure, due to short lease terms (CFMEU, sub. 26).

Rental affordability issues are particularly acute in regional and remote areas. Multiple reasons have been suggested for this, including inefficient planning and

³⁰ Affordable properties were defined by researchers as properties for which the rent equals 30 per cent or less of household income in the bottom income quartile (Wulff et al. 2011).

land release processes, skills shortages and local governance issues (AHURI 2012). According to the Western Australian Government (sub. 32, p. 9), the steep rents in mining areas present ‘a critical barrier to labour movement’.

Apart from the planning and land release issues discussed above, the tax system has also been described as a barrier to the supply of affordable private rental housing. Numerous aspects of the tax system influence housing affordability, including stamp duty as well as personal taxation and the way it is applied to income from residential property investment (Treasury 2010). Property investors can benefit from negative gearing, depreciation allowances, and discounted capital gains rates. The Commission (2004, p. 75) has found that these taxation measures have a significant effect on the housing market.

[These] aspects of the personal taxation regime ... have combined to magnify the attractiveness of investing in residential property during the recent upswing in house prices, thereby adding to price pressures.

- These features of the income tax system do not in principle favour private investment in rental housing over other passive investments, such as in equities or commercial property.
- Nonetheless, it seems that they may be contributing to inefficient outcomes in housing and other asset markets.

The Commission (2004) called for a review of the aspects of the personal tax regime that affect the housing market, which should focus on capital gains tax provisions and also assess restrictions on negative gearing and changes to capital works deduction provisions. The Henry tax review recommended reducing the biases in favour of capital gains and gearing. Reforming personal tax arrangements, along with the removal of stamp duties and changes to land tax, were expected to play a significant role in addressing housing affordability; however, the review warned that other policies outside of the tax system are likely to have a more pronounced effect on the housing market (Treasury 2010).

Governments have taken a number of steps in an attempt to increase the supply of affordable rental dwellings. The National Rental Affordability Scheme offers financial incentives to individuals, businesses and community organisations that supply rental accommodation at affordable rates (HHMAC, sub. 22). The scheme has a total budget of \$4.5 billion, and since its inception in 2008, five funding rounds have been completed. By June 2013, over 14 570 dwellings were rented to eligible tenants or available to rent, and over 23 800 dwellings were planned or under construction (Department of Social Services 2013). By comparison, the Australian Housing and Urban Research Institute estimated that in 2006, the total shortfall of affordable properties for people on low incomes was 87 000 (Wulff et

al. 2011).³¹ Research has found that the National Rental Affordability Scheme is likely to alleviate housing stress for some households, particularly in regional and remote regions, although better targeting of assistance is likely to improve the program's efficacy (AHURI 2009). The Minister for Social Services has indicated his intention to review the National Rental Affordability Scheme in order to enhance efficient delivery of incentives (Karvelas and Wallace 2014).

The effects of Commonwealth Rent Assistance

While supply of affordable properties has been constrained, demand has been increasing, as a result of strong population growth, lower availability of social housing and changes in household formation (Hulse et al. 2012). On the demand side of the rental market, the Australian Government offers financial support to low-income private renters. Households who receive income support payments may be eligible for Commonwealth Rent Assistance (CRA). In 2012-13, the government paid more than \$3.6 billion in rent assistance, to over 1.25 million households (SCRGSP 2014).

The regulatory arrangements around CRA are highly complex. CRA is not paid on its own, but in addition to an income support or family tax benefit payment. The eligibility and payment rules are covered by both the *Social Security Act 1991* and the *New Tax System (Family Assistance) Act 1999* (Australian Government 2013a). The exact rate of assistance is based on family circumstances and the rent paid, up to a pre-determined threshold. However, the rates of payment are identical across all regions (Department of Human Services 2013).

Given the variation in rental costs, the effect of CRA on affordability changes by jurisdiction. On average, across Australia, CRA entitlements amounted to 29.5 per cent of the rent paid by eligible households in 2013. This varied between 34.6 per cent in regional Victoria and 26.6 per cent in Darwin (SCRGSP 2014). Researchers have questioned the effectiveness of CRA in improving affordability for low-income renters. A number of options have been suggested to address these issues, including varying rent assistance across regions, and changing the threshold and taper rates that determine payment levels (Melhuish, King and Taylor 2004).

Many low paid working households are not eligible for CRA, as the bulk of payments are directed to those who rely on income support. As rents have been increasing, these households have been forced to live further away from their jobs,

³¹ Although no specific figures are available, the National Housing Supply Council has stated that shortages in the lower end of the rental market are likely to have continued beyond 2006 (NHSC 2013b).

which increases their commuting costs and may restrict their access to labour markets (Randolph and Holloway 2007).

The Henry tax review called for an increase in the rates of CRA, as well as indexing it to national rents rather than the consumer price index. The review, however, contended that rates of assistance should remain identical across jurisdictions. Where regional variations in rents are to be addressed by governments, this should be achieved through planning and housing policies (Treasury 2010). Participants in this study have also called for a review of rent assistance payments (Western Australian Government, sub. 32).

The eligibility requirements and payment rates for CRA may give rise to inefficient outcomes. From a geographic labour mobility perspective, the CRA system may act as a disincentive to labour force participation and geographic labour mobility. As a result of the payment rates and eligibility rules, households may be reluctant to move to areas of higher employment prospects, as their CRA will not change despite increasing housing costs. Further, where low-income working households are ineligible for rent assistance, this may restrict their access to labour markets, and prevent appropriate job matching from occurring.

Evaluating rental market policies

The rental market plays a pivotal role in addressing Australia's housing needs. Increasing numbers of households live in rental accommodation, and they do so for longer periods (Stone et al. 2013). This, in turn, has implications for policy and public expenditure. Funding allocations for rental assistance have increased significantly in recent years — real expenditure on CRA has risen by nearly 25 per cent between 2008-09 and 2012-13, as the number of eligible people has increased by more than 30 per cent (SCRGSP 2014). The National Housing Supply Council (2013a, p. 19) has considered that:

It is inevitable that the rental market will need to change in order to accommodate increased demand for longer-term rental accommodation, and that the policy settings that govern rent assistance for lower-income households and the provision of social housing will need to be re-examined in this light.

Despite the importance of these policies, evaluations are rare and benchmarks for performance are not always clear. For example, in the past, the Australian Government has declared that 'the rent assistance program has no specific benchmark for affordability' (SCRGSP 2003, p. 16.78), although it reports on affordability outcomes for CRA recipients (Department of Families, Housing, Community Services and Indigenous Affairs 2012). Given the changing profile of the rental market, and the implications of these trends for geographic labour

mobility, it is important to review both the CRA program and the National Rental Affordability Scheme to ensure they are targeted towards those in most significant need.

RECOMMENDATION 12.4

The Australian Government should review policies that affect the demand for and supply of affordable rental properties, to ensure they are not hindering workforce participation and mobility, and that assistance is targeted to those in most significant housing need. This would include:

- ***reviewing the level, indexation and eligibility for Commonwealth Rent Assistance in light of recommendations from the Henry tax review***
- ***reviewing the effectiveness of policies affecting the supply of affordable rental properties including the National Rental Affordability Scheme.***

Public housing

Public housing provision has undergone radical change in the past few decades. Governments have limited their investments in public housing, transferring management responsibilities to the not-for-profit sector and using public private partnerships to develop new stock (AHURI 2013).

As a result of policy changes, the proportion of households living in public housing has been steadily declining. In 2011-12, they represented 3.9 per cent of all households in Australia, compared to 6 per cent in 1995-96 (ABS 2013i). The characteristics of residents have also changed:

Public housing has primarily become a small residualised ‘welfare housing’ sector (though with notable differences between the states) for households with little prospect of acquiring housing — through either renting or ownership — in the private market. (Jacobs et al. 2010, p. 21)

Levels of mobility for public housing tenants have declined significantly as eligibility was restricted. Public housing entitlements are not portable across jurisdictions, and as a result, the mobility of tenants and those on waiting lists has declined further (Dufty-Jones 2012). The Industry Commission (1993) found that public housing eligibility conditions restricted geographic labour mobility. Restricting the geographic labour mobility of public housing tenants, or those on waiting lists, increases the risk of entrenched disadvantage.

This situation is exacerbated further as public housing rent setting and eligibility conditions can act as a disincentive for work (Treasury 2010). The Western Australian Government (sub. 32, p. 14) has raised ‘concerns relating to the loss of

social housing for some households/individuals if full-time employment is secured (and social housing income thresholds are subsequently breached)'. For example, in Victoria, a single-person household may only earn up to \$519 per week to be eligible for public housing (Department of Human Services 2014). This level of income is below the minimum wage for full-time work. Therefore, individuals may lose their dwelling, or their place on the waiting list, if they gain employment or increase their hours of work. Only a minority of people on public housing waiting lists work (AHURI 2005), and there is little incentive for unemployed people to find work in the time they spend waiting for public housing.

The Henry tax review recommended changes to the structure of rental payments and assistance to public housing residents, to support an improvement in the workforce participation and labour market outcomes of residents. The review called for setting market rents in public housing, and allowing public housing tenants to receive CRA (Treasury 2010). These measures are likely to support geographic labour mobility, though the impact is not expected to be significant given the profile of public housing tenants. The Commission is currently undertaking further research on the effects of housing assistance policies, including how they may influence mobility and employment.

Housing taxation and home ownership

Another concern arising from the operation of the tax and transfer system is its effect on the broader housing market and in particular, the bias towards home ownership. Examples of tax and transfer policies that have the potential to distort the housing market include the exclusion of owner-occupied housing from means testing for the purpose of transfer payments, the operation of the capital gains tax (which exempts the family home), land tax exemptions for the principal place of residence and the first home owners grant. It has been argued that such concessional treatment has led to the high rate of home ownership in Australia (CFMEU, sub. 26). Lump sum superannuation payments can also have an effect (Mercer 2011).

From the perspective of geographic labour mobility, home ownership may pose a barrier to effective labour market adjustment. Home owners are less likely than renters to move, and this may affect their reaction to labour market signals (chapter 5). However, despite Australia's high rates of home ownership, its residential mobility rates are also among the highest in the OECD. The motivations behind mobility decisions are highly complex, and while home ownership is an important determinant, other factors such as family and lifestyle are often equally significant (Caldera Sánchez and Andrews 2011a; OECD 2005).

Industrial relations

Australia's system of industrial relations can influence the degree of labour market flexibility and the effectiveness of market signals (DoE, sub. DR60). Where wages and entitlements are determined by centralised bargaining, and are similar across labour markets, this can limit incentives for geographic labour mobility (DeBelle and Vickery 1998). Centralised wage setting may hamper the effectiveness of market signals and lead to artificially inflated wages (OECD 2004).

Where Australian workers are employed under collective or individual agreements (which apply to 42 and 39 per cent of employees, respectively) (ABS 2013g), employers and employees have the opportunity to negotiate wages and conditions that are most appropriate for their specific situation. Employers can use these agreements to attract employees to new locations, by offering higher wages, improved conditions and other benefits. However, the situation can differ for workers employed on awards. In 2012, awards determined the wages and conditions of 16 per cent of the workforce (ABS 2013g).

Stakeholders have raised a number of concerns regarding the effectiveness of industrial relations arrangements, primarily regarding a lack of flexibility (Ai Group, subs. 19, DR44; BCA, sub. 31; MCA, sub. 6). A case in point is Tasmania, where average wages are high compared with the state's productivity, even though they are lower than the national average (ABS 2012a, 2012b, 2013m). This may be linked to the fact that a large proportion of the workforce is employed by the public sector, which is affected by centralised wage setting. High wages, combined with low skill levels, may have contributed to the persistently high unemployment levels in Tasmania.

Some of these issues, as well as broader questions raised about the industrial relations system, are likely to be examined in a foreshadowed inquiry into the Fair Work Act and Australia's labour markets (PC 2014c). The Fair Work Commission is currently conducting a review of all modern awards, including their ability to promote flexible and efficient work practices, and the effect of penalty rates (Fair Work Commission 2014).

Portable entitlements

The portability of entitlements, such as superannuation, has been suggested as an avenue to increasing geographic labour mobility (Sweet 2011). While superannuation is mostly portable, only a limited number of industries offer their employees portability of long service leave entitlements. Study participants

suggested this acts as a disincentive to mobility (for example, Economic Security for Women, sub. 4). According to the ACTU (sub. 21, p. 16):

Some employees may be inclined to stay with their employer longer than they otherwise would in order to become eligible to take their accrued leave or access other contingent entitlements. While contingent entitlements are an important component of retention strategies for companies, a system of portable entitlements vested in the employee could reduce this ‘lock in’ effect by removing the disadvantage suffered by a worker who changes jobs, where other factors would encourage an employee to relocate for employment.

A portable long service leave scheme would contribute to mobility in the labour market. However, it would also impose additional costs on employers (Markey et al. 2013). In effect, increased portability of entitlements may lead to significantly higher costs of labour, and this needs to be balanced against any potential rise in geographic labour mobility.

Transport infrastructure

Transport infrastructure — including public transport, road, rail, sea ports and airports — enables the geographic mobility of people and goods, and underpins economic growth (Ai Group, sub. 19; RAI, sub. 25). For example, the Victorian Council of Social Service (sub. 27, pp. 9–10) submitted that:

An interesting case study is the Regional Fast Rail projects conducted in Victoria in the early- to mid- 2000s. These passenger rail improvements substantially improved travel times from regional cities to Melbourne; while at the same time, rail capacity was increased and prices reduced. The result was better access to employment in both Melbourne and regional centres, including from the smaller communities in-between. This has had a substantial effect on regional towns and cities, reversing population decline, reviving economic conditions and changing settlement patterns.

Although governments devote substantial resources to this issue, participants in this study voiced concerns regarding transport infrastructure across Australia. The scope of the issues raised was very broad. Examples include:

- the need to address congestion in major cities and invest in public transport (Ai Group, sub. 19, UDIA, sub. DR47), as well as ongoing investment in large-scale infrastructure to continue supporting geographic labour mobility (Master Builders Australia, sub. DR45)
- the cost and availability of transport, both within and between labour markets can act as an impediment to employment and mobility, particularly for unemployed people (Austrade, sub. DR41). Improving public transport is especially important in disadvantaged areas (Anglicare Australia, sub. DR48)

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- a lack of timely infrastructure development. For example, according to Regional Development Australia Hunter (sub. 10), the New South Wales Government has proposed to address the slow commuting times between Newcastle and Sydney only after 2021.

As well as supporting productivity growth, efficient infrastructure provision underpins a well-functioning labour market, including geographic labour mobility. In the past, the Commission (2009a) has called on governments to ensure the timely provision of efficient economic infrastructure. In its recent inquiry into public infrastructure, the Commission's draft report (2014b, p. 6) found 'many examples ... of inadequate project selection leading to costly outcomes for some users and taxpayers in general'. The Commission outlined reforms to governance and institutional arrangements to promote better decision making and efficient funding and delivery of public infrastructure services.

12.2 Cross-jurisdictional policy issues

Australia is a federation of states, which are inherently different. In many cases, the differences between states reflect community preferences and can promote competition and choice, thus supporting geographic labour mobility. There are, however, a number of examples where different state regimes create impediments to mobility.

Provision of government services

The quality of services funded and provided by state governments, such as public schools and hospitals, can affect individuals' relocation decisions. The provision of services has been highlighted by stakeholders as an important factor for geographic labour mobility (Ai Group, sub. 19; AMMA, sub. 29; VCOSS, sub. 27).

Governments' ability to provide services depends on their revenues. In the case of Australian states and territories, an important component of their revenue — their share of the national GST revenue — is determined based on the principal of horizontal fiscal equalisation (HFE). The goal of HFE is to ensure that the funding distributed to the jurisdictions is sufficient to allow them to provide comparable levels of services (Commonwealth Grants Commission 2013). In part, it was put in place to prevent inefficient interstate migration based on the level of services provided, rather than productivity and wellbeing considerations (Australian Government 2012).

Equalisation can affect the incentives faced by workers, particularly when considering interstate migration. In some cases, residents remain in areas with weak employment prospects that receive additional funding through equalisation (Australian Government 2012). This may, in turn, impede geographic labour mobility and the efficient operation of the labour market (Western Australian Government, sub. 32).

In 2012, an independent review panel commissioned by the Australian Government examined the HFE system, including its effects on efficient migration. It concluded that HFE creates ‘perverse theoretical incentives in some instances, but there is little evidence that they have any effect in the real world’ (Australian Government 2012, p. 140).

Licensing and skills recognition

A potential impediment to workers considering interstate migration is the recognition of their skills and qualifications in other jurisdictions (chapter 8). The Australian Qualifications Framework was first introduced in 1995, and updated in 2011, to provide a national system of qualifications in higher education and vocational education and training. Qualifications under the framework are recognised across Australia, thereby facilitating geographic labour mobility (DIICCSRTE, sub. 23). Stakeholders have argued that recognition of prior learning is used inconsistently across states, and this creates a potential barrier to mobility (Master Builders Australia, sub. DR45).

Beyond formal qualifications, a large number of occupations in some sectors of the Australian economy require specific licensing. In some cases, such as the medical profession, there is a national licensing system that certifies individuals to work anywhere within Australia. However, the majority of occupations are governed by jurisdictional occupational licensing, which may impose a barrier on individuals who are considering working interstate. This mainly applies to tradespeople, such as electricians and plumbers, as well as real estate agents and other building related occupations.

The *Mutual Recognition Act 1992* provides licenced workers with opportunities to work in different jurisdictions. In its most recent review of mutual recognition schemes, the Commission found that the Mutual Recognition Agreement (which is governed by the Act) has increased the mobility of labour in Australia. However, concerns remained in regards to differences in occupational standards between jurisdictions. The Commission stated that national licensing is preferable to mutual

recognition in terms of labour mobility, but noted that mutual recognition will continue to have an important role in parts of the economy (PC 2009c, 2012b).

COAG has attempted to introduce a system of national occupational licensing as part of the Seamless National Economy suite of reforms (COAG 2009).³² The task of implementing this reform, beginning with licensing requirements for trades and property occupations, was given to the National Occupational Licensing Authority (NOLA), established in 2012. NOLA came across numerous challenges and reform progress was slow (box 12.4).

In December 2013, COAG decided to cease the implementation of the national occupational licensing scheme, as state governments had concerns with the proposed model and its potential costs. Instead, state governments agreed to work together via the Council for the Australian Federation (CAF) ‘to develop alternative options for minimising licensing impediments to improving labour mobility’ (COAG 2013, p. 5). The disestablishment of NOLA began in early 2014 (NOLA, sub. DR53).

CAF is exploring alternative models of mutual recognition. There are numerous policy options that can be considered; however, each has different costs, and presents advantages and disadvantages for licensees, consumers and regulators (NOLA, sub. DR53). NOLA has conducted analysis of the various models, which can be used as a starting point for the work done by CAF.

Stakeholders have voiced their support for action to enhance mutual recognition (Master Builders Australia, sub. DR45; REIA, sub. DR40). For example, Master Builders Australia (sub. DR45) supported a ‘driver’s licence approach’, whereby occupational licenses will be automatically recognised in other jurisdictions. Austrade (sub. DR41) has called for the expansion of mutual recognition schemes to cover qualifications relevant to the tourism industry, such as security and gaming.

³² As part of the National Seamless Economy reforms, governments had also committed to abolishing unnecessary licensing requirements. The COAG Reform Council (2013, p. 56), in its review of the reforms, has concluded that ‘[t]he output for this reform, rationalised occupational licensing, is largely complete’.

Box 12.4 National occupational licensing — lessons for future reforms

In the attempt to introduce national occupational licensing, COAG has invested significant amounts of time, money and effort. However, despite these investments, reform implementation has encountered significant challenges. Some of these stemmed from the way the policy was designed as well as the governance structure put in place to oversee its implementation.

The ambitious scope of the reform has made it difficult to implement. The reform needed to bring together 24 different regulatory schemes across different industries. In some cases, this had to be done while retaining separate systems for each jurisdiction. For example, license fees were to be set separately by each jurisdiction (NOLA, sub. 17).

The governance structure of the National Occupational Licensing Authority (NOLA) was very complex, involving numerous levels of government across jurisdictions. According to NOLA (sub. 17, p. 10):

The model of shared responsibility means there is no single advocate for, or champion of, the project. Instead, the national licensing system requires agreement from a number of jurisdictional Ministers and their Commonwealth equivalent, each of whom will need to consider their jurisdiction's policy agendas.

... [G]overnance arrangements hamper the policy development for national licensing and timing for its introduction. There has been confusion about final approval of policy decisions. Jurisdictional and industry interests have competed on different levels: some policy issues that have been negotiated and resolved on one level have subsequently been elevated to another level or revisited through another forum and at times reversed.

Future reforms will benefit from a more streamlined governance structure and stronger commitment by the governments involved. This will ensure timely, consistent decision making, which is vital in achieving policy reform.

In its draft report on public infrastructure, the Commission (2014b, p. 494) has stated that:

[I]t is important in principle that interstate [occupational licensing] barriers be kept to a minimum. The disestablishment of the National Occupation Licensing Authority has meant that such an outcome will be further delayed and remains subject to uncertainty.

...

The Commission considers that overall, men and women who work as tradespeople, their clients and their employers have been poorly served by the lack of progress amongst governments in producing consistent occupational licensing across jurisdictions.

There are a number of important considerations in the development of future policy directions on mutual recognition of occupational licenses. First, decisions to progress new policy and give certainty to licensees, employers and consumers need to be expedited. Second, cooperation and efficient communication between

regulators in different jurisdictions will be vital. This has been made evident by the difficulties encountered by NOLA prior to its disestablishment. Appropriate cooperation and cross-jurisdiction compliance mechanisms need to be developed and implemented, particularly if licence assessments, which are currently part of the Mutual Recognition Act, are no longer carried out. Third, any future policy should be monitored and reviewed, to ensure it delivers its objectives efficiently and effectively.

FINDING 12.1

The failure to progress occupational licensing reforms has negative consequences for geographic labour mobility, and community wellbeing more broadly. Policy development and implementation so far has been hampered by complex governance arrangements and significant delay.

RECOMMENDATION 12.5

State and Territory Governments should urgently progress action to reduce occupational licensing barriers to mobility. To avoid the difficulties that led to COAG ceasing the implementation of national occupational licensing, governments must specifically emphasise efficient communication and cooperation between regulators in different jurisdictions.

Cross-jurisdictional licensing and skills recognition are barriers to mobility in some other fields, such as hospitality and tourism-related occupations (Austrade, sub. DR41). For example, the Police Federation of Australia (sub. 2, p. 10) submitted that:

There are certainly serious impediments to mobility across the Australian police services. Currently, a sworn police officer moving to another jurisdiction in Australia loses their status and must begin again at the rank of constable, a problem which works very much against mobility.

To address this issue, the Police Federation of Australia (sub. 2) have called for a national registration scheme for members of the police force, which will support mobility as well as maintaining policing standards. A registration scheme currently operates only in Victoria.

Education and skills

Developing the appropriate mix of skills within the workforce is important to geographic labour mobility, as well as economic growth more broadly. There are significant differences in educational outcomes across states and territories, both in schools and the vocational education and training system. Ensuring high quality

education and training in all locations will have benefits for the economy, including supporting geographic labour mobility (chapter 10).

Significant reforms have been implemented in the vocational education and training system, such as the establishment of a national regulator that aims to ensure consistent training delivery (chapter 10). Although the policy framework for school education is becoming more consistent across states and territories, stakeholders have argued that a number of aspects of the education system are impeding the mobility of families with school-age children. Examples include:

- the differences in school outcomes, and limited variety of educational institutions in some parts of the country
- the variation in school starting and leaving ages
- the different terms used to describe components of the education system (such as kindergarten, which is used inconsistently across states to describe the first year of school)
- and the need to implement the national curriculum (AMMA, sub. 29; BCA, sub. 31). Inconsistencies in specific subjects, such as VET-in-schools and school-based apprenticeships, can make it difficult for students to move schools (Master Builders Australia, sub. DR45).

Governments have been working to harmonise the school education framework, through initiatives such as the National Education Agreement (COAG 2012b) and the Australian Curriculum, which is still being developed (ACARA 2011). These initiatives may remove impediments faced by some individuals considering an interstate move.

12.3 Managing the effects of geographic labour mobility

Geographic labour mobility can create unintended effects for individuals and communities. Governments may have a role in managing these effects (chapters 3 and 11).

As a result of long-term structural, technological and demographic changes, small regional communities are losing key services as employment declines and people move away. Governments are trying to support these communities by putting in place various decentralisation policies and offering incentives for people to work in regional and remote areas (chapter 10).

Growth areas face a different set of effects. Some may be positive, such as higher demand for workers in service industries in regions that are attracting new residents.

Others can be negative, such as increased traffic congestion. Temporary mobility (in the form of long-distance commuting) affects both the communities where people work and the communities where they live (chapter 3).

The responsibility for managing the effects of geographic labour mobility broadly lies with state and local governments, along with employers in relevant industries (chapters 9 and 11). The Australian Government mainly provides funding, as well as strategic planning and policy development. The Parliamentary FIFO Inquiry has found that ‘[a] gap exists in leadership at the national level with regards to the impact of FIFO workforce practices on regional communities, which requires the serious attention of Commonwealth agencies’ (HRSCRA 2013, p. 135).

State government policies

State governments support population growth through infrastructure development, planning policies and the provision of social services.

During the resources boom, these issues were particularly important in mining regions, where a rapid increase in economic activity placed considerable pressure on local infrastructure. Over time, governments have shifted some of the responsibility of managing these effects onto the private sector — governments have required companies to invest in infrastructure as a condition for the approval of mining projects (box 12.5).

To fund the expansion of infrastructure and services in mining regions, state governments have been using royalty revenue. The largest royalty investment program has been implemented in Western Australia, where Royalties for Regions was first introduced in 2008. The program allocates 25 per cent of the state’s royalty revenue to infrastructure projects — ranging from hospitals to airports — in regional areas. In 2012-13, expenditure under the program was over \$1 billion and overall since its inception, it has reached over \$2.8 billion (Department of Regional Development 2013). While the program has been well received by local governments, in some cases mining companies have been critical of its operation, referring to it as ‘Ransom for Regions’ (CSR 2012, p. 23). Since 2012, Queensland and New South Wales have also introduced similar policies, though on a much smaller scale (chapter 10).

Box 12.5 Infrastructure investments in mining regions

The ongoing expansion of mining projects has given rise to increased infrastructure requirements. In the past decade, over \$30 billion has been invested in privately and publicly owned mining export infrastructure (mainly port facilities and rail networks) (Bureau of Resources and Energy Economics 2012). Mining projects also need to invest in roads, energy, water and telecommunications networks, worker accommodation and other types of infrastructure (GHD 2013). Regulatory processes have required mining companies to contribute to a range of other infrastructure projects through various institutional arrangements.

The increased need for infrastructure in mining regions has been addressed in a number of ways.

- Companies invest directly in constructing the infrastructure they require to develop and operate their mines. This type of investment is undertaken only by the largest mining companies due to the substantial financial requirements. Smaller entities rely on public infrastructure, seek access to privately owned assets, or form consortiums to develop new projects (Ernst and Young 2012).
- State Agreements may require mining companies to construct infrastructure assets. The agreements (sometimes called indenture agreements) are negotiated between the relevant company and the state government and ratified by acts of parliament (Fitzgerald 2001).
- State or local governments may build the required infrastructure, funded primarily by royalty payments from mining companies.

Over time, some state governments have increasingly negotiated with mining companies to obtain investments in various forms of infrastructure in exchange for regulatory approval of mining operations. This has been the case in Western Australia and South Australia. In Queensland and New South Wales, infrastructure investment is often determined via regulatory intervention. Researchers have attributed this to the fact that much of the mining expansion in these states has occurred close to existing regional towns, giving rise to community activism and campaigns that have called for the intervention of the state government (CSR 2012).

Stakeholders criticised a number of aspects of the policies used by state governments to manage growth in mining regions. Study participants pointed to significant lags in planning and delivery of physical and social infrastructure in growth areas (CFMEU, sub. 26; Isaac Regional Council, sub. 16; Prof. Fiona Haslam McKenzie, sub. 30; VCOSS, sub. 27). Others questioned whether contributions from resources companies are adequate (LGAQ, sub. 5) and whether state government policies are sufficiently attuned to local needs:

The disconnect between government departments with decision making powers and local knowledge, combined with the inadequacy of available planning mechanisms in assessing developments in a cumulative context to has led to poor planning decisions with projects being approved without consideration of adequate water supply,

population imbalance, under-resourced community infrastructure and services, monopolisation of local housing markets and overall decline in the liveability of resource communities. (Isaac Regional Council, sub. 16, p. 18)

State governments have responded to these concerns by tightening regulatory approvals for mining projects and taking an active role in regional planning. Researchers have argued that changes to approval processes have increased regulatory burden, without necessarily improving outcomes for communities (CSRM 2012). Regional planning policies have also been criticised. For example, in the case of Queensland's Surat Basin, the Local Government Association of Queensland (sub. 5, p. 8) argued that:

Though this list [of planning strategies for the Surat Basin] is fairly comprehensive, it lacked a cohesive overarching strategy to integrate these elements and ensure that issues, including labour mobility and settlement strategies, were properly addressed. To LGAQ's knowledge, there were also no reviews of the roles and responsibilities or these groups, any stakeholder satisfaction/dissatisfaction or functioning of the groups.

More broadly, councils in Western Australia and Queensland have raised concerns regarding the approval of mining developments, arguing that state governments' consultation processes are inadequate (HRSCRA 2013; Isaac Regional Council, sub. 16; LGAQ, sub. 5; Morris 2012). In some cases, stakeholders argued that consultation was insufficient, while in other instances communities were 'over consulted ... [h]owever, the advice given and the concerns raised appear largely ignored by state government' (Isaac Regional Council, sub. DR37, p. 4). According to the Local Government Association of Queensland (sub. 5, p. 8):

[G]enuine and long-lasting reform can only occur if local government is empowered to play an active role in identifying impacts, developing mitigation strategies and linking those mitigation strategies to broad regional economic initiatives.

Local government policies

The Commission considers that it is important to recognise the role of local governments in managing the effects of geographic labour mobility, as they often shoulder a significant responsibility for this. This is particularly the case in regional and remote areas, where councils are responsible for providing a wide array of services (LGAQ, sub. 5). However, developing effective strategies is often challenging for regional councils, which face capacity and funding constraints.

Capacity in local government workforce

Across Australia, local governments are affected by skills shortages. Many councils report difficulties in recruiting and retaining employees in highly skilled

occupations, such as management and planning (LGMA 2013). Particularly in regional areas, skills shortages have a significant effect on local governments and their capacity to deliver essential services (ALGA, sub. DR55; LGAQ, sub. 5). In addition, a significant proportion of councils reported that gaps in the language, literacy and numeracy skills of their workforce affected their organisation (GSA 2013).

These issues are exacerbated in mining regions, where councils need to provide services to an expanding population and represent the community interests in complex planning issues (CSRМ 2012). At the same time, these local governments are finding it difficult to compete for skilled labour with private firms that are able to offer much higher wages (Isaac Regional Council, sub. 16). According to the Minerals Council of Australia (sub. 6, p. 19):

Local governments in several jurisdictions struggle to provide services in the rapidly changing environment to populations with increasingly high expectations. In Western Australia local governments are struggling to manage the large inflow of funding generated through the Royalties for Regions scheme ... There is a need for the capacity of local governments to be enhanced, particularly those that are receiving Royalties for Regions funding to maximise their potential for delivering desired outcomes.

A number of solutions have been suggested to improve local government capacity. In some cases, mining companies have provided funding for specific roles in councils (CSRМ 2012). The Local Government Managers Association (2013) has developed a workforce strategy that focuses on developing existing skills and enhancing productivity (including removing any barriers to geographic labour mobility). Past Commission (2012a, 2013b) reports have called for reviews of local governments' capacity in order to enable them to carry out their roles effectively. Given current constitutional arrangements, generally it is the responsibility of state governments to ensure that, overall, local government capacity is sufficient.

Local government funding

Funding for local government operations has been mentioned by stakeholders as an impediment to effective management of population growth (Muswellbrook Shire Council, sub. 15; Isaac Regional Council, sub. 16; WALGA, sub. DR50). They have argued that the funding available to them is inappropriate to meet growing demand for local government services, such as waste management, road construction and maintenance, and recreation services.

Research has found that Australian and state government spending on regional services is not sufficient in areas experiencing rapid population growth (Daley and Lancy 2011). In some cases, as the number of people accessing these services

grows, so does the cost of provision. However, funding mechanisms do not always reflect these changes in population (HRSCRA 2013), or may only do so with a lag.

Most local government funding usually comes from its own sources, such as property rates and sales of goods and services. However, grants from the Australian and state governments remain an important source of revenue. In regional and remote areas, councils can be particularly dependent on grants (PC 2008).

In some cases, local governments' ability to raise their own revenue is constrained by various state government policies. For example:

- exemptions or discounts can be awarded by state governments to some rate payers. In Western Australia, for example, state agreements negotiated with mining companies can include significantly reduced rates. In New South Wales, rate pegging imposed by the state government limits the annual percentage increase in rate revenue (CSRM 2012)³³
- state governments prescribe land valuation methods, and limit flexibility in rate setting. They also impose statutory limits on the fees local governments can charge for their services (PC 2008).

Previous Commission (2008) research has called for a review of the restrictions imposed on councils' capacity to raise their own revenue. These calls have been echoed by stakeholders in this study (Muswellbrook Shire Council, sub. 15; WALGA, sub. DR50).

RECOMMENDATION 12.6

State Governments should:

- ***review the restrictions imposed on local governments' capacity to raise own-source revenue***
- ***emphasise early local consultation as part of their planning and approval processes for major projects and land release and use.***

Stakeholders have also raised concerns about financial assistance grants received by local governments (for example, ALGA, sub. DR55). The total amount of financial assistance increases each year, in line with population and the consumer price index. Within each state, a local government grants commission makes recommendations on the allocation of grants to specific councils. These recommendations are based on the national principles set out in the *Local*

³³ Councils can apply to vary the rate increase, as required. Most applications are approved by the state government (PC 2008).

Government (Financial Assistance) Act 1995 (Commonwealth Grants Commission 2012).

Grants are based in part on a set of ‘disabilities’ to reflect the specific circumstances of councils. While these disabilities include population growth, this usually reflects the resident population, rather than the number of people who use council services, commonly referred to as its service population (HRSCRA 2013).

However, the concept of a service population is not well defined. There are numerous challenges in determining its definition, such as deciding on the type of services people need to access in order to be counted as part of the population and the different time frames measured (for example, the daytime population is much larger than the residential population in some urban areas) (ABS, sub. DR54). These complexities are captured in the way that the ABS (2013q) has developed its general definition:

The service population of a geographic area is the number of people accessing the services of that area. It can include daytime, overnight and other short-term visitors in addition to permanent and temporary residents.

Different groups within a service population will access services in a local area differently. Given the potential scope for variation in the concept of a service population, and the different requirements the estimates serve, there cannot be one single estimate of a service population that will suit all regions. Rather, the definition (and thereby the estimate) needs to be fit-for-purpose (Cook 1996; Department of Local Government, Planning, Sport and Recreation (Queensland) 2006). The ABS (sub. DR54) is currently assessing which measures of service population will be most useful for decision makers.

This issue is particularly important in regions where there are significant numbers of temporary residents, such as tourists or FIFO workers (Cairns Regional Council, sub. DR43, HRSCRA 2013). A high proportion of temporary residents can place significant pressure on ‘local services and infrastructure designed, and funded, to meet only the needs of the permanent resident population’ (Isaac Regional Council, sub. 16, p. 4). The Parliamentary FIFO Inquiry called for a review of financial assistance grants, so that they are based on resident and service populations (HRSCRA 2013).

The Commonwealth Grants Commission (CGC) has recently reviewed intrastate local government funding allocations, and submissions by local government bodies raised the issues of population definitions and data. The review was completed in December 2013, but is yet to be made public. A similar review conducted by the CGC in 2001 called for changes to the allocation of financial grants, so that

additional support may be given to councils ‘if, for reasons beyond their control, they face higher than average costs of providing services or a reduced capacity to raise revenue’ (Commonwealth Grants Commission 2001, p. 42). In some jurisdictions, including New South Wales, Victoria and South Australia, state governments have made adjustments to the allocation of intrastate grants, to incorporate the effects of non-resident populations on demand for services provided by local governments (Department of Infrastructure and Regional Development 2013).

The Australian Government should investigate the effects of temporary or service populations on service delivery by local governments and their implications for funding allocation. Such an investigation could extend the work carried out by the CGC in its previous local governments inquiries, as well as reviews carried out by state grants commissions.

RECOMMENDATION 12.7

The Australian Government via the Commonwealth Grants Commission should investigate the effects of temporary or service populations on service delivery by local governments and the implications for funding allocations.

12.4 The need for better data and policy evaluation

Policy makers and service providers require accurate and timely information to understand patterns of population mobility, which have significant implications for planning and funding allocations (section 12.3). This includes the mobility of residential and temporary populations, such as service populations discussed above. They have been grappling with the lack of consistent methodologies and data to measure geographic labour mobility for many years (ABS 2008c, 2009c; Cook 1996; Lee 1999; Markham et al. 2013), and the ABS has reported ‘a growing demand for nationally consistent service population data sets to support government infrastructure and service planning’ (sub. DR54, p. 5).

The Census is the key source of data on population and mobility trends. Based on the Census, the ABS produces two measures of population, which can reflect significant differences (box 12.6). In years when there is no Census, the ABS produces estimates of population and mobility based on administrative data.

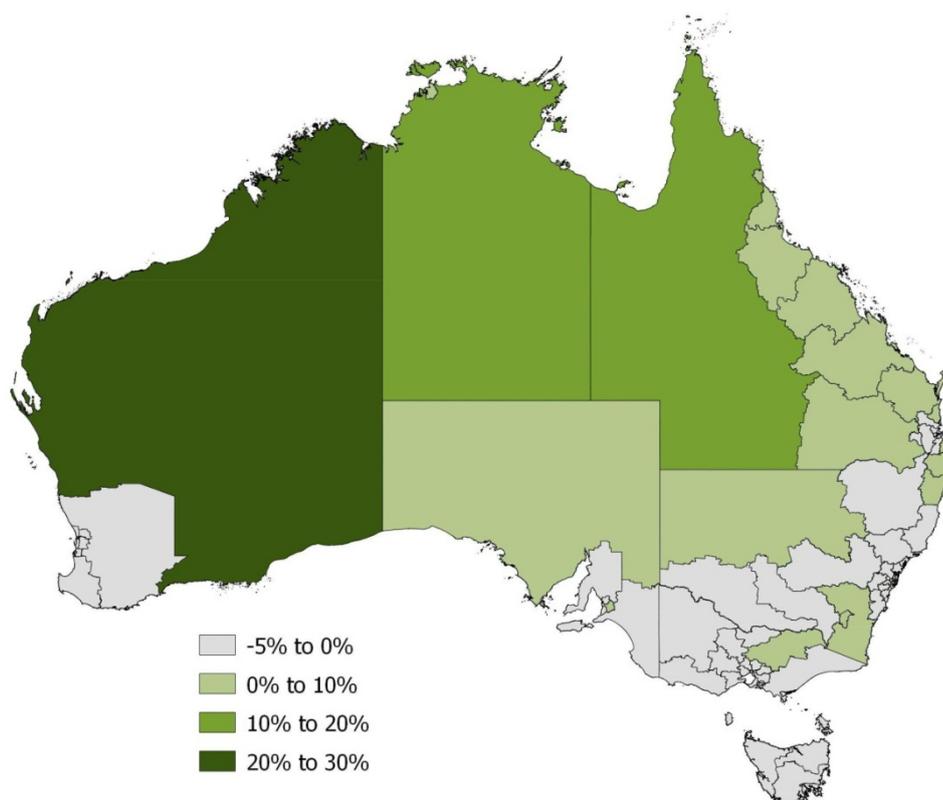
Box 12.6 Population measures

The estimated resident population statistics released periodically by the ABS are used for a wide range of purposes, including determining the financial grants received by local government. These figures are based on data obtained from the Census on people's place of usual residence, and are updated annually to account for natural increase (births and deaths), net overseas migration and estimated net interstate migration (ABS 2013a). The Census figures differentiate between two definitions of population:

- Enumerated population is the count of people where they spend census night, which is only counted once every five years.
- Resident population includes people who usually reside in a region, and is estimated each quarter.

For some individuals, determining the location of usual residence can be difficult. The ABS (sub. 12; sub. DR54) is reviewing the possibility of including new questions in the 2016 Census, to improve the data on these populations.

Percentage difference between enumerated and usual resident population, 2011



Source: ABS (*Reflecting a Nation: Stories from the 2011 Census, 2012-2013*, Cat. no. 2071.0).

However, both the Census and the annual estimates are limited in the information they can provide on labour mobility and service populations. The ABS (sub. 12, p. 2) stated that:

The usefulness of Census data for informing on the working populations of particular areas may vary, depending on factors such as the characteristics of the local populations and specific issues associated with local industries.

There is currently no established methodology for estimating service populations (ABS 2008c). A number of possible sources of information can be used to develop estimates of population mobility and service populations.

- The Census is the most extensive collection of population statistics, undertaken by the ABS every five years. The ABS (sub. 12; sub. DR54) is looking to improve the data collected in the Census, such as including questions about second residences, in order to improve its ability to reflect temporary mobility trends and changes in service populations. However, analysis of the findings will require a significant amount of time and will be available at five-year intervals.
- In years when there is no Census, the ABS uses administrative data to estimate resident populations and provide data on mobility. Examples of administrative data include Medicare records, which show permanent changes of address as well as increased demand for medical services that can be linked to temporary increases in population. These data are used to estimate interstate migration (ABS 2012c). Subject to confidentiality requirements, these data could be used to develop timely estimates of permanent and temporary population changes. Information collected by the Australian Taxation Office could also be used to analyse mobility trends (ABS, sub. DR54). Generally, administrative data are underutilised in Australia, and the Commission (2013a) has called for more extensive use of this valuable information source.
- Another potential resource for identifying mobility trends is the ABS Labour Force Survey, which covers about 52 200 people aged 15 years and over. The survey is conducted monthly, and is the basis of a large number of data series, including the monthly labour force estimates. While the Labour Force Survey provides data on the number of workers within each state and territory, it does not include information on worker movements³⁴ (ABS 2013j). The new Participation, Job Search and Mobility survey, which the ABS will commence in 2015, will provide some information on geographic mobility. Adding questions

³⁴ The Labour Force Survey has been used by researchers to investigate geographic labour mobility, by linking data to other sources (Flatau et al. 2002).

to the survey or linking data to employer information could provide valuable insight on where people live and work.³⁵

- The Queensland Government has been working with resource and other companies in the private sector to calculate counts and projections of non-resident workers. The Queensland Government Statistician runs an annual survey of accommodation providers, which counts long-distance commuters who work in the resources or construction industries, and stay in a range of worker accommodation villages, as well as hotels, motels and caravan parks (Queensland Treasury and Trade 2012). Projections take into account new mining projects and planned expansions of existing projects (Queensland Treasury and Trade 2013).

The Commission considers that there is scope for data sources that are currently available (such as administrative datasets) to be used more fully to gauge the size of the service population, as well as understand patterns of geographic labour mobility more generally. Augmenting existing collections and making greater use of administrative data are likely to be more feasible than large-scale projects.

RECOMMENDATION 12.8

All governments should make holdings of administrative data accessible for research and evaluation of programs, including those relevant to understanding geographic labour mobility. Further expansion of the data collected by the ABS will also be beneficial in improving the understanding of mobility trends.

More robust evaluation of government policies

A broad and rigorous evidence base is the cornerstone of good policy development. Evidence should inform the policy objectives, and policy outcomes should be monitored in order to assess overall efficiency and effectiveness (PC 2010).

Good policy design, in particular for regional policy, means making the objectives of the policy clear and measurable from the outset, and having systems in place to evaluate the effectiveness of policies once they are put into action (Collits 2012b). Existing policies need to be evaluated before they can be endorsed to continue. Other approaches, such as the use of trials, can also assist the policy development process.

³⁵ Data on geographic mobility was included in publications based on the Labour Force Survey up until 2004 (ABS 2004).

There are numerous policies affecting geographic labour mobility; however, policy evaluations have been infrequent. Where they have been conducted, evaluations mostly focused on internal migration policies. These policies have been found to be ineffective in achieving their stated objectives (chapter 10).

Policies that have significant effects on geographic labour mobility, such as structural adjustment and regional development policies, have only been evaluated on rare occasions. These issues are not new — in 1993, the Industry Commission (1993) conducted an inquiry into the impediments to regional industry adjustment and called for additional monitoring and evaluation of programs.

Data collection and monitoring, as well as setting unambiguous policy objectives, have been highlighted as a particularly vital part of regional policies, given the complexity of the task they face (BITRE 2003). In many cases, the broad objectives of regional policies have not been achieved, despite substantial funding (chapter 10). Similarly, structural adjustment policies that focus on job creation were found to have had little effect on unemployment (Daley 2012).

Although some broad observations can be made about the characteristics of policies that affect mobility, there is scope for more comprehensive evidence to be collected. This would enable policy makers to determine which type of interventions are the most cost-effective. Future policies influencing geographic labour mobility, whether directly or indirectly, would benefit from a broader evidence base and ongoing monitoring based on clear objectives.

The Commission is cognisant that efforts to evaluate any policies come with added costs. Any initiatives to increase the collection and use of data should take into account the relative costs and benefits involved.

A Public consultation

In keeping with its standard practice, the Commission has actively encouraged public participation in this study.

- Following receipt of the terms of reference on 21 May 2013, an advertisement was placed in newspapers and a circular was sent to identified interested parties.
- An issues paper was released on 11 July 2013 to assist those wishing to make written submissions. 34 written submissions were subsequently received.
- A draft report for the study was released on 3 December 2013 and a further 26 submissions were received. All submissions are listed in table A.1 and are also available online at: www.pc.gov.au/projects/study/labour-mobility.
- As detailed in tables A.2 and A.3, meetings were held with a wide range of stakeholders across Australia. These included government departments, companies, industry associations, unions, welfare groups, research centres, academics, and various other non-government organisations.
- Roundtables were held in Melbourne on 4 September 2013 and Canberra on 5 September 2013 and, following the release of the draft report, further roundtables were held in Melbourne on 12 February 2014 and in Canberra on 18 February 2014. Additionally, a public forum was held on the Gold Coast on 19 February 2014. A list of participants is provided in table A.4.

The Commission would like to thank all who have contributed to this study.

Table A.1 Submissions

<i>Participant</i>	<i>Submission no.</i>
AgriFood Skills Australia	18
Anglicare Australia	DR48
Ausfilm	28
Australian Bureau of Statistics (ABS)	12, DR54
Australian Council of Trade Unions (ACTU)	21
Australian Industry Group (Ai Group)	19, DR44
Australian Local Government Association (ALGA)	DR55
Australian Mines and Metals Association (AMMA)	29
Australian Petroleum Production and Exploration Association (APPEA)	24
Austrade	DR41
Avana	14
Biddle, Dr Nicholas	13
Bissell, Dr David	DR56
Brohier, Peter	DR36, DR59
Business Council of Australia (BCA)	31
Business SA	11, DR42
Cairns Regional Council	DR43
Cessnock City Council	1
Construction, Forestry, Mining and Energy Union (CFMEU)	26, DR46
Department of Employment (DoE)	DR60
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (DIICCSRTE)	23
Department of Premier and Cabinet (SA)	34
Dobes, Leo	DR35
Economic Security for Women (eS4W)	4
Haslam McKenzie, Prof. Fiona	30
Health and Community Services Workforce Council	8
Housing and Homelessness Ministers' Advisory Committee (HHMAC)	22
Housing Industry Association	DR52
Isaac Regional Council	16, DR37
Jobs Australia	20, DR39
Local Government Association of Queensland (LGAQ)	5
Master Builders Australia	DR45
Minerals Council of Australia (MCA)	6, DR51
Muswellbrook Shire Council	15
National Centre for Vocational Education Research (NCVER)	3
National Disability Services (NDS)	7
National Farmers' Federation (NFF)	33
National Occupational Licensing Authority (NOLA)	17, DR53
National Centre for Social and Economic Modelling (NATSEM)	DR38
Police Federation of Australia	2
Real Estate Institute of Australia	DR40
Regional Australia Institute (RAI)	25

(Continued next page)

Table A.1 (continued)

<i>Participant</i>	<i>Submission no.</i>
Regional Development Australia (RDA) Hunter	10
Regional Development Australia, Sunshine Coast	DR58
The MAC Services Group	9
Urban Development Institute of Australia	DR47
Victorian Council of Social Service (VCOSS)	27
Western Australian Government	32, DR57
Western Australian Local Government Association (WALGA)	DR50

Table A.2 **Visits**

Participant

New South Wales

Sydney

'Australia Anywhere Working' Research Network, Centre for Workforce Futures, Macquarie University

Construction, Forestry, Mining and Energy Union

Local Government NSW

Mission Australia

National Occupational Licensing Authority

New South Wales Trade and Investment

Randolph, Prof. Bill, University of New South Wales

The MAC Services Group

Workplace Research Centre, University of Sydney

Newcastle

Australian Workers' Union, Newcastle

Hunter Business Chamber

Local Council representatives of: Cessnock, Dungog, Lake Macquarie, Maitland, Muswellbrook, Newcastle, Port Stephens, Singleton, Upper Hunter

Regional Development Australia, Hunter

Victoria

Melbourne

Australian Education Union

Ai Group

Business Council of Australia

Brotherhood of St Laurence, Research and Policy Centre

Clark, Prof. William, Department of Geography, University of California

Department of State Development, Business and Innovation (Victorian Government)

Jobs Australia

Melbourne Institute of Applied Economic and Social Research

Rural Health Workforce Australia

Salvation Army

Queensland

Brisbane

Anglo American

Chamber of Commerce and Industry Queensland

Department of Education, Training and Employment (Queensland Government)

Local Government Association of Queensland

Queensland Resources Council

Regional Development Australia, Brisbane

Central Queensland

Anglo American Grosvenor Project

Isaac Regional Council

Moranbah Traders Association

(Continued next page)

Table A.2 (continued)

Participant

South Australia

Adelaide

Business SA

Centre for Housing, Urban and Regional Planning, University of Adelaide

Hugo, Prof. Graeme, Australian Population and Migration Research Centre, University of Adelaide

National Centre for Vocational Education Research

South Australian Government — Department of Further Education, Employment, Science and Technology; Department of Premier and Cabinet; Department of Primary Industries and Regions

Western Australia

Perth

AMMA (Australian Mines and Metals Association) Resource Industry Employer Group

Chamber of Minerals and Energy of Western Australia

Remote Economic Participation Cooperative Research Centre, Curtin Business School

Rio Tinto Iron Ore

Western Australian Government — Department of Premier and Cabinet; Department of Mines and Petroleum; Department of Regional Development; Department of Training and Workforce Development

Port Hedland and Pilbara

BHP Billiton Yandi Mine

Pilbara Development Commission

Port Hedland Council

Port Hedland Port Authority

Tasmania

Hobart

Mission Australia

Regional Development Australia, Tasmania

Tasmanian Chamber of Commerce and Industry

Tasmanian Government — Department of Economic Development, Tourism and the Arts; Department of Treasury and Finance

Northern Territory

Darwin

Chamber of Commerce NT

Australian Capital Territory

Canberra

AgriFood Skills Australia

Australian Chamber of Commerce and Industry

Collits, Assoc. Prof. Paul, Australian Centre for Sustainable Business and Development, University of Southern Queensland

Department of Education, Employment and Workplace Relations (Australian Government)

Department of the Prime Minister and Cabinet (Australian Government)

Department of Regional Australia, Local Government, Arts and Sport (Australian Government)

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Table A.2 (continued)

Participant

Canberra (continued)

Minerals Council of Australia
 National Farmers' Federation
 Regional Australia Institute
 Royal Australian Air Force
 Treasury (Australian Government)

Table A.3 **Teleconferences**

Participant

Australian Bureau of Statistics
 Australian Centre of Excellence for Local Government
 BHP Billiton Iron Ore
 Downer Australia
 Minerals Council of Australia, with representatives from their tax committee
 Tourism Division, Department of Industry (Australian Government)
 Treasury (Australian Government)
 Western Australian Local Government Association

Table A.4 **Roundtables and public forum**

Participant

Organisation

Melbourne (4 September 2013)

Lisa Conolly	Australian Bureau of Statistics
Linda Bencic	Australian Bureau of Statistics
Dr. Galina Daraganova	Australian Institute of Family Studies
Prof. Graeme Hugo	Australian Population and Migration Research Centre, University of Adelaide
Prof. Alan Duncan	Bankwest Curtin Economics Centre
Geoff Frost	Bureau of Infrastructure, Transport and Regional Economics
Dr. Chandra Shah	Centre for Economics of Education and Training, Monash University
Assoc. Prof. Michael Dockery	Centre for Labour Market Research, Curtin University
Dr. Aaron Nicholas	Deakin University
Cédric Sévêque	Department of Education, Employment and Workplace Relations
Andrew Watkins	Department of Planning (Victorian Government)
Dany Turner	Department of Education, Employment and Workplace Relations
Dr. Ian Byron	Department of Regional Australia, Local Government, Arts and Sport
Sally Mikkelsen	KPMG
Assoc. Prof. Roger Wilkins	Melbourne Institute of Applied Economic and Social Research
Rebecca Cassells	National Centre for Social and Economic Modelling
Kim Edwards	Reserve Bank of Australia
Dr. Stephen Whelan	University of Sydney

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Table A.4 (continued)

<i>Participant</i>	<i>Organisation</i>
Canberra (5 September 2013)	
Michael Claessens	AgriFood Skills Australia
Peter Davidson	Australian Council of Social Service
Dr. Ian Winter	Australian Housing and Urban Research Institute
Rolf Fenner	Australian Local Government Association
Assoc. Prof. Michael Dockery	Centre for Labour Market Research, Curtin University
Peter Colley	Construction, Forestry, Mining and Energy Union
Malcolm Greening	Department of Education, Employment and Workplace Relations
Colin Lyons	Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education
Richard Millington	Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education
James Collett	Department of Infrastructure
Warwick Jones	Department of Infrastructure
Cathryn Geiger	Department of Regional Australia, Local Government, Arts and Sport
Kim Forbes	Department of Regional Australia, Local Government, Arts and Sport
Jane-Frances Kelly	Grattan Institute
Janet Chimonyo	Jobs Australia
Chris James	Minerals Council of Australia
Brian Duggan	National Farmers' Federation
Vanessa Barnett	Regional Australia Institute
Su McCluskey	Regional Australia Institute
Melbourne (12 February 2014)	
Julie Toth	Ai Group
Willem Erasmus	Australian Bureau of Statistics
Prof. Graeme Hugo	Australian Population and Migration Research Centre, University of Adelaide
Katrina Currie	Brotherhood of St Laurence
Bob Kinnaird	Construction, Forestry, Mining and Energy Union
Dr. Chris McDonald	Department of State Development, Business and Innovation
Paul Donegan	Grattan Institute
Janet Chimonyo	Jobs Australia
Assoc. Prof. Roger Wilkins	Melbourne Institute of Applied Economic and Social Research
Chris James	Minerals Council of Australia
Prof. Fiona Haslam McKenzie	Remote Economic Participation Cooperative Research Centre
Kim Edwards	Reserve Bank of Australia
Llewellyn Reynders	Victorian Council of Social Service
Canberra (18 February 2014)	
Spiro Kavadias	Austrade
Nicholas Dowie	Austrade
Elise Gordon	Austrade
Lisa Conolly	Australian Bureau of Statistics

(Continued next page)

Table A.4 (continued)

<i>Participant</i>	<i>Organisation</i>
Canberra (18 February 2014) (continued)	
Graeme Brown	Australian Bureau of Statistics
Kirsty Leslie	Australian Bureau of Statistics
Peter Davidson	Australian Council of Social Service
Tim Shipstone	Australian Council of Trade Unions
Rolf Fenner	Australian Local Government Association
Geoff Frost	Bureau of Infrastructure, Transport and Regional Economics
Dr. Nicholas Biddle	Centre for Aboriginal Economic Policy Research, Australian National University
Stuart Watson	Department of Employment
William La	Department of Employment
Ingrid Jonach	Department of Infrastructure and Regional Development
Tim Wyatt	Department of Infrastructure and Regional Development
John Riley	Department of Social Services
Kim Walden	Department of Social Services
Therese Stuart	Department of Social Services
Barbara El-Gamal	National Occupational Licensing Authority
Amanda Lynch	Real Estate Institute of Australia
Jack Archer	Regional Australia Institute
Vanessa Barnett	Regional Australia Institute
Tanuja Doss	Treasury
Nick Skilton	University of Wollongong
Gold Coast (19 February 2014)	
Cally Ward	Airbiz
Andrew Pevats	Australian Industry Trade College
Richard Holmes	Australian Industry Trade College
Mary Anne Barclay	Centre for Social Responsibility in Mining, University of Queensland
Ian Burns	City of Gold Coast Council
Jim Fountain	City of Gold Coast Council (formerly)
Shannon Scanes	City of Gold Coast Council
Jennifer Luke	Clear Outlook (Professional Training)
Kerry Krebs	Department of Education, Training and Employment (Queensland Government)
Bernie McCarthy	Department of State Development, Infrastructure and Planning (Queensland Government)
Gary Krishna	Department of State Development, Infrastructure and Planning (Queensland Government)
Ray Morrison	Department of State Development, Infrastructure and Planning (Queensland Government)
Amanda Byrne	Gold Coast Airport

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Table A.4 (continued)

<i>Participant</i>	<i>Organisation</i>
Gold Coast (19 February 2014) (continued)	
Dr. Alan Blackman	Griffith University
Prof. Paul Burton	Griffith University; and Regional Development Australia, Gold Coast
Dr. Alex Douglas MP	Member for the Electorate of Gaven, Palmer United Party
Peter Marchingo	NORTEC Employment and Training
Elizabeth Dumont	PhD candidate (Griffith University)
Dennis Chant	Queensland Airports Limited
Craig Devlin	Regional Development Australia, Gold Coast; and Gold Coast Institute of TAFE
Mandy Hurst	Regional Development Australia, Gold Coast
Ian Pritchard	Regional Development Australia, Gold Coast
Russell Mason	Regional Development Australia, Sunshine Coast
John Gilders	The Smith Family – Partnership Brokers Program
Jennifer Luke	(Individual representative)

B Measuring geographic labour mobility

Geographic labour mobility can only be observed indirectly from a number of geographic, demographic and labour force datasets. There is no one accepted method to estimate geographic labour mobility in the literature. For example, analyses often look at residential moves. However, residential moves may not always result in changes in labour supply and such moves shed little light on other forms of geographic labour mobility, such as telecommuting. Consequently, a number of data sources have been used to examine geographic labour mobility in Australia.

Residential moves

When looking at residential moves, the Commission used 2011 Census data. Analysis is generally restricted to people aged 15 years or over who are in the labour force, unless otherwise indicated. The Census asks individuals where they usually lived one year and five years prior to the survey. Individuals are also asked questions about their education, employment, income, and family.

Residential moves were measured by moves between ABS SA4 (Statistical Areas Level 4) regions which represent regional labour markets (box B.1). Where people in the labour force move across regional labour markets, they will usually have to find another job or look for a job in the area they move to, regardless of the reason for moving. For example, Clark and Maas (2013) found that almost all Australians who moved more than 30 km changed jobs.

Box B.1 **Defining regional labour markets in practice**

The Commission has used ABS Statistical Area Level 4 (SA4) regions to develop regional labour markets for analysis in this report:

- For regional and remote areas, SA4 regions have been used as labour markets.
- For capital cities, the Commission has used Greater Capital City Statistical Areas (GCCSAs) — equivalent to the aggregate of all SA4 regions within and near a capital city.

The Commission has used GCCSAs for capital cities because the labour market in capital cities is much broader than a particular SA4 region for many people and employers, evident by commuting patterns. In capital cities, people can change jobs without necessarily changing their residence, and they can change residence without necessarily changing their jobs.

SA4 regions are geographic areas that are progressively replacing labour force regions used by the ABS, and can be used for the output of a range of regional data, such as those from the Labour Force Survey and 2011 Census. SA4s are specifically designed for the release of regional labour force data. According to the ABS (2010e, p. 2), 'the labour force data from any particular SA4 is likely to be more relevant to both labour supply (where people live) and demand (where people work) since the SA4 will contain a high percentage of people who live and work in the same SA4'.

50 regional labour markets are used in the Commission's analysis. These are based on the 88 SA4s covering the whole of Australia, without gaps or overlaps (excluding offshore and migratory regions and people with no usual address) (ABS, sub. 12). 50 regions remain once SA4s are aggregated in GCCSAs.

A number of data limitations relating to residential moves are worth noting, including:

- limited time series data. In particular, the Census is only conducted every five years. Annual data would provide a better picture of mobility patterns
- limited data on how many moves actually take place. The Census does not capture multiple and temporary moves by individuals within the one and five year time periods
- limited data about motivations for moving
- different geographic classifications across data sources and changing classifications over time
- a lack of longitudinal data, which particularly limits analysis of outcomes post move. Longitudinal data are available from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, but the sample of people who move far enough to constitute a move across regional labour markets is too small for detailed analysis

-
- limited data available at the regional labour market level (SA4) (box B.1). For example, consumer price index figures, vacancy rates and other data are not available by SA4
 - ‘boundary issues’ where some people might move a short distance across the boundary between two regions and remain in the same job, therefore not affecting the supply of labour in either labour market. This problem is likely to be exacerbated because SA4 regions do not cross state boundaries. In practice, labour markets are likely to cross state boundaries, such as in Albury-Wodonga and Gold Coast Tweed Heads.

Long-distance commuting

There is limited literature estimating long-distance commuting. Estimates have usually been based on the Census, as it is one of the few datasets that identifies people’s place of work. There are several methods that could be used to estimate long-distance commuting using the Census, including:³⁶

- comparing a person’s place of usual residence to their place of work
- comparing a person’s place of usual residence to their place of enumeration (where they filled out the Census form).

Both methods have advantages and disadvantages relative to the other, and both methods have limitations due to the nature of the Census (box B.2).

The ABS has acknowledged Census limitations for estimating long-distance commuting. In its submission to the House of Representatives Standing Committee on Regional Australia’s Inquiry into the use of ‘fly-in, fly-out’ (FIFO) workforce practices in regional Australia (HRSCRA 2013), the ABS discussed measurement of the ‘service population’ — which refers to people who spend a significant amount of time in a given location and make use of its public infrastructure and services, even though they are not permanent residents. The ABS is looking to improve the data collected in the Census, such as by including questions about second residences, in order to improve its ability to reflect temporary mobility trends and changes in service populations (subs. 12; DR54).

KPMG (2013c), de Silva, Johnson and Wade (2011) and the Productivity Commission (2013c) used the Census to compare a person’s place of usual residence to their place of work. On the other hand, D’Arcy et al. (2012) and the

³⁶ Another method is to use information from the Census on the number of people in staff quarters on Census night. ‘Staff quarters’ is one of the possible responses to the question on the type of dwelling a person resides in on Census night.

Construction Forestry, Mining and Energy Union (CFMEU) (sub. 26) compared a person's place of usual residence to their place of enumeration to derive their estimates.

Box B.2 Estimating long-distance commuting — Census limitations

The Census has limitations when used to examine long-distance commuting:

- It might under or overestimate the number of long-distance commuters:
 - KPMG (2013c) argued that if place of usual residence and place of work are used, the Census is likely to undercount the number of long-distance commuters due to reporting, misclassification or non-recording issues.
 - CFMEU (sub. 26) argued that if place of usual residence and place of enumeration are used, the Census is likely to undercount because some long-distance commuters might be at their usual residence on Census night, as they are on leave.
- The CFMEU (sub. 26) noted there was a much higher non-response rate to the question on place of work in the 2011 Census.
- Some long-distance commuters might report their workplace or staff quarters as their usual place of residence because they spend the majority of their time there.
- It does not provide information on the frequency of long-distance commuting.
- It cannot be used to estimate travel times, only distances.
- Commute lengths can only be estimated imprecisely.
- It is only collected every five years. More regular data would give a more complete picture. The Census is a snapshot in time.
- It does not include overseas workers (including Australians who commute to Australia for work, for example, from Bali).
- It has introduced random error when cell counts are low which is designed to safeguard confidentiality.
- It also asks the mode(s) of transport a person used to travel to work — an obvious limitation of this question, relevant to long-distance commuting, is that it does not include air transport as an explicit option.

In addition, estimates of long-distance commuting use different thresholds; some are distance thresholds and others use an administrative threshold. KPMG (2013c) and de Silva, Johnson and Wade (2011) defined long-distance commutes as being 100 km or greater. Key disadvantages of using this threshold are that it does not consider the time taken to commute and it is difficult to precisely measure the distance between a person's place of usual residence and their work. For example, KPMG measured the straight line distance between the geographic centres of the statistical area in which a person lived and the statistical area in which they worked.

Commutes which were obviously short commutes across neighbouring statistical area boundaries were excluded (KPMG 2013c).

The Productivity Commission (2013c) used the 2011 Census to estimate the number of FIFO workers in the resources sector in statistical regions known to be important mining regions.³⁷ Estimates were based on the number of mining and construction workers who worked in these regions but lived in a different region. Rather than set a specific distance threshold, the Commission excluded commutes from small adjacent regions. For the remaining commutes, the distance between a worker's place of residence and the mining region was sufficiently large to assume that the worker was employed under FIFO arrangements.

Telecommuting

Data from the ABS Time Use Survey, ABS Locations of Work Survey, an Australian Public Service Commission employee survey, HILDA Survey and the Sensis Business Index have been used to analyse telecommuting. A number of published papers which discuss telecommuting practices across industries, occupations and sectors of the economy have also been drawn upon (Access Economics 2010; Ai Group 2012; Colmar Brunton Research and Deloitte Access Economics 2012; Deloitte Access Economics 2011b).

Other analyses

In this report, the Commission has used the following data sources to examine the supply of and demand for labour, as it is relevant to geographic labour mobility:

- ABS Labour Force — a monthly survey on employment and unemployment by location and personal characteristics.
- ABS Job Vacancies — a quarterly survey on job vacancies by state and territory and by industry.
- Department of Employment research, forecasts and Research and Evaluation Database.
- The Commission's data extract from the Department of Employment's Research and Evaluation Database includes records of income support recipients up until 1 November 2013. For ease of calculation, the Commission's estimates in

³⁷ The Commission restricted its analysis to the main mining regions of New South Wales, Queensland and Western Australia. Many drive-in, drive-out workers were not captured in this analysis due to the exclusion of commutes from small adjacent regions. For these reasons, estimates should be interpreted as lower bounds of the number of long-distance commuters in the resources sector.

chapter 7 used a restricted version of the dataset provided by the Department. To provide a ten-year period of analysis, only people who commenced a continuous period on Newstart Allowance after 1 November 2003 were included and only the first continuous period after this date was included. Income support recipients who changed between Newstart Allowance and another form of income support during a continuous period on income support were excluded. A small number of people with more than 20 addresses during this period were also excluded.

- The HILDA Survey has been used to examine motivations for moving and supplement Census analysis on the characteristics of movers. It is an annual survey of about 20 000 people undertaken since 2001. It includes longitudinal data on individuals who have moved residence and their characteristics.
- Data from the Department of Immigration and Border Protection have been used to analyse migration trends and patterns.

C Geographic settlement in Australia

This appendix first discusses the current geographic distribution of the Australian population and then presents a brief history of geographic settlement in Australia since Federation in 1901 (sections C.1 and C.2). Section C.3 presents information on Australia's international migration programs and section C.4 provides a brief discussion of regional policy. Section C.5 briefly compares geographic labour mobility in Australia and Canada.

C.1 Current geography of Australia's population

Australia is a highly urbanised country by international standards. Most Australians live in urban areas within 50 km of the coast (Hugo 2012b). The majority of Australians live in major cities. Just over 2 per cent of Australians live in remote or very remote areas³⁸ (table C.1).

Table C.1 Australian population by remoteness area, 2011^a

	<i>Population</i>	<i>Per cent</i>
Major cities	15 673 312	70.2
Inner regional	4 102 142	18.4
Outer regional	2 026 496	9.1
Remote	315 698	1.4
Very remote	206 285	0.9
Australia	22 323 933	100.0

^a Based on the Australian Standard Geographical Classification. This standard was replaced by the Australian Statistical Geography Standard, which has a similar remoteness classification.

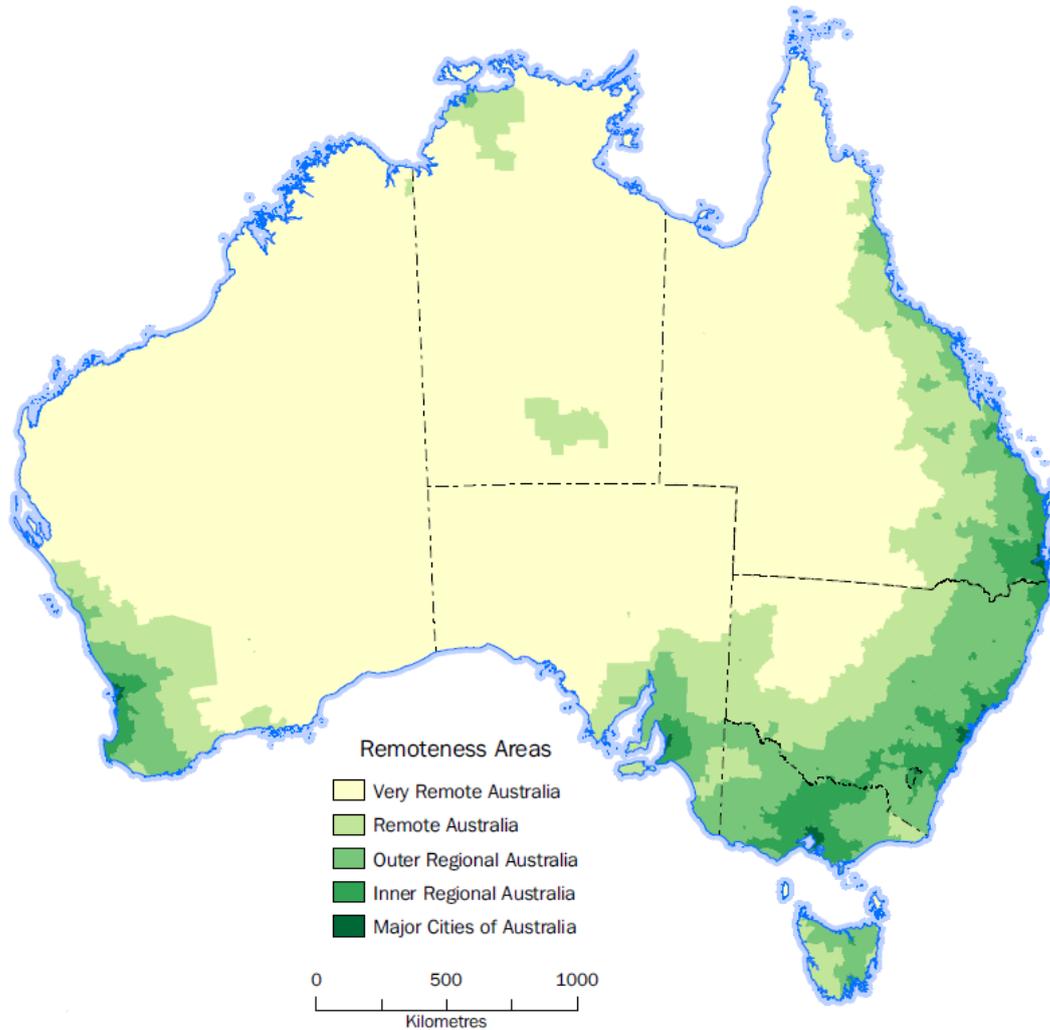
Source: Productivity Commission estimates using ABS (*Regional Population Growth, Australia, 2011*, Cat. no. 3218.0).

The vast majority of Australia is sparsely populated, and classified as remote or very remote. Regional areas and major cities are concentrated along the eastern seaboard and in the south west of the country (figure C.1). In the past decade, population growth has been fastest in major cities. Although regional and remote areas have grown during this period, there have been substantial variations across these areas. Growth has been concentrated in coastal areas, around major regional

³⁸ The ABS has defined remoteness by proximity to services.

cities and in a number of mining regions. Some areas have lost population in recent years, particularly inland areas (Hugo 2012a).

Figure C.1 **Australia, by remoteness, 2011^a**



^a Based on the Australian Statistical Geography Standard. This standard replaced the Australian Standard Geographical Classification, which had a similar remoteness classification.

Source: ABS (2011b, p. 2).

C.2 History of geographic settlement in Australia

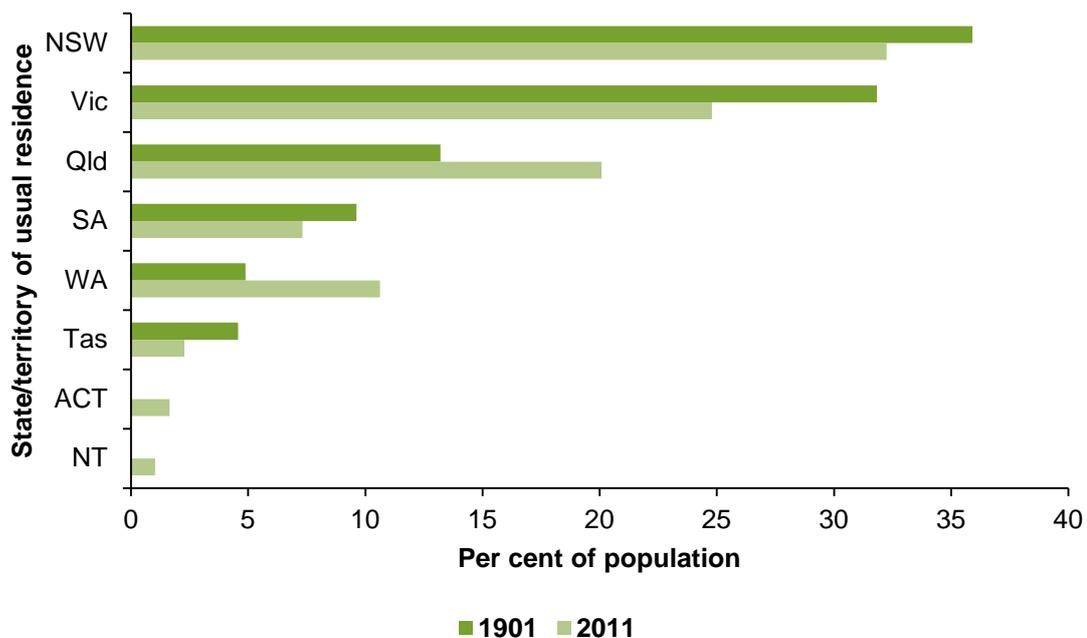
Australia's population has increased dramatically since Federation, through natural increase and immigration. While the geographic distribution of the Australian

population has remained fairly stable over time, there have been some changes, many of which are due to longstanding trends.

Australia's population at Federation

Australia's population was less than four million in 1901 at Federation. Like today, the majority of people lived in New South Wales and Victoria (figure C.2). However, in 1901 Queensland and Western Australia had a much smaller share of the population than they do today, and South Australia and Tasmania had a much larger share. The ACT and the Northern Territory had not yet been established in 1901.

Figure C.2 Australia's population by state and territory, 1901 and 2011^{a, b}



^a Aboriginal and Torres Strait Islanders were not counted in the data for 1901. ^b The ACT and the Northern Territory had not been established in 1901. Hence percentage shares are zero for 1901.

Source: Productivity Commission estimates using ABS (2002).

Population growth since Federation

There have been two sources of population growth since Federation: natural increase — the number of births exceeding the number of deaths; and net overseas migration — the number of people immigrating to Australia has exceeded the number of people emigrating from Australia.

International migration has a profound effect on the makeup of Australia's population. Hugo (cited in CEDA 2012, p. 7) noted the importance of migration:

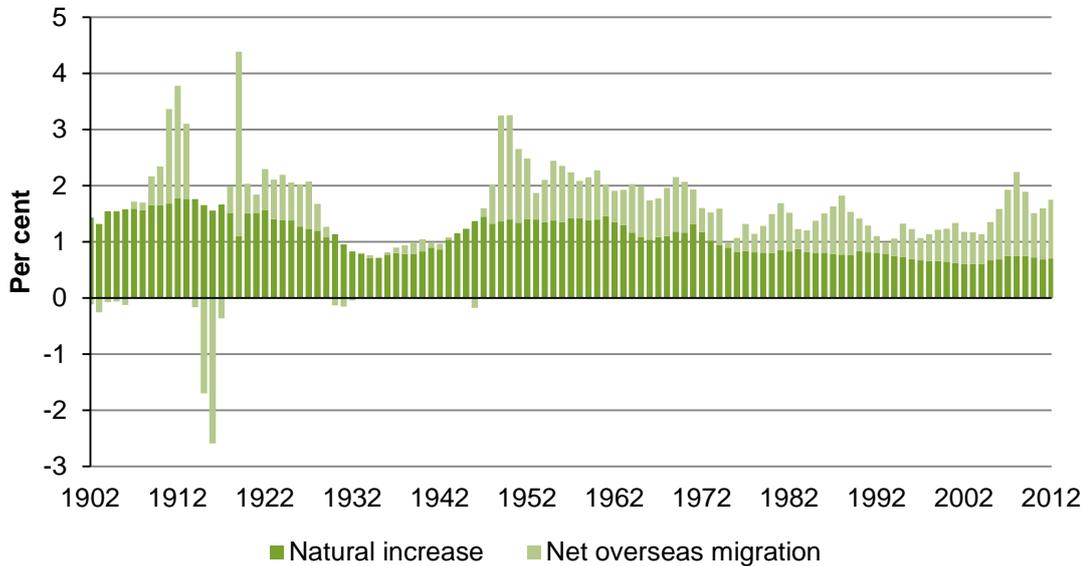
The population of no other medium sized or large country in the world is as influenced by international migration as Australia:

- A quarter of the resident population were born overseas;
- Another quarter were Australian-born with an overseas-born parent(s);
- Almost one million [international migrants] were temporarily present at 30 June, 2009; and
- Around one million Australians are living in another country.

The contribution of net overseas migration to population growth has been substantial, and has varied over time (figure C.3). Net overseas migration has varied significantly in times of war, particularly during World War I, as Australian troops left Australia to fight overseas, and most later returned, and because immigration fell dramatically. Net overseas migration fell close to zero during the depression and remained close to zero until the end of World War II. After World War II immigration increased dramatically, especially from continental Europe. By 1950, net overseas migration had increased to about 150 000 people per year, compared to a population of about 8 million at the time (almost 2 per cent of the population). Net overseas migration fluctuated in the next half century and generally contributed as much to overall population growth as natural increase. The relative contribution of net overseas migration to population growth has increased in the past decade.

Figure C.3 **Population growth in Australia, 1902–2012^{a, b}**

Annual change as a proportion of population



^a Annual population change is measured as the difference between the population in December in the year prior to December in the year considered. ^b Natural increase is births minus deaths. Net overseas migration is the net gain or loss of population through immigration to Australia and emigration from Australia (ABS 2012c).

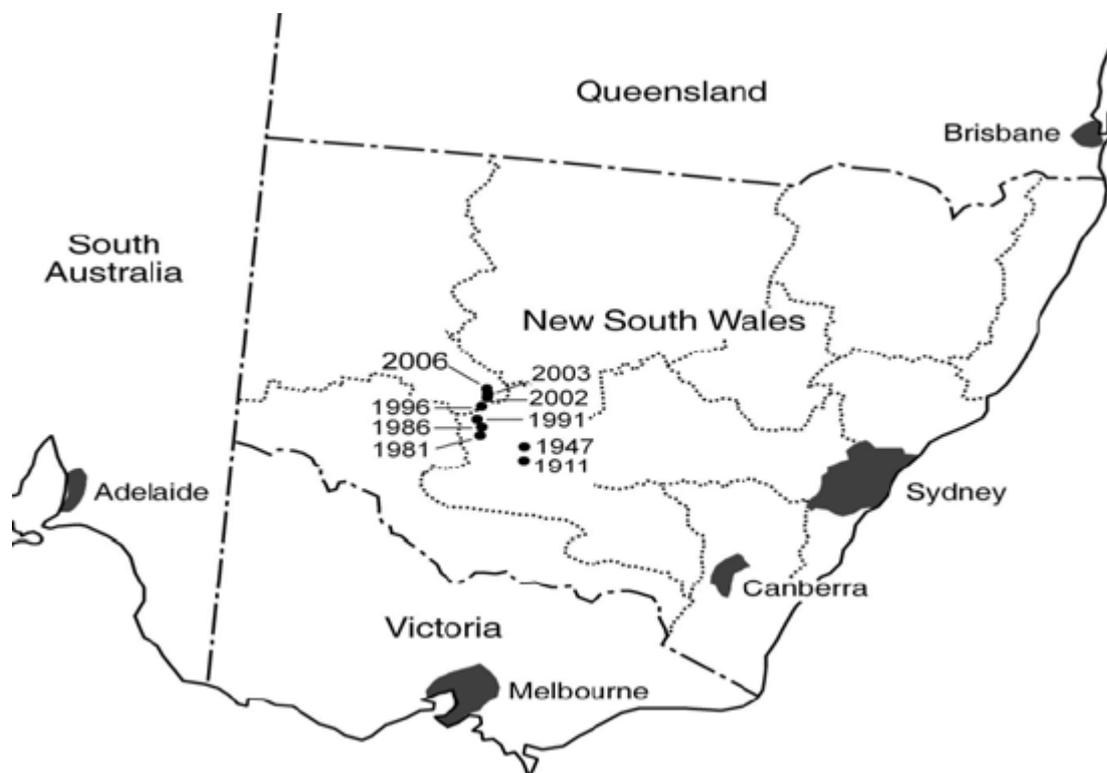
Source: Productivity Commission estimates using ABS (*Australian Demographic Statistics*, Cat. no. 3101.0).

Population growth across Australia

Despite the changes in the relative population sizes of different states, it has been argued that the spatial distribution of Australia's population has changed little over time. For example, Hugo (2011) found that Australia's population distribution is distinctive, and has remained remarkably stable over the past 150 years.

The Australian 'population centroid' — that is, the mean centre of population — has changed little over time (figure C.4). This reflects the fact that the five largest capital cities of Australia, which today hold the majority of the population, were established well before Federation, and have been major cities since. There has been some shift north and west of the centroid, reflecting faster population growth in Queensland and Western Australia relative to the other states.

Figure C.4 Australian population centroid over time, 1911–2006^a



^a The population centroid is the mean centre of population.

Source: Hugo and Harris (2011).

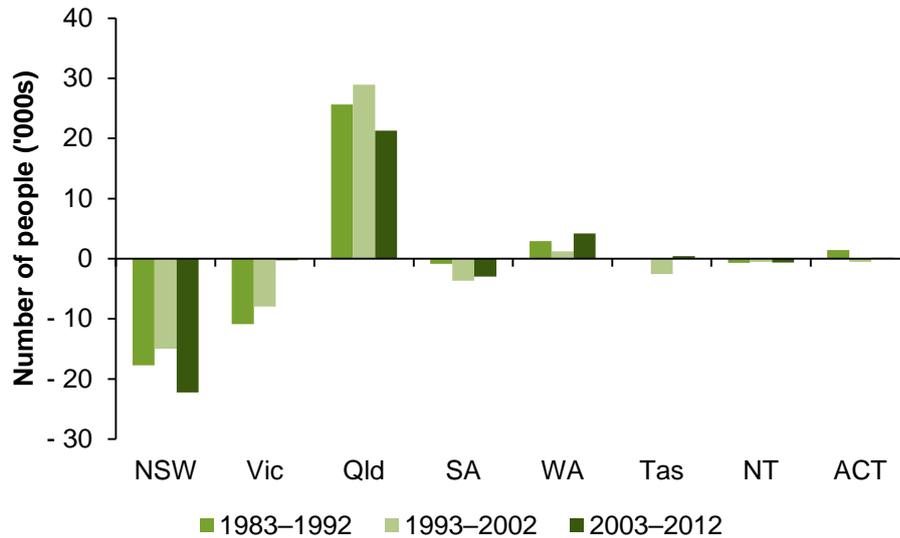
Population growth across states and territories

Population growth rates across states and territories have tended to move together in Australia since Federation. When one state has experienced faster growth, other states have also grown more quickly, although at different rates. Population growth since the 1950s has been considerably higher in Western Australia and Queensland, reflecting positive net interstate migration, particularly to Queensland (ABS 2008a). International migration has played a relatively larger role in population growth in Western Australia (Hugo 2012a; RAI forthcoming). Tasmania, and to a lesser extent South Australia, have grown more slowly, as they have lost population to other states (ABS 2008a).

Many Australians move from one state or territory to another. The level of net interstate migration — the difference between the number of people moving to a state and departing that state — has differed significantly between states for the past three decades (figure C.5). In this period, Queensland experienced large net migration from other states, while New South Wales and Victoria lost population to other states, although net migration was close to zero in Victoria in the past decade.

Net interstate migration tended to be positive in Western Australia and negative in South Australia.

Figure C.5 Net interstate migration by state and territory, 1983–2012^a
Annual average over 10 year period



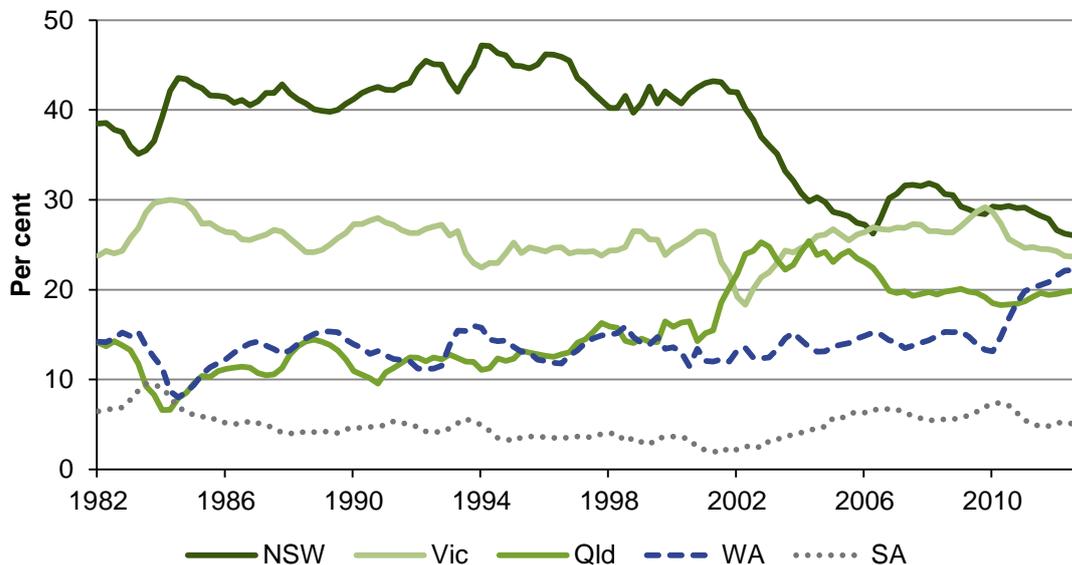
^a Net interstate migration is the difference between the number of people moving to a state and the number of people departing.

Source: Productivity Commission estimates using ABS (*Australian Demographic Statistics*, Cat. no. 3101.0).

While the two largest states by population have generally experienced net negative interstate migration, this has been offset by positive net overseas migration. Patterns of net overseas migration by state and territory were broadly similar from the early 1980s until about 2000 (figure C.6). After 2000, the proportion of net overseas migrants going to New South Wales fell steeply, while increasing in Queensland and particularly Western Australia.

Hugo (2011) notes that a feature of postwar migration in Australia, and also in North America and Europe, is that immigrants have predominantly settled in a few large ‘gateway cities’. In Australia, the proportion of overseas-born people living in capital cities increased from 62 per cent in 1947 to 81 per cent in 2001. However, more recently, there has been an increase in immigrants settling in regional and remote areas. This trend has also been observed in the United States (RAI forthcoming). In Australia, this could be due to a number of factors including government programs that oblige or encourage immigrants to settle outside of capital cities, and growing numbers of immigrants working in the mining industry as a result of the resources boom.

Figure C.6 Net overseas migration, selected states, 1982–2012^a
Share of total, quarterly



^a Net overseas migration is the net gain or loss of population through immigration to Australia and emigration from Australia (ABS 2012c). In 2007 the ABS introduced the '12/16 month rule', for calculating net overseas migration, whereby people are included in the count of the Australian population if they spend 12 months within a 16 month period in Australia. Tasmania, the ACT and the Northern Territory have been excluded from this figure (collectively they account for about 5 per cent of net overseas migration).

Source: Productivity Commission estimates using ABS (*Australian Demographic Statistics*, Cat. no. 3101.0).

Population growth by remoteness

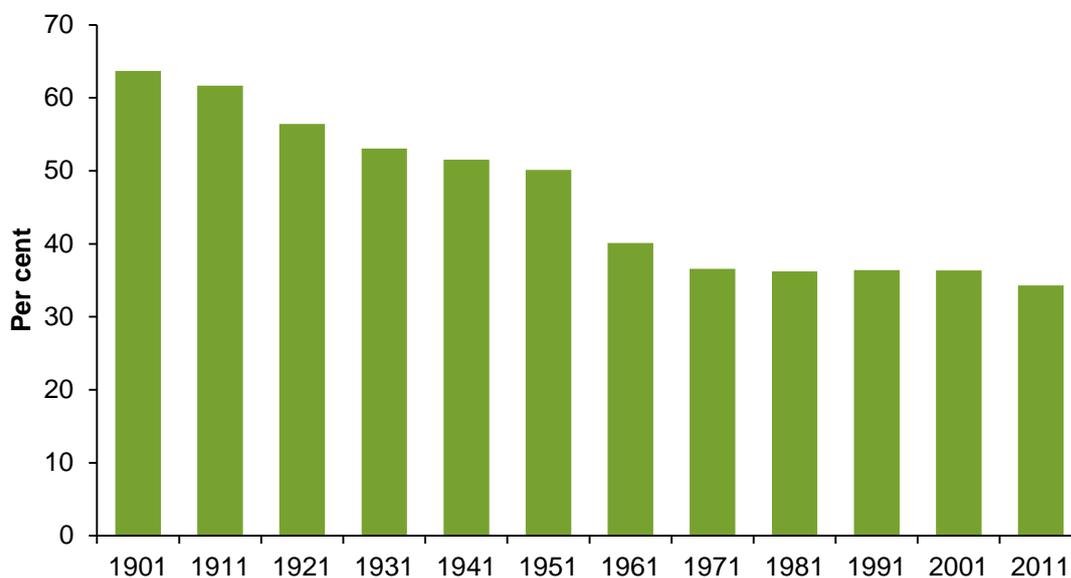
The proportion of people living in urban areas has increased since Federation (figure C.7). This increase was most apparent from Federation until the 1970s. Possible reasons for this trend include:

- generally faster employment growth and wage growth in urban and metropolitan areas due to:
 - manufacturing industries being established and concentrated predominantly in urban areas
 - higher growth in the services sector, predominantly in urban areas
 - reduced employment in agriculture and mining due to mechanisation and continued improvement in industrial and transport technologies.

-
- the motor car, which:
 - enabled suburbanisation with improved amenity of city living
 - enabled people to travel further and allowed people in regional areas to move to larger towns.
 - growth in large regional cities due to:
 - competition between regional towns and cities. Businesses in larger regional cities compete to sell to a wider region and offer a wider range of goods and services at lower prices than businesses in smaller cities and towns due to economies of scale. This has led to higher employment growth in large regional cities and reinforced initial population advantages
 - location relative to transport infrastructure. Large regional cities tend to be located near a major highway, airport, rail line or transport hub.
 - declining commodity prices, droughts and other natural disasters
 - large-scale immigration and the preference of immigrants to live in large cities.

At Federation, more than 60 per cent of the population lived outside of capital cities. This proportion fell to about 35 per cent in the mid-1970s and has remained relatively stable since (figure C.7). Even outside the capital cities, there are different long-run patterns of settlement. While the proportion living in inland regional and remote areas is declining, the proportion living in coastal regional areas is increasing, reflecting lifestyle preferences (for example, ‘sea change’ moves).

Figure C.7 Proportion of population outside capital cities, 1901–2011^a



^a Excludes ACT in 1901 and 1911. Excludes the Northern Territory in 1901 and from 1931 to 1951. All estimates exclude 'Other Territories' (Cocos Island, Christmas Island and Jervis Bay Territory).

Sources: Data from 1901–2011 taken from ABS (2008a); 2011 figure is a Productivity Commission estimate based on ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

C.3 International migration programs

International migration, by virtue of its size, can have significant effects on domestic regional labour supply and demand, and thereby influence geographic labour mobility. Australia's migration programs have evolved over time to include a range of visas, some of which are specifically designed to meet labour market needs. These programs can be broadly classified into permanent and temporary migration programs.

Permanent migration

Migration Program

Australia's Migration Program covers permanent skilled and family migrants to Australia. Refugees are covered by the Humanitarian Program (discussed in more detail below). The Migration Program is large by international standards. In 2012-13, the number of permanent immigrants met the total program target of 190 000. About two-thirds of permanent migrants were in the 'skilled stream' (table C.2). Permanent migrants have the right to work in Australia and therefore affect the supply of labour in regional labour markets.

Table C.2 **Australia's Migration Program, 2012-13**

Permanent visas

	<i>Visa subclass</i>	<i>Number</i>	<i>Per cent</i>
Skilled Stream	..	128 973	67.9
Employer-sponsored places	..	47 740	25.1
Employer Nomination Scheme	186	27 230	14.3
Regional Sponsored Migration Scheme	187	20 510	10.8
General Skilled Migration ^a	..	74 020	39.0
Business Innovation and Investment Program	188	7 010	3.7
Distinguished Talent	124	200	0.1
Family Stream	..	60 185	31.7
Special Eligibility Stream^b	151	842	0.4
Total	..	190 000	100.0

^a About two-thirds of applicants were in occupations on the Skilled Occupation List (a list of in-demand occupations). ^b The Special Eligibility Stream covers people seeking to remain or return to Australia as permanent residents who had never acquired Australian citizenship. .. Not applicable.

Source: DIAC (2013a).

In 2012-13, India was the largest source of permanent migrants to Australia (21.1 per cent), followed by China (14.4 per cent) and the United Kingdom (11.4 per cent). Historically, the United Kingdom has been the largest source of immigrants to Australia. This is reflected in the fact that among Australians, the United Kingdom is the most common country of birth after Australia (DIAC 2013a). New Zealand is another important source of immigrants to Australia. Immigrants from New Zealand are not included in Australia's migration program as New Zealanders are free to visit, live, work and study in Australia (box C.1).

Box C.1 Migration from New Zealand

Free movement of people between Australia and New Zealand has a very long history that pre dates formal arrangements. It was made official under the Trans–Tasman Travel Arrangement (TTTA), which was introduced in 1973. Today, the TTTA allows all New Zealand and Australian citizens who satisfy health and character requirements the freedom to enter each other’s country to visit, live, work and study.

Since the late 1960s, trans-Tasman migration flows have been predominantly from New Zealand to Australia. The proportion of the Australian population born in New Zealand remained steady at about 1 per cent until the early 1970s but has subsequently grown and was over 2 per cent in 2011. The 2011 Census found that 483 400 New Zealand-born people were living in Australia. One-third indicated they were Australian citizens.

The available evidence suggests that migration from New Zealand to Australia is mostly related to economic factors, such as higher incomes and better job opportunities in Australia.

On average, New Zealand-born immigrants are younger than other immigrants (40 compared to 45 years). They are slightly more likely to be male. They have a similar education profile to the Australian-born population (but lower than for other immigrants to Australia). Most New Zealand immigrants have settled on the eastern seaboard of Australia, notably Queensland. At the 2011 Census, 40 per cent of people who indicated they were born in New Zealand lived in Queensland and 24 per cent lived in New South Wales.

In 2009-10, New Zealand-born people aged 15–64 had higher labour force participation rates than the overall Australian population aged 15–64 (90 per cent compared to 83 per cent for males and 75 per cent compared to 70 per cent for females). This might be because many New Zealanders in Australia are ineligible for some Australian welfare benefits. Patterns of work by industry were broadly similar for the New Zealand-born and the broader Australian population. However, New Zealand-born people were less likely to work in health care and social assistance; New Zealand-born males were more likely to work in construction (21 per cent vs. 15 per cent of Australian workers); and New Zealand-born females were more likely to work in manufacturing (8 per cent vs. 5 per cent of workers).

Sources: ABS (2010d); Productivity Commission and New Zealand Productivity Commission (2012); ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

The Humanitarian Program

Australia also operates a dedicated Humanitarian Program, which offers permanent resettlement for refugees and others in need. This program offers permanent visas and is separate from the Migration Program. The Humanitarian Program is designed to meet obligations under the United Nations 1951 Convention relating to the Status

of Refugees. People who are granted visas under this program are entitled to work and hence influence labour supply and geographic labour mobility. In 2012-13, about 20 000 places were granted, 6000 more than the previous year (DIAC 2013b).

Temporary migration

In addition to permanent migration, Australia grants temporary visas. In December 2013, there were over one million temporary visa holders residing in Australia, excluding New Zealanders (table C.3). Many of these visas are intended to meet certain labour market needs and are relevant for the Commission's analysis of geographic labour mobility. Working holiday visas are used extensively for seasonal work, such as in agriculture and tourism (Job Services Australia 2013; NFF, sub. 33). 457 visas are used across a wide range of industries, and have been important in filling skills shortages (box C.2). There are concerns about temporary migration, particularly about its implications for job opportunities for and training of Australians (for example, CFMEU, sub. DR46). These concerns are discussed in more detail elsewhere in the study.

Table C.3 Temporary entrants in Australia, 31 December 2012 and 2013

	Work rights ^a	31/12/2012	31/12/2013		Change
		no.	no.	%	%
Student visa holders ^b	Restricted	242 210	257 780	14.1	6.4
Visitor visa holders ^c	Various	401 940	444 140	24.4	10.5
Temporary Skilled (subclass 457) visa holders ^d	Yes	157 110	169 070	9.3	7.6
Working Holiday Maker visa holders ^e	Yes	162 480	178 980	9.8	10.2
Bridging visa holders ^f	Various	102 010	92 910	5.1	-8.9
Temporary Graduate (subclass 485) visa holders	Yes	38 210	24 660	1.4	-35.5
Other Temporary visa holders ^g	..	26 340	29 010	1.6	10.1
Total temporary visa holders	..	1 130 290	1 196 560	65.7	5.9
New Zealand visa holders ^h	Yes	618 570	625 370	34.3	1.1
Total temporary entrants in Australia	..	1 748 870	1 821 930	100.0	4.2

^a This column outlines whether visa holders in particular categories can legally work in Australia. ^b Student visa holders can work up to 40 hours per fortnight while their course is in session and may work unlimited hours at other times. ^c Visitor visa holders includes business visitors who can conduct their business while in Australia. ^d Data for subclass 457 visa holders include primary (the nominated worker) and secondary (the worker's family) applicants who are allowed to work in Australia for up to four years. ^e Working Holiday Maker visas are for 12 months. Visa holders can work in any industry and location for the full duration of their visa, but are limited under regulations to a maximum period of six months' work with any one employer. This limit relates to the 'end user' employer. Employees of labour hire companies may work for the labour hire entity for more than six months provided the services they provide to the 'end user' employer they are placed with do not exceed six months. Self-employed workers may work for more than six months provided the 'end user' employer is not their sole client. These regulations are intended to prevent visa holders working for labour hire companies or establishing self-employment arrangements in order to bypass the six month work limit. First Working Holiday Maker visa holders can acquire eligibility to apply for a second Working Holiday Maker visa if they undertake three months 'specified work' in regional Australia during their stay. Specified work includes employment activities in the agriculture, mining and construction sectors. ^f Bridging visa holders have previously held another type of visa. Holders' working rights vary by type of bridging visa, and in some cases are the same as working rights held on their previous visa. Some bridging visa holders do not have the right to work. ^g Includes various visa subclasses not elsewhere included, which may or may not have work rights. ^h As discussed in box C.1, New Zealanders are free to work in Australia and are automatically granted a visa provided they meet character requirements. .. Not applicable.

Source: DIBP (2014c).

Box C.2 457 visas

The 457 visa subclass was introduced in 1996, and was designed to address skills shortages by allowing employers to recruit skilled foreign nationals when appropriately skilled Australians could not be found (DIAC 2013d; Tham and Campbell 2011).

Employing a foreign national on a 457 visa is a three-stage process. First, an employer must be approved as a sponsor and must attest that it has a record of employing local workers and has met a training benchmark. Second, an employer must nominate a position (and a person to fill it) and have this nomination approved. Third, the person nominated must apply for a 457 visa. The terms and conditions of employment must exceed the Temporary Skilled Migration Income Threshold (indexed annually and currently set at \$53 900) and be 'no less favourable' than for an Australian performing the same duties in the same location.

Relevant legislation was amended by the previous Australian Government. The *Migration Amendment (Temporary Sponsored Visas) Act 2013* (commenced in late June 2013) introduced 'labour market testing' for 457 nominations.³⁹ Implementation of these amendments was delayed. In November 2013, the new Australian Government made further amendments to exempt most high-skilled occupations from labour market testing (Cash 2013). In February 2014, a broad review of the 457 program was announced (Cash 2014).

The number of 457 visa applications granted and the number of (primary and secondary⁴⁰) 457 visa holders in Australia has trended upwards over the past decade. In 2012-13, 126 350 visas were granted — more than three times higher than the number of visas granted ten years earlier (DIAC 2013c). Many 457 visa holders are subsequently granted permanent residence visas.

As at December 2013, the industries that employed the most 457 visa holders were accommodation and food services (11 per cent of 457 visa holders), followed by other services (11 per cent) and health care and social assistance (10 per cent).⁴¹

Most 457 visa holders were classified as skill level 1 (57 per cent) (the highest skilled category). Twenty per cent were classified as skill level 2, 22 per cent as level 3 and less than one per cent as levels 4 or 5 (the least skilled categories). Most 457 visa holders were classified as managers (19 per cent), professionals (45 per cent) or technicians and trades workers (29 per cent).

New South Wales had the most 457 visa holders (38 per cent), followed by Victoria (22 per cent) and Western Australia (19 per cent). As a proportion of the total employed workforce in each state, 457 workers were most common in Western Australia (1.3 per cent of the total workforce), followed by New South Wales (1.0 per cent) and the Northern Territory (0.8 per cent) (ABS 2013i; DIBP 2014b).

³⁹ The responsible Minister can specify occupations as exempt. Labour market testing has previously been a requirement (from the introduction of 457s in 1996 to 2003).

⁴⁰ 'Primary' refers to the visa applicant. 'Secondary' refers to the applicant's family.

⁴¹ These data are for primary visa holders.

C.4 Regional development policy

Since Federation, there have been attempts to increase the proportion of the population living in regional areas or at least stem the flow of people to major cities (chapter 10). Debates about the spatial distribution of Australia's population predate Federation. Concerns have often been expressed about the balance of the population between urban areas and other areas. Many governments in Australia have developed policies to attract investment, employment and population to regional areas. The Commission (IC 1993) previously identified four main rationales for regional policy.

1. Information problems: firms may not have accurate information about the benefits of locating in different regions.
2. 'Big city' problems: the capital cities are getting too big, with attendant problems of pollution, congestion and social tension.
3. Infrastructure costs: excess capacity in country towns warrants inducements to keep or move people and firms there, rather than building new infrastructure in cities.
4. Equity considerations: people in regional areas are disadvantaged.

Examples of regional development and decentralisation policies are discussed in box C.3. The Commission (IC 1993; PC 1999) has previously found that these policies have had limited success. The Commission (PC 1999) also noted that there were a number of government actions that could assist in regional development, including information provision, improved policy coordination and removing regulatory impediments to development.

Box C.3 Regional development and decentralisation policies

Soldier settlement schemes

Following the world wars, governments introduced soldier settlement schemes which encouraged returned servicemen to take up plots of agricultural land. After World War I, more than 37 000 returned servicemen settled on blocks of land provided. The small blocks, many of them irrigation farms, were often situated on land not well suited to agriculture and many settlers left their blocks during the 1920s and 1930s. Another smaller scheme was introduced at the end of World War II. This scheme was more successful than its predecessor, partly due to an improvement in commodity prices that occurred during its early years. Nevertheless, these schemes were still seen as a source of structural adjustment problems more than half a century later (PC 2009b).

Victorian decentralisation program

In the 1970s, the Victorian decentralisation program actively encouraged the establishment of textile plants in regional cities (IC 1993). The textile industry has undergone dramatic change since, and has largely moved offshore, which has undermined the employment base in these cities.

Regional infrastructure

Governments have established many large infrastructure projects in regional areas, in part to encourage regional development — for example, the Ord River Irrigation Scheme and the Alice Springs to Darwin railway.

The Department of Urban and Regional Development

A significant Commonwealth decentralisation initiative occurred under the Whitlam Government from 1972–75. There was a change from broad decentralisation initiatives to selective policies via a new ministry — the Department of Urban and Regional Development (DURD). Funds were provided with the aim of assisting 12 selected ‘growth centres’ to reach a critical size — for example, there was a target for Albury-Wodonga to increase in size to 300 000 by the year 2000 (the current population is about 100 000). DURD was abolished in 1976 after these policies were judged to be unsuccessful (IC 1993; PC 1999).

Relocation of government departments

Many governments have relocated government departments to regional areas:

- The New South Wales Department of Agriculture was relocated to Orange in 1991. The move involved about 350 people. There was a range of incentives provided to staff to move. Nevertheless, the Department lost almost one-quarter of its staff during the transition (IC 1993).
- More recently, the Victorian Government relocated the Transport Accident Commission Office from Melbourne to Geelong. The office opened in 2007 (TAC 2007).

C.5 Geographic labour mobility in Canada

This section analyses patterns and trends in geographic labour mobility in Canada, and builds on the broader discussion of geographic labour mobility overseas contained in chapter 5. The Commission has chosen to analyse geographic labour mobility in Canada in some detail due to similarities between Australia and Canada.

Which countries should Australia be compared to?

It is most meaningful to compare geographic labour mobility rates in Australia to rates in similar countries.

- The Australian economy is different to other developed countries in a number of important ways, which means that some developed countries are more suitable than others. Primary industries are much more important to the Australian economy than other developed countries, and have become increasingly important in the past decade due to the resources boom.
- As noted earlier, the geographic distribution of Australia's population is unique. Australia is a much larger country with a much lower population density than most other developed countries. Despite its large area, 40 per cent of Australia's population lives in its two largest cities. On this measure, few countries are as concentrated (DIT 2013). This concentration is likely to influence geographic labour mobility.
- Australia's demography is different compared to other developed countries. Australia's population is growing much faster and is on average younger than the population of most other developed countries. Immigration rates are much higher, as evident by the high proportion of the population born overseas (about one-quarter).
- System of government is another potential factor. Australia is a former British colony, a parliamentary democracy and a federation with horizontal fiscal equalisation.

Canada is also a developed country and has a number of similarities to Australia.

- It has a large geographic area and a medium-sized population.
- Primary industries, including mining, are important to its economy.
- It is a federation with a form of horizontal fiscal equalisation.
- Its population is concentrated in cities, mostly near the US border.
- It has high levels of immigration (about 20 per cent of its population is born overseas).

Based on the above factors, Canada seems to be an appropriate country to compare Australia to. Similarities between Australia and Canada have been noted by Newbold and Bell (2001) among others.

Patterns and trends in geographic labour mobility in Canada

Canada has experienced broadly similar residential mobility trends as Australia in recent years. In 2006, 13 per cent of Canadians reported changing residence in the previous year. About 40 per cent reported changing residence in the previous five years. These rates are slightly lower than estimates from the same period for Australia (17 per cent and 43 per cent, respectively) (RAI forthcoming). The slightly lower mobility rates in Canada than in Australia are also noted by the OECD (2005) and Sweet (2011).

In general, there have been longstanding trends in interprovincial migration in Canada (equivalent to interstate migration in Australia), which tended to reflect varying economic performance across provinces. Bohnert (2013) analysed interprovincial migration from 1976-77 to 2010-11 in Canada and found that:

- in general there has been positive net migration to provinces with large endowments of natural resources. Alberta, which has vast oil sands deposits (discussed in chapter 6), had positive net interprovincial migration for most of this period — a total gain of close to 500 000 people. Saskatchewan had positive net interprovincial migration for the last five years of the period, in contrast to previous decades, reflecting strong recent economic growth driven by the agriculture and resources sector (Prosperity Saskatchewan 2013). This is similar to the positive net interstate migration trends seen in Western Australia and Queensland
- British Columbia had positive net interprovincial migration for most of this period — a total gain of close to 450 000 people. This trend might reflect lifestyle preferences for British Columbia (Newbold and Bell 2001) and its favourable climate and attractive scenery (Edmonson 2002). Lifestyle preferences have also been a driver of interstate migration in Australia, and an important factor in positive net interstate migration in Queensland
- smaller provinces, and particularly those on the Atlantic coast, tended to lose population to other provinces in most years, and over the period as a whole. The Atlantic provinces tend to have the lowest incomes and highest unemployment rates (Statistics Canada 2013b, 2013c).⁴² This has been attributed in part to a

⁴² The Atlantic Provinces are New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island.

lack of economic diversification, reduced employment in the fishing industry and the decline of other primary industries. The trend of outmigration from the Atlantic provinces dates back to at least to 1930 (Edmonson 2002). In Australia, the smallest state, Tasmania, has tended to lose population to other states. It has the highest unemployment rate and lowest average income

- there are idiosyncratic trends in Canada that cannot be meaningfully compared to trends in Australia. Quebec, the second largest province in Canada by population, has had negative net migration throughout this period, and lost a total of about 460 000 people to other provinces. Most of these out-migrants have been English language speakers and it has been argued that ‘restrictive language rights have had a strong push effect’ (Newbold and Bell 2001, p. 1174). Most migrants who leave Quebec move to Ontario, a neighbouring province, and the largest province in Canada. To a large extent, negative net migration from Quebec has been a result of fewer people moving to Quebec rather than more people leaving Quebec (Edmonson 2002).

The number of interprovincial migrants in Canada was fairly flat over this period, but fell as a proportion of the population. Bohnert (2013) noted that this could be in part due to the ageing of the population (young people are more likely to move). Interstate migration in Australia has also fallen as a proportion of its population (chapter 5), as it has in the United States (Molloy, Smith and Wozniak 2011). Bernard, Finnie and St-Jean (2008) found that interprovincial migrants tended to earn more than those who remain in their home province.

Negative net interprovincial migration in some provinces has been offset by international migration and natural increases in the population. In recent decades, Canada has had high rates of immigration like Australia. In 2012, about 250 000 permanent immigrants, about 100 000 foreign students and about 210 000 foreign workers entered Canada (Statistics Canada 2013a). Immigration flows tended to reflect the distribution of the population by province and were broadly consistent with interprovincial migration patterns. The proportion of permanent immigrants entering the Atlantic provinces was much smaller than their share of Canada’s population. The share entering the faster growing provinces of Alberta and British Columbia was a little higher than their population share. The share of temporary migrants entering these provinces was much higher than their population share — 40 per cent compared to 25 per cent.

D Econometric modelling of the decision to migrate

Evidence from submissions and roundtables has emphasised the wide variety of personal factors that influence the likelihood of an individual moving between labour markets. To better understand the relationship between different personal factors and their relative importance in the decision to move, the Commission has developed an econometric model of the decision to migrate. This exercise was designed to complement the modelling of regional migration flows (appendix E) and provide additional empirical evidence to support the Commission's analysis of impediments to, and enablers of, geographic labour mobility (chapter 8).

As with the modelling in appendix E, Professor Jeff Borland from the University of Melbourne acted as an independent referee to review a draft of this appendix. Within the Commission, Patrick Jomini acted as a referee. The modelling results were discussed with Professor Borland and representatives from the Commission at a workshop on 26 February 2014.

D.1 Framework for analysis

As the conceptual framework for this report makes clear, mobility decisions are complex (chapter 2). At each point in time, a person can decide to stay in their current residence, move to a new residence in the same labour market or move to a different labour market. In some cases, those who decide not to move to a new labour market may still choose to work in a different labour market by long-distance commuting or telecommuting. Those who decide to move to a new labour market must also decide which market to move to. All these decisions tend to be made taking into account not only what is best for an individual person but also what is best for that person's family and (possibly) their extended relationships.

When deciding whether and where to move it is assumed that individuals aim to maximise their expected utility from two alternative possible paths (staying or moving to a particular destination), subject to constraints (such as budget and time) and their risk preferences. A move will only take place if, over the long term, the

expected gains in utility (monetary and non-monetary) outweigh the expected losses.

The model presented here is a significantly reduced form of this decision-making process. It treats the decision to move between labour markets as a binary choice over a one year period and focuses on the significance of different personal factors (such as a person's parental status or level of education) on an individual's decision to move. Personal factors are related to the likelihood of a person moving between labour markets because they influence (directly or indirectly) the utility that a person expects to derive from such a move. For example, a person with a family may be less inclined to move to a new regional labour market with their family because they expect that such a move will negatively affect their children's education or their partner's ability to find employment.

A discrete choice model of labour market moves

The Commission has used a discrete choice model to analyse the role that personal factors play in the decisions that people make about whether or not to move between labour markets. Discrete choice models are commonplace in the literature examining the personal factors that influence migration.

Recent Australian studies of internal migration that used discrete choice models to assess the significance of particular personal factors on a person's likelihood of moving include Dockery (2000), Bradbury and Chalmers (2003), Mitchell (2008b) and Clark (2012).

D.2 Model setup

The conceptual model

The probability of moving between regional labour markets within Australia is modelled as:

$$y_i^* = \beta_0 + P_i\beta_1 + \varepsilon_i$$

where:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases}$$

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- y_i^* is the unobserved, latent likelihood of moving between regional labour markets and y_i is the observed outcome (the value for individual i) hence, $y_i = 1$ represents individual i moving between regional labour markets.
 - P_i is a vector of personal characteristics that influence the likelihood of individual i moving between labour markets.

On the assumption that y_i is an independent and identically distributed (*iid*) random variable and errors have a standard normal distribution with unit variance ($\varepsilon_i \sim N(0,1)$), the model was implemented as a probit regression.⁴³

The dependent variable and the dataset

The dependent variable, y_i , is a binary variable equal to one if a person moved between regional labour markets in the previous year, and zero if they did not. The variable is derived from responses to the 2011 Census about the usual residence of a person on Census night (9 August 2011) and their usual residence one year prior.

The dataset used to derive this variable, and each of the explanatory variables, is the 2011 Basic Census Sample File (Basic CSF). The Basic CSF contains a 1 per cent sample of confidentialised unit records. These data are consistent with the data used for analysis in the body of this report and with the data used in the model of regional migration flows. The data also provide a large number of observations.

Overseas visitors and persons who failed to adequately respond to any of the Census questions used to derive variables required in the model were excluded.

To analyse movements between regional labour markets requires designating geographic regions as distinct labour markets. Consistent with the rest of this report, the dependent variable is derived by assuming ABS Statistical Areas Level 4 (SA4s) are a reasonable representation of labour markets outside capital cities and that SA4s aggregated into Greater Capital City Statistical Areas are a reasonable representation of regional labour markets in capital cities. Box B.1 in appendix B has a detailed explanation of regional labour markets.

The Basic CSF aggregates some SA4s into larger regions for confidentiality purposes. Hence, the total number of regional labour markets modelled is 27, whereas elsewhere in the report analysis is conducted on the basis of 50 regional

⁴³ The main model was also estimated using logistic regression. The differences between the two models in terms of the magnitude of the coefficients and the overall goodness of fit were negligible.

labour markets. A detailed breakdown of the regional labour markets and their relationship to SA4s is contained in table D.6.

Given the focus of this study on the geographic mobility of *labour*, the sample only included people who were part of the labour force (either employed or unemployed) on the night of the 2011 Census. This produced 94 236 observations for the estimation.

The explanatory variables

The model seeks to detect the effect of changing each of these personal characteristics on an individual's observed behaviour (whether or not they moved), while holding all other explanatory variables constant.

With the exception of location-related variables, the explanatory variables in the model are for the night of the 2011 Census; they therefore measure personal characteristics after, rather than before, a move has occurred. This is important to take into account when interpreting the descriptive statistics and modelling results (see the discussion of limitations below).

Gender

A binary variable, *Female*, is included to assess the relationship between gender and the likelihood of a person moving between regional labour markets. This variable is derived from the 2011 Census variable *SEXP*.

Age

An increase in age may reduce the likelihood of a person moving between labour markets because the available time in the workforce that a person has to recoup the costs of moving declines as a person gets older. Younger people may also have fewer family commitments that tie them down to a given regional labour market. For some people, the physical capacity to undertake a long-distance move may also decline with age.

A set of binary variables for different age groups (15–19, 30–39, 40–49, 50–59, 60+) is included in the model. Persons aged 20–29 constitute the reference group. These variables are derived from the 2011 Census variable *AGEP*.

Indigenous ancestry

Indigenous ancestry may increase the likelihood of a person moving between labour markets because people with Indigenous backgrounds can have culturally-specific reasons for moving long distances (such as attending traditional ceremonies, visiting country and maintaining kinship networks) and have several places of residence that they call home (Dockery and Colquhoun 2012).

A binary variable for Indigenous ancestry is included in the model. This variable is derived from the Census variables *ANC1P* and *ANC2P*, which record a person's first and second response when asked about their ancestry. The binary variable is equal to one if a person gave 'Australian Aboriginal' as their first or second response to this question. Indigenous ancestry is used in place of formal Indigenous status because the Basic CSF does not include data on Indigenous status. People with Torres Strait Islander ancestry are not included because the Basic CSF is not disaggregated sufficiently to distinguish Torres Strait Islander ancestry from other ancestry groups.

Recency of arrival in Australia

How recently a person arrived in Australia may increase the likelihood of moving between labour markets because recent migrants may have less extensive family networks that tie them to a particular location and may still be deciding on the most suitable place to settle. On the other hand, many migrants must work in a particular region or with a particular employer for a period of time as a condition of their visa, which may reduce their likelihood of moving between labour markets relative to other groups.

The inclusion of a binary variable for recency of migration will capture the net effect of these drivers. This variable is derived from the Census variable *YARP* and is equal to one if a person arrived in Australia between 2006 and 2011, and zero otherwise.

Family and relationships

When families move together, members of that family take into account the effects of such a move on their partner and children. Consequently, living with a partner or children may decrease the likelihood of a person moving between labour markets because moving as a household rather than as an individual raises the total financial and non-financial costs of moving (for example, it may increase the number of social ties to an existing location).

Three binary variables are included to account for any links between family and labour market moves: *Partnered*, *Parent of child not yet at school* and *Parent of child at school*.

- *Partnered* is equal to one if a person shares their usual residence with a spouse (married or de facto).
- *Parent of child not yet at school* is equal to one if a person is the parent of a child who shares their usual place of residence and that child is not yet at school.
- *Parent of child at school* is equal to one if a person is the parent of a child (or dependent student) who shares their usual place of residence and that child attends primary or secondary school.

These variables are derived from the Census variables *RLHP* and *TYPP*.

Education

Education may increase the likelihood of a person moving because the financial gains associated with moving between labour markets are likely to be greater for a person with a higher level of education. More highly educated people may be more willing to move in order to reap the full returns of their human capital investments (Clark 2012). A person with a higher level of education may also be better able to find out about and assess employment opportunities in different labour markets. There is also some evidence that people with higher levels of education tend to be less risk averse and may therefore be more willing to take on the risks involved in moving between labour markets (Outreville 2013).

Two binary variables are included in the model: *Year 10 or below* to represent those with a low level of education and *Degree* to represent those with a high level of education (a university bachelor's degree or higher). Those with a medium level of education (higher than Year 10 but no university degree) constitute the reference group. These variables are derived from the Census variables *HSCP* and *QALLP*.

Employment

A person may be less likely to move between regional labour markets if they (or their partner) have secure employment, particularly if such a move would mean losing that employment or receiving lower remuneration.

Two binary variables, *Unemployed* and *Partner employed*, are included in the model. These variables are derived from the Census variables *LFSP* and *RLHP*.

Personal income

A person may be more likely to move between regional labour markets if their personal income is higher because a higher personal income means they have a greater capacity to cover the upfront financial costs of moving.

Two binary variables are included in the model to represent high and low incomes: *Low income* for people with weekly personal incomes of less than \$600 and *High income* for people with weekly personal incomes of \$1500 or more. Persons with an income between \$600 and \$1500 constitute the reference group. These variables are derived from the Census variable *INCP*.

While these variables may be useful for indicating a person's financial capacity to move, they are less useful for measuring the effect of higher wages in different regions on a person's incentive to move. There are two reasons for this.

- The variables are for personal income on Census night. To capture the effect of changes in wages accurately it would be necessary to have income data for before and after moving.
- The variables capture *total* personal income and so include income from capital as well as labour.

Housing tenure

Housing tenure may affect the likelihood of a person moving between regional labour markets because the costs of moving vary by tenure type. Home owners face costs associated with buying or selling their home (such as stamp duty) that are not faced by renters. Homeowners may also have a greater degree of social attachment to a region than renters.

In comparison to private renters, persons renting public housing may be less likely to move because the benefits of moving may be too uncertain and therefore outweighed by the risk of losing access to subsidised accommodation.

Two binary variables are included in the model to represent housing tenure: *Home owner* and *Public renter*. Private renters constitute the reference group. These variables are derived from the Census variables *TEND* and *LLDD*.

Location one year ago

Several variables are included to control for the effects of a person's original location on their likelihood of moving to a new labour market.

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- The variable *Regional* is equal to one if a person's usual place of residence one year ago was in a regional or remote area as derived from the Australian Bureau of Statistics' Accessibility/Remoteness Index of Australia. The reference group is persons who lived in a metropolitan area one year ago. A classification of regional labour markets as 'metropolitan' or 'regional' is included in table D.6, attachment D.1.
 - A set of binary variables for state or territory of usual residence one year ago are also included. The reference group is persons living in New South Wales.

A range of alternative regional variables were also considered for inclusion as control variables. These included the unemployment rate, employment growth rate, average real wage, median house price, population density and degree of socioeconomic disadvantage of the source and destination regions of persons who moved between labour markets. Including these variables instead of state and territory variables did not have a meaningful impact on the statistical significance of any other explanatory variable nor the sign of the coefficient of any of the significant explanatory variables. In the interests of parsimony these variables were left out of the models presented here, however, they are included in the model of regional migration flows (appendix E).

Alternative model specifications

To examine how the impact of personal factors might change with the type of move considered, two alternative model specifications were developed with different dependent variables:

- a model of moves between residences (which captures moves both between and within labour markets)
- a model of moves between states and territories (which captures a subset of labour market moves).

For most variables, the results for these models were consistent with those in the main model.

Alternative model specifications of population sub-groups were also developed to test whether gender or employment status affected how other personal factors influenced a person's likelihood of having moved. Results were fairly consistent across the models, but fewer variables were statistically significant in the model specification restricted to unemployed people, perhaps reflecting the much smaller sample size.

A further alternative model specification was developed to test the significance of certain interaction terms (table D.8, attachment D.2).

D.3 Descriptive statistics

Table D.1 shows the number and proportion of people in the labour force included in the Basic CSF who changed their usual place of residence in the year leading up to the 2011 Census night.⁴⁴ These figures are broken down according to the type of move undertaken. Only 3.1 per cent of people in the sample moved between labour markets. This is equivalent to less than one fifth of all those who changed their usual place of residence.

Table D.1 **Proportion of people in the labour force who moved**

	<i>Number in sample who moved between:</i>			<i>Proportion of sample (%) who moved between:</i>		
	<i>Residences^a</i>	<i>Labour markets^b</i>	<i>States</i>	<i>Residences^a</i>	<i>Labour markets^b</i>	<i>States</i>
Moved	14 790	2 923	1 526	15.7	3.1	1.6
Did not move	79 446	91 313	92 710	84.3	96.9	98.4
Total	94 236	94 236	94 236	100.0	100.0	100.0

^a Includes people who moved within labour markets, between labour markets and between states. ^b Includes people who moved between labour markets and people who moved between states.

Source: Productivity Commission estimates using the 2011 Census Basic CSF.

Table D.2 shows the proportion of people who changed their usual place of residence within the previous year, disaggregated by the personal characteristics included in the model.

Some key observations from table D.2 can be made.

- Women were slightly more likely than men to change their usual place of residence, but less likely to move between labour markets or between states.
- Rates of movement between residences, labour markets and states all seem to peak in the 20–29 age group then gradually fall away as age increases.

⁴⁴ Proportions reported in tables and text may differ slightly from those reported in chapter 5 because they exclude observations with non-responses to any of the Census questions on which explanatory variables included in the main model were based. For example, in chapter 5, 3.3 per cent of people in the labour force were noted as moving between labour markets. For the dataset used here this figure is also 3.3 per cent, but it falls to 3.1 per cent when people with missing responses are excluded.

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- People with Indigenous Australian ancestry moved much more often between labour markets and between states than people without Indigenous Australian ancestry.
 - People who have recently arrived in Australia seem to have much higher rates of movement than those who have lived in Australia for longer. However, the largest proportional differences are for moves between residences. The proportional difference in rates of movement between labour markets and between states is smaller.
 - People with partners move between residences, labour markets and states less often than those without partners.
 - Parents with children under school age seem to move about as frequently as all others, however, parents with children attending school move much less.
 - Rates of movement between residences, labour markets and states seem to be positively correlated with a person's level of education.
 - Unemployed people move far more often than employed people between residences, labour markets and states.
 - People with employed partners move much less often between residences, labour markets and states than people without employed partners.
 - There does not appear to be much of a relationship between personal income and movement between residences, labour markets or states.
 - People who rent from a public landlord move much less often than people who rent from a private landlord. People who own their own home move even less often.
 - People who lived in a metropolitan area one year ago change residence about as often as people who lived in a regional or remote area, but they moved much less frequently between labour markets or between states.
 - Rates of movements between labour markets are far higher among people who lived in the Northern Territory one year ago than for all other states and territories.⁴⁵

These findings are consistent with the analysis of Census data discussed in chapter 5.

⁴⁵ Moves between labour markets are the same as moves between states in Tasmania, the Northern Territory and the ACT because these regions only have one regional labour market in the model.

Table D.2 Proportion of people in labour force who moved, by personal characteristics

<i>Personal characteristics^a</i>	<i>Representation in sample</i>		<i>Proportion (%) who moved between:</i>		
	<i>Number in sample</i>	<i>Proportion of sample (%)</i>	<i>Residences</i>	<i>Labour markets</i>	<i>States</i>
Gender					
Male	49 566	52.6	15.4	3.2	1.7
Female	44 670	47.4	16.1	3.0	1.6
Age					
15–19 years	5 782	6.1	15.8	3.8	1.3
20–29 years	19 708	20.9	29.3	5.3	3.0
30–39 years	20 493	21.8	19.3	3.8	2.0
40–49 years	21 698	23.0	11.0	2.3	1.2
50–59 years	18 397	19.5	7.2	1.5	0.8
60+ years	8 158	8.7	5.3	1.2	0.5
Indigenous ancestry					
Indigenous Australian ^b	306	0.3	18.3	10.8	4.6
Not Indigenous Australian	93 930	99.7	15.7	3.1	1.6
Recency of arrival					
Arrived in Australia after 2006	5 088	5.4	31.4	4.1	2.7
All others	89 148	94.6	14.8	3.0	1.6
Partner status					
Partnered	57 918	61.5	13.2	2.5	1.3
Not partnered	36 318	38.5	19.6	4.1	2.1
Parent of child not yet at school					
Parent of child not yet at school	13 707	14.6	16.8	3.4	1.6
All others	80 529	85.4	15.5	3.1	1.6
Parent of school-aged child					
Parent of school-aged child	22 928	24.3	10.4	2.0	1.0
All others	71 308	75.7	17.4	3.5	1.8
Education level					
Year 10 or below	15 749	15.7	11.4	2.6	1.1
Above Year 10 but below degree	54 178	57.5	16.1	3.1	1.6
University degree or higher	24 309	25.8	17.5	3.4	2.0
Employment status					
Employed	89 268	94.7	15.3	2.9	1.5
Unemployed	4 968	5.3	22.4	7.1	4.0
Partner employment status					
Have an employed partner	45 981	48.8	13.1	2.2	1.1
All others	48 255	51.2	18.2	4.0	2.1
Personal income					
<\$600 per week	29 738	31.6	15.0	3.2	1.6
\$600–\$1500 per week	45 411	48.2	16.6	3.1	1.6
>\$1500 per week	19 087	20.3	14.5	3.0	1.8

(Continued next page)

Table D.2 (continued)

<i>Personal characteristics^a</i>	<i>Representation in sample</i>		<i>Proportion (%) who moved between:</i>		
	<i>Number in sample</i>	<i>Proportion of sample (%)</i>	<i>Residences</i>	<i>Labour markets</i>	<i>States</i>
Housing tenure					
Homeowner	68 422	72.6	8.8	1.6	0.7
Private renter ^c	24 006	25.5	35.6	7.5	4.1
Public renter	1 808	1.9	13.7	3.1	1.6
Remoteness area					
Metropolitan	69 074	73.3	15.6	2.4	1.4
Regional	25 162	26.7	16.0	5.0	2.3
State/Territory					
New South Wales	29 467	31.3	14.8	2.8	1.5
Victoria	23 791	25.3	14.8	2.3	1.1
Queensland	19 252	20.4	18.2	4.2	1.7
South Australia	7 082	7.5	13.3	2.8	1.7
Western Australia	9 835	10.4	15.9	2.9	1.2
Tasmania	2 074	2.2	15.7	2.8	2.8
Northern Territory	869	0.9	25.2	10.7	10.7
Australian Capital Territory	1 866	2.0	15.7	5.8	5.8
All people in labour force	94 236	100.0	15.7	3.1	1.6

^a All personal characteristics are for 2011 Census night except remoteness area and state/territory, which are for one year prior. ^b Does not include people with Torres Strait Islander ancestry due to insufficient disaggregation between groups in the source data. ^c Includes being occupied rent-free, occupied under a life tenure scheme, caravan parks, housing co-operatives and employer-owned housing.

Source: Productivity Commission estimates using the 2011 Census Basic CSF.

Limitations

One key limitation of this modelling exercise is a reliance on post-move data. As noted above, with the exception of location-related variables, all of the explanatory variables in the model relate to the night of the 2011 Census rather than when the decision to move was taken. Ideally, all variables would relate to a time period preceding the move because the purpose of the model is to examine how the explanatory variables influence the decision to move rather than how moving influences the explanatory variables. A key assumption of the model is that the explanatory variables are correlated over some time, so that observations made on Census night are reasonable proxies for values prior to that time.

This assumption is less plausible for variables related to partner status, employment status, partner's employment status, income and housing tenure because these explanatory variables could change with a move between labour markets (and this change could even be part of the reason for moving). For example, a person might

move to be with a new partner or as a result of a change in employment status. Further, a person renting in a new location (at least for a transitional period), might have owned their own home prior to moving. In this case, the effect of being a renter on the likelihood of moving between regional labour markets would be overstated. In section D.5, the results of this model are compared to previous studies that do not rely on this assumption.

A second limitation of this model is that it does not control for ‘life events’ — major events that alter an individual’s personal circumstances and may be correlated with changing location, such as getting married and having children. For example, the *Partnered* variable may account for two different effects — the effect of *finding* a partner and the effect of *having* a partner. The former effect could increase the likelihood of moving as new partners move together to start a new life (the life event), but the latter effect (the one of interest in this study) may be to decrease the likelihood of moving as living with a partner increases the number of ties a person has to a given location. In section D.4, the results of this exercise are compared to previous studies that control for life events.

A third limitation of this model is that it is limited to basic socio-demographic variables that relate to an individual and the household in which they live. There are many other personal factors unrelated to one’s household that could create ties to a location. For example, the extent of a person’s extended family living in a regional labour market could have a significant effect on a person’s likelihood of moving (chapter 8).

Using only socio-demographic variables available in the Basic CSF could also lead to omitted variable bias. For example, people residing in public housing may have personal characteristics that differ from the broader population. While the model controls for some of these (such as education and income), these controls may be too crude and hence the variable for public housing may capture the effect of the characteristics of the residents on mobility as well as the effect of living in public housing on mobility.

The accuracy of the estimates in the main model also depends on the extent to which the moves captured by the dependent variable in the main model actually represent moves between labour markets. Because the Basic CSF aggregates some SA4s for confidentiality purposes, the total number of labour markets in the model is lower than desirable and the size of the labour markets is larger. Some moves between SA4s within these aggregations should probably be considered moves between labour markets but they are not captured by the dependent variable. On the other hand, the dependent variable *is* likely to capture some short distance moves

across labour market boundaries that would otherwise not be considered moves between labour markets.

D.4 Results and discussion

Table D.3 shows the results of the main econometric model. The marginal effects are conditional on all the explanatory variables being equal to zero. Therefore, the benchmark case is for a person who:

- is male
- is aged 20-29 years
- is without Indigenous ancestry
- arrived in Australia before 2006 or was born in Australia
- does not have a live-in partner
- is not a parent living with children at school or under school age
- has completed more than the equivalent of Year 10 of secondary school, but does not have a university degree
- is employed with a medium-level income (more than \$600 but less than \$1500 per week)
- rents from a private landlord
- lived in a metropolitan area of New South Wales one year ago.

For the benchmark case, the estimated probability of moving between labour markets is 8.24 per cent. By comparison, the probability of moving between labour markets is 3.10 per cent for the sample as a whole.

Many personal factors influence labour market moves

The results indicate that a variety of personal factors influence a person's likelihood of having moved between labour markets. Excluding the location-related control variables, all variables, aside from *Female* and *Parent of child not yet at school*, had a statistically significant relationship with a person's likelihood of having moved (at the 5 per cent level).

Table D.3 Results from econometric model of labour market moves

<i>Explanatory variables</i>	<i>Estimated coefficients</i>	<i>Marginal effects^a</i>
Number of observations	94 236	..
Log likelihood	-11 668	
Constant	-1.39*	..
Gender variable		
Female	0.02	0.003
Age variables		
15–19	-0.08*	-0.011
30–39	-0.07*	-0.010
40–49	-0.19*	-0.026
50–59	-0.37*	-0.043
60+	-0.48*	-0.051
Ancestry and migrant variables		
Indigenous Australian	0.36*	0.070
Arrived in Australia after 2006	-0.20*	-0.026
Family and relationship variables		
Partnered	0.14*	0.024
Parent of child attending school	-0.16*	-0.021
Parent of child not yet at school	-0.03	-0.004
Education variables		
Year 10 or below	-0.06*	-0.008
University degree or higher	0.06*	0.009
Employment and personal income variables		
Unemployed	0.39*	0.077
Partner employed	-0.23*	-0.030
Income >\$1500 per week	0.08*	0.013
Income <\$600 per week	-0.07*	-0.010
Tenure variables		
Homeowner	-0.63*	-0.061
Public renter	-0.57*	-0.058
Location variables (one year ago)		
Regional	0.32*	0.060
Victoria	-0.06*	-0.008
Queensland	-0.14*	-0.023
South Australia	-0.03	-0.004
Western Australia	0.02	0.003
Tasmania	0.06	0.009
Northern Territory	0.33*	0.062
Australian Capital Territory	0.39*	0.076

^a Conditional marginal effects are calculated for all dummy variables equal to zero using the finite-difference method. * Variable is statistically significant at the 5 per cent level. .. Not applicable.

Source: Productivity Commission estimates.

As hypothesised, the results indicate that younger people are more likely to move than older people. For example, compared to the benchmark case, a person aged between 50 and 59 is 4.3 percentage points less likely to move labour markets.

Having Indigenous Australian ancestry is positively related to the likelihood of moving between labour markets. Compared to the benchmark case, an Indigenous person is 7.0 percentage points more likely to move.

As discussed above, people with Indigenous backgrounds may have culturally-specific reasons for moving long distances and a much larger number of temporary moves may be captured in the data among Indigenous people compared with non-Indigenous people. On the basis that Indigenous Australians living in regional areas may be more inclined to make such moves, an alternative specification of the main model included an interaction term for Indigenous ancestry and place of residence in a regional or remote area one year ago. However, this term was not statistically significant (table D.8, attachment D.2).

Having recently arrived in Australia has a significant negative relationship with the likelihood of moving between labour markets. This is an intriguing finding as the descriptive statistics show that recent migrants move between labour markets more than other people in the labour force.

An alternative specification of the model included an interaction term for recency of arrival and place of residence in a regional or remote area one year ago (table D.8, attachment D.2). The purpose of including this term was to test whether the mobility of recent migrants differed by location of residence given that many recent migrants have settled in regional and remote areas (appendix C).

The coefficient of the interaction term was statistically significant and positive. One possible reason why some migrants located in regional areas could be more likely to move than their metropolitan counterparts is because they often arrive in Australia on regional or employer sponsored migration visas and work on project-based activities in the mining and construction industries where moves between regions are common.

The model indicates that a person with a partner is 2.4 percentage points more likely to have moved between labour markets when compared to the benchmark case. Being partnered may make it easier for a person to move (particularly over long distances) because a partner can provide financial and emotional support. Alternatively, this result could reflect some of the limitations of the model discussed above. For example, because the variable only identifies whether a person was living with a partner on Census night (rather than a year prior) it could be that many people move labour markets to be with a partner.

The parent variables appear to indicate that avoiding disruptions to a child's education is an important consideration for parents when deciding whether to move between labour markets. Compared to the benchmark case, a parent with children at

school was 2.1 percentage points less likely to move between labour markets. For parents of children not yet at school the relationship was weaker and statistically insignificant.

The coefficients for the education variables indicate that higher levels of education are positively related to the likelihood of a person moving between labour markets. However, the marginal effects are relatively small, perhaps because part of the effect of education on earnings and employment potential is being captured by the income and employment variables.

Unemployment has the largest significant positive marginal effect of any variable in the model. Compared to the benchmark case, an unemployed person is 7.7 percentage points more likely to have moved between labour markets. However, care must be taken in interpreting this result. Many people who move between labour markets may change their employment status as a result. Unemployment may be an outcome of moving, rather than moving being an outcome of unemployment. The same caveat applies when interpreting the marginal effect of having an employed partner, which was found to be negative.

Personal income seems to be positively related to the probability that a person has moved, although the marginal effects are relatively small for large changes in income.

Compared to the benchmark case of a private renter, being either a homeowner or a public renter has a very strong and significant negative relationship with the probability that a person has moved between labour markets. A homeowner is 6.1 percentage points less likely to have moved and a public renter is 5.8 percentage points less likely to have moved.

The importance of personal factors is robust to the type of move considered

Table D.4 shows the results of the main model together with those where the dependent variable is replaced by all moves (between and within labour markets) and interstate moves only (a subset of labour market moves). The results indicate that most of the personal factors that matter for moves between labour markets are the same as those that matter for moves within labour markets and moves between different states and territories.

Table D.4 Comparison of results for different movement thresholds
For dependent variables for all moves, labour market moves and interstate moves

	<i>Estimated coefficients by type of move</i>		
	<i>All moves</i>	<i>Labour market moves</i>	<i>Interstate moves</i>
Number of observations	94 236	94 236	94 236
Log likelihood	-35 065	-11 668	-6 852
Constant	-0.16*	-1.39*	-1.66*
Gender variable			
Female	0.07*	0.02	0.01
Age variables			
15–19 years	-0.26*	-0.08*	-0.24*
30–39 years	-0.22*	-0.07*	-0.09*
40–49 years	-0.46*	-0.19*	-0.20*
50–59 years	-0.70*	-0.37*	-0.39*
60+ years	-0.82*	-0.48*	-0.54*
Ancestry and migrant variables			
Indigenous Australian	-0.09	0.36*	0.14
Arrived in Australia after 2006	0.08*	-0.20*	-0.11*
Family and relationship variables			
Partnered	0.02	0.14*	0.16*
Parent of child attending school	-0.19*	-0.16*	-0.17*
Parent of child not yet at school	-0.04*	-0.03	-0.12*
Education variables			
Year 10 or below	-0.08*	-0.06*	-0.09*
University degree or higher	0.03*	0.06*	0.08*
Employment and income variables			
Unemployed	0.21*	0.39*	0.43*
Partner employed	-0.02	-0.23*	-0.23*
Income >\$1500 per week	0.09*	0.08*	0.13*
Income <\$600 per week	-0.13*	-0.07*	-0.08*
Tenure variables			
Homeowner	-0.85*	-0.63*	-0.62*
Public renter	-0.63*	-0.57*	-0.53*
Location variables (one year ago)			
Regional	0.09*	0.32*	0.24*
Victoria	0.01	-0.06*	-0.10*
Queensland	0.12*	-0.14*	0.01
South Australia	-0.04	-0.03	0.04
Western Australia	0.06*	0.02	-0.07
Tasmania	0.15*	0.06	0.35*
Northern Territory	0.21*	0.33*	0.71*
Australian Capital Territory	0.16*	0.39*	0.65*

* Variable is statistically significant at the 5 per cent level.

Source: Productivity Commission estimates.

Across the three models, the sign and significance of the coefficients for age, education, parenting a child attending school, unemployment, income and housing tenure are consistent. Other variables keep the same sign, but are not consistently significant. For example, having a live-in partner has a significant positive relationship with moves between labour markets and between states but is insignificant for moves between residences. One possible reason for this is that the social upheaval that is associated with moving between labour markets and states (but not shorter moves within labour markets) is easier to manage if a person has a partner that they can bring with them.

The only variable with a coefficient that maintains significance across the three models while changing signs is recency of arrival. Recency of arrival in Australia is positively related to all moves, but negatively related to moves between labour markets and moves between states and territories. This could be because recent migrants are more reliant on local services or support from social networks and hence less willing to move once they establish themselves in a particular region.

Most of the same personal factors matter regardless of gender or employment status

Table D.5 shows the sign and significance of coefficients from the results of alternative model specifications, which include only sub-populations according to gender and employment status. (Full regression results are available in attachment D.2.) The coefficient signs are consistent across all of the variables in all the models, however, some of the variables that were less strongly significant in the main model (such as those related to education and income) become insignificant in some of the smaller population sub-groups.

For the model of employed people, additional dummy variables (not presented here) were also considered for a person's occupation and industry of employment at the time of the Census. When these variables were included, the significance and sign of the coefficients was not meaningfully altered for any of the other explanatory variables. None of the occupational variables were statistically significant and the only industry variable that was statistically significant was mining — working in the mining industry had a statistically significant positive correlation with the probability of a person having moved between labour markets in the previous year. This is consistent with the descriptive analysis in chapter 5. In the interests of parsimony these variables were left out of the final model.

Table D.5 Comparison of results by population sub-groups^a

Alternatives specifications for labour market moves

	<i>Main model</i>	<i>Alternative models by selected population sub-group</i>			
		<i>Male</i>	<i>Female</i>	<i>Employed</i>	<i>Unemployed</i>
Number of observations	94 236	49 566	44 670	89 268	4 968
Significance and sign of variables					
Female	ns	..	..	ns	ns
15–19 years	-	ns	ns	ns	ns
30–39 years	-	ns	ns	-	ns
40–49 years	-	-	-	-	ns
50–59 years	-	-	-	-	-
60+ years	-	-	-	-	-
Indigenous Australian	+	+	+	+	ns
Arrived in Australia after 2006	-	-	-	-	-
Partnered	+	+	+	+	+
Parent of child attending school	-	-	-	-	-
Parent of child not yet at school	ns	ns	ns	ns	ns
Year 10 or below	-	ns	ns	ns	ns
University degree or higher	+	ns	+	+	ns
Unemployed	+	+	+	..	..
Partner employed	-	-	-	-	-
Income >\$1500 per week	+	+	ns	+	ns
Income <\$600 per week	-	-	-	-	ns
Homeowner	-	-	-	-	-
Public renter	-	-	-	-	-
Regional residence one year ago	+	+	+	+	+

^a Locational variables for states and territories were included in all models but not reported here for brevity. + Significant positive coefficient. - Significant negative coefficient. **ns** Not significant at the 5 per cent level. .. Variable not included in model.

Source: Productivity Commission estimates.

Results are mostly consistent with previous studies

To the extent that the dependent and explanatory variables used are comparable, the results of the main model are broadly consistent with other recent studies.

Mitchell (2008b) estimated a model of the probability of working-age Australians migrating more than 30 km, primarily to assess the link between skill levels and migration. Controlling for a number of similar variables, Mitchell found relationships of the same sign and significance as the main model presented here for

age, having an employed partner, housing tenure, education, employment status and regional location prior to moving. As with the results presented here, Mitchell also found gender to be insignificant.

Clark (2012) estimated several models of internal migration in Australia. As with Watson (2008b), his initial results align closely with those presented here. However, Clark then proceeded to include variables for ‘life events’ such as getting married, having a baby and losing one’s job. Clark’s model of moves greater than 30 km, which includes explanatory variables for life events, produced results different from those presented here in that age becomes insignificant. However, to the extent that similar variables are included, the results are otherwise consistent with those presented here. Even after accounting for life events, Clark finds a similar relationship between moving and being a parent, owning a home and one’s level of education.

While the models presented here rely on Census data, both Mitchell (2008b) and Clark (2012) used data from the Household, Income and Labour Dynamics in Australia Survey. Consequently, their explanatory variables are for the pre-move period. As the results of these models mostly align with those presented here, this would suggest that the assumption made earlier that the explanatory variables are highly correlated over time is generally valid.

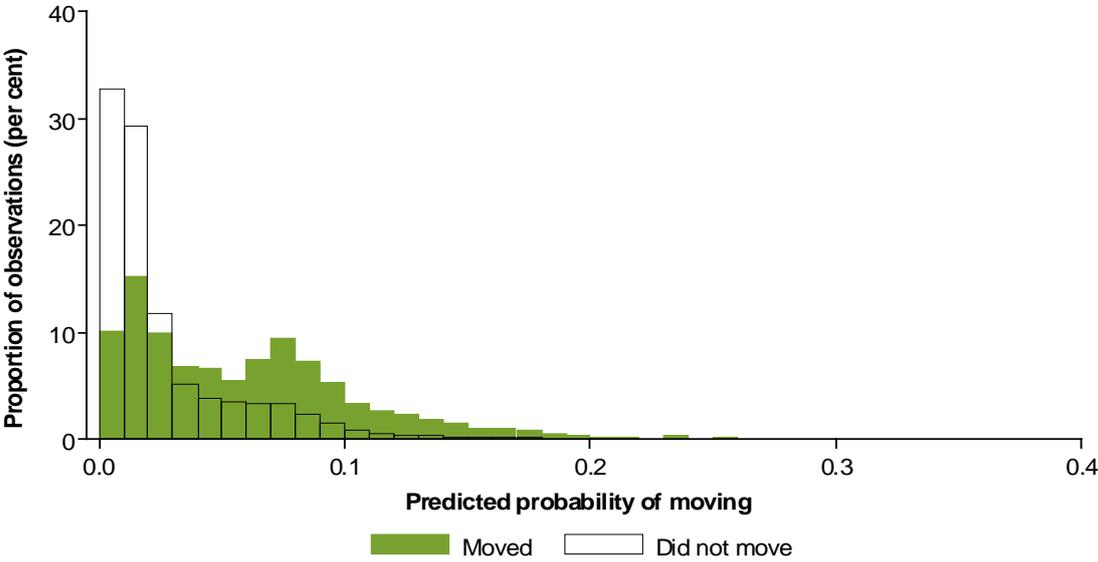
Personal factors have predictive power but do not tell the full story

Plotting the predicted probability of movement against actual observations of movement gives an indication of the predictive power of the main model (figure D.1). While the distributions overlap, the predicted probabilities of moving tend to be higher for people who actually moved, indicating that the model does have some predictive power.

However, because moves between labour markets are so uncommon (undertaken by just 3.1 per cent of people included in the main model), the predicted probability of moving is not very high for most observations and for no single observation is the probability of moving predicted to be greater than 50 per cent. This suggests that there are other personal, locational and transitional factors (such as market signals) not captured by the model that are also important. Many of these are discussed in detail in chapter 8 and modelled in appendix E.

Figure D.1 **Predicted probability of moving by actual movement**

Based on results from the labour market moves model



Source: Productivity Commission estimates.

Attachment D.1 — Supplementary data descriptions

Table D.6 Regional labour markets in the sample^a

<i>Labour market</i>	<i>Included SA4s</i>	<i>Metropolitan or regional^b</i>	<i>Sample pop.^c</i>
Capital Region, Riverina and Southern Highlands	Capital Region; Riverina; Southern Highlands and Shoalhaven	Regional	1 995
Central West and Hunter Valley	Central West; Hunter Valley excl. Newcastle	Regional	1 834
Coffs Harbour, the Mid North Coast and Richmond	Coffs Harbour – Grafton; Mid North Coast; Richmond – Tweed	Regional	2 084
Far West and Orana, Murray, New England and North West	Far West and Orana; Murray; New England and North West	Regional	1 556
Illawarra	Illawarra	Metropolitan	1 101
Newcastle and Lake Macquarie	Newcastle and Lake Macquarie	Metropolitan	1 423
Greater Sydney	Central Coast; Sydney – Baulkham Hills and Hawkesbury; Sydney – Blacktown; Sydney – City and Inner South; Sydney - Eastern Suburbs; Sydney – Inner South West; Sydney – Inner West; Sydney - North Sydney and Hornsby; Sydney – Northern Beaches; Sydney – Outer South West; Sydney - Outer West and Blue Mountains; Sydney – Parramatta; Sydney – Ryde; Sydney – South West; Sydney – Sutherland	Metropolitan	19 372
Ballarat and Geelong	Ballarat; Geelong	Regional	1 634
Bendigo and Shepparton	Bendigo; Shepparton	Regional	1 120
Gippsland and Hume	Latrobe – Gippsland; Hume	Regional	1 759
Greater Melbourne	Melbourne – Inner; Melbourne – Inner East; Melbourne – Inner South; Melbourne – North East; Melbourne – North West; Melbourne – Outer East; Melbourne - South East; Melbourne – West; Mornington Peninsula	Metropolitan	18 249
Western Victoria and Warrnambool	North West; Warrnambool and South West	Regional	1 082
Greater Brisbane	Brisbane – East; Brisbane – North; Brisbane – South; Brisbane – West; Brisbane Inner City; Ipswich; Logan – Beaudesert; Moreton Bay – North; Moreton Bay – South; Toowoomba	Metropolitan	10 340
Cairns and Queensland Outback	Cairns; Queensland - Outback	Regional	1 250
Darling Downs and Fitzroy	Darling Downs – Maranoa; Fitzroy	Regional	1 413

(Continued next page)

Table D.6 (continued)

<i>Labour market</i>	<i>Included SA4s</i>	<i>Metropolitan or regional^b</i>	<i>Sample pop.^c</i>
Gold Coast	Gold Coast	Metropolitan	2 274
Mackay and Townsville	Mackay; Townsville	Regional	1 733
Sunshine Coast	Sunshine Coast	Metropolitan	1 346
Wide Bay	Wide Bay	Regional	935
Greater Adelaide	Adelaide – Central and Hills; Adelaide – North; Adelaide – South; Adelaide – West	Metropolitan	5 565
Barossa, SA Outback and South East	Barossa – Yorke - Mid North; South Australia – Outback; South Australia – South East	Regional	1 503
Greater Perth	Perth – Inner; Perth – North East; Perth – North West; Perth – South East; Perth – South West	Metropolitan	7 541
Bunbury, Mandurah and WA Wheat Belt	Bunbury; Mandurah; Western Australia – Wheat Belt	Regional	1 526
WA Outback	Western Australia – Outback	Regional	821
Tasmania	Hobart; Launceston and North East; South East; West and North West	Regional	2 076
Northern Territory	Darwin; Northern Territory – Outback	Regional	833
ACT	Australian Capital Territory	Metropolitan	1 871

^a Persons living in Australian territories other than the Northern Territory and the Australian Capital Territory are not included in the model. ^b Regional labour markets are classified as 'metropolitan' or 'regional' by calculating the population-weighted average of the Australian Bureau of Statistics' Accessibility/Remoteness Index of Australia for each in SA1 each regional labour market. Regional labour markets with an average index value closest to 'major city' are classified as 'metropolitan' and regional labour markets with an average index value closest to 'inner regional', 'outer regional', 'remote' or 'very remote' are classified as 'regional'. ^c Sample populations only include people in the labour force and exclude persons who had non-responses to any of the Census questions on which explanatory variables included in the main model were based.

Source: Productivity Commission estimates.

Attachment D.2 — Supplementary econometric output

Table D.7 **Comparing results across population sub-groups**
Regression output for labour market moves by gender and employment status

	<i>Estimated coefficients by population subgroup</i>			
	<i>Males</i>	<i>Females</i>	<i>Employed</i>	<i>Unemployed</i>
Number of observations	49 566	44 670	89 268	4 968
Log likelihood	-6 264	-5 394	-10 483	-1 150
Variable coefficients				
Constant	-1.37	-1.39	-1.36	-1.19
Female	..	..	0.01	0.11
15–19 years	-0.06	-0.09	-0.08	-0.02
30–39 years	-0.07	-0.07	-0.09*	0.10
40–49 years	-0.16*	-0.23*	-0.20*	-0.16
50–59 years	-0.38*	-0.34*	-0.37*	-0.36*
60+ years	-0.48*	-0.47*	-0.48*	-0.44*
Indigenous Australian	0.39*	0.34*	0.38*	0.22
Arrived in Australia after 2006	-0.20*	-0.19*	-0.20*	-0.25*
Partnered	0.13*	0.14*	0.12*	0.37*
Parent of child attending school	-0.15*	-0.16*	-0.15*	-0.27*
Parent of child not yet at school	-0.04	-0.02	-0.03	0.03
Year 10 or below	-0.06	-0.05	-0.04	-0.11
University degree or higher	0.03	0.08*	0.06*	-0.09
Unemployed	0.34*	0.45*	..	..
Partner employed	-0.24*	-0.22*	-0.22*	-0.20*
Income >\$1500 per week	0.12*	0.00	0.09*	-0.49
Income <\$600 per week	-0.08*	-0.07*	-0.07*	-0.18
Homeowner	-0.63*	-0.63*	-0.64*	-0.48*
Public renter	-0.53*	-0.61*	-0.52*	-0.67*
Regional residence one year ago	0.34*	0.29*	0.29*	0.58*
Victoria	-0.06	-0.05	-0.06	-0.04
Queensland	0.11*	0.16*	0.13*	0.23*
South Australia	-0.05	0.00	-0.04	0.10
Western Australia	-0.03	0.06	0.00	0.17
Tasmania	0.02	0.10	0.03	0.29
Northern Territory	0.35*	0.29*	0.32*	0.46*
Australian Capital Territory	0.39*	0.39*	0.34*	0.92*

* Variable is statistically significant at the 5 per cent level. .. Not applicable.

Source: Productivity Commission estimates.

Table D.8 Results of main model with added interaction terms

	<i>Estimated coefficients</i>
Number of observations	94 236
Log likelihood	-11 731
Variables	
Constant	-1.37*
Female	0.01
15–19	-0.08*
30–39	-0.07*
40–49	-0.19*
50–59	-0.37*
60+	-0.49*
Indigenous Australian	0.30
Indigenous Australian and regional location of residence one year ago	0.15
Arrived in Australia after 2006	-0.23*
Arrived in Australia after 2006 and regional location of residence one year ago	0.38*
Partnered	0.14*
Parent of child attending school	-0.16*
Parent of child not yet at school	-0.03
Year 10 or below	-0.04
University degree or higher	0.06*
Unemployed	-0.24*
Partner employed	0.08*
Income >\$1500 per week	0.01
Income <\$600 per week	-0.64*
Homeowner	-0.54*
Public renter	0.30*
Regional residence one year ago	-0.06*
Victoria	0.13*
Queensland	-0.03
South Australia	0.01
Western Australia	0.06
Tasmania	0.30*
Northern Territory	0.38*
Australian Capital Territory	-1.37*

* Variable is statistically significant at the 5 per cent level. .. Not applicable.

Source: Productivity Commission estimates.

E Econometric modelling of regional migration

E.1 Introduction

The Commission undertook econometric modelling to help inform its understanding of patterns of regional migration within Australia and to address the following items in the terms of reference:

- Assess the effectiveness of labour market signals in getting people to relocate.
- Examine the economic, social and environmental factors that influence geographic labour mobility.
- Identify the major impediments to geographic labour mobility.

The analysis presented in this appendix has benefited from suggestions made by two referees. Professor Jeff Borland from the University of Melbourne was appointed as an independent referee to review a previous draft of the Commission's econometric modelling. At the Commission, Dr Noel Gaston acted as a referee. The modelling results were also discussed at a workshop on 30 October 2013. Participants included the independent referee and representatives from the Commission.

The theoretical foundations of the analysis are discussed in section E.2. Section E.3 contains the specification of the conceptual model and section E.4 implements the model. The results are discussed in section E.5 and the key messages resulting from this exercise are reported in section E.6. Detailed data description is provided in attachment E.1 and detailed estimation output is presented in attachment E.2.

E.2 Framework for analysis

In deciding whether and where to relocate, individuals are assumed to maximise their expected utility, subject to a number of constraints and personal preferences (chapter 2). Utility can be derived from various sources, including the consumption of goods and services, which is a function of labour income; and unpaid work and

leisure, which may be a function of region-specific characteristics such as access to social infrastructure, entertainment and networks.

Individuals are likely to relocate if the expected net benefits of living in a new location exceed those of the old location, taking into account one-off and ongoing expected costs and benefits, and discounting appropriately future costs and benefits. The element of expectation is important since future costs and benefits cannot be known with certainty.

This model follows the existing migration literature, such as the model developed by Sjaastad (1962), where the decision to relocate is viewed as an investment problem. In this framework, an individual estimates the present value of expected returns in all regions and relocates if the returns from a potential destination region minus the costs of migration are larger than the returns from staying at the origin location.

- Benefits of (or returns to) relocating may include: the additional labour income earned in a new job in the new location; the value of local amenities in the new location (such as schools and shops); and benefits related to personal or social circumstances (such as the value of being closer to family).
- The costs of relocating may include: higher cost of housing in the new location; the income forgone by other household members if they cannot find a job; the psychological cost of moving away from family and established social networks; and one-off moving costs.

These costs and benefits, and their effects on regional migration can be examined empirically in an econometric model based on a gravity model of migration.

A gravity-inspired model of migration

A gravity-inspired model of migration is used to analyse the flows of people and labour between regions and potential determinants, including economic signals, policy variables, personal characteristics, amenity variables, costs, incentives and impediments to mobility. The gravity framework builds on the idea that inter-regional flows are influenced by:

- attractive forces between the source and destination regions (often measured by wages and other region-specific characteristics)
- transaction costs involved in moving (often represented by the physical distance between regions).

The attractive forces are often categorised as pull factors and push factors. Pull factors are characteristics of the destination region that influence *immigration*. Push factors are characteristics of the source region that influence *emigration* (Bunea 2012).

The basic gravity model of migration is discussed in box E.1. The general specification of the model used here is:

$$M_{sd} = \beta_0 + X'_s\beta_1 + X'_d\beta_2 + Z'_{sd}\beta_3$$

where:

- M_{sd} is the migration flow from source region s to destination region d
- X'_s is a vector of explanatory variables capturing different features of region s (often referred to as push factors)
- X'_d is a vector of explanatory variables capturing different features of region d (often referred to as pull factors)
- Z'_{sd} is a vector of explanatory variables representing any transaction costs or influences on transaction costs associated with moving from s to d (including impediments and incentives to mobility).

Analysing migration as a function of different features of the source and destination regions as well as moving costs is a commonly used approach in the modelling literature. For example, Pissarides and McMaster (1990), Decressin (1994) and Daveri and Faini (1996) include relative wages and unemployment rates in their analysis. In addition to wages, Mayda (2010) considers the distance between two countries, the presence of a common land border and the share of 15–29 year olds in the origin country's population.

A number of researchers have used migration models derived from the general specification above for country-specific analyses of regional migration patterns. These include Bunea (2012) for Romania, Filiztekin and Gökhan (2008) for Turkey, Gunderson and Sorenson (2010) for the United States, and Parikh and Van Leuvensteijn (2002) for Germany.

Box E.1 The basic gravity model of migration

By analogy with trade, migration in a basic gravity model is assumed to be driven by the relative attractive forces of the source and destination regions and the transaction costs of moving from one region to another:

$$M_{sd} = f(ES_s, ES_d, C_{sd})$$

where the movement of people or labour from source s to destination d (M_{sd}) is driven by the two regions' economic sizes or relative attractiveness (ES_s and ES_d) and by the transaction costs (distance in the gravity analogy) involved in migrating (C_{sd}).

Explanatory variables expected to influence migration have been added to the basic specification to better explain the movements of people or labour across countries or regions. While most of these models have been developed to examine international migration, some have been used to explain inter-regional migration. For example:

- Lewer and Van den Berg (2008) estimate gravity models of immigration to 16 OECD countries where immigration is a function of gross domestic product and population in the source and destination countries, common trading blocks and common borders, languages or colonial histories, distance between capital cities, a rule of law index, and a property rights index. In a further example, Peri (2005) analyses the determinants of international migration flows in the European Union using a gravity equation that includes geographic and economic determinants such as distance, common border, common language, trade agreements, population and wages
- Fry, Fry and Peter (1999) model regional migration as a function of real wages, unemployment and house prices in the destination region, as well as the average values of these variables for the rest of Australia. In another example, Gunderson and Sorenson (2010) use augmented gravity models to examine domestic emigration from California counties as a function of population, distance, unemployment rate differentials, income differentials and urbanisation.

E.3 Model setup

This section develops the model used, based on the theoretical framework presented in section E.2, and discusses alternative model specifications.

The conceptual model

The inter-regional migration flow from region s to region d is modelled as:

$$M_{sd} = \beta_0 + E'_{sd}\beta_1 + D'_{sd}\beta_2 + A'_{sd}\beta_3 + C'_{sd}\beta_4$$

where:

- E'_{sd} is a vector of economic variables
- D'_{sd} is a vector of variables denoting demographic characteristics
- A'_{sd} is a vector of amenity variables
- C'_{sd} is a vector of variables capturing the transaction costs of moving.

The dependent variable

The dependent variable is the inter-regional migration flow between August 2010 and August 2011 and is expressed as the number of people in the labour force (either employed or unemployed) moving from a source region into a destination region. These are the people who in the 2011 Census said they had moved residence in the previous year.⁴⁶ In this analysis, a ‘region’ characterises a regional labour market derived from an ABS Statistical Area Level 4 (SA4) (discussed further in section E.4).

Specifying the dependent variable as the inter-regional migration flow results from the research questions in the terms of reference. Key issues of interest include the number of people moving between labour markets and whether, and how many, people are going to labour markets with better job prospects. The migration flow is thought to be an appropriate indicator to examine these issues. Other researchers who have used inter-regional migration flows include:

- Rohlin (2000), who examined the link between modernisation of cities and migration flows to and from Brisbane and Stockholm
- Gunderson and Sorenson (2010), who examined the reasons for increased domestic emigration from California counties
- Van Lottum and Marks (2012), who investigated the factors that have driven internal migration in Indonesia, with a particular focus on how economic and social conditions in different provinces affected the inclination to migrate.

The explanatory variables — conceptual level

The list of explanatory variables relevant for the conceptual model is reported in table E.1 and the rationale for choosing these variables is discussed below.

⁴⁶ The Census also asks people if they have moved residence in the past five years. Data collected from responses to this question could also be used to construct the dependent variable. This is explored in section E.5.

Table E.1 **Explanatory variables in the conceptual model**

<i>Explanatory variable</i>	<i>Classification</i>
Economic variables	
Financial returns (source)	Push factor
Financial returns (destination)	Pull factor
Employment growth (source)	Push factor
Employment growth (destination)	Pull factor
Relative costs of living	Pull factor
Probability of finding a job	Pull factor
Demographic characteristics	
Size of destination labour market	Pull factor
Pool of potential migrants	Push factor
Age structure of source region	Push factor
Financial capacity to move	Push factor
Amenity/quality of life	
Density of services and entertainment, and congestion (destination)	Pull factor
Access to essential services (destination)	Pull factor
Transaction costs	
Social, financial and psychological costs	Transaction cost

Economic variables — when deciding where to move, people are likely to respond to market signals by going where the **financial returns** are relatively high and the **costs of living** are relatively low. The characteristics of a regional labour market, such as the **probability of finding a job** and the recent **growth in employment**, can be good indicators of the strength of a labour market and related incentives that an individual might consider when deciding to move.⁴⁷

Demographic characteristics — these influence the number of people likely to migrate from one region to another, and include:

- the **pool of potential migrants** and **size of a labour market**, which affect movement in and out of regions
- the **age structure of the source region** (as shown in chapter 5, young people are more likely to move than the rest of the population because they have a longer time period to reap the benefits of moving or because they are likely to face fewer impediments to movement such as family commitments and home ownership)
- the **financial and personal capacity** of people in a region to undertake a move, since people who are socially and economically disadvantaged may find it harder to relocate.

⁴⁷ However, the strength of the labour market in the destination region may not be relevant for someone who is relocating because their employer has changed location.

Amenity/quality of life — these are the features that can help distinguish a region from another when deciding where to live and work. Factors determining liveability in a region include **access to essential services** (such as education, health, communication and transport), **density of other services and entertainment**, and **congestion**.

Transaction costs — these contribute to the costs of moving and are represented by a range of variables capturing the **social, financial and psychological costs** of moving.⁴⁸

- Moves over longer distances are likely to involve greater financial and psychological costs. The greater the distance, the greater the transaction costs of moving (for example, cost of moving belongings). Psychological costs may include being further away from family and friends.
- Home owners are likely to incur higher social and financial costs when moving and may therefore stay longer in their location to spread these costs over a longer time period (Coulson and Fisher 2009; Oswald 1996).
- The costs of moving differ between interstate and intrastate moves (for example, the cost of getting a new driver's licence if moving interstate). Moving to a neighbouring region is also likely to be less costly than moving further away.

Alternative model specifications

A range of model specifications were considered to account for the potential differences in migration patterns across different sub-groups of the population. Different dependent variables were used in each model.⁴⁹

- A model of population movement.
 - Models of population movement for different age groups — those of working age (15–64 years) and those more likely to migrate (aged 20–34 years).
- A model of labour force movement and a model of movement for the unemployed only.
- A standalone model of labour movement for each broad occupation group — managers, professionals, technicians and trades workers, community and

⁴⁸ These costs can occur at the time of the move or can be long lasting.

⁴⁹ If the main objective of modelling was to examine migration patterns of other population groups, the list of included explanatory variables would need to be modified. For example, amenity variables such as climate could be more important than economic factors for modelling the migration patterns of the older population.

personal service workers, clerical and administrative workers, sales workers, machinery operators and drivers, and labourers.

The main results for the labour force model are reported in section E.5 and the rest of the results are reported in attachment E.2.

E.4 Implementing the model

This section briefly describes the explanatory variables and proxies used in the econometric model to implement the conceptual model discussed earlier. A more detailed description is provided in attachment E.1.

Since the study focuses on geographic labour mobility, it is most useful to estimate the model at the regional level that most closely approximates labour markets. To this end, all the data were initially obtained at or converted to the SA4 geography. According to the ABS (2010e), SA4s are designed to represent regional labour markets as geographic regions that have a high degree of interconnectedness or overlap between where people live (labour supply) and where they work (labour demand) (ABS, sub. 12) (also discussed in appendix B). SA4s generally have populations of between 100 000 and 300 000 people in regional areas and between 300 000 and 500 000 in metropolitan areas. For this reason, most capital cities consist of several SA4s.

For the purpose of this project, large capital cities were assumed to be a single labour market and the corresponding SA4s were aggregated.

5. Using fully disaggregated SA4s means that the sample includes many small migration flows to and from city SA4s that are not representative of the large migration flows in and out of capital cities, and can therefore distort the modelling results. For example, over 5000 workers relocated from Sydney to Melbourne in the year leading to the 2011 Census. This large flow is represented by several much smaller flows in the disaggregated dataset since Sydney is divided into 14 SA4s.
6. For many occupations, especially professionals and managers, the labour market in capital cities is broader than that defined by the SA4s. In capital cities, people often change the location of their job without necessarily changing their residence, and they can change residence without necessarily changing their job. For example, there is likely to be only one market for economists in Melbourne, rather than eight geographically distinct markets.

In this analysis, inner-city SA4s in Sydney, Melbourne, Brisbane, Adelaide and Perth are aggregated to ‘Super SA4s’ (hereafter referred to as regions). In total,

56 regions were included in the analysis, yielding 3080 gross flows between regions.⁵⁰

Following researchers such as Karemera, Oguledo and Davis (2000), Lewer and Van den Berg (2008), Ortega and Peri (2013), and Van Lottum and Marks (2012), inter-regional migration flows are modelled in log form. This yields coefficients that are easily converted to elasticities.

Explanatory variables — econometric model

The full list of explanatory variables included in the econometric model is reported in table E.2.

Table E.2 **Explanatory variables in the econometric model**

<i>Explanatory variable</i>	<i>Classification</i>
Economic variables	
Real wages (source)	Push factor
Real wages (destination)	Pull factor
Growth in number of wage and salary earners (source)	Push factor
Growth in number of wage and salary earners (destination)	Pull factor
House price ratio	Pull factor
Unemployment rate differential	Pull factor
Demographic characteristics	
Population (source)	Push factor
Population (destination)	Pull factor
Share of population aged 20–34 years (source)	Push factor
Index of Relative Socio-economic Disadvantage (source)	Push factor
Amenity/quality of life	
Population density ratio	Pull factor
Medical practitioners per 1 000 people (destination)	Pull factor
Transaction costs	
Home ownership rate (source)	Transaction cost
Distance	Transaction cost
Common border	Transaction cost
Intrastate move	Transaction cost

⁵⁰ This is based on the 88 fully disaggregated SA4s covering the whole of Australia (discussed in box B.1 in Appendix B) minus ‘Other Territories’. Sydney consists of 14 SA4s, Melbourne consists of 8 SA4s, Brisbane consists of 5 SA4s, Adelaide consists of 4 SA4s, and Perth consists of 5 SA4s.

Economic variables

- **Real wages** measure the potential financial return to working in a particular region. Real wages are preferred to nominal wages because, in some cases, labour markets with high wages also have high living costs. The real wage is constructed as the average wage and salary income (as provided to the ABS by the Australian Tax Office (ABS 2013h)) in a region, deflated by the corresponding regional consumer price index (CPI).
- The **growth in the number of wage and salary earners** captures the growth in regional employment and is taken as an indicator of the performance of a regional labour market and of the probability of finding a job. It is expressed as the percentage change in the number of wage and salary earners between 2006 and 2011.
- An index of **relative house prices** measures the relative costs of living across regions, as housing costs account for a significant part of the cost of living. The index is expressed as the ratio of the June 2011 median house price in the destination region to the median house price in the source region.
- The **unemployment rate differential** captures the differences in employment probabilities in regions and corresponding risks associated with moving to another region to seek employment. It is represented by the unemployment rate in the destination region minus the unemployment rate in the source region.

Demographic characteristics

- **Population size** in a region captures the pool of potential migrants (in the source region), and the level of economic activity and size of the labour market (in the destination region). It is measured as the resident population as at June 2011.
- The **share of the source region's population aged 20–34 years** captures the idea that young people are more likely to move than the rest of the population. It is expressed as the number of people aged 20–34 years in the source region as a percentage of the estimated resident population.
- The **Index of Relative Socio-economic Disadvantage (IRSD)** indicates the proportion of relatively disadvantaged people in a region. It is used as an indicator of the capacity to move. The index ranks regions on a continuum from most disadvantaged to least disadvantaged (box E.2).

Amenity/quality of life

- The **ratio of population densities** captures relative differences in some of the environmental and lifestyle features of regions. Population density captures two

opposing aspects of liveability in a region. On the one hand, it can be an indicator of negative aspects such as congestion. On the other hand, it can be an indicator of positive aspects such as high density of services and entertainment. The ratio is constructed as the population density in the destination region divided by the population density in the source region.

- The **number of medical practitioners** in the destination region proxies for access to essential services, such as education, health, communication and transport.⁵¹ It is expressed as the number of medical practitioners per 1000 people.

Box E.2 The Index of Relative Socio-economic Disadvantage

The Index of Relative Socio-economic Disadvantage (IRSD) is a socio-economic index that summarises information about the economic and social conditions in a region.

The IRSD is a measure of relative disadvantage across regions. A low score indicates relatively greater disadvantage while a high score indicates a relative lack of disadvantage. For example, a region can have a low score if there are many low-income earners, many people with no academic qualifications, or many people in low-skilled jobs.

A range of variables are included in the construction of the index, with differing weights. These include the percentage of: people who do not speak English well; people aged 15 years and over who have no educational attainment; employed people classified as low skilled; occupied private dwellings with no cars; people in the labour force who are unemployed; people with stated household equivalised income between \$1 and \$20 799 per year.

The IRSD ranges from 441 to 1148 (at the Statistical Area Level 2). It is lowest in Yarrabah (in Queensland, near Cairns) and highest in Forrest (ACT).

Source: ABS (2013f).

Transaction costs

- The **home ownership rate** in the source region proxies for some of the social and financial costs involved in moving. When moving, home owners are likely to incur larger financial costs than renters. Further, home owners are likely to have a greater degree of attachment and social capital invested in the source region compared to renters. The home ownership rate is calculated as the number of occupied private dwellings that are owned outright, owned with a

⁵¹ Medical practitioners, as defined by the ABS, include generalist medical practitioners, anaesthetists, specialist physicians, psychiatrists, surgeons, other medical practitioners, and medical practitioners not further defined.

mortgage or being purchased under a rent/buy scheme by a member of the household, expressed as a percentage of total occupied private dwellings.

Indicators of the physical distance between two locations are also used as proxies for the transaction costs involved in moving.

- **Distance** captures the idea that moves over longer distances are likely to involve greater financial and psychological costs. It is measured by the straight-line distance between the population centroids (or mean centres) of two regions.
- A **common border** variable is included because short-distance moves to neighbouring regions are less costly and moving costs are likely to be non-linear. It is included as a dummy variable indicating whether two regions are neighbouring.
- An **intrastate move** variable captures the differences in costs between interstate and intrastate moves (for example, the cost of getting a new driver's licence if moving interstate). It is included as a dummy variable indicating whether the source and destination regions are within the same state.

While there is a risk that some of these transaction-cost variables are correlated, they are likely to capture the effects of different types of financial, psychological and social costs.⁵²

Descriptive statistics

This section briefly discusses selected characteristics of the data. Other descriptive statistics, such as for data included in models other than those presented in this section, and a correlation matrix are reported in attachment E.1.

Table E.3 reports the range of the variables used in the econometric model as well as their average by remoteness category. Migration flows differ across population groups as well as across remoteness categories. For all groups except machinery operators and drivers, migration flows to major cities are the largest, followed by migration to remote areas. The relatively large migration flows to remote areas are consistent with strong demand for labour in mining regions. This is consistent with findings from the Regional Australia Institute (forthcoming, p. 19):

... with the increase in national population growth rates and the effects of the mining boom in remote areas there has been an increase in population in remote areas, although the fastest rate of growth remains in the megacities and closely settled areas of inland Australia.

⁵² A correlation matrix reported in attachment E.1 finds no evidence of high correlation between the transaction-cost variables.

Table E.3 **Descriptive statistics by remoteness structure^a**

Variable	Unit	Range	Average		
			Major cities	Regional	Remote
Migration flows^b					
Labour force	number	0 – 6 546	237.5	72.8	108.0
Professionals	number	0 – 1 725	53.8	13.9	20.7
Machinery operators and drivers	number	0 – 1 094	10.8	4.9	14.9
Young population (20–34 years)	number	0 – 3 794	156.8	44.7	61.1
Real wages					
Real wages	\$000	35.9 – 57.6	48.4	41.9	44.4
Real wages — professionals	\$000	49.8 – 73.7	64.8	57.1	57.2
Real wages — machinery operators and drivers	\$000	40.6 – 85.3	50.7	51.8	60.4
Other explanatory variables					
Growth in number of wage and salary earners	%	1.3 – 31.3	13.0	7.5	9.2
House price ratio		0.3 – 3.9	1.4	0.9	1.1
Unemployment rate differential		-5.3 – 5.3	..	..	..
Population share 20–34 years	%	11.1 – 24.1	19.1	15.7	21.0
Home ownership rate	%	30.3 – 76.5	64.7	65.7	44.2
Index of Relative Socio-economic Disadvantage		759.2 – 1 075.4	1 011.3	970.2	871.0
Population	000	37.4 – 4 284	896.0	167.3	125.6
Population density		0.1 – 1 943.5	443.8	12.6	0.1
Medical practitioners	per 10 000	7 – 60	28	20	14
Distance	km	8.0 – 3 838.8	..	..	..

^a Data for the models presented in this section. Statistics for additional models are in attachment E.1. ^b Average migration flows by remoteness category are reported according to which remoteness category the destination regions fall into. .. Not applicable

Source: Productivity Commission estimates.

The Regional Australia Institute (forthcoming) also notes that, of the many growing mining areas, those in north-west Western Australia are growing the most rapidly.

Average real wages tend to be highest in major cities, with the exception of wages for machinery operators and drivers. Once again, the higher average real wages recorded for machinery operators and drivers outside major cities can be explained by the strong demand for these workers in mining regions, and the significant premiums that mining companies often pay to attract workers to remote areas.

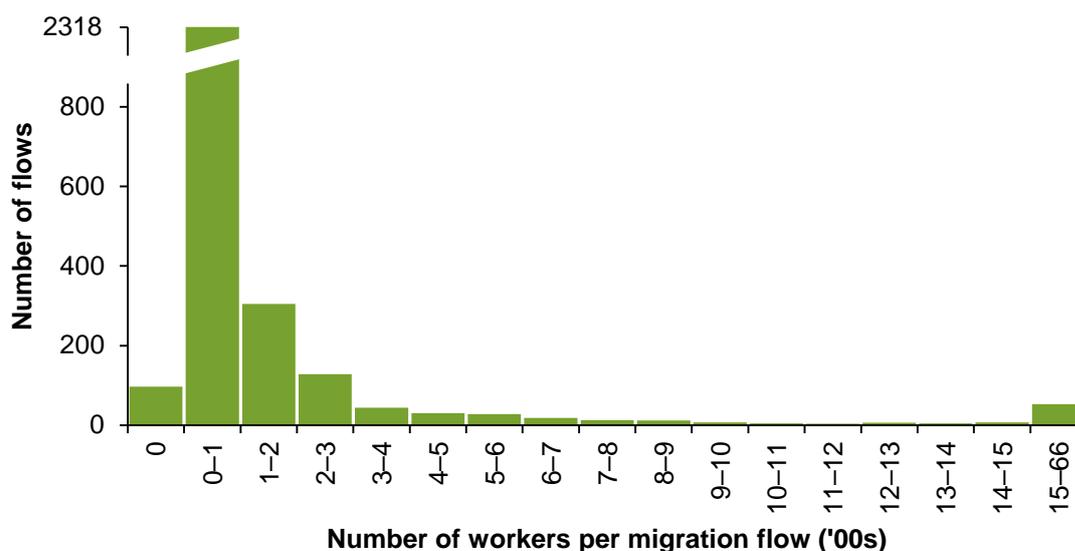
The data are also consistent with:

- major cities providing better access to services and having a lower incidence of socio-economic disadvantage
- home ownership rates tending to be lowest in remote areas
- remote areas having a higher proportion of young people than regional areas.

The distribution of labour force migration flows indicate that these flows are small, with most flows amounting to fewer than 100 workers moving across regional labour markets (figure E.1). Of the 990 flows to major cities, 66 per cent are smaller than 100 workers. There are 53 relatively large flows (1500 to 6600 workers), of which:

- 43 are to major cities — these flows are dominated by moves within the same state (for example, from Sunshine Coast to Brisbane)⁵³
- nine are to regional areas — these flows are all moves from *major cities* to regional areas and are dominated by intrastate moves. In Victoria, Western Australia and South Australia, these moves are from *capital cities* to regional areas
- one is to a remote area — this flow is within Western Australia, from Perth to Outback Western Australia.

Figure E.1 **Distribution of labour force migration flows**



Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

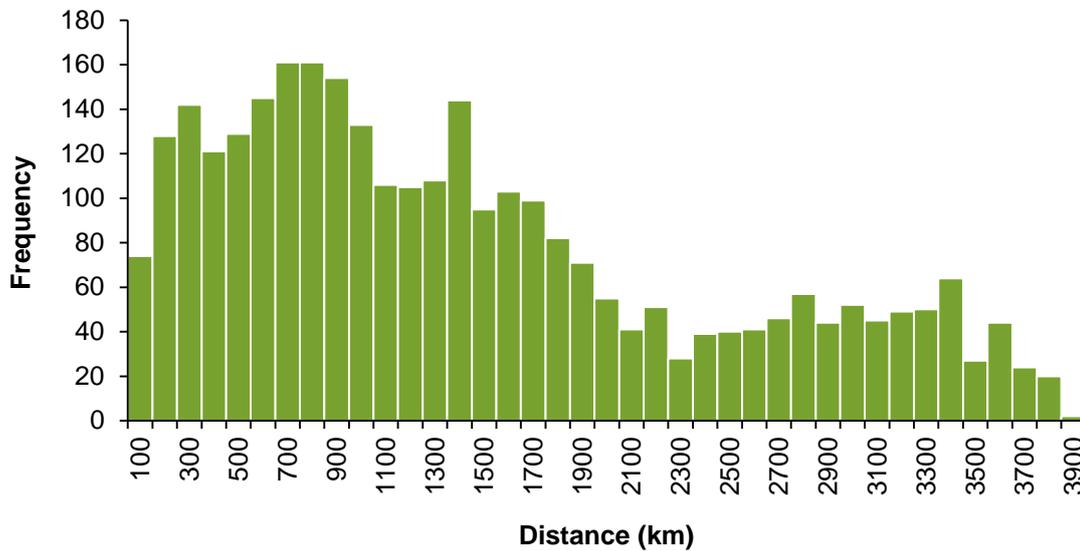
There is significant variation in the distances between the 56 regional labour markets (figure E.2).

- Approximately 10 per cent, or 322 routes, are between 600 km and 800 km.
- Approximately 50 per cent of routes are less than 1200 km.

⁵³ As discussed earlier, an intrastate dummy variable is included in the econometric model to partly account for this.

- Just over 10 per cent of routes exceed 3000 km.

Figure E.2 **Distribution of distances between regional labour markets^a**



^a In total, there are 3080 routes (or distances) represented in the histogram. The histogram consists of 39 bins, each representing 100 km.

Source: Productivity Commission estimates.

Of all moves to a different regional labour market in the year leading to the 2011 Census, 225 530 (or 57 per cent) were within the same state (table E.4). Out of the 98 863 NSW workers who moved, 51 469 workers (52 per cent) moved within the state. Moreover, the migration flows suggest there are some cases of high correlation between worker inflows and outflows at the state level. For example, 2439 workers relocated from South Australia to New South Wales and 2520 workers relocated from New South Wales to South Australia.

Table E.4 Labour force migration by state, August 2010–11^a

<i>Place of residence on Census date 2011 (destination)</i>									
<i>Source</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>SA</i>	<i>WA</i>	<i>Tas</i>	<i>NT</i>	<i>ACT</i>	<i>Total</i>
NSW	51 469	11 659	18 873	2 520	4 913	998	1 807	6 624	98 863
Vic	10 325	40 834	8 806	2 697	4 817	1 374	1 632	1 633	72 118
Qld	15 590	9 660	92 936	2 183	5 591	1 346	2 408	1 810	131 524
SA	2 439	3 463	2 873	9 850	1 834	369	999	530	22 357
WA	3 589	4 431	3 941	1 150	26 092	673	882	476	41 234
Tas	957	1 672	1 463	303	919	3 157	195	194	8 860
NT	1 577	1 410	2 739	1 438	1 360	237	1 192	287	10 240
ACT	5 248	1 715	1 714	340	453	132	256	..	9 858
Total	91 194	74 844	133 345	20 481	45 979	8 286	9 371	11 554	395 054

^a The following regions are excluded: Other Territories; Overseas; Not stated. .. Not applicable because there is only one regional labour market in the ACT.

Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

Of all the workers who relocated to a different regional labour market in the year leading to the 2011 Census, 152 457 (or 39 per cent) moved from one major city to another (table E.5). Approximately 84 000 workers (21 per cent) relocated to regional areas from major cities and remote areas. Further, about 23 000 workers (6 per cent) relocated to remote areas from major cities and regional areas.

Table E.5 Labour force migration by remoteness, August 2010–11

<i>Place of residence on Census date 2011 (destination)</i>				
<i>Source</i>	<i>Major cities</i>	<i>Regional</i>	<i>Remote</i>	<i>Total</i>
Major cities	152 457	75 644	13 964	242 065
Regional	73 899	52 597	8 767	135 263
Remote	8 754	7 934	1 038	17 726
Total	235 110	136 175	23 769	395 054

Source: Productivity Commission estimates using ABS (*TableBuilder Pro*, 2011, Cat. no. 2073.0).

The descriptive analysis above suggests that:

- most inter-regional flows were small, amounting to fewer than 100 workers moving
- most inter-regional moves were within the same state
- just under 40 per cent of moves were from one major city to another.

Caveats and limitations

An important caveat underlying the modelling approach is the lack of consistent time series data on regional migration. Cross-section data limit the ability to draw

conclusions about causality. However, the economic theory that underpins the estimated model does give an indication of causality, and the statistics are taken to confirm that the assumed relationships exist. The results give a good indication of which variables are positively or negatively associated with inter-regional migration.

The modelling does not capture some of the factors that matter for an individual moving as part of a household. People typically relocate with their family. The decision to move is therefore a household decision and accounts for the expected costs and benefits that affect all household members. For example, an individual may take into account how relocation will affect household income, the probability of their partner finding a job in the new location, and the social networks of their children (NATSEM, sub. DR38).

Proxy variables are used when explanatory variables of interest are unobserved or unmeasurable. For example, access to essential services in a region is proxied by the number of medical practitioners. A risk inherent to the use of proxies is that they can capture the effects of variables other than the one of interest. This can make it difficult to assess their meaning in terms of modelling results as the reported effects could be due to the other effects associated with the proxy variable. For example, the home ownership rate is used to proxy for the social and financial costs of moving, but could instead capture wealth and age effects that are associated with home ownership, or a combination of effects associated with these variables.

Competing sources of labour (for example, from long-distance commuters and international migrants) are likely to affect the inter-regional movement of labour. However, these are difficult to account for in a gravity framework. In addition, the effects of competing sources of labour are likely to be captured already by the destination wage indicator.

E.5 Results and discussion

In this section, the results from the model of labour force movement are used to examine migration patterns.⁵⁴ These results are provided in table E.6. To make the interpretations of the coefficients more meaningful, the movement of workers from Melbourne to Outback Western Australia is used to illustrate the implications of the results. The characteristics of these regions are used in conjunction with the

⁵⁴ The modelling results are used in the report to inform the discussion of the determinants of geographic labour mobility, and their impacts on mobility. The modelling sheds light on the locational features that people value the most when they decide where to relocate.

estimated coefficients to discuss their marginal effect on inter-regional migration, *ceteris paribus* (table E.7). The 2011 Census indicates that 527 workers moved to Outback Western Australia from Melbourne between August 2010 and August 2011. The results in the following sections are discussed in terms of this base level of migration.

Table E.6 An econometric model of inter-regional migration for the labour force^a

<i>Explanatory variables</i>	<i>Unit</i>	<i>Estimated coefficients</i>	<i>Standardised regression coefficients^b</i>
Number of observations		2 983 ^c	..
R-squared		0.71	..
Constant		-9.60*	..
Economic variables			
Real wages logged (source)		-0.84*	-0.070
Real wages logged (destination)		1.54*	0.13
Growth in number of wage and salary earners (source)	%	0.000024	0.000088
Growth in number of wage and salary earners (destination)	%	0.036*	0.14
House price ratio		-0.18*	-0.051
Unemployment rate differential		-0.047*	-0.059
Demographic characteristics			
Population (source)	00 000	0.050*	0.27
Population (destination)	00 000	0.046*	0.24
Population share 20–34 years (source)	%	0.035*	0.077
Index of Relative Socio-economic Disadvantage (source)		0.0079*	0.26
Amenity/quality of life			
Population density ratio		-0.000097*	-0.071
Medical practitioners (destination)		0.25*	0.18
Transaction costs			
Home ownership rate (source)	%	-0.060*	-0.30
Distance	1 000 km	-0.19*	-0.13
Common border		1.28*	0.23
Intrastate move		1.41*	0.37

^a Estimated using ordinary least squares and robust standard errors. ^b Standardised coefficients are measured in standard deviations (instead of units) and express the regression coefficients as the effects of a one standard deviation change in the explanatory variables. ^c While there is a total of 3080 observations (or migration flows), 97 of these observations have a value of zero and are therefore excluded when the dependent variable is logged. * means that a variable is significant at the 5 per cent level. .. Not applicable.

Source: Productivity Commission estimates.

Table E.7 Selected characteristics of the source and destination regions used for comparison

<i>Characteristic</i>	<i>Source region: Melbourne</i>	<i>Destination region: Outback Western Australia</i>
Real wage	\$50 013	\$51 804
Unemployment rate	5.5%	4.1%
Growth in the number of wage and salary earners (2005-06 to 2010-11)	11.8%	17.4%
Median house price	\$542 553	\$435 000
Share of population aged 20–34 years	22.4%	23.3%
Home ownership rate	66.5%	45.5%
Index of Relative Socio-economic Disadvantage	1 028.7	945.8
Population density	1 268.9	0.1
Population	3 889 892	225 131
Medical practitioners per 1 000 people	3.7	1.3
Remoteness classification	Major city	Remote area
Flow of labour from Melbourne to Outback Western Australia	527	
Distance	2 948.0	
Common border	No	
Intrastate move	No	

Source: Productivity Commission estimates.

Labour market variables influence regional migration

The results are consistent with the hypothesis that workers move across regional labour markets in response to market signals.

- Workers tend to relocate to regions where the real wage is higher and tend to stay in their current location if the real wage increases. According to the estimated model, a 5 per cent increase in the real wage in Outback Western Australia is associated with 41 additional workers leaving Melbourne for Outback Western Australia (a 7.7 per cent increase in the number of workers migrating).
 - Conversely, an increase in the real wage in Melbourne reduces the regional wage differential and reduces incentives to relocate. In the estimated model, a 5 per cent increase in the real wage in Melbourne is associated with 22 fewer workers leaving the area for Outback Western Australia (a 4.2 per cent reduction in the number of workers migrating).
- Changes in unemployment rate differentials also affect inter-regional migration. A 1 percentage point increase in the unemployment rate in Outback Western Australia relative to Melbourne is associated with 25 fewer workers leaving

Melbourne for Outback Western Australia (a 4.7 per cent reduction in the number of workers migrating).

- Workers tend to relocate to regions where employment has increased. According to the model, if the growth in employment in Outback Western Australia between 2005-06 and 2010-11, as proxied by the growth in the number of wage and salary earners, had been 1 percentage point higher, 19 additional workers would have left Melbourne for Outback Western Australia (a 3.6 per cent increase in the number of workers migrating).
 - Higher employment growth in the source region does not seem to affect inter-regional migration. The estimated marginal effect is small and statistically insignificant.

Some factors seem to reduce regional migration

The model has used several indicators to represent potential negative influences on mobility. The social and financial costs of moving are represented by the following indicators: home ownership and distance; the relative costs of living are represented by an index of relative house prices; and difficulties associated with moving when socially and economically disadvantaged are represented by the source region's IRSD. The increase or decrease in amenity from moving is represented by the ratio of population densities in the source and destination regions.

The results point to the presence of negative influences on mobility that increase the costs and disamenity of moving and are associated with reduced inter-regional migration.

- Owning a house as an indicator of attachment to where people are living — a 5 percentage point increase in the home ownership rate in Melbourne is associated with 159 fewer workers leaving Melbourne for Outback Western Australia (a 30.1 per cent reduction in the number of workers migrating).
- The distance between two regions — Melbourne and Outback Western Australia are approximately 2900 km apart while Sydney and Outback Western Australia are approximately 3300 km apart. The additional 400 km are associated with 40 fewer workers moving to Outback Western Australia, equivalent to a 7.6 per cent reduction in the number of workers migrating.
- Relatively high house prices — a \$107 000 increase in the median house price in Outback Western Australia would increase the Outback Western Australia–Melbourne house price ratio from 0.8 to 1.0. The increase in housing costs would be associated with 19 fewer workers leaving Melbourne for Outback Western Australia (a 3.5 per cent reduction in the number of workers migrating).

-
- Socially and economically disadvantaged regions are associated with a reduced outflow of workers, as indicated by the positive coefficient on the IRSD.

The population density variable captures the net effect of positive influences (density of services and entertainment) and negative influences (congestion) of higher population density on inter-regional migration. The negative sign of this variable suggests that, on balance, the negative influences are stronger. This net influence is also statistically significant.

There seem to be positive influences on regional migration

The results indicate that a number of factors are associated with more people migrating between regions. These include:

- easier access to essential services (proxied by medical practitioners per 1000 residents) — an increase from 1 to 2 medical practitioners per 1000 residents in Outback Western Australia represents a substantial improvement in access to services and is associated with 130 additional workers leaving Melbourne for Outback Western Australia (a 24.6 per cent increase in the number of workers migrating)
- a larger pool of potential migrants and a larger labour market (proxied by population in the source and destination region respectively) — for example, a 100 000 increase in the pool of potential migrants in Melbourne is associated with 26 additional workers leaving Melbourne for Outback Western Australia (a 5 per cent increase in the number of workers migrating).

Further, young workers tend to migrate more easily than older workers, as indicated by the positive and significant coefficient on the variable measuring the share of the source-region population aged 20–34 years.

Intrastate migration and migration to neighbouring regions are more common, as indicated by the positive and significant coefficients on the dummy variables capturing intrastate moves and moves between neighbouring regions.

Standardised regression coefficients

Standardised regression coefficients express the regression coefficients as the effects of a one *standard deviation* change in the explanatory variables. Standardised coefficients are useful because they are all measured in standard deviations (instead of units) and can therefore be compared within a regression to

identify the large contributory factors. The variables with the larger standardised coefficients have a larger effect on regional migration.

In the estimated labour force model, the social and financial costs of moving (proxied by the home ownership rate) has the largest standardised coefficient, indicating that this variable has the strongest influence on inter-regional migration. The incidence of social and economic disadvantage (proxied by the IRSD) also has a relatively large effect.

Consistency across specifications

As discussed earlier, a wide range of model specifications were considered in addition to the model of labour force movement. The econometric outputs in table E.8 show that the results are consistent across the following specifications of the dependent variable:

1. movement of those aged 20–34 years
2. movement of professionals — a higher-skilled occupation
3. movement of machinery operators and drivers — a lower-skilled occupation.

There is strong consistency across different specifications when it comes to the sign and statistical significance of the estimated coefficients. Out of 16 variables, 14 maintain their sign across all four specifications while 11 maintain their sign as well as their statistical significance. The inconsistency in the sign and significance of some push factors (such as real wages in the source region) aligns with previous findings (for example, Hunt 2006; Mayda 2010).

There is significant variation in the magnitudes of the estimated coefficients because the model discussed previously is for the broad labour force while the other models are for relatively small sub-groups within the population and the labour force. Further, people in different population sub-groups and occupations are likely to respond to changes in the explanatory variables differently. For example, the marginal effect of a 5 percentage point increase in the home ownership rate in Melbourne on the number of workers who would be discouraged from leaving Melbourne for Outback Western Australia is significantly larger for the broad labour force than for machinery operators and drivers.

Table E.8 **Additional econometric models of inter-regional migration**

	<i>Unit</i>	<i>20–34 years</i>	<i>Professionals</i>	<i>Machinery operators and drivers</i>
Economic variables				
Real wages logged (source)		-1.10*	0.46	0.088
Real wages logged (destination)		1.41*	1.16*	0.90*
Growth in number of wage and salary earners (source)	%	0.0020	-0.012*	0.015*
Growth in number of wage and salary earners (destination)	%	0.036*	0.026*	0.035*
House price ratio		-0.19*	-0.30*	-0.080
Unemployment rate differential		-0.063*	-0.058*	-0.036*
Demographic characteristics				
Population (source)	00 000	0.048*	0.037*	0.022*
Population (destination)	00 000	0.048*	0.043*	0.022*
Population share 20-34 years (source)	%	0.062*	0.074*	0.016
Index of Relative Socio-economic Disadvantage (source)		0.0072*	0.0032*	0.0021*
Amenity/quality of life				
Population density ratio		-0.000084*	-0.000058*	-0.000017
Medical practitioners (destination)		0.24*	0.25*	0.075*
Transaction costs				
Home ownership rate (source)	%	-0.048*	-0.016*	-0.014*
Distance	1 000 km	-0.21*	-0.11*	-0.071*
Common border		1.23*	1.11*	1.05*
Intrastate move		1.35*	1.10*	0.65*

* means that a variable is significant at the 5 per cent level.

Source: Productivity Commission estimates.

In addition to the explanatory variables discussed in the appendix, a range of other variables were considered in the econometric analysis. These include different education indicators, the share of the resident population born overseas, the share of the resident population of Indigenous descent, a climate/temperature indicator, and different indexes of relative disadvantage. Some variables were dropped because of high collinearity with those that were included or because they did not provide information over and above that provided by variables already included in the model. Some variables were also excluded because of concerns about data quality and some because they do not fit in a gravity framework and cannot be categorised as gravity variables or transaction costs.

5-year migration flows

This section tests whether the modelling results are broadly consistent when the dependent variable is specified as a 5-year inter-regional migration flow. This flow

captures the people who in the 2011 Census said they moved residence in the previous five years.

An important limitation of this test is that data for most explanatory variables at the SA4 level are only available for the past few years, or in the case of data obtained from the Census, only for 2011; 2006 Census data were released on a different geography. This can be a problem because a worker who relocated to a different region between 2006 and 2009 would have considered a range of factors in deciding where to move, including economic and demographic conditions prevailing at the time and the years prior to moving.

In the 5-year model, the patterns of the variables in 2011 are assumed to be correlated with the corresponding patterns of the variables that would have been used to make decisions between 2006 and 2011. More recent values (for example, as at 2010 or 2011) are assumed to be good proxies for past values (2006–09) and can therefore be used in the modelling in the absence of past values.

Due to data constraints, correlation values at the SA4 level can only be calculated for a few variables — population, nominal wages and the number of wage and salary earners. These variables were found to be highly correlated in the period 2006–2011, with correlation coefficients of over 95 per cent in most cases. These high correlations show that data values for 2010 or 2011 are generally good proxies for the patterns of data that were used in the decision to move in earlier years.

The labour force model is therefore estimated using the newly defined dependent variable and the existing values of the explanatory variables. The results are provided in table E.9. The results from the 5-year model are consistent with those from the 1-year model and most of the previously identified relationships are maintained. By and large, the magnitudes of the estimated coefficients do not differ significantly between the two models. Further, the standardised regression coefficients show that, as for the main labour force model, the social and financial costs of moving (proxied by the home ownership rate) have the strongest influence on inter-regional migration.

Table E.9 An econometric model of 5-year inter-regional migration for the labour force^a

<i>Explanatory variables</i>	<i>Unit</i>	<i>Estimated coefficients</i>	<i>Standardised regression coefficients^b</i>
Number of observations		3 073	
R-squared		0.73	
Constant		-4.01	
Economic variables			
Real wages logged (source)		-0.77*	-0.063
Real wages logged (destination)		0.93*	0.076
Growth in number of wage and salary earners (source)	%	-0.017*	-0.063
Growth in number of wage and salary earners (destination)	%	0.048*	0.18
House price ratio		-0.024	-0.0067
Unemployment rate differential		-0.053*	-0.064
Demographic characteristics			
Population (source)	00 000	0.054*	0.27
Population (destination)	00 000	0.044*	0.22
Population share 20–34 years (source)	%	0.040*	0.086
Index of Relative Socio-economic Disadvantage (source)		0.0089*	0.28
Amenity/quality of life			
Population density ratio		-0.00010*	-0.073
Medical practitioners (destination)		0.30*	0.21
Transaction costs			
Home ownership rate (source)	%	-0.060*	-0.30
Distance	1 000 km	-0.23*	-0.15
Common border		1.23*	0.21
Intrastate move		1.46*	0.37

^a Estimated using ordinary least squares and robust standard errors. ^b Standardised coefficients are measured in standard deviations (instead of units) and express the regression coefficients as the effects of a one standard deviation change in the explanatory variables. * means that a variable is significant at the 5 per cent level.

Source: Productivity Commission estimates.

E.6 Key messages

The modelling results provide some interesting insights into the mechanisms that may be influencing regional migration. The key message is that the statistical results are consistent with the following:

- market signals, especially real wages and employment growth, play a role in the movement of people across regional labour markets

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- there are negative influences on mobility that increase the cost and disamenity of moving and are associated with reduced regional migration
 - these include the social and financial costs of moving, relative costs of living (of which housing is an important component), and social and economic disadvantage
 - there are positive influences on regional migration
 - these include easier access to services in the destination region, short-distance moves, and a relatively young source population.

Attachment E.1 — Detailed description of the data

There were 16 explanatory variables used in the econometric model. Additional details about these variables (where necessary) are provided in table E.10, along with data sources used. Details about the dependent variable are also provided.

Table E.10 **Variables used in the econometric model**

<i>Variable name</i>	<i>Definition and source</i>
Dependent variable	
Inter-regional migration flows	Data were obtained from the 2011 Census of Population and Housing. In the Census, individuals are asked where they usually lived at the time of the survey, as well as one year prior to the survey. Data obtained from responses to this question were used to estimate the number of people who relocated to a different region between August 2010 and August 2011.
Explanatory variables	
Real wage	The real wage variable is constructed as the average wage and salary income (as provided to the ABS by the Australian Tax Office (ABS 2013h)) in an SA4, deflated by a regional CPI. The average wage and salary income is constructed as the total wage and salary income reported for an area divided by the total number of wage and salary earners in that area. The data are based on individual tax returns lodged for the financial year ended 30 June 2010. Regional CPI estimates were constructed by the Commission using regional CPI data reported for areas of Queensland and Western Australia (OESR 2010; RDL WA 2011).
Employment growth	The employment growth variable is constructed as the percentage change in the number of wage and salary earners in a region between 2005-06 and 2010-11. Data were sourced from the ABS estimates of personal income for small areas, Cat. no. 6254.
House price ratio	Regional data on median house prices as at June 2011 were obtained from Australian Property Monitors.
Unemployment rate differential	Regional data on unemployment rates were obtained from the ABS National Regional Profile (sourced from the 2011 Census of Population and Housing) (ABS 2013o).
Estimated resident population	Population data are the estimated resident population counts for the selected region as at 30 June 2011. Data were sourced from the ABS National Regional Profile.
Share of population aged 20-34 years	Sourced from the 2011 Census of Population and Housing.
Home ownership rate	Sourced from the 2011 Census of Population and Housing.
Index of Relative Socio-economic Disadvantage	Sourced from the 2011 Census of Population and Housing.
Population density ratio	The population density for a region is calculated by dividing the 2011 estimated resident population by the land area to obtain the number of persons per square km. Data were sourced from the ABS National Regional Profile.

(Continued next page)

Table E.10 (continued)

<i>Variable name</i>	<i>Definition and source</i>
Medical practitioners	Constructed as the number of medical practitioners in a region divided by the estimated resident population. Data were sourced from the 2011 Census of Population and Housing.
Distance	The distance variable measures the straight-line distance between the population centroids of different regions. Population centroids were calculated by: <ul style="list-style-type: none"> • determining the geographic centroids of all SA2s within a region using geographic information system software • calculating the mean latitude and longitude of these geographic centroids, weighted by the estimated resident population of each SA2 (obtained from the 2011 Census of Population and Housing).
Common border	Constructed using geographic information system software by determining if two regions have a contiguous land border.
Intrastate move	Constructed using ABS data by determining if the source and destination regions are in the same state or territory.
Other variables used in model construction	
Regional CPI for Queensland	Sourced from the Queensland Government's Office of Economic and Statistical Research (2010).
Regional CPI for Western Australia	Sourced from Department of Regional Development and Lands, Western Australia (2011).

The sample for analysis consisted of 56 regions across three broad remoteness categories. The full list of regions is provided in table E.11 and a breakdown by remoteness category is provided in figure E.3. Using ABS data, the Commission categorised 18 regions as major cities, 34 as regional areas, and 4 as remote areas.

Table E.11 List of regions included in the sample

Listed by state/territory

New South Wales

Capital Region	Murray
Central Coast	New England and North West
Central West	Newcastle and Lake Macquarie
Coffs Harbour – Grafton	Richmond – Tweed
Far West and Orana	Riverina
Hunter Valley excl. Newcastle	Southern Highlands and Shoalhaven
Illawarra	Sydney
Mid North Coast	

Victoria

Ballarat	Melbourne
Bendigo	Mornington Peninsula
Geelong	North West
Hume	Shepparton
Latrobe – Gippsland	Warrnambool and South West

Queensland

Brisbane	Moreton Bay – North
Cairns	Moreton Bay – South
Darling Downs – Maranoa	Queensland – Outback
Fitzroy	Sunshine Coast
Gold Coast	Toowoomba
Ipswich	Townsville
Logan – Beaudesert	Wide Bay
Mackay	

South Australia

Adelaide	South Australia – Outback
Barossa – Yorke – Mid North	South Australia – South East

Western Australia

Bunbury	Western Australia – Outback
Mandurah	Western Australia – Wheat Belt
Perth	

Tasmania

Hobart	South East
Launceston and North East	West and North West

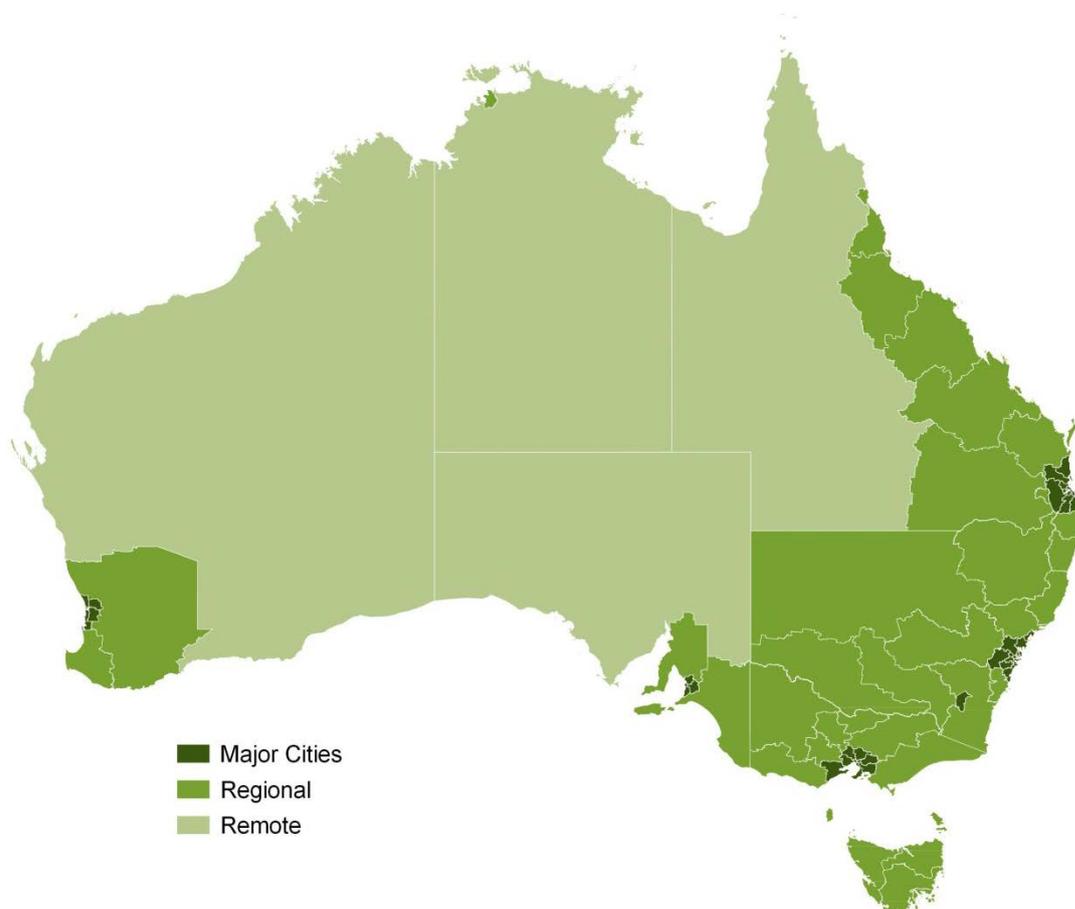
Northern Territory

Darwin	Northern Territory – Outback
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Australian Capital Territory

Australian Capital Territory	
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Figure E.3 Map of regions by remoteness^a



^a Some regions consist of smaller areas of different remoteness categories. The final categorisation of these regions was based on the population distribution and the remoteness category in which a greater proportion of the population falls.

Source: Productivity Commission estimates using ABS (Cat. no. 1270.0.55.005).

None of the independent variables are highly correlated to other independent variables (table E.12). The highest correlation coefficient is 76 per cent (between the share of people aged 20–34 years in the source region and logged real wages in the source region).

Table E.12 Correlation matrix for the variables included in the labour force model^a

	<i>Lab</i>	<i>W(s)</i>	<i>W(d)</i>	<i>Unem</i>	<i>Dist</i>	<i>Hprice</i>	<i>Pop(s)</i>	<i>Pop(d)</i>	<i>Pop-den</i>	<i>Medic</i>	<i>Young</i>	<i>IRSD</i>	<i>Hown</i>	<i>Neigh</i>	<i>Intra</i>	<i>Emp(s)</i>	<i>Emp(d)</i>
<i>Lab</i>	1.00																
<i>W(s)</i>	0.28	1.00															
<i>W(d)</i>	0.33	-0.02	1.00														
<i>Unem</i>	-0.03	0.28	-0.28	1.00													
<i>Dist</i>	-0.26	0.17	0.19	0.00	1.00												
<i>Hprice</i>	0.03	-0.52	0.56	-0.05	0.00	1.00											
<i>Pop(s)</i>	0.36	0.42	-0.01	0.03	-0.02	-0.33	1.00										
<i>Pop(d)</i>	0.35	-0.01	0.41	-0.03	-0.03	0.50	-0.02	1.00									
<i>Pop-den</i>	0.05	-0.01	0.16	-0.01	0.07	0.21	-0.05	0.30	1.00								
<i>Medic</i>	0.30	-0.01	0.41	-0.04	-0.01	0.42	-0.01	0.45	0.20	1.00							
<i>Young</i>	0.31	0.76	-0.02	0.26	0.16	-0.40	0.41	-0.01	0.10	-0.02	1.00						
<i>IRSD</i>	0.18	0.53	-0.01	0.33	-0.05	-0.31	0.34	-0.01	-0.25	-0.01	0.23	1.00					
<i>Hown</i>	-0.14	-0.26	0.01	0.05	-0.25	0.19	0.02	0.01	-0.27	0.01	-0.57	0.53	1.00				
<i>Neigh</i>	0.41	-0.04	-0.04	0.00	-0.31	-0.01	0.01	0.01	-0.03	-0.07	-0.02	-0.05	-0.01	1.00			
<i>Intra</i>	0.52	-0.01	-0.01	0.00	-0.46	-0.01	0.00	0.00	-0.02	-0.01	-0.04	0.02	0.03	0.44	1.00		
<i>Emp(s)</i>	0.14	0.66	-0.01	0.02	0.31	-0.42	0.12	0.00	-0.02	0.00	0.41	0.32	-0.26	-0.04	-0.02	1.00	
<i>Emp(d)</i>	0.18	-0.02	0.66	-0.03	0.33	0.38	0.00	0.12	0.04	0.10	-0.02	-0.01	0.01	-0.04	-0.02	-0.02	1.00

^a *Lab* is labour force inter-regional migration flows logged, *W(s)* is logged real wages (source), *W(d)* is logged real wages (destination), *Unem* is unemployment rate differential, *Dist* is distance, *Hprice* is house price ratio, *Pop(s)* is estimated resident population (source), *Pop(d)* is estimated resident population (destination), *Pop-den* is population density ratio, *Medic* is medical practitioners per 1000 people (destination), *Young* is share of population aged 20–34 years (source), *IRSD* is Index of Relative Socio-economic Disadvantage, *Hown* is home ownership rate (source), *Neigh* is common border, *Intra* is intrastate move, *Emp(s)* is 5-year-growth in the number of wage and salary earners (source), and *Emp(d)* is 5-year-growth in the number of wage and salary earners (destination).

Source: Productivity Commission estimates.

Attachment E.2 — Supplementary econometric output

This attachment presents the econometric outputs from estimated models of inter-regional migration not reported in the appendix (table E.13). These are:

- a model of population movement
 - a model of population movement for those of working age (15–64 years)
- a model of movement for the unemployed
- a standalone model of labour movement for the following occupation groups — managers, technicians and trades workers, community and personal service workers, clerical and administrative workers, sales workers, and labourers.

The econometric results reported below broadly support the conclusions presented in this appendix.

Table E.13 **Supplementary econometric output**

	<i>Unit</i>	<i>Population</i>	<i>Working-age population</i>	<i>Unemployed</i>	<i>Managers</i>	<i>Technicians and trade workers</i>	<i>Community and personal service workers</i>	<i>Clerical and administrative workers</i>	<i>Sales workers</i>	<i>Labourers</i>
Economic variables										
Real wages (source)		-1.02*	-1.08*	-1.03*	-0.13	-0.033	0.14	-0.085	0.070	-0.28
Real wages (destination)		1.05*	1.26*	-0.50*	0.097	0.83*	0.29	1.19*	-0.48	-0.14
Growth in number of earners (source)	%	0.0035	0.00079	0.025*	-0.0067	0.0051	-0.00057	-0.0022	0.0042	0.0089
Growth in number of earners (destination)	%	0.040*	0.038*	0.050*	0.036*	0.032*	0.039*	0.047*	0.040*	0.038*
House price ratio		-0.20*	-0.22*	-0.26*	-0.30*	0.046	-0.11	-0.30*	-0.052*	-0.025
Unemp rate differential		-0.034*	-0.038*	0.026*	-0.060*	-0.050*	-0.051*	-0.040*	-0.033*	-0.047*
Demographic characteristics										
Population (source)	00 000	0.051*	0.051*	0.040*	0.031*	0.038*	0.036*	0.030*	0.033*	0.028*
Population (destination)	00 000	0.047*	0.048*	0.043*	0.035*	0.032*	0.035*	0.039*	0.035*	0.026*
Share 20–34 years (source)		0.032*	0.038*	0.018	0.037*	-0.0050	0.015	0.045*	0.0058	-0.0080
IRSD (source) ^a		0.0073*	0.0078*	0.0019*	0.0044*	0.0058*	0.0041*	0.0038*	0.0032*	0.0028*
Amenity/quality of life										
Population density ratio		-0.000093*	-0.000093*	-0.000055*	-0.000047*	-0.000033*	-0.000063*	-0.000087*	-0.000053	-0.000041*
Medical pract (destination)		0.24*	0.25*	0.20*	0.22*	0.14*	0.23*	0.20*	0.24	0.066*
Transaction costs										
Home ownership (source)	%	-0.060*	-0.060*	-0.022*	-0.024*	-0.042*	-0.028*	-0.024*	-0.023	-0.025*
Distance	1 000 km	-0.26*	-0.23*	-0.24*	-0.14*	-0.13*	-0.16*	-0.17*	-0.23*	-0.11*
Common border		1.24*	1.26*	0.93*	1.16*	1.07*	1.05*	1.08*	1.04*	1.16*
Intrastate move		1.42*	1.43*	0.82*	0.66*	0.86*	0.85*	0.74*	0.62*	0.78*

^a IRSD stands for Index of Relative Socio-economic Disadvantage. * means that a variable is significant at the 5 per cent level.

Source: Productivity Commission estimates.

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