Australian Government
Productivity Commission

Geographic Labour Mobility

Productivity Commission Draft Report

November 2013

This draft report has been prepared for further public consultation and input. The Commission will finalise its report after these processes have taken place.

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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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Opportunity for further comment

You are invited to examine this draft report and comment on it by written submission to the Productivity Commission, preferably in electronic format, by **Friday 7 February 2014**. Further information on how to provide a submission is included on the study website http://www.pc.gov.au/projects/study/labour-mobility.

The final report will be prepared after submissions have been received and further roundtables held.

Commissioners

For the purposes of this study and draft report, in accordance with section 40 of the *Productivity Commission Act 1998* the powers of the Productivity Commission have been exercised by:

Alison McClelland Commissioner

Commissioner Patricia Scott presided over the earlier stages of the study, including scoping, framing and extensive consultations.

Terms of reference

Geographic Labour Mobility

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

This report uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Social Services (DSS) and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute).

Abbreviations

ABS	Australian Bureau of Statistics
ACTU	Australian Council of Trade Unions
ADF	Australian Defence Force
AMMA	Australian Mines and Metals Association
ANZSIC	Australian and New Zealand Standard Industry Classification
ANZSCO	Australian and New Zealand Standard Classification of Occupations
APS	Australian Public Service
ATO	Australian Tax Office
BIBO	Bus-in, bus-out
CFMEU	Construction, Forestry, Mining and Energy Union
CGE	Computable general equilibrium
CMEPSP	Commission on the Measurement of Economic Performance and Social Progress
CPI	Consumer Price Index
CRA	Commonwealth Rent Assistance
DIDO	Drive-in, drive-out
DEEWR	Department of Education, Employment and Workplace Relations
FBT	Fringe Benefits Tax
FIFO	Fly-in, fly-out
GIS	Geographic Information System
GP	General practitioner
GPRIP	General Practice Rural Incentives Program
GCCSA	Greater Capital City Statistical Area
HFE	Horizontal fiscal equalisation

HILDA	Household, Income and Labour Dynamics in Australia
HRSCRA	House of Representatives Standing Committee on Regional Australia
IRSD	Index of Relative Socio-economic Disadvantage
LNG	Liquefied natural gas
NCVER	National Centre for Vocational Education Research
NOLA	National Occupational Licensing Authority
OECD	Organisation for Economic Co-operation and Development
PC	Productivity Commission
SA2(s)	Statistical Area(s) Level 2
SA4(s)	Statistical Area(s) Level 4
SEQ	South East Queensland
SISO	Ship-in, ship-out
SME	Small or medium enterprise
TTTA	Trans-Tasman Travel Arrangement

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.
- Australians move residence relatively frequently. 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.
  - Labour does appear to be responding to market signals and moving to areas with better employment and income prospects.
- The main factors affecting location decisions are personal, and attempts by government to act in contradiction to them are unlikely to be effective.
- There is no clear relationship between mobility, joblessness and the persistence of high unemployment in some areas.
- While geographic labour mobility is assisting labour market adjustment, there is room for improvement.
  - Areas of skills shortages remain and, at the same time, there are areas of high unemployment.
- 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.
- 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.

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 contribute to 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 geographical 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 geographical 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).

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 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.

The Commission has examined geographic labour mobility in terms of its contribution to economic efficiency and impact on community wellbeing. Efficiency is about maximising the aggregate welfare of all members of the community given the resources available. Wellbeing can include a person's economic opportunities and quality of life such as health status, quality of relationships, and community amenity.

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 local 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.

Population decline may cause shifts in regional demographic composition, for example, an increase in the proportion of older residents as younger people move

away, while the decline in demand can lead to closures of essential services. This can pose substantial risks to the ongoing viability of communities.

It is difficult to identify an optimal rate of geographic labour mobility. 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. In this draft report therefore 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.

A range of government policies can affect geographic labour mobility. The concern of policy should not be to increase geographic labour mobility per se. Rather it should be to ensure that geographic labour mobility is as seamless as possible — meaning there are no significant distortions — leading to efficient labour market adjustment and greater community wellbeing. 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 increasing 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, and provide the important context for our analysis of geographic labour mobility.

Australia's pattern of settlement reflects the influence of such factors 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:

- Since Federation, population growth rates across states and territories have tended to move together, but have been considerably higher in Western Australia and Queensland than in other states, 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**

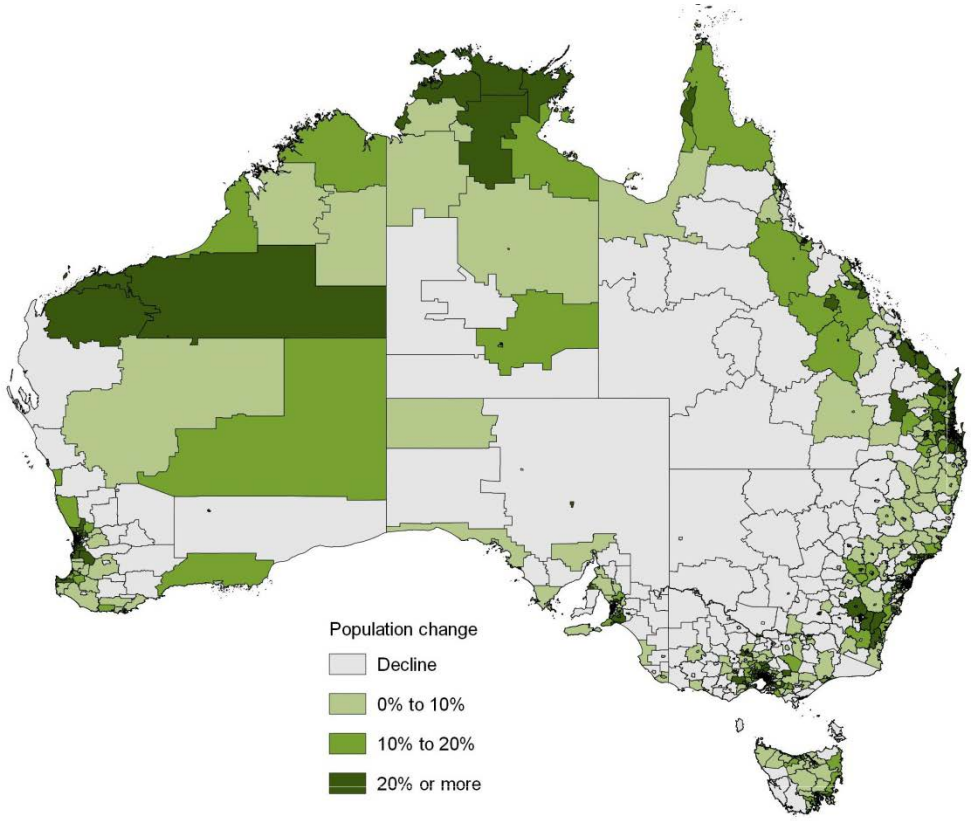
The proportion of Australians living in cities has increased in the past century, particularly in capital cities. This trend is noticeable worldwide. Cities can play an important role in the efficient matching of workers and employers. Deep labour markets benefit both workers and employers. If one business fails, an employee has a good 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.

This type of agglomeration can reduce the need for geographic labour mobility and is unlikely to assist labour to move to regional and remote areas. This matters for Australia because our natural resources are often located away from the major cities. Further, the benefits of locating in metropolitan areas vary 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.

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 Queensland and in particular Western Australia. In contrast to Queensland, Western Australia has relied much more on overseas migration to meet the labour demands of its strong resource boom. This could be pointing to the formidable role of distance. Queensland continues to attract interstate migrants, in part because of its stronger economy, but also in large part due to its proximity to the large population in the south-east.

Population growth has generally been higher in capital cities and surrounding regions, and coastal regions in the past decade (figure 1). The population in many inland and sparsely populated regions has declined or has grown very slowly, except for those remote regions with mining activity. International migrants have increasingly settled in regional and rural areas in the past decade.

Figure 1 **Population growth, 2001–2011**



Economic change and labour demand

Australia has been subject to the patterns of structural change experienced worldwide, such as the relative decline of agriculture and manufacturing, and the rise of the services sector. More recently, Australia has also experienced a resources boom which has contributed to the process of structural change. Geographic labour mobility can enable the economy to take advantage of positive demand shocks, as well as to deal with the adjustments that accompany structural change, such as localised unemployment.

These structural forces are influencing the geographic distribution of economic activity, and therefore labour demand. 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, at least in terms of nominal investment and nominal output, 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.

Structural change also 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 high-skilled jobs. These jobs are particularly prevalent in the 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 (box 3).

Box 3 **Telecommuting**

Telecommuting means working from a distance, in any location other than the usual workplace. In essence, telecommuting involves moving the job to the employee.

The number of formal telecommuters is small, at around 6–7 per cent of employed adults. However, the actual number of telecommuters is likely to be larger because many telecommuters may have more informal arrangements.

Telecommuting offers flexibility and potentially opens up a job to a greater pool of employees. It can help overcome skills shortages in rural and remote areas by making the job available to any employee with the adequate skills, irrespective of their location.

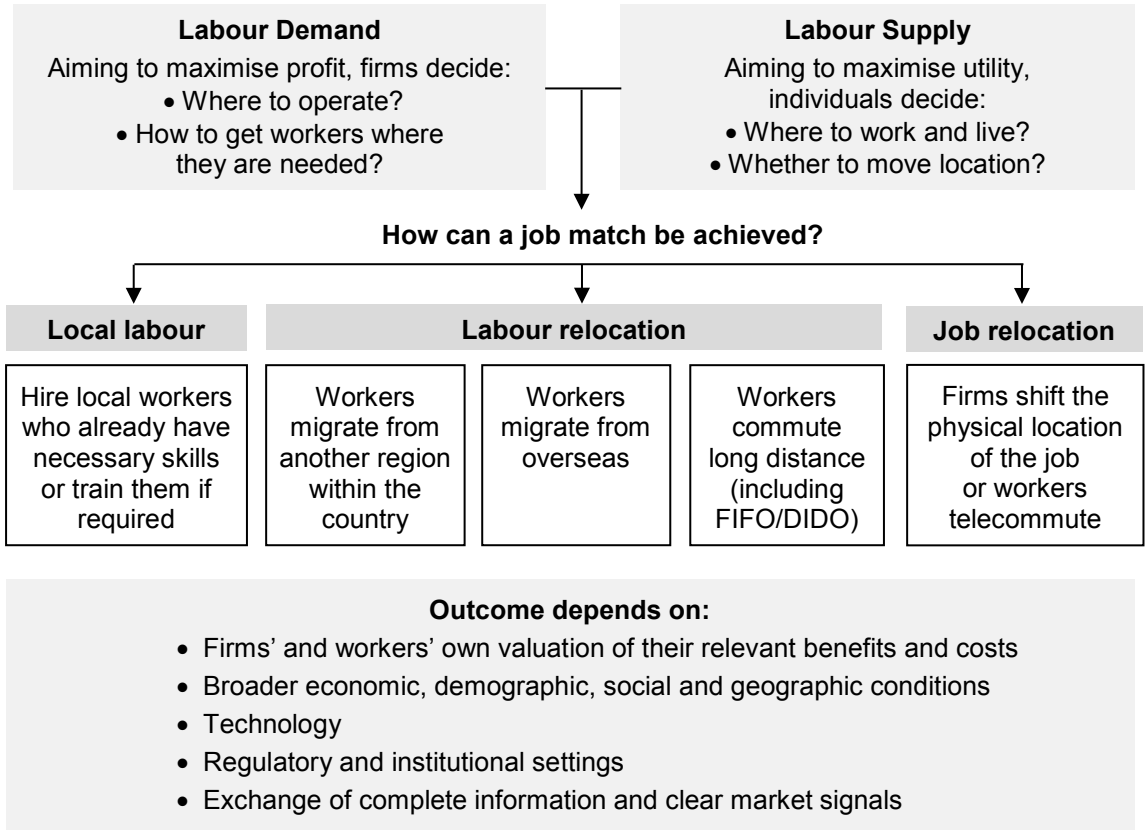
However, telecommuting also has potential downsides. These include risk of loneliness from not interacting with co-workers, lower productivity due to lack of motivation or distractions at home, and costs involved in setting up adequate health and safety arrangements. These issues suggest that the greatest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

While telecommuting is currently used in the technology and professional services sectors, 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.

How does efficient job matching take place?

The process of matching workers to jobs takes place through employers deciding where to locate their activity (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 — will weigh up the relevant costs and benefits of the different options. To do this, they need timely, accurate and transparent market signals. Figure 2 summarises the potential ways in which labour demand and supply could be matched when a job vacancy arises in a given regional labour market. Our focus is on matching that entails an element of geographic mobility. This is likely to be required when either the local labour force is fully employed or unable to be trained in a timely manner.

Figure 2 **Matching labour demand and supply**



Determinants of an individual's mobility decision

Individuals will assess the costs and benefits of moving (and of different types of moves) according to a range of factors. The Commission's analysis has identified the broad grouping of these factors as:

- personal factors
- the economic, social and environmental features specific to different locations
- transitional factors, including physical relocation costs and information costs associated with researching the new location.

Personal factors

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. While the event of having a child can be an enabler of mobility, the ongoing presence of children reduces mobility, across all distance thresholds.

Rising female labour force participation and accompanying changes in family dynamics also play an important role. The increase in dual-income households means that decisions about where to live and work are often jointly determined and need to take into account the employment prospects of both partners. Study participants and other limited evidence suggests that this can act as an impediment to geographic labour mobility, particularly where it involves a change of usual residence.

Education and skills are enablers of mobility. There are two possible reasons for this. Firstly, low-skilled workers may be less mobile because they have fewer resources to allow them to take advantage of employment opportunities when they arise. Secondly, the positive effect of education and skills on mobility can reflect the higher returns to migration for highly skilled workers.

Locational factors

Locational factors distinguish one regional labour market from another, and will also influence people's mobility decisions. Many locational factors are subjective in their impacts and the importance that people place on different locational factors can also reflect underlying personal factors. For example, proximity to good schools is likely to be more important for people caring for children, but is less important for young singles or older people.

Surveys consistently show that most moves are made for reasons other than employment. However, this may be because employment is usually regarded as a necessary but not sufficient reason to make a move. Employment is usually crucial to long-distance movements — few long-distance moves are undertaken unless secure employment is expected at the destination region.

Housing and living costs were frequently cited in submissions as a factor affecting where people choose to live and work. In some cases, labour markets with high wages also have high living costs. In these regions, the high cost of living acts as an impediment, particularly for workers in low-wage service industries, and can at least partly offset the enabling effect of higher wages for others.

The quality and availability of a wide range of facilities and services factor into a person's decision about how and where to move. These include education facilities, health services, communications services and transport infrastructure. The importance of social and economic infrastructure featured heavily in responses from study participants.

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, households 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. Perhaps the most significant transitional cost to changing one's work location relates to buying and selling one's home.

Overall, a key finding from the literature and submissions is that the main impediments to geographic labour mobility relate to personal factors, and in particular family circumstances. Attempts by government to act in contradiction to these factors are unlikely to be effective or improve community wellbeing.

Influences on labour demand

People move for a variety of reasons, but for those in the labour force, their decisions are partly influenced by where jobs are located and the terms and conditions of employment offered. From the perspective of employers, their location decisions and the conditions under which they offer employment will be shaped by their business objectives, particularly profit maximisation.

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 relatively 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 to the business. 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 traded off against some costs, such as congestion and potentially higher wage costs.

Patterns and trends in geographic labour mobility

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

- *Residential moves* — 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 that exceed a time or distance threshold.
- *Telecommuting* — working from a distance, in any location other than the usual workplace. Telecommuting in essence involves the relocation of the job, and not the employee as such (discussed in box 3).

Residential mobility

Australians move residence relatively frequently. About 16 per cent of the working-age population changes residence each year. This is high by international standards. At the time of the 2011 Census, a larger proportion of people in Queensland and Western Australia reported living at a different address one year earlier, as did those who lived in remote and very remote areas.

However, it is difficult to make definitive statements regarding labour supply changes when looking at residential moves. Only a fraction of people move primarily for work purposes (estimated to range between 10 and 17 per cent of residential moves, depending on the data source used). Many move for family, housing or other personal reasons. Further, 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.

Whenever a person moves over a certain threshold (distance or administrative), it will usually mean that the supply of labour is also moving. The rate of movement of working age people between regional labour markets is lower than all residential moves, at around 3.5 per cent. For interstate moves it is 1.7 per cent. Gross interstate migration has declined over the past decade, from about 2 per cent of the

population through the 1990s, to about 1.5 per cent of the population more recently. This has occurred over the same period that has also seen an increase in long-distance commuting. Interstate mobility has also declined in the United States and Canada.

Who moves?

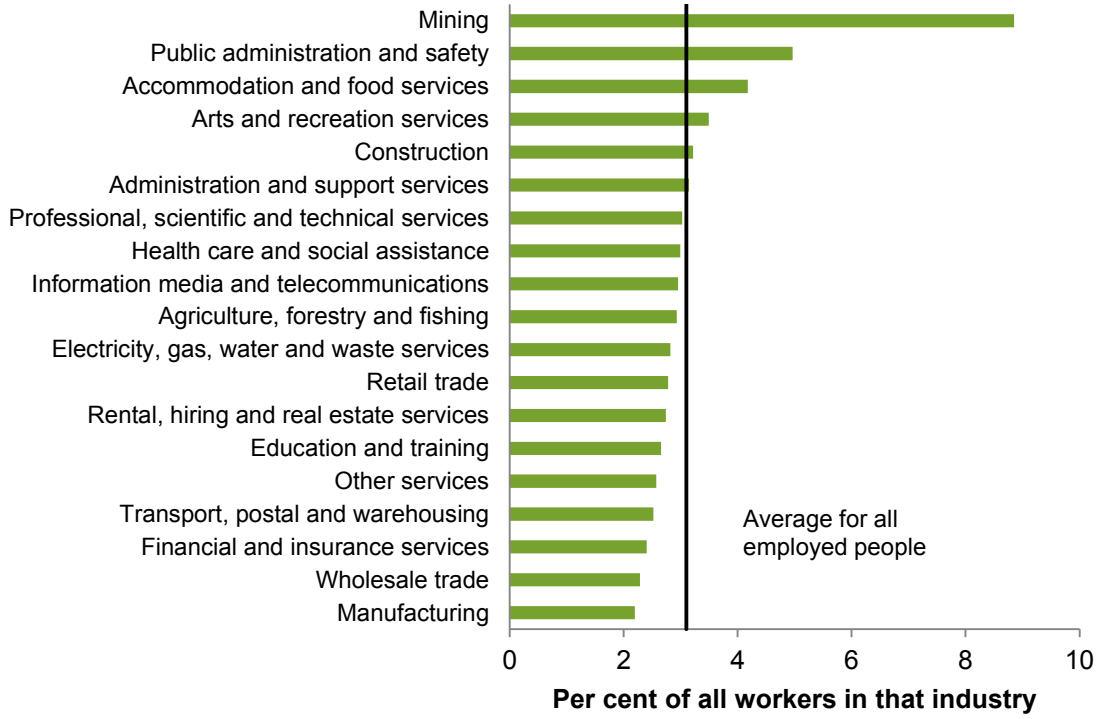
In Australia, younger people, unemployed people, Indigenous Australians, recent overseas migrants, single people, people without children, more highly educated and skilled people, and people working in the mining industry all have a higher propensity to move residence between labour markets than do other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

At the time of the 2011 Census, 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 changing residence 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 3).

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 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. While people who rent privately are more likely to move residence than those who own their own home, it is not clear if renters have a higher intrinsic propensity to move than the general population. Previous research has shown that a significant proportion of moves by renters are 'forced', due to factors such as eviction and leases ending. People in public housing have the lowest rates of residential mobility.

Figure 3 **Residential mobility by industry of worker**
Per cent moved in the previous year, 2011



Mobility and unemployment

While the geographic labour mobility of all groups is important, of particular concern are people who struggle to find work. Long periods of joblessness impose costs on individuals, their families and the wider community.

In Australia, unemployed people are more likely to change residence than those who are employed or not in the workforce. However, this finding does not hold for long-term unemployed people, as the limited evidence available suggests that mobility declines with the duration of time on unemployment benefits. Evidence suggests the mobility of discouraged workers is also relatively low.

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. Some regional unemployment seems unresponsive to macro conditions and to existing

policy levers. 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 not likely that small incentive payments or penalties will increase their mobility.

Geographic labour mobility is by no means a comprehensive solution, but reducing impediments to mobility may help to prevent long-term unemployment for some individuals. However, addressing the challenges of long-term unemployment will require a broader approach, which has economic growth and labour market flexibility as fundamental, with a range of targeted and coordinated policy responses across the spectrum of welfare, education and training, health and housing. These policy responses should be focused on 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 4), in part reflecting growth in the sector itself. 'Fly in, fly out' (FIFO) may represent a significant part of the workforce in certain mining regions, such as north-west Western Australia.

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 also important for geographic labour mobility and efficient job matching. Intercity commuters make up a small proportion of the workforce in capital cities but represent a much larger proportion of the population of some regional areas and are critical for these economies. There have been concerns expressed about people in outer metropolitan areas needing to commute long distances to work. However, 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 and distances

have not changed much in the past decade. Many people who live in outer suburban areas also work in outer suburban areas.

Box 4 **The growth of FIFO**

One increasingly utilised source of labour supply is fly-in, fly-out (FIFO) workers (and similarly drive-in, drive-out (DIDO) and bus-in, bus-out (BIBO) 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 employees 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 locations
- a lack of accommodation and facilities in regional and remote locations
- 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 mineral deposits being increasingly 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 commonly used in the health industry to provide health services in small remote communities where there is no adequate supply of health 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.

Actions by employers

Employers use a range of strategies to encourage workers to relocate from other regions or undertake long-distance commuting (box 5). The study's consultation process has indicated that some employers are sourcing workers from a very wide

geography, including interstate and overseas, if they are unable to employ suitably qualified locals.

Box 5 **Employer strategies to attract workers**

A range of strategies is used by employers to attract workers. In many cases, a combination of strategies will be used.

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

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 organisation 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, chaplaincy services for family members and the facilitation of networks for family members.

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, which has a significant Indigenous population, 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 LNG project in north-west Western Australia. The resource industry is also using FIFO as part of its training programs.

Telecommuting is increasingly 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 Visa 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 are those who are likely to gain the most from moving — young people, single people, recent overseas migrants, unemployed people and more highly educated and skilled people all move residence between labour markets more than other cohorts.
- Employers are using a range of labour sources in order to find the skills they require and are sourcing 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 in many parts of the country.
- Labour does appear to be moving to areas with better job and income opportunities; that is, workers do 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 deep labour markets and efficient job matching and reduces the need for certain forms of geographic mobility.

There is room for improvement

However, while the Commission's early 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 certain occupations in regional and remote areas, while at the same time there remain regions of high 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 influence geographic labour mobility directly appears to have had limited effectiveness, particularly in relation to regional development policies.
- There are some impediments from policies that can 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 important role of education and skills and overseas migration, including temporary overseas migrants, also requires acknowledgment.

Temporary 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, such as capping, occupational restrictions and labour market testing. Governments should ensure the benefits of temporary migration are maximised by maintaining flexible arrangements and avoiding excessive regulatory burden.

A high quality education and training system is critical for improving the skills of the local workforce, as well as being an enabler of geographic labour mobility. Where skills development lags, this can lead to entrenched unemployment and disadvantage. The school system provides the foundation capabilities that are essential for workforce participation. A flexible training system that is responsive to the changing needs of individuals and employers is also important. While skills development has been the focus of significant policy and program reform effort in recent years, there remain concerns about inconsistent quality and low completion rates. 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 6), for example essential services employees in regional and remote areas, governments, as either providers or purchasers of services, have attempted to overcome them by offering a range of

financial and non-financial incentives to encourage relocation. The use of financial incentives may vary in effectiveness depending on the target group. They are most effective when offered to the people who would benefit the most, such as students faced with high education costs or recently arrived immigrants in particular occupational categories, trying to establish themselves in a new country. Financial incentives need to be accompanied by other support, such as professional development and information provision, to better address the various impediments to relocation.

Box 6 **Skills shortages**

Study participants have reported that skills shortages are common in Australia. Some occupations are in shortage nationwide (for example, nursing) 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 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 the shortages of teachers in rural and remote areas 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.

A 2006 Commission inquiry into the health workforce found that shortages exist across several health professions, particularly in rural areas. These include general practitioners, medical specialists and some allied professions. 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 and demand of 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. Deeper consideration of the potential for resource misallocation and the need for goal clarity, improvements in policy design and implementation, and a substantially stronger commitment to project evaluation would be beneficial in this area.

However, there is also a need for more realistic expectations; governments cannot reverse the continual process of agglomeration or delay necessary structural adjustment. Benefits are likely to be higher if policies focused 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 we consider policy review is warranted. These areas relate to broader government policies which have been found to indirectly affect individuals' and businesses' 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. It has also been identified as a problem in Australia's larger cities, where some workers are unable to live close to areas of employment growth.

A number of existing government policies, such as taxation and land-use planning, could be contributing to distorted housing costs, which impact on rental and purchase decisions and can impede 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.

Governments at all levels have committed to addressing housing supply and affordability issues. Despite this, stakeholders have consistently argued that government policies have not been successful in facilitating efficiency in the housing market.

Welfare-related policies

Governments provide low-income earners with a range of 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 geographical relocation for work.

- One identified problem is that mobility can be impeded for people on the waiting list for public housing who wish 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.
- 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, consistent with the recommendation of the Henry tax review, to ensure it does not act as a disincentive to geographic labour mobility.

Governments offer an array of services to job seekers, which affect their mobility decisions. According to Jobs Australia, the peak body for the 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. However, some of the barriers are inherent to the design of the job services system, particularly in terms of the limited opportunities for job seekers to link with potential employment opportunities in other locations. 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. There is an important opportunity to address these barriers in the review of the employment services system currently being undertaken by the Australian Government.

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. Since 2008, COAG has been working on a national licensing system. However, the reform has encountered numerous challenges and progress has been slow. The National Occupational Licensing Authority has warned that 'various policy decisions [in the process of implementation] have steadily eroded the maximum benefits that could have been achieved [from the reform]' (sub. 17, p. 19). It has called for changes to the governance structure and the reform implementation process. Enhancing skills recognition across jurisdictions and strengthening national occupation licencing efforts is likely to improve geographic labour mobility. However, the Commission considers the benefits of this reform will not be realised without a renewed commitment to reform and more streamlined governance and institutional 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. The existence of negative impacts does not necessarily mean that geographic labour mobility is undesirable. The objective of public policy should be to focus on impacts that result from a specific market or government failure.

Managing these impacts is sometimes the purview of employers. For example, 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 spends 1 per cent of its 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.[1] 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)

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

The Commission believes that local governments should have the capacity and capability to manage the effects of population change in their areas, and should be consulted early as part of state government planning and approval processes.

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 limited data on long-distance commuting. Given the growth of work practices such as FIFO, there is a need to better understand the profile of this workforce and the long-term impacts of long-distance commuting. The need for better data on long-distance commuting is

[1] Funding received by local governments through Financial Assistance Grants reflects permanent population in the area but not the 'service population' that includes temporary residents.

part of a broader need for fit-for-purpose definitions and estimates of temporary or service populations. Where local governments have a large number of temporary residents (called 'service populations') that are not captured in the Census statistics, local governments have argued that they are receiving insufficient funding.

The ABS has published a general definition of a service population:

> 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. (ABS 2013u)

These different groups within a service population will access services in a local area differently. For example, overnight visitors have different water and sewage consumption habits to daytime commuters. As such, users (service providers) will have different data needs. Given this diversity, definitions (and estimates) need to be fit-for-purpose. That is, they need to correspond to the use of a particular service.

Although the ABS and other organisations have made some improvements in the measurement of service populations, more can be done. In particular, there is potential to augment existing labour force surveys and make better use of the extensive collections of administrative data. Such augmentation would also assist in providing a more accurate picture of population changes at a regional level between Census periods.

The need for better data needs to 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.

Draft recommendations and findings

DRAFT FINDING 8.1

The main impediments to geographic labour mobility relate to personal factors, and in particular family circumstances. Attempts by government to act in contradiction to these factors are unlikely to be effective or improve community-wide wellbeing.

DRAFT 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.

DRAFT RECOMMENDATION 10.1

All governments, when developing structural adjustment programs, should ensure they are properly evaluated including how they promote or hinder geographic labour mobility. For example, this should apply to the programs announced by the Australian and Victorian Governments in response to the Ford closure in Victoria. A longitudinal study of the retrenched Ford workers would be particularly beneficial in understanding the long-term impacts of structural adjustment and its implications for geographic labour mobility.

DRAFT 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, and should not be impeded by excessive regulation.

DRAFT FINDING 11.2

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

DRAFT RECOMMENDATION 12.1

Where this has not already occurred, 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.

DRAFT RECOMMENDATION 12.2

State and territory governments should ensure there is 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.

DRAFT RECOMMENDATION 12.3

In keeping with recommendations from the Australia's Future Tax System Review, the Australian Government should review the level, indexation and eligibility for Commonwealth Rent Assistance to assist the mobility of low income workers in rental accommodation.

DRAFT RECOMMENDATION 12.4

The Australian Government's review of employment services should examine barriers within the jobs services system to the geographic mobility of unemployed people. Providers should be encouraged to work directly with employers to identify new opportunities for job seekers, including opportunities outside their immediate labour market region where relevant.

DRAFT RECOMMENDATION 12.5

COAG should take remedial action now to ensure:

- ***national occupational licensing reforms commence in 2014***
- ***the reform's governance structure is streamlined, in order to facilitate timely decision making***
- ***reform processes, such as licensing fees and systems, are simplified and consistent across all jurisdictions.***

DRAFT RECOMMENDATION 12.6

State governments should ensure that local governments have the capacity and capability to manage the effects of population change in their areas. In particular, 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.***

DRAFT FINDING 12.1

There are gaps in the understanding and measurement of geographic mobility, particularly of temporary or service populations. This could be hampering local governments' planning and funding allocations. Although the ABS and other organisations have made some improvements, more can be done, in particular exploring greater use of administrative data.

INFORMATION REQUEST 12.1

The Commission seeks information on:

- *the different definitions and measures of temporary or service populations*
- *possible solutions to data gaps, such as expanding existing data collections and using alternative data sources.*

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 geographical 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 will consider the geographic labour mobility of all working-age Australians, including Indigenous Australians. It will cover 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 will consider movements of labour across regions of Australia, including outer metropolitan and non-metropolitan locations. This study will look at international migration in terms of its effects on domestic regional labour supply and demand.

The study will cover 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 will be considered including seasonal work, long-distance commuting and those who work from home.

The Commission's analysis of patterns and trends in geographic labour mobility and its own empirical work will focus on the past decade. Changes during this period will be placed in the context of previous periods of economic and structural change and an overview of 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 geographical 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 as set out in the issues paper.

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 will 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 will encompass 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 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 will potentially be included in the final report. The Commission has also considered the potential for other empirical work, in particular computable general equilibrium modelling.

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 mobility 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 1993a). An alternative approach develops '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 has produced a labour market geography based on commuting relationships between statistical local areas (Centre of Full Employment and Equity nd). The ABS has used this approach to inform the design of the Statistical Area 4 (SA4) regions (ABS 2010c).

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 government. 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 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' (sub. 17, p. 3). Similarly, the Australian Petroleum Production and Exploration Association (APPEA) states that 'geographic labour mobility in its simplest form is the occupational movement of workers to a specific location' (sub. 24, p. 3). A broader interpretation was presented by the Isaac Regional Council 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' (sub. 16, p. 1).

The Regional Australia Institute 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' (sub. 25, p. 3).

The Ai Group highlights 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 also state 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' (sub. 24, p. 3).

However, APPEA also provides a caution on the extent to which technological change removes the need for physical relocation of workers, noting 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 and shape the current (and future) context of this study's analysis (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 moves* — 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 that exceed a time or distance threshold.
- *Telecommuting* — working from a distance, in any location other than the usual workplace. Telecommuting in essence involves the relocation of the job, and not 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 — in Australia and also overseas 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 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 employer's own reports the Commission highlights common elements of successful strategies.

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 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 success of these approaches, in terms of how they support optimal job matching across labour markets and increase overall wellbeing, is considered.

The analysis of patterns and trends in geographic labour mobility, and strategies used by employers and governments to influence where people live and work, will be drawn together to make an assessment of whether current rates and patterns of geographic labour mobility are assisting labour market adjustment (chapter 11). This will involve 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 governments 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 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 on 3 December 2013.

Following the release of the draft report, the Commission will conduct further consultation with stakeholders. This will include roundtables in February 2014.

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 businesses 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 can sometimes require businesses 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.
- 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 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 activity, 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.

To achieve an efficient job match, both sides of the labour market need to arrive at an employment arrangement that meets their objectives. Sometimes, this will require individuals to relocate their place of residence to be closer to work, or to devise different commuting arrangements. Alternatively, businesses could be required 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 match is not achieved — a job vacancy might persist even though there are job seekers elsewhere in the labour market who are not employed but are willing to work. As discussed in chapter 3, 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 economy overall. This chapter will consider the reasons why a geographic 'gap' might persist between where job opportunities are available and where the potential workers to fill these jobs are located (section 2.3).

2.1 How do firms decide where to locate their business?

The locational decisions of firms are shaped by their business objectives, particularly profit maximisation. 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 (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 of these inputs of production 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). On the other hand, since labour has the potential to be relatively mobile in a geographic sense, firms might need to consider how to attract workers to the locations where they are needed. In some cases, firms might need to offer incentives to workers who are suitably skilled for the job, but located elsewhere and need to be induced to move location.

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 those 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 also have the effect of attracting more workers to that area, thereby generating a larger pool of labour for firms to draw upon (Audretsch and Dohse 2007; Krugman 1991; Porter 2000). If producers of similar goods and services are established in the same area, this can also attract more suppliers of common inputs, leading to more competitive supply market for firms (Porter 2000). 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 also entail costs. For example, the concentration of business activity in a given area can bring about congestion (Ottaviano and Thisse 2004). At the same time, 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 thinking about how an individual might decide where to live and work. This analysis is based on the understanding that each person aims to maximise their expected utility, subject to constraints (such as budget and time) and their risk preferences.

When thinking about how an individual might decide whether or not to move for work, it is important to recognise that, although it is common for people to live in the same geographic area where they work, this does always need to be the case. Given the advances that have been made in communication technologies and transportation, which make long-distance commuting and telecommuting more viable than in the past, it is increasingly feasible for people to live a distance from where they work. This means that a person can take up a new job in a different location without necessarily moving their permanent place of residence. A similar framework can apply to an individual's decision to move residence, adopt long-distance commuting, 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. This means that an individual who is contemplating whether or not to move location will need to take into account the benefits (or utility) that they can gain in the alternative locations. They will also need to consider the expected costs (or losses) they may incur. Overall, it is the 'net benefits' of the comparative locations that need to be weighed up (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 decisions should be 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.
- 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, which could dissipate 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 — may be ambiguous and is likely to be dependent 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 a new location as a benefit, whereas risk-averse person might consider it a cost.

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 would be 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 of the real manufacturing wage (W_M), the real agricultural wage (W_A) and the urban employment rate ($\frac{N_M}{N_u}$)[a]:

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

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), less the costs of moving (C_t), computed at time t.

$$Prob(moving)_t = f(Y_t^* - Y_t - C_t)$$

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 **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):

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

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.

- The value of these costs and benefits to the individual are likely to change over time, as they progress through different stages of life and their circumstances change. Technological advancements over time, especially those that improve the ease of transport and communication over long distances, will also have an impact.
- Often an individual's move will impact on their family or household. Hence, an individual's decision is likely to depend on more than the benefits and costs personally accruing to them. It is likely to also encompass the benefits and costs experienced by other family members.
- 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 (such as having more limited transport options or a relatively lower probability of being able to sell their house). This further reflects the point that each person's mobility decisions are highly specific to their own circumstances.
- Some costs and benefits cannot be known for certain, and therefore contain an element of probability. For example, unless they have already been offered a guaranteed 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 need to be discounted to their present value. Each individual will have their own discount rate, depending on how much value they place on the future relative to the present.

Chapter 8 will discuss in more detail the factors that could act as costs and benefits, and analyse the impact of these factors on mobility outcomes.

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 locational 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), the individual will weigh up all the 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, but they will 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 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 at earning an income means there is less time for leisure and other non-work activities.

Time allocated to work could also mean a significant time spent commuting. The cost of this time — in terms of the value of the time forgone with family or other leisure activities — could be a significant determinant in people's choice of job location arrangements. For example, an individual could face a choice between travelling a long distance to work each day from the outer metropolitan suburbs to a well-paid job in the city, or taking up a lower-paying job closer to home. The income the job provides, how much value they place on spending time with their family at home, as well as how much 'disutility' they might endure spending time in traffic, would 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 — when compared to a standard eight-hour day, five-day working week — allows for 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 many years of their total working life to allocate to a particular locational 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 a telecommuting job during the years that they have young children at home or other caring responsibilities.

2.3 How does efficient job matching take place?

On the demand side of the market, firms — aiming to maximise profit — 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 does arise (due to, for example, an employee retiring or a firm needing to hire extra workers to produce more output), there are several possible ways in which labour demand and supply can be brought together to achieve a suitable job match.

How can supply and demand be brought together?

In a well-functioning labour market, employers can source workers through various potential channels of labour supply:

- drawing on the local population — firms employ local people who are already suitably skilled or equip them with the skills required through training
- labour relocation:
  - migration from another region — people migrate to the region where the job vacancy exists, moving from other regions within the country
  - migration from overseas — people migrate to the region where the job vacancy exist, moving from overseas (including those employed on temporary visas)
  - transitory movement of workers — people commute long distance to get to the place of work, which could sometimes entail using temporary accommodation near the work location under a FIFO or DIDO arrangement
- job relocation — firms bring the job to the worker, by shifting the physical location of the job or by workers telecommuting.

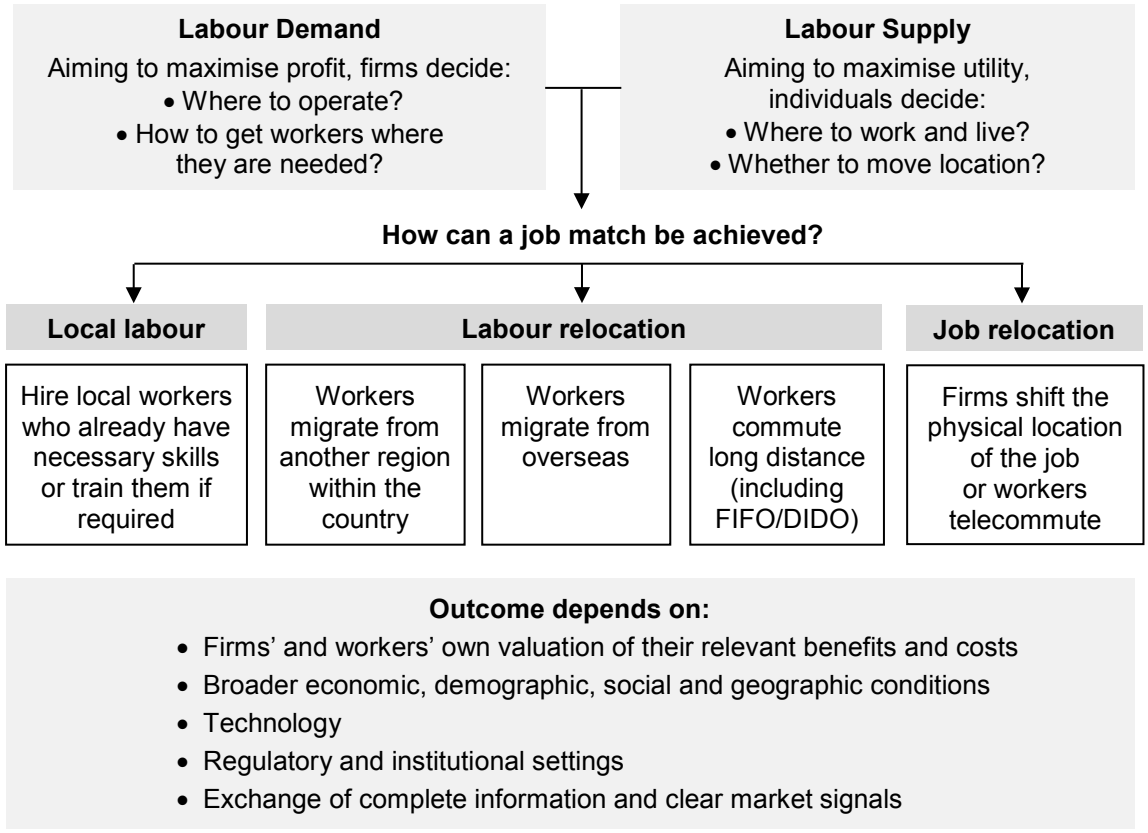
To arrive at an efficient outcome, each side of the market — firms and individual workers — will weigh up the relevant costs and benefits of the different options relative to their own objectives. In addition, the outcome will depend on a range of wider factors:

- broader economic, demographic, social and geographic conditions — which affect, among other things, 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 arrangements, systems for infrastructure provision, industrial relations settings, occupational licensing, education and training system, immigration policy and transport regulation
- technology — which affects the costs and feasibility of travel and telecommuting arrangements, as well as the composition of the economy more generally.

Figure 2.1 summarises the 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 drawing on the local population does not entail the geographic movement of labour, it is important to acknowledge this potential source of labour when examining geographic labour mobility, because the various sources are interrelated and can serve as alternatives. For example, a firm might first look towards the local population for workers because this would be the most cost-effective source of labour. However, if the local labour force does not hold the requisite skills and cannot be trained in a timely way, or are already fully employed, then the firm might need to use alternative sources of labour supply to fill its job vacancies.

Policies that affect the skilling of the local population will, consequently, have indirect implications for the geographic mobility of labour.

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 role of market signals

The exchange of relevant information is essential for an efficient job-matching process. Firms' demand for labour can be communicated to prospective employees through several types of market signals, including relative wages and conditions and vacancy rates. With sufficiently flexible institutional settings, 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 another region and their expected wage. These signals can, therefore, give people an incentive to move 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, if income and job security are important components of their utility.

The effectiveness of these labour market signals in steering people to where job opportunities are located, however, relies on them having sufficient information on which to base their decisions. Obtaining this information involves search costs, and the information required might not necessarily be accessible or available. Furthermore, a person's capacity to collect, understand and act on this information will depend on their individual circumstances and attributes (such as their level of education and workforce experience). Any barriers to individuals having the requisite information could impede the process of efficient job-matching.

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.

- If a job vacancy within a particular region are filled by people moving permanently from elsewhere in the country, the size of a 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 total country.
- If a vacancy is filled by workers undertaking long-distance commuting, the region's permanent residential population size will not change, but its workforce size will. This type of mobility could lead to an increase in demand for short-term accommodation as well as greater use of local infrastructure and amenities. This can have implications for funding mechanisms for infrastructure provision at a regional level (as discussed in chapters 11 and 12).
- If a vacancy is filled by the local population, or by the firm shifting the job to where available workers are already located, regional residential population size will be unaffected in the immediate time period.

Models of population flows can be used to illustrate these effects at an aggregate level. Some examples of models applicable to people moving their permanent residence are outlined in box 2.2. (Chapter 8 and appendix D of this report contain a more detailed discussion and application of gravity models).

Given that labour demand and supply must constantly adjust 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 output.

When might efficient job matching not occur?

It is important to consider circumstances when a job match is not achieved, and how the geographic mobility of labour — or lack thereof — could be contributing towards this outcome.[3] This can be considered in terms of the various sources of labour supply depicted in figure 2.1.

[3] 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

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):

$$M_{ij} = k v_i w_j d_{ij} O_i C_j$$

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 drawcard in attracting even more people. The larger the labour market, the greater the number of potential job opportunities and scope for further growth. **deVries, Nijkamp and Rietveld** (2000) adopted Alonso's model in estimating 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):

$$imm_{ij} = a_0 + a_1(pop_i \cdot pop_j) + a_2(rely_{ij}) + a_3(dist_{ij}) + a_4(stock_{ij}) + a_5 LANG_{ij} + a_6 CONT_{ij} + a_5 LINK_{ij} + u_{ij}$$

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.

First, when considering the local population as a source of labour supply, unfilled vacancies might be due to skill deficiencies among the local population. The local pool of labour might not hold the skills or attributes required to fill the job, or it might take time to equip them with the necessary skills. In this regard, the provision of quality education and training opportunities for the local population is important, so that people can equip themselves with the skills that are in demand. However, if such skill deficiencies are difficult to overcome in a timely way, this could make it necessary for employers to look towards the geographic movement of labour (including, for example, the employment of skilled immigrants) as alternative sources of labour.

A second potential reason for unfilled job vacancies could be the immobility of potential employees. In some circumstances, suitably-skilled people might not be able or willing to move location because firms are not offering sufficient incentives (financial or otherwise) to attract them to the region and to compensate for the costs incurred. Given that the act of moving can entail some significant costs — such as travelling a long distance, 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 — firms need to provide prospective new employees sufficient compensation for these costs.

A third potential reason is the immobility of firms or the job itself. There could be pragmatic reasons for this. It might not be possible to shift the job to where available workers are located due to other inputs being fixed in location. Or it might not be possible for potential workers to commute long distances to the job in its current location, nor to bring the job to workers via virtual commuting, due to the nature of the work being undertaken or technological constraints.

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 and businesses from responding to these signals. 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).
- Regulations, like occupational licensing or limits on the number of immigrant intakes, could place limits on 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.

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 these 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 in the resources sector are complex and contentious. There are benefits and costs.

Australia has experienced a long period of growth and prosperity while being buffeted by significant external shocks such as the recent global downturn. We have an evolving and multi-speed economy. There is a need to address labour and skills shortages in areas of strong demand such as Western Australia and to lower unemployment in weaker parts of the economy. Geographic labour mobility can play a role in addressing these shortages and improving labour force utilisation.

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 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 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 (see chapter 11 for this assessment).

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 which can alter the demand for, and supply of, labour in particular locations.

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 requires 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. And low demand regions would experience higher unemployment than they would otherwise.

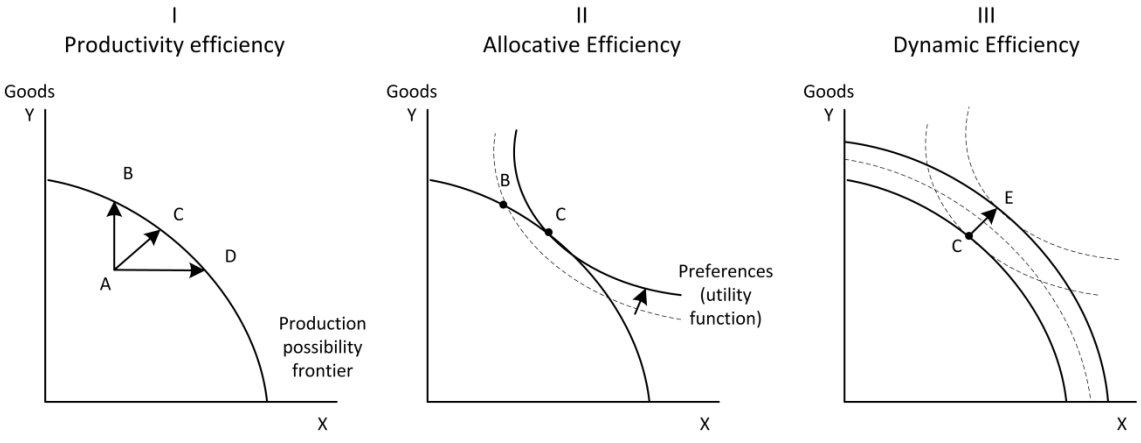
Box 3.1 **Components of economic efficiency**

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 A to B, or to C or to 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: Productivity Commission (2013d).

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. It is difficult to measure wellbeing. There is no one accepted definition, method or data source to measure it. 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.

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.

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 Armatya 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: housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety and work–life balance.

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

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. In the short term, individuals may have fewer personal contacts and social networks (Sweet 2011). When the entire household moves, relocation may entail a spouse changing jobs and children changing schools.

Existing evidence on the labour market outcomes for those who move (whether they move 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 report mixed findings:

- Sweet (2011) looked at statistics on 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 (2012) 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 moves have 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 (Silva de, 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 Working Holiday and 457 visas. There are concerns that Australian workers miss out as a result and that the use of 457 visas might be because of inadequate investment in education and training of Australian workers (Isaac Regional Council, sub. 16; the ACTU, sub. 21). There are also concerns that 457 visa workers are tied to their employer, which inhibits mobility (the CFMEU, sub. 26). On the other hand, a number of submissions noted the importance of the 457 visa program to employers, particularly for addressing skills shortages, and that the program is responsive to economic conditions (MCA, sub. 6; BCA, sub. 31).

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

> For businesses not directly linked to the resource sector, recruiting and retaining staff in resource communities is challenging … (sub. 16, p. 11)

The high cost of living also makes it harder for non-resource 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 local 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 may cause shifts in regional population composition (for example, an increase in the proportion of older residents as the younger population moves away), while the decline in demand can lead to closures 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 mining regions has been the subject of much debate (box 3.4).

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

Long-distance commuting can have complex effects on individuals and communities. Fly-in, fly-out (FIFO) work practices in particular have been contentious in some parts of the country, and have been raised in a number of 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'. They found that while long-distance commuting does not necessarily cause problems, it can exacerbate them.

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 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 (Police Federation of Australia, sub. 2; AMMA, sub. 29). A 2012 Queensland Resources Survey found that 15 per cent of non-resident workers (which includes long-distance commuters) were in non-preferred arrangements (MCA, sub. 6, p. 10).

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 these 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 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 long-distance commuting practices have negative impacts on the amenity of local communities. The Police Federation of Australia 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 for those who are domiciled in such locations. (sub. 2, p. 2)

Some specific concerns about amenity include increased alcohol and drug use, the changing makeup of the community (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). 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 the worker's absence. This might reduce participation in the community, such as in sport (HRSCRA 2013). However, Hoath and Haslam McKenzie (2013, p. ix) 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. Housing prices and rents have increased dramatically in many of these communities as supply has not adjusted to fully meet demand. While higher house prices and rents can hurt people in these communities, they benefit property owners. In general, these concerns relate to the broader resources boom rather than changes to geographic labour mobility as a result of the resources boom. Long-distance commuting might actually reduce pressures on housing supply in mining regions. The MAC Services Group noted that:

> … [mining camps] act as shock absorbers in the period where increased new demand exceeds existing local housing supply. (sub. 9, p. 2)

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. Resource companies also contribute to local communities.

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 (Isaac Regional Council, sub. 16; MCA, sub. 6; HRSCRA 2013; 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

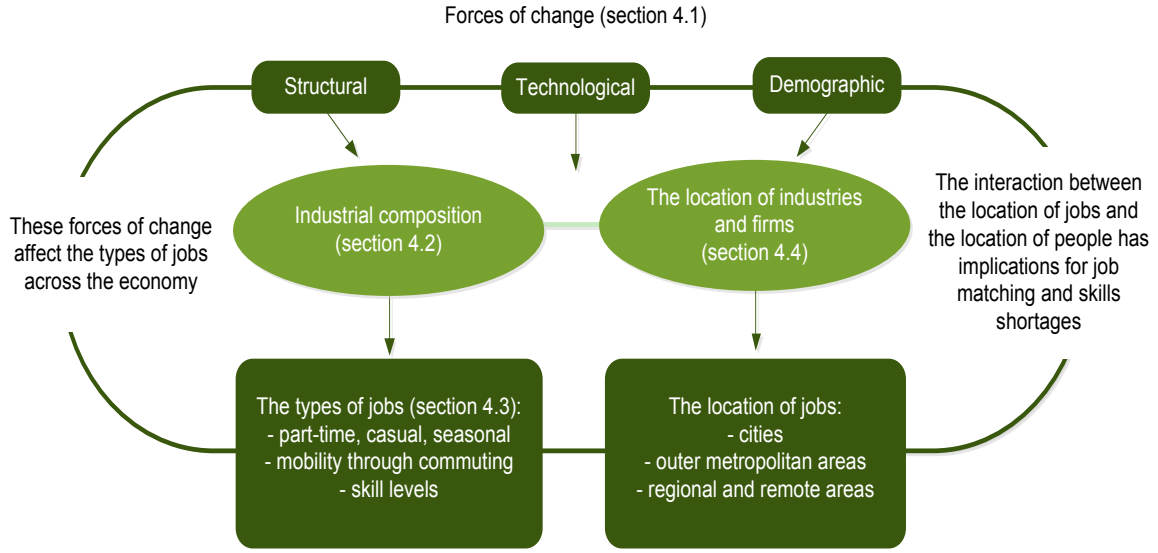
Key points

- Structural, demographic and technological changes influence regional labour demand and supply and geographic labour mobility.
  - Significant 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 diverse population.
    - The population has grown strongly over the past decade, particularly in and around capital cities and coastal regions.
    - International migration is 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 economy, the way employers operate, the types of jobs available, the location of those jobs and geographic labour mobility.

The structure of the Australian economy is always 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 the way in which people connect with available job opportunities (figure 4.1).

Figure 4.1 **Impacts of structural, technological and demographic changes**



The purpose of this chapter is to discuss some of the changes influencing the Australian economy and the nature and location of jobs in Australia, with a particular 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 labour 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 can react to demographic change but also alter the demographics of different regions.

Demographic change

Demographic change influences the regional demand 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:

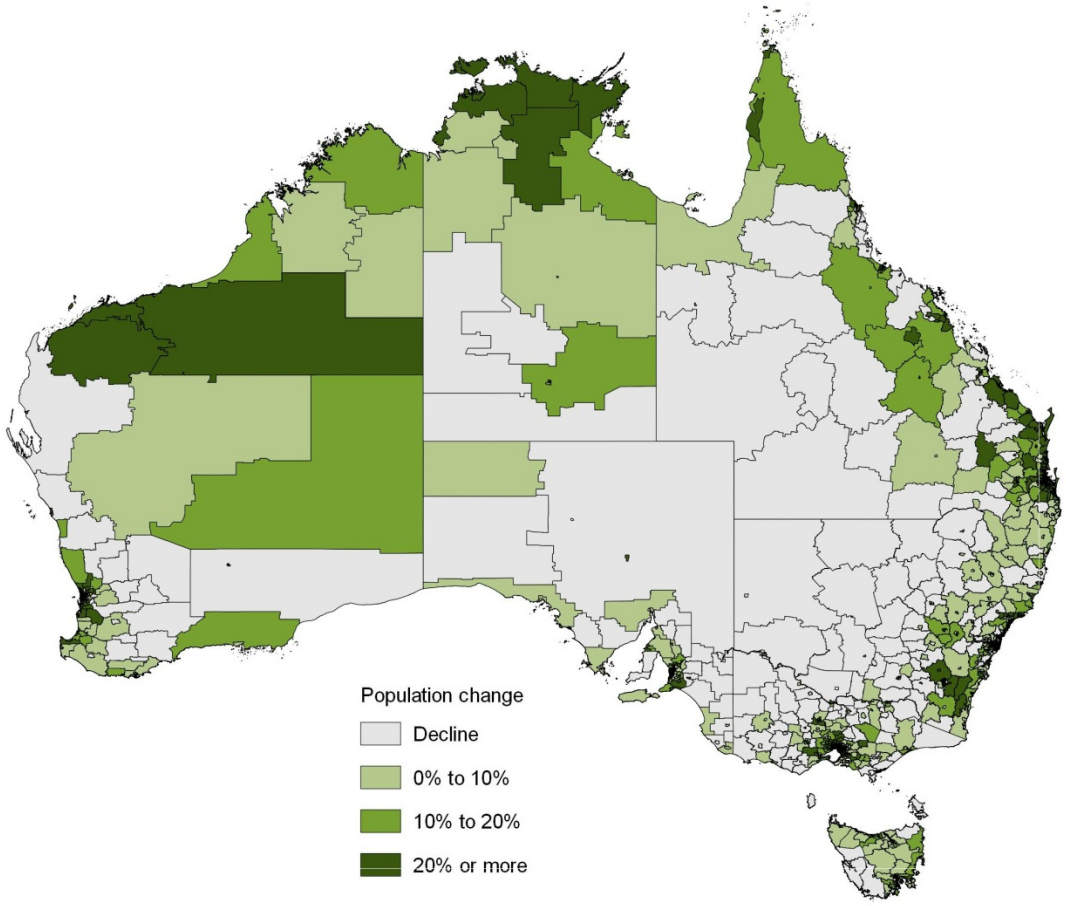
- population ageing, with the median age at 37 years in 2012, up from 33 years in 1990 (ABS 2012b). Ageing of the population is likely to reduce mobility as older people move less (chapter 5)
  - the median age varies across Australia and is highest in Tasmania (41 years) and South Australia (40 years) — states that have experienced a decline in their population share over time (ABS 2012b)
- 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 approximately 45 per cent in 2013 (ABS 2013m). Further, in more than two thirds of Australian couples, both partners work. These changes can influence geographic labour mobility because two careers need to be considered (chapter 8)
- 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) note 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 2013d). This growth is much faster than in most developed countries (OECD 2013).

In 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 in 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.

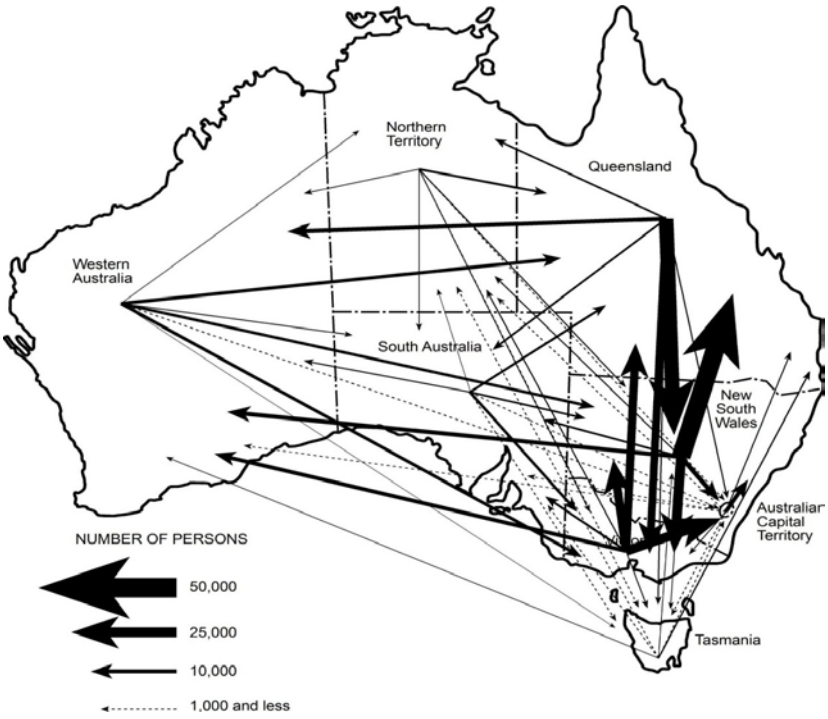
Figure 4.2 **Population growth by Statistical Areas Level 2, 2001–11**



Source: ABS (2012h).

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

Figure 4.3 **Interstate migration in Australia, 2011–12**



Source: RAI (nd).

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 stronger economy, but also 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 strong resources sector. This could be pointing to the formidable role of distance 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 states that 'this 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' (sub. 29, p. 5).

International migration is a large component of population growth and has been throughout Australia's history. Hugo (in CEDA 2012, p. 7) notes 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.

As patterns of settlement by international migrants have not always reflected the distribution of the broader Australian population, international migration can influence some regional labour markets more than others. 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. In some of these areas, international immigration has offset the decline in the Australian born population (Hugo 2011). International migrants can be used by employers as an alternative for Australian workers in regions where the population is declining or skills are not readily available.

Structural change

The Commission (2013c) has previously defined structural change as the process through which the sectoral composition of the economy is altered. 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 a recession).

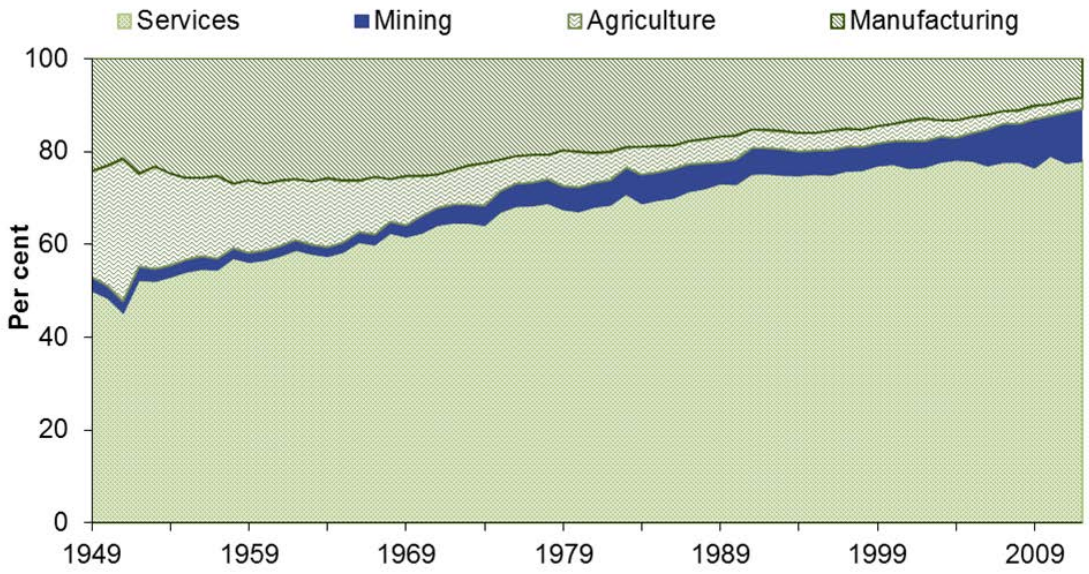
Structural change influences the quantum and type of workers employers seek, as well as the location of job opportunities. Geographic labour mobility can help the economy take advantage of positive demand shocks and deal with the adjustments that accompany structural change, such as localised unemployment.

Australia has been subject to the long-term patterns of structural change experienced worldwide, such as the relative decline of agriculture and manufacturing, and the rise of the services sector (figure 4.4). More recently, Australia has also experienced a significant resources boom, which has contributed to the process of structural change.

- 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). Growth in the services sector has coincided with growth in the relative importance of cities (box 4.1).

- The output and employment shares of manufacturing and agriculture have declined since 1950. Today, manufacturing accounts for approximately 9 per cent of output, down from approximately 20 per cent in 1950.
- 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.

Figure 4.4 **Sectoral shares of total output, 1949 to 2012**
Nominal gross value added



Source: PC (2013c).

Technological change

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

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.

In summary, 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.

Box 4.1 The role of cities

The proportion of Australians living in cities has increased in the past century, particularly in capital cities. Cities can play an important role in the efficient matching of workers and employers, and deep labour markets can benefit both workers and employers. If one enterprise fails, an employee has a good 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.

This type of agglomeration can reduce the need for geographic labour mobility and is unlikely to assist labour to move to regional and remote areas. This matters for Australia because its natural resources are often located away from the major cities. Further, the benefits of locating in metropolitan areas vary by industry and occupation. For example, population serving jobs such as nurses, teachers and mechanics are needed wherever people live, and therefore cannot be concentrated solely in big cities.

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

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 across the economy 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
- strong 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 quantum 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 August 2013, there were approximately 11.5 million people employed in Australia, representing a 22.5 per cent increase over 10 years (2.1 million jobs) (ABS 2013n). The three major employing industries were health care and social assistance (1.4 million), retail trade (1.2 million) and construction (1.0 million).[4]

In the past 10 years, employment growth has varied widely by industry (figure 4.5). Employment increased in 16 industries, with the largest increase in employment being in health care and social assistance (471 100) and professional, scientific and technical services (295 400).[5] Mining recorded the strongest growth in percentage terms (236 per cent). In contrast, employment decreased in three industries: 117 000 workers (11 per cent) in manufacturing, 72 600 workers (20 per cent) in agriculture, forestry and fishing, and 22 100 workers (10 per cent) in information media and telecommunications (ABS 2013n).

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 resources, from developing countries in particular.
- 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, removal of industry protection, fiercer domestic competition, technological change and a broad push towards higher productivity (Rozenbes and Mowbray 2009).

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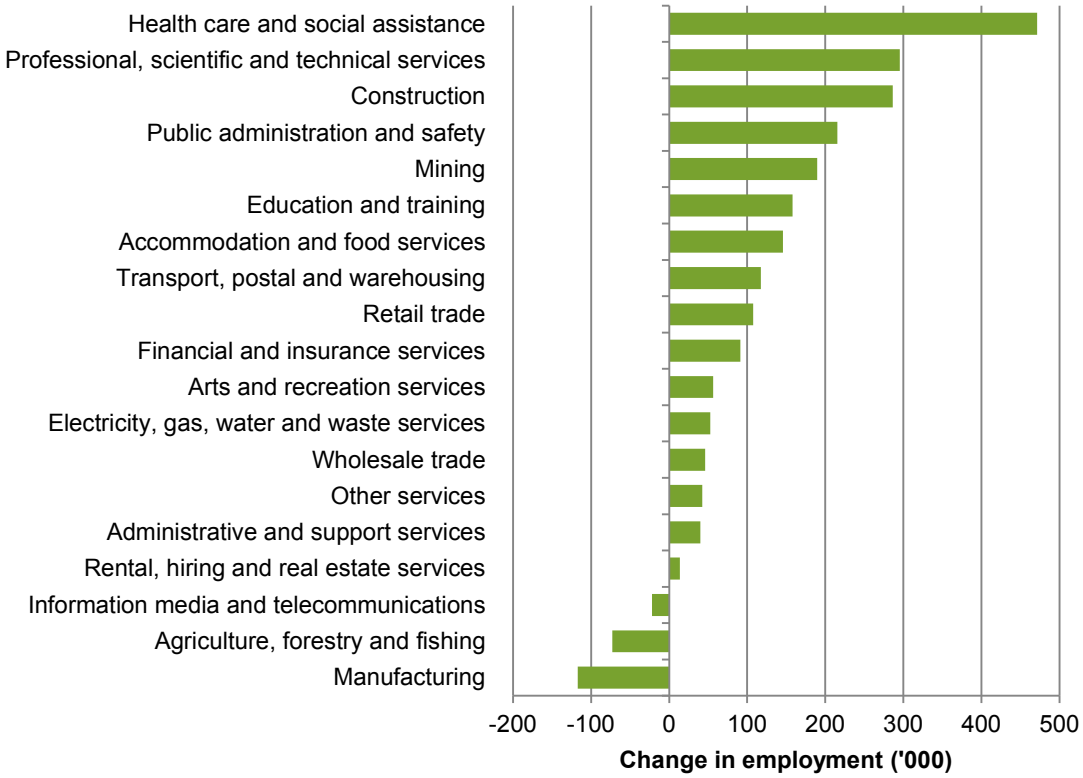
4 These industry divisions are based on the Australian and New Zealand Standard Industry Classification (ANZSIC) (ABS 2006a). The 19 broad ANZSIC industries are agriculture, forestry and fishing; mining; manufacturing; electricity, gas, water and waste services; construction; wholesale trade; retail 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.

5 Employment numbers are sourced from various ABS publications and are rounded to the nearest 100.

- 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 format and is increasingly outsourced to overseas providers (DEECD nd).

Figure 4.5 **Change in employment by industry, 10 years to August 2013**



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 August 2013, industries that recorded relatively high vacancy numbers were professional, scientific and technical services (17 600 or 12.3 per cent of all job vacancies), followed by administrative and support services (15 800) and retail trade (15 100). Mining recorded the highest vacancy rate (5.7 per cent). On the other hand, the relatively low-employing industries such as rental, hiring and real estate services, and electricity, gas, water and waste services recorded the lowest number of vacancies as well as relatively low vacancy rates.

Table 4.1 **Job vacancies by industry, August 2013[a]**

Industry	*Job vacancies*	*Vacancy rate*[b]
		Per cent
Professional, scientific and technical services	17 600	2.7
Administrative and support services	15 800	4.3
Retail trade	15 100	1.4
Health care and social assistance	13 300	1.4
Construction	12 800	1.7
Accommodation and food services	10 900	1.7
Manufacturing	9 000	0.9
Other services	7 900	1.8
Financial and insurance services	7 600	2.2
Public administration and safety	6 700	1.2
Transport, postal and warehousing	5 500	1.2
Mining	4 900	5.7
Education and training	4 900	0.7
Wholesale trade	4 000	1.1
Information media and telecommunications	2 300	1.0
Arts and recreation services	2 100	1.4
Rental, hiring and real estate services	1 800	1.0
Electricity, gas, water and waste services	700	0.7

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 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 the 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 highly-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 4.2). It has also contributed to the growing demand for higher-skilled workers.

Box 4.2 **Technology is 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 is 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 made significant investment 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 (Hays 2012) 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). 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 nature of the work (Ausfilm, sub. 28).

Seasonal employment is central to various parts of the agriculture, forestry and fishing industry such as horticulture, wildcatch fishing and agriculture (AgriFood Skills Australia, sub. 18). 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 nature of the work in some of these industries, requiring employers to shift their location on a regular basis. For example, construction roles are mostly short term and transient, involving the movement of semi-skilled and skilled workers from one project to another (APPEA, sub. 24; MCA, sub. 6). Project managers and engineers may leave a project for another once their expertise is no longer required.

Employers and workers in the film industry also 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).

Higher-skilled workers

Higher-skilled employment has grown strongly over the recent decades, and will continue to grow.[6] 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.

6 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.

Technological change generally increases the demand for higher-skilled workers across the economy because technological change is 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. 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 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 an increasing trend towards the use of contractors in mining. In another example, AgriFood Skills Australia 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' (sub. 18, p. 1). 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.[7] Analysis by Shomos, Turner and Will (2013) indicates 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 (2010b) estimates 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 GPs, tend to be relatively 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, like consultants, could potentially be more mobile and offer their services in different locations. The Commission is interested in whether there is evidence that can shed light on the mobility patterns of this group of workers.

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

As services began to replace manufacturing as the main source of new jobs in the 1980s, more employers became concentrated in Australia's major cities, 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).

[7] Prevalence estimates illustrate the relative shares of different forms of work in Australian employment.

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 account for the majority of jobs in major cities, including financial, professional and government services (Ai Group, sub. 19). In cities such as Perth and Brisbane, mining sector jobs have resulted in the creation of additional services jobs such as electricians, police officers, cleaners and baristas (DIT 2013).

The distribution of jobs varies across Australia's major cities and has changed over the past decade. For example, the Department of Infrastructure and Transport (2013) reports 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 markers and the large population bases.

While job growth is strong in major cities and surrounding regions, significant variation within these regions can still exist. This is illustrated by a case study of employment growth in South East Queensland between 2001 and 2006 (box 4.3).

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 Skill Australia, sub. 18).

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 4.3 The distribution of jobs in South East Queensland

Employment increased by 187 000 in South East Queensland (SEQ) between 2001 and 2006, mostly in Brisbane's middle region (29 per cent of the growth), outer region (20 per cent) and the Gold Coast (20 per cent). The industries that drove employment growth during that time varied across SEQ. The primary contributor to employment growth in the inner region was government administration and defence, in the outer region it was retail trade, and in Toowoomba it was health and community services.

SEQ's employment is concentrated in the inner and middle suburbs of Brisbane, highlighting the trend for employers to agglomerate in cities. For example, the inner region contained 19 per cent of SEQ's employment, but only 3 per cent of its population. The outer region contained 29 per cent of the population, but only 19 per cent of the region's employment. While there were 4.6 jobs for every employed resident in the inner region of Brisbane, there were limited job opportunities for local residents in the outer region, with fewer than 0.6 jobs per employed resident (commuting patterns in SEQ are discussed in chapter 6).

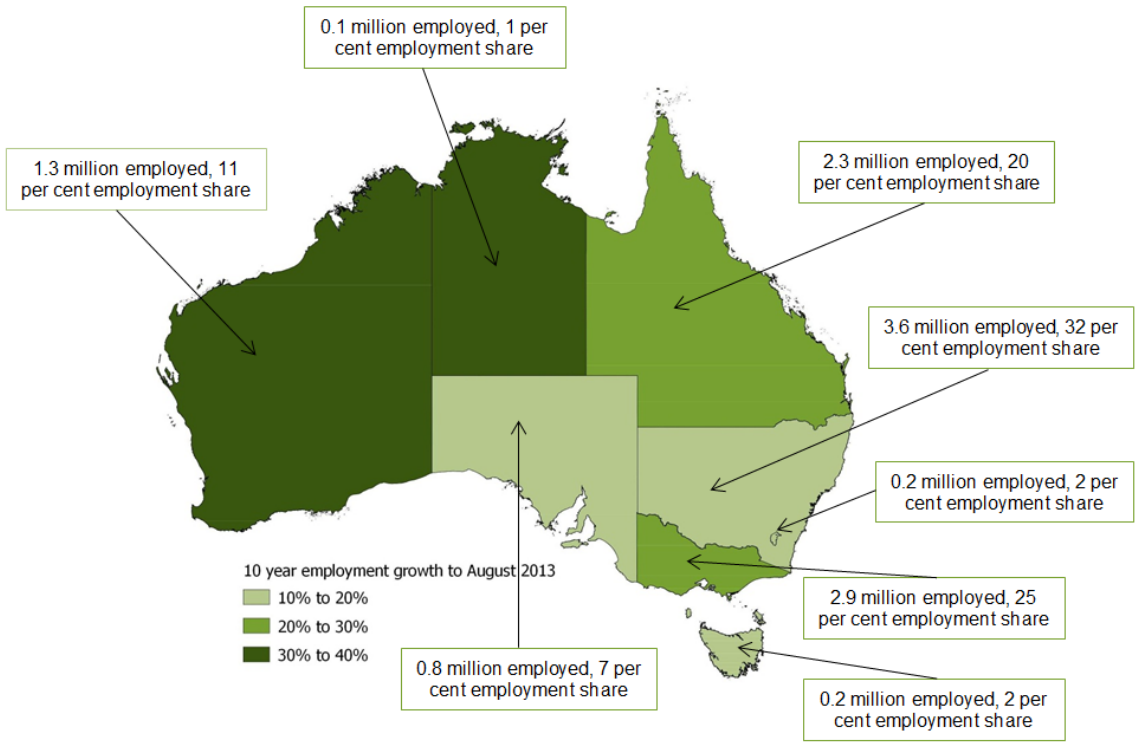
Source: BITRE (2013).

Regions that are more dependent on agriculture, food or tourism industries are likely 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. Further, employment in coastal towns dependent on tourism usually increases during the summer months and the school holidays.

Regional patterns of employment

Victoria saw the greatest increase in employment in the past decade (548 300), followed by Queensland (525 700) and New South Wales (519 700) (ABS 2013l). While New South Wales remains the largest employing state with 3.6 million workers in August 2013, employment in that state has grown more slowly than the national average of 22.5 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, August 2013**



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

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 resource-rich regions of Perth, balance of Western Australia, balance of Queensland and the Northern Territory 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 September 2012 to August 2013) 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 6.3 per cent and 8.4 per cent respectively, well above the national rate of 5.5 per cent (ABS 2013p). Some areas may also suffer from persistent regional unemployment (box 4.4).

Table 4.2 **Selected labour market statistics by major city-outside major city, August 2013**

Cities and regions	*Employment*	*10 year change to Aug 2013*		*Major employing industry*	*Unemployment rate*[a]
	'000	'000	%		%
Sydney	2 383.2	336.8	16.5	Health care and social assistance (295 151)	5.1
Balance of NSW	1 250.8	182.9	17.1	Health care and social assistance (161 370)	6.0
Melbourne	2 140.2	412.3	23.9	Health care and social assistance (255 794)	5.6
Balance of Vic	744.6	136.0	22.3	Health care and social assistance (95 555)	5.6
Brisbane	1 077.8	204.2	23.4	Health care and social assistance (128 536)	5.7
Balance of Qld	1 266.8	321.6	34.0	Retail trade (150 890)	6.2
Adelaide	590.6	64.4	12.2	Health care and social assistance (85 934)	6.0
Balance of SA	205.2	15.7	8.3	Agriculture, forestry and fishing (27 353)	5.9
Perth	987.7	287.7	41.1	Construction (111 154)	4.3
Balance of WA	323.1	70.2	27.8	Mining (43 282)	5.3
Hobart	100.8	13.0	14.8	Health care and social assistance (14 076)	6.3
Balance of Tas	126.1	8.0	6.8	Retail trade (17 264)	8.4
NT	127.6	32.1	33.7	Public administration and safety (22 872)	4.6
ACT	208.5	32.9	18.8	Public administration and safety (69 195)	4.2
Australia	11 533.0	2 117.7	22.5	Health care and social assistance (1 381 433)	5.5

[a] The unemployment rate refers to the average unemployment rate over the period September 2012 to August 2013.

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

Box 4.4 **Persistent regional unemployment**

Some Statistical Local Areas have recorded quarterly unemployment rates of over 10 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 21 per cent and the region of Playford – Elizabeth (South Australia) with approximately 20 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 is 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: DEEWR (2013b).

Job vacancies and unemployment

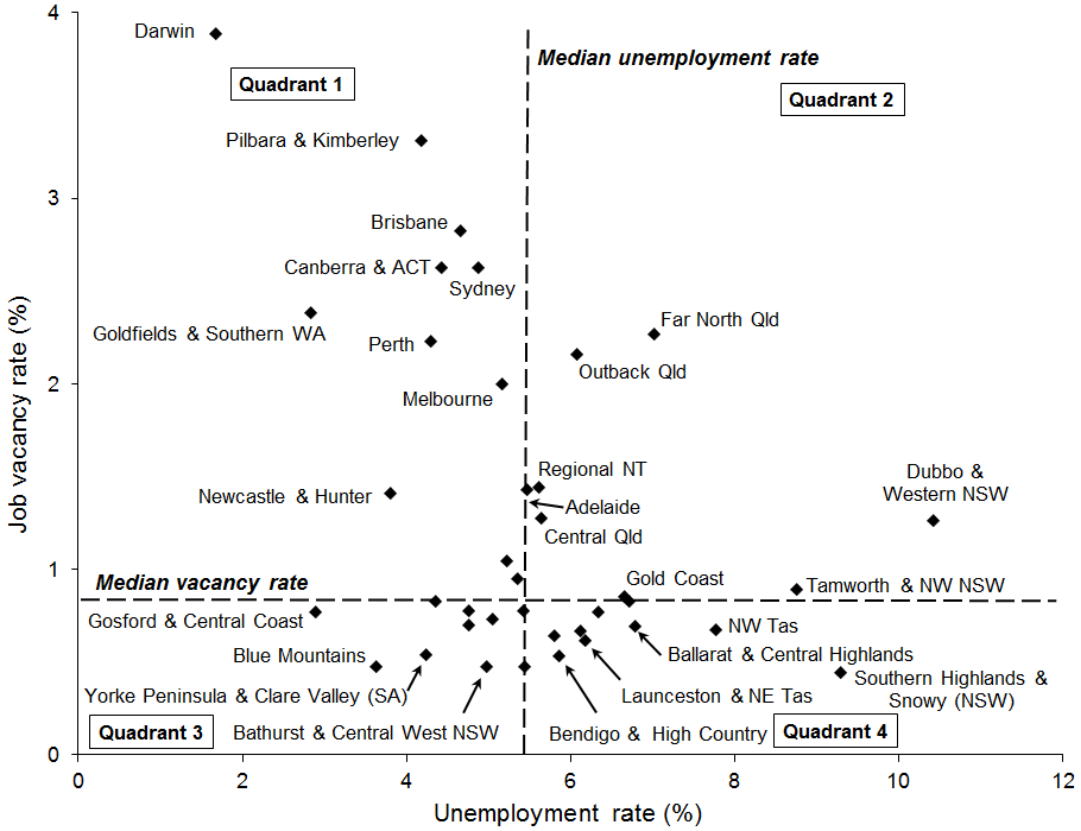
The job vacancy rate provides some indication of the availability of job opportunities within a region.[8] The unemployment rate provides an indication of the extent to which the regional pool of available labour could potentially take up these job opportunities. Collectively, these indicators can paint a picture of the state of the labour market in each region (box 4.5).

8 The ABS defines the job vacancy rate as the number of job vacancies, as a percentage of the total number of filled and unfilled job positions (ABS 2006, *Labour Statistics: Concepts, Sources and Methods*, Cat. no. 6102.0.55.001). However, the data required for this computation are difficult to obtain at the regional level. Consequently, the job vacancy rate 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 4.5 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 (Department of Employment 2013c, 2013d).

(Continued next page)

Box 4.5 (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, simultaneously high vacancy and 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 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 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 both low vacancy and high unemployment rates are mainly located in New South Wales, Victoria and Tasmania, with many of them traditionally having prominent agricultural or manufacturing industries. The combination of low vacancy and high unemployment rates suggests that job losses in these industries have not been accompanied by a sizeable expansion of job opportunities in other industries within the region or by any significant 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 have reported that labour shortages are common in different parts of Australia, especially in regional areas (for example, APPEA, sub. 24; BCA, sub. 31; Business SA, sub. 11). 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 2013a). Research by DEEWR (2012d) indicates that, in 2012, 64 per cent of regional vacancies were filled, compared to 71 per cent of filled vacancies in metropolitan areas. The hardest locations to recruit in were Darwin, regional

Western Australia and regional Northern Territory (box 4.5 shows that some of these areas have high vacancy rates and low unemployment).

While the extent of skills shortages across Australia has reduced due to the cooling in the economy, shortages are still significant for some occupations such as automotive trades, engineering professions and associates, food trades and resource sector occupations (BCA, sub. 31; DEEWR 2012d). For example, the Australian Mines and Metals Association (sub. 29) comments that around two-thirds of its members are currently facing a skills shortage and have considered recruiting employees from interstate and overseas to fill key roles. It argues that skills shortages are particularly high in professional occupations such as engineers and project managers. In a further example, AgriFood Skills Australia (sub. 18) reports shortages of both low-skilled and high-skilled professional and para-professional workers in various key roles in the agriculture, forestry and fishing industry.

Some occupations are in short supply nationwide (for example, nursing), while others experience shortages mostly in 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) identifies 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 notes the long waiting lists for accessing services provided by allied and other health professionals in regional New South Wales. The Commission has previously examined shortages in some of these occupations (box 4.6).

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, sub. 11; Health and Community Services Workforce Council, sub. 8).

Other reasons for regional labour shortages mentioned by study participants (for example, HHMAC, sub. 22; Police Federation of Australia, sub. 2) 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 opportunities for family members of employees.

Box 4.6 **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 a major or moderate difficulty filling staff vacancies in 2010 (McKenzie et al. 2011).

There are a number of reasons behind 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 2006). 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 (discussed in chapter 12).

The resources boom has also 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 (discussed in chapter 3).

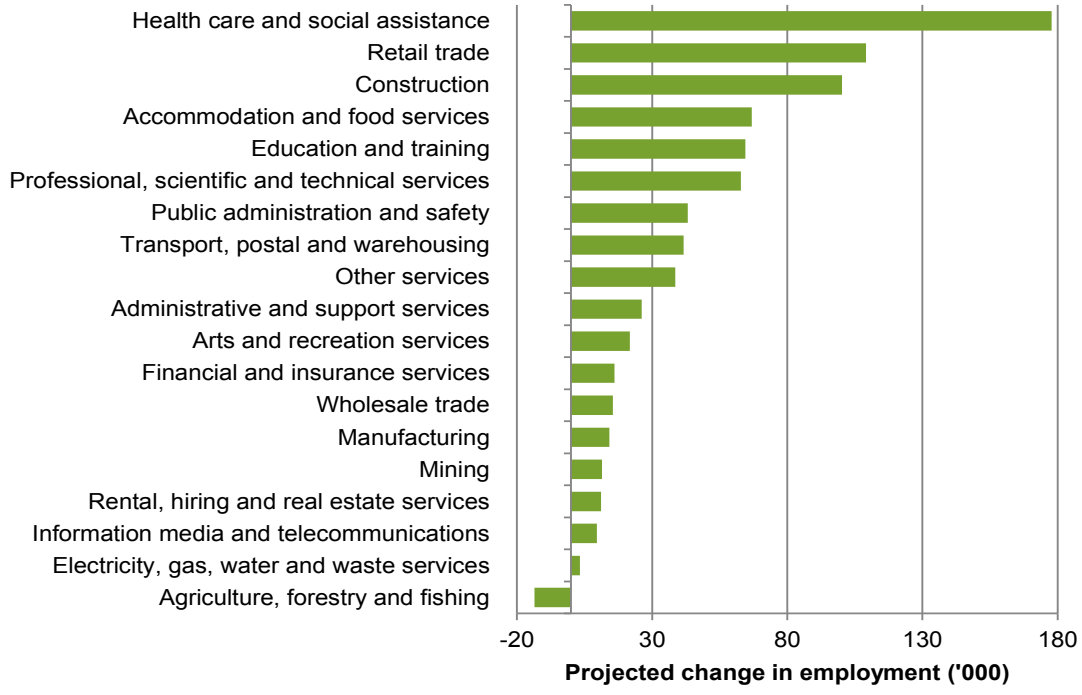
4.5 What does the future hold?

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

- the ageing of the population 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
- 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.

Over the period from November 2012 to November 2017, employment is projected to increase in all major industries, with the exception of 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 177 800) and retail trade (up by 109 100).

Figure 4.7 **Projected change in employment by industry, November 2012–17**



Source: DEEWR (2012a).

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

- Employment in the resource-rich states of Queensland, Western Australia and the Northern Territory is projected to grow strongly in the next few years (DEEWR 2012a).
- As current mining projects, largely in coal and iron ore, transit from the construction phase into the operational or production phase, the type and quantum of labour demand will change, affecting employment growth in the mining regions. For example, the demand for fly-in, fly-out workers may decline.
- 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 move to another labour market — and a much smaller proportion move interstate.
- People with certain characteristics are more likely to move. Younger people, unemployed people, Indigenous people, recent overseas migrants, single people, females without children, more highly educated and skilled people, and people working in industries such as mining all move residence between labour markets more than the rest of the labour force.
- In general, people move out of capital city labour markets into regional labour markets. However, a person's characteristics influences where they may move. For example, younger people are more likely to move to capital cities and older people are more likely to move from capital cities.
- Australians are highly mobile relative to people in other countries. Mobility tends to be higher in Australia and other English-speaking countries than in continental European countries.

Residential mobility is a key component of geographic labour mobility. This chapter presents data on high-level trends in residential mobility (section 5.1), identifies who undertakes residential moves (section 5.2) and where they move (section 5.3), and presents high-level 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 those aged 15 years and over, primarily using data from the 2011 Census (appendix B). The focus is on people in the labour force (except for analysis on 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 academic research.

Analysis of the 2011 Census indicates that about 16 per cent of the labour force change residence each year (table 5.1). The Census also asks where people lived five years earlier. A much larger proportion reported living at a different address five years earlier — 39 per cent of people lived elsewhere in Australia and 7 per cent were overseas. Examining earlier Census data for all people (including those not in the labour force) 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

	All moves	*Labour market moves*	*Interstate moves*
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	16.3	3.5	1.7

a People who were overseas a year prior to the Census, or whose answers are recorded as not stated or not applicable are not included. **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

	One year	*Five years*
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 These estimates are for all people, not just people in the labour force. Estimates include people who lived elsewhere in Australia or lived overseas, which explains the difference between the 2011 figure here and in table 5.1. Based on place of enumeration. **b** These data were not collected in the 1991 Census (Bell 1996, p. 103).

Sources: ABS (2012a); Bell (1996); Bell and Stratton (1998).

Residential mobility varies across Australia. A relatively larger proportion of people 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).

Table 5.3 **Place of residence one year earlier, by state and territory**

Per cent

Residence in 2011	*Same residence in 2010*	*Lived elsewhere in 2010*	*Overseas in 2010*	*Not stated*
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[a]	81.9	16.0	1.5	0.6

[a] Excludes other territories.

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

Table 5.4 **Proportion of people that moved in the year prior to the Census, by remoteness area[a, b]**

Per cent

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

[a] Appendix C discusses remoteness areas in more detail. [b] Excludes people who moved from overseas. 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). The National Centre for Vocational Education Research (sub. 3) noted that the proportion of people who move substantial distances for work is small. Moves over short distances are unlikely 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) will usually mean that the supply of labour is also moving, and it is these moves that are of interest to the Commission.

As discussed in chapter 1, the Commission is particularly interested in moves between regional labour markets. From 2010 to 2011, although about 16 per cent of people in the labour force moved residence, only 3.3 per cent of people in the labour force moved across regional labour markets (table 5.1). Mobility rates also varied between different regional labour markets. The regions where rates were lowest

were mostly capital cities (table 5.5). It should be noted that the low proportion of people moving into and out of the capital cities masks very large absolute movements within and between these regions due to the relative size of the population in capital cities. It is also indicative of the large and diverse labour market and residential options offered by capital cities. The Australian Council of Trade Unions (sub. 21) looked at mobility over the five-year period to 2011, and found that mobility was lowest in regional and remote Tasmania, New South Wales and Victoria. Net internal migration between labour markets is discussed 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

Proportion who entered		*Proportion who exited*	
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 people in 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 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. This has occurred over the same period that has seen an increase in long-distance commuting (chapter 6). Interstate mobility has also declined in the United States and Canada.

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.

Information about the characteristics of movers does 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. Where the Census is not sufficient to provide a clear picture of trends, other sources such as the HILDA survey and previous literature are drawn upon.

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 labour force (figure 5.1). The greater propensity of young people to move is consistently observed in the literature on all residential moves (for example, ABS 2010a; Bill and Mitchell 2006; Clark 2012).

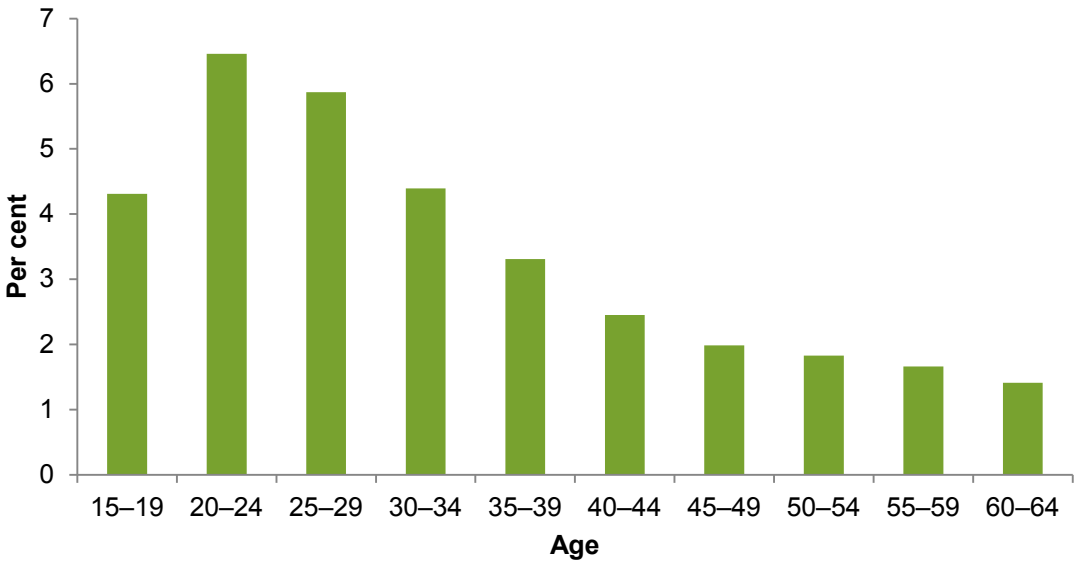
Geographic labour mobility decreases with age, with about 1.4 per cent of 60–64 year olds in the labour force moving in the year prior to the Census. This number increases to 1.8 per cent when all 60–64 year olds are included. This could be due to people moving for retirement-related reasons.

Ethnicity and background

Indigenous people moved more than non-Indigenous people, with over 5 per cent moving labour markets in the year prior to the Census. Other researchers have found similar trends when researching all residential moves by the Indigenous population (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 5.1 **Proportion of people who moved residence between labour markets in the year prior to the Census, by age[a, b]**



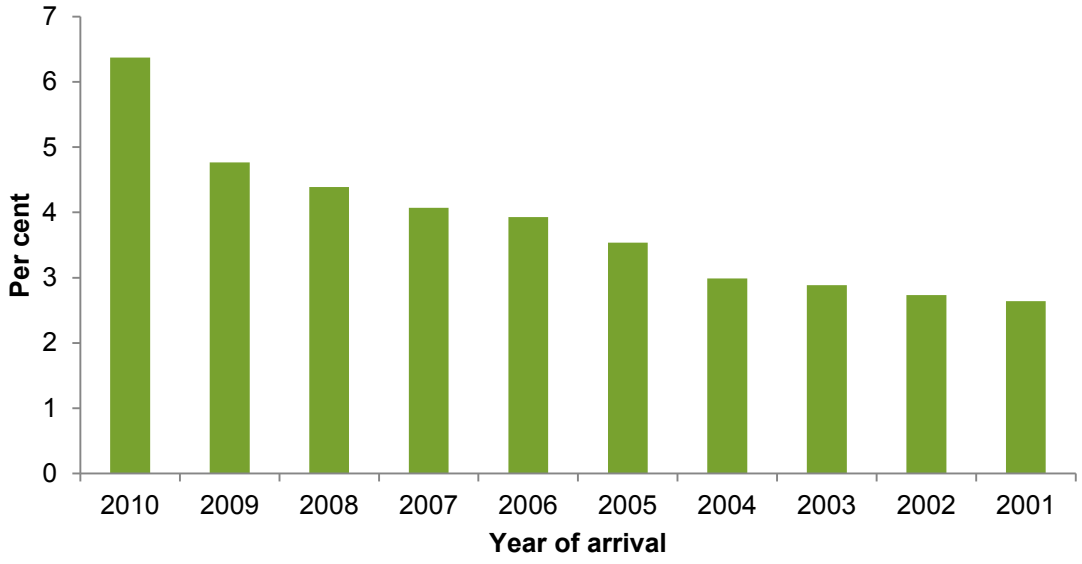
[a] Movements between labour markets are measured using the methodology described in appendix B, box B.1. [b] For place of usual residence one year ago capital city labour markets include Capital City undefined.

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

Recent international migrants to Australia also move more than the rest of the labour force (figure 5.2). 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. This could be because recent immigrants do not have the same ties to their local community, or sufficient information on the best place for them to settle when they first arrive.

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 5.2 **Proportion of people 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.

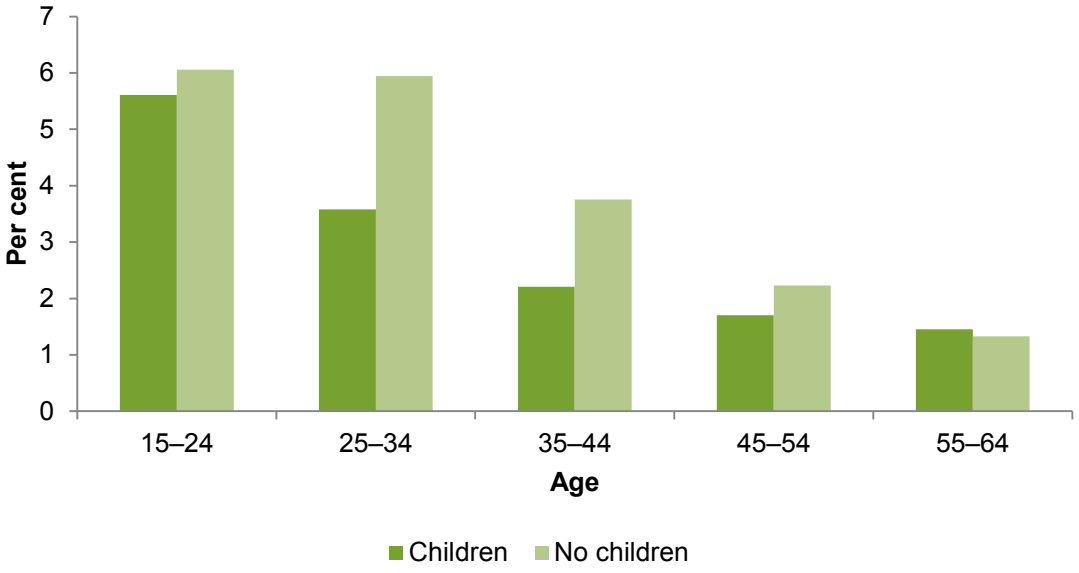
Source: Productivity Commission estimates using ABS (*TableBuilder Pro, 2011*, Cat. no. 2073.0).

Family

Mobility differs by family characteristics. Females 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 5.3). As males are not asked how many children they have in the Census, the Commission also looked at all residential moves by number of children using the HILDA survey. 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 2010a; Mitchell 2008b).

Figure 5.3 **Proportion of females 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).

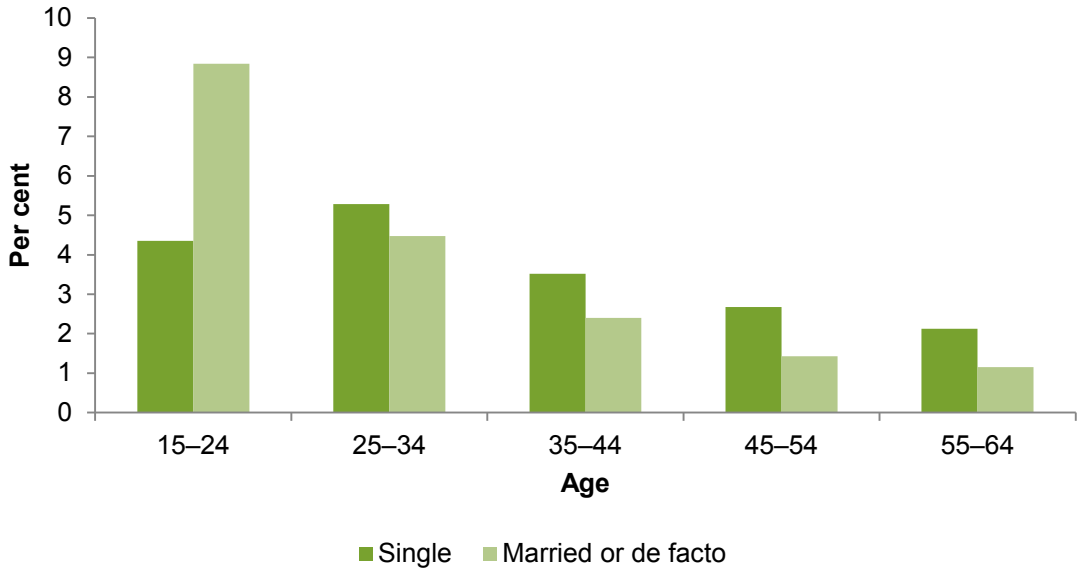
People who are not married or in a de facto relationship are also more likely to move labour markets than those who are. About 3.9 per cent of single people moved in the year prior to the Census compared to 2.5 per cent of married people and people in a de facto relationship. However, this finding varies with age, with a much higher proportion of young (aged 15–24 years) married people or people in a de facto relationship moving compared to young single people (figure 5.4). This could be due to young people not in a relationship staying at home, while young people in a relationship are moving away from the family home to establish their own household, illustrating further the importance of life events when considering 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 about the movements of people living under different housing arrangements between labour markets cannot be derived. 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. Similar results have been found in previous research on all residential moves (for example, ABS 2010a; Bill and Mitchell 2006). However, while renters move more overall, public housing tenants have been found to move less than private renters (ABS 2010a; Bill and Mitchell 2006; Mitchell 2008b).

Figure 5.4 **Proportion of people who moved residence between labour markets in the year prior to the Census, by marital status and age[a, b, c]**



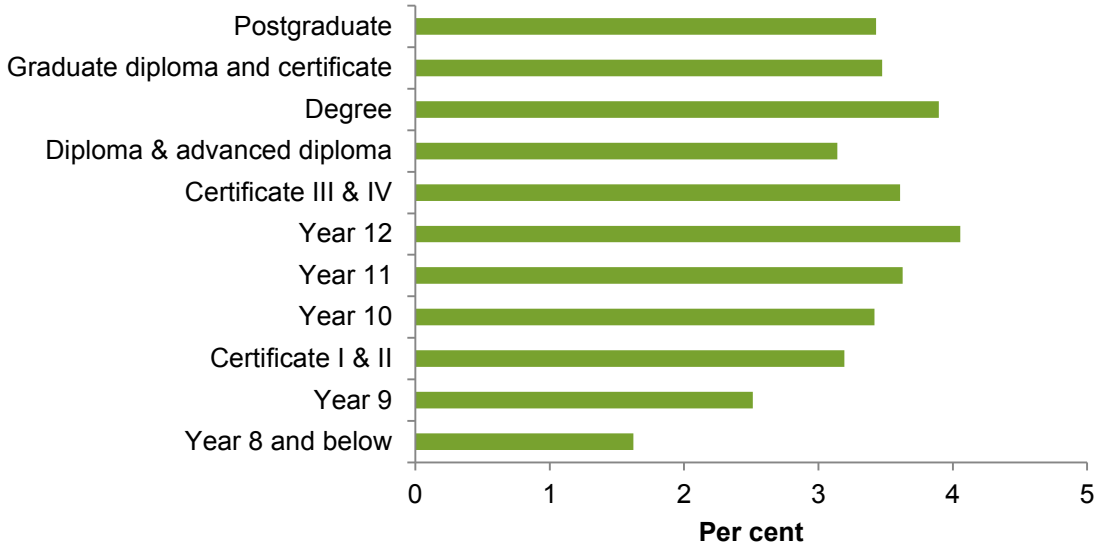
[a] Movements between labour markets are measured using the methodology described in appendix B, box B.1. [b] Marital status is defined using the social marital status indicator. Married or de facto includes married in a registered marriage and married in a de facto relationship. Single is defined as 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 5.5), although at higher education levels the relationship is less clear.

Figure 5.5 **Proportion of people who moved residence between labour markets in the year prior to the Census, by highest qualification attained[a, b]**



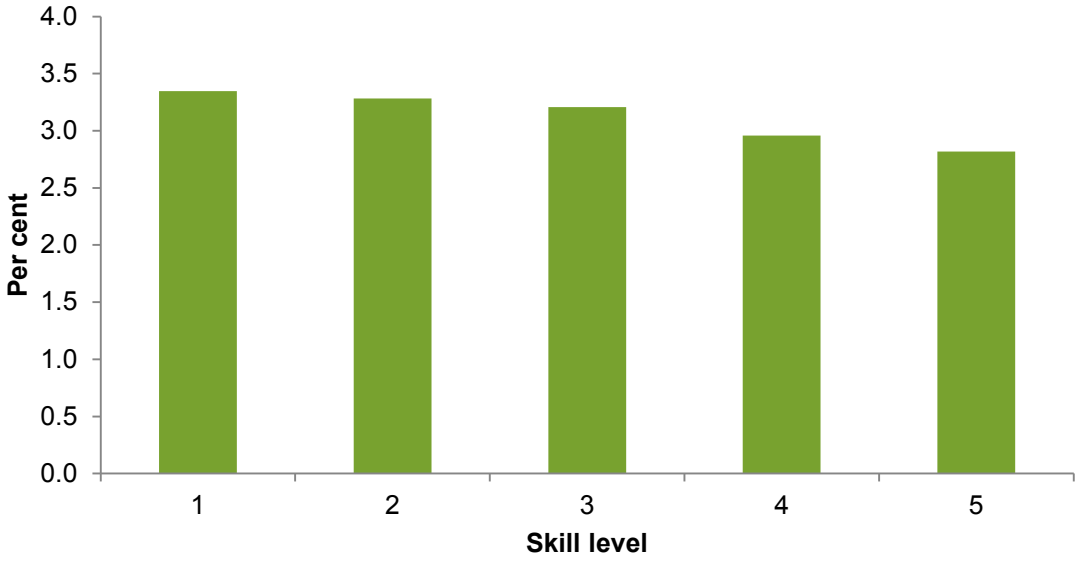
[a] Movements between labour markets are measured using the methodology described in appendix B, box B.1. [b] For place of usual residence one year ago capital city labour markets include Capital City undefined.

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

Mobility also increases, albeit only slightly, with the skill level of occupations (figure 5.6). Occupations are grouped here by skill level according to the Australian and New Zealand Standard Classification of Occupations (ABS 2013b). 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 labour markets in the year prior to the Census. This compares to 2.8 per cent of people in skill level 5 occupations (which includes occupations in the community and personal services, clerical and administrative, sales and labourers categories).

Other researchers have also found a correlation between education and skills and mobility. For example, Mitchell (2008b), using data from the HILDA survey and 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 migrate than those who did.

Figure 5.6 **Proportion of 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 in 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.

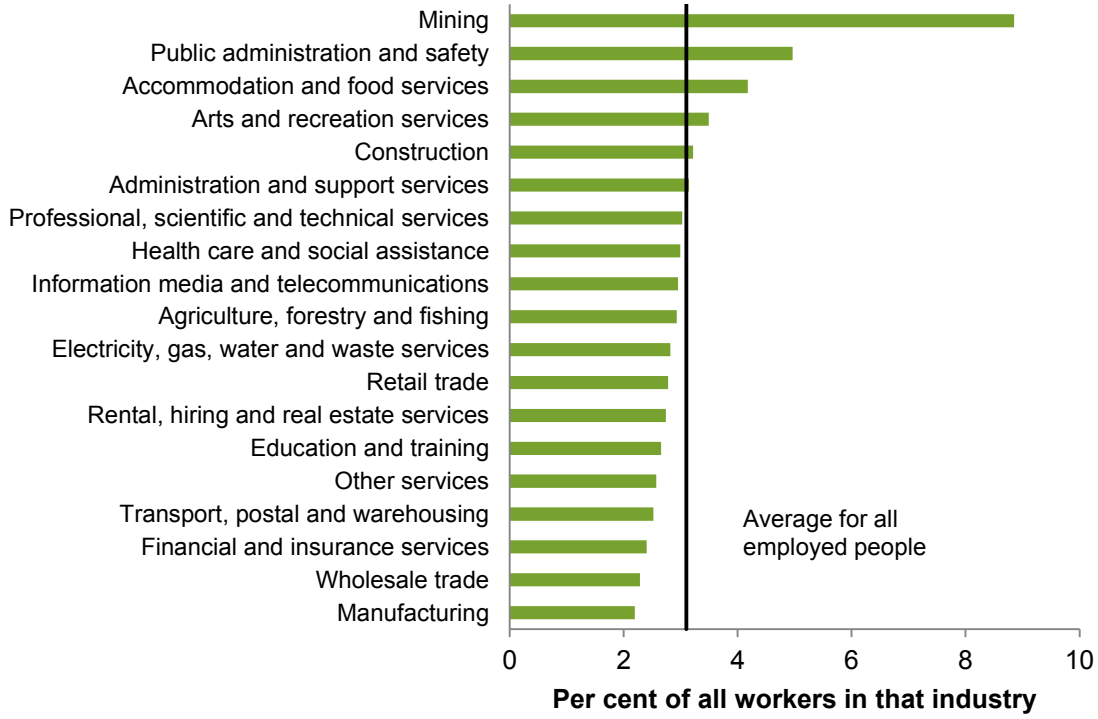
Source: Productivity Commission estimates using ABS (*TableBuilder Pro, 2011*, Cat. no. 2073.0).

Type of labour market activity

The mobility of people varies by industry of employment (figure 5.7). The mining industry has the most mobile workforce, followed by public administration and safety and the accommodation and food services industry. Workers in these industries may be more geographically mobile because of the inherent project-based or seasonal nature of the work. As discussed above, 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.

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

Figure 5.7 **Proportion of 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

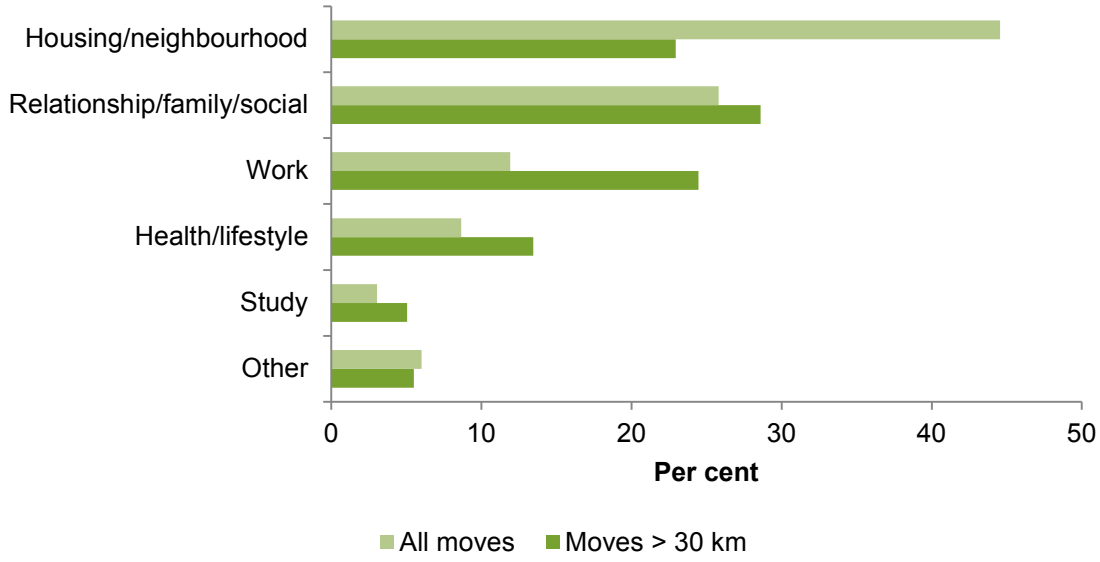
Seasonal workers are often employed in industries that are dominant in regional and remote areas, such as tourism and hospitality, agriculture, horticulture, aquaculture and food processing (Kilpatrick and Bound 2005). People highly represented in the seasonal workforce include professional pickers who travel following work, unemployed people, immigrants, backpackers and students (George and Dickinson 2000, cited in Kilpatrick and Bound 2005). Females also dominate some regions and industries (Tasmanian Food Industry Training Board 1999, cited in Kilpatrick and Bound 2005).

Reasons given for moving

People give a variety of reasons for moving and they vary by distance moved (figure 5.8). In 2011, 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. Previous research has found similar results, with estimates of how many people move primarily for work purposes ranging between 10 and 17 per cent depending on the data source used (ABS 2010a; Watson 2011).

Figure 5.8 **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, 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 at a high level 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 2009 by the Bureau of Infrastructure, Transport and Regional Economics (BITRE 2011b) found that people are moving out of capital cities and to regional coastal areas. In addition, Hugo and Harris (2011) analysed residential movements between statistical divisions between 2001 and 2006 and found that coastal Queensland areas had generally experienced high positive net migration, while capital cities and many inland regional areas had experienced high negative net migration. This is a longer-term trend driven by lifestyle and life cycle reasons (BITRE 2011b).

The Commission's analysis of net internal migration (over a one-year and five-year period) using the 2011 Census shows similar results. People are generally moving out of capital cities[9] 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. Very few regions experience outright declines in population.

However, people in the labour force show a lower tendency to move out of capital cities than the broader population, given that capital cities have many jobs. For example, while Melbourne and Darwin experienced negative net internal migration in aggregate between 2006 and 2011, both 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 the general population. In contrast, regional Tasmania is losing a disproportionate number of people in the labour force.

Young people (aged 20–29 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 60–64 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.

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

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 regional labour markets in New South Wales, Victoria and Queensland.

Mining workers are also experiencing different trends to the rest of the population and are, unsurprisingly, moving to labour markets with mining activity, such as regional Western Australia and Mackay (which includes the Bowen Basin).

Where people move also varies by income. In particular, people on high 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 2013e). 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, who moves and why people move, especially where Australian literature does not exist. The Commission has briefly reviewed overseas literature and compared estimates of residential mobility in Australia and other developed countries. Due to data availability, these comparisons are made with respect to residential mobility and with respect to other OECD countries. 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 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 inconsistent definitions of regional labour markets, different data sources 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

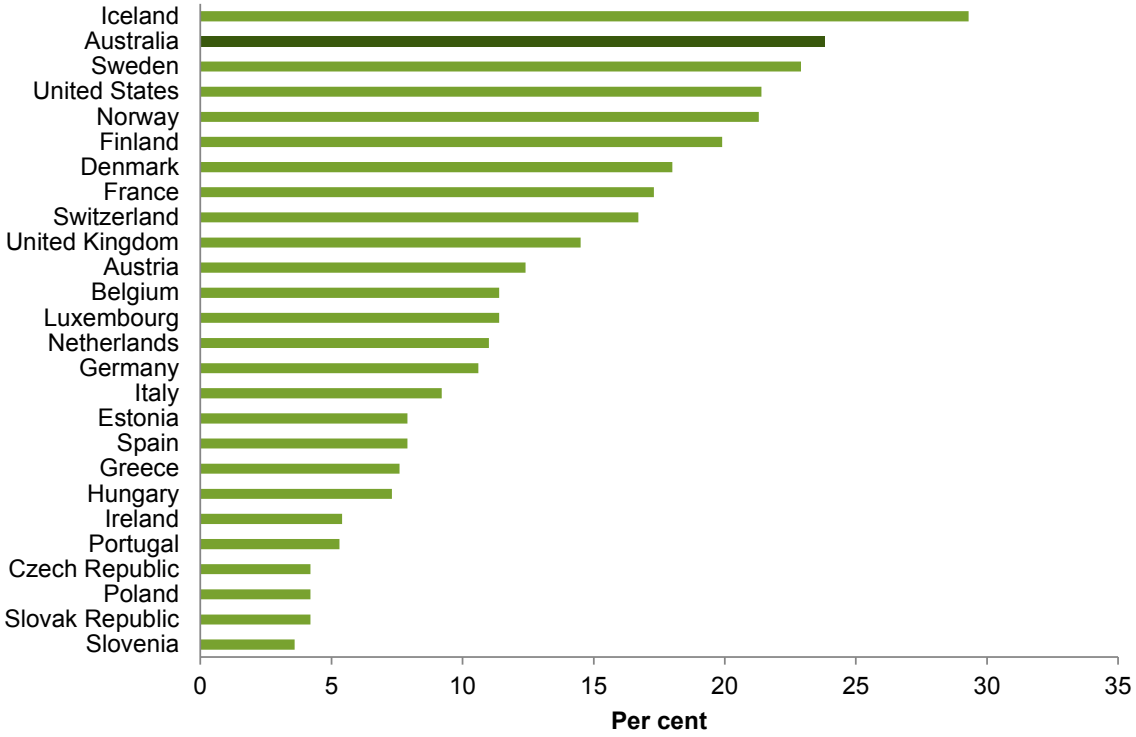
useful country with which to compare Australia and is discussed in more detail below and in appendix C.

Residential mobility overseas

It appears residential mobility is high in Australia relative to other OECD countries, based on a number of studies. Australia's high relative mobility was also noted in a number of submissions (AMMA, sub. 29; BCA, sub. 31; Jobs Australia, sub. 20; NCVER, sub. 3; RAI, sub. 25).

- 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 5.9).
- Comparisons of residential mobility over a one-year and five-year period 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 that changed region of residence in the previous year in Australia was lower than in the United States but higher than in Canada.
- Sweet (2011) found that about 3 to 5 per cent of workers in Australia make a significant locality change in association with their work, a rate that seems to be somewhat above that observed in Canada or the United States.
- Mobility in the European Union, on average, appears to be lower than in English-speaking countries (Shah and Long 2009).

Figure 5.9 **Proportion of households that changed residence, by OECD country, 2005–2007[a]**



[a] Data for some countries are from different years. There are also other caveats about the data. For example, 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.

Source: Sánchez and Andrews (2011b).

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.

Table 5.6 **Residential mobility in different countries, various years**
Per cent of the population that changed usual residence

	One-year interval	*Five-year interval*
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 (nd, p. 15).

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).

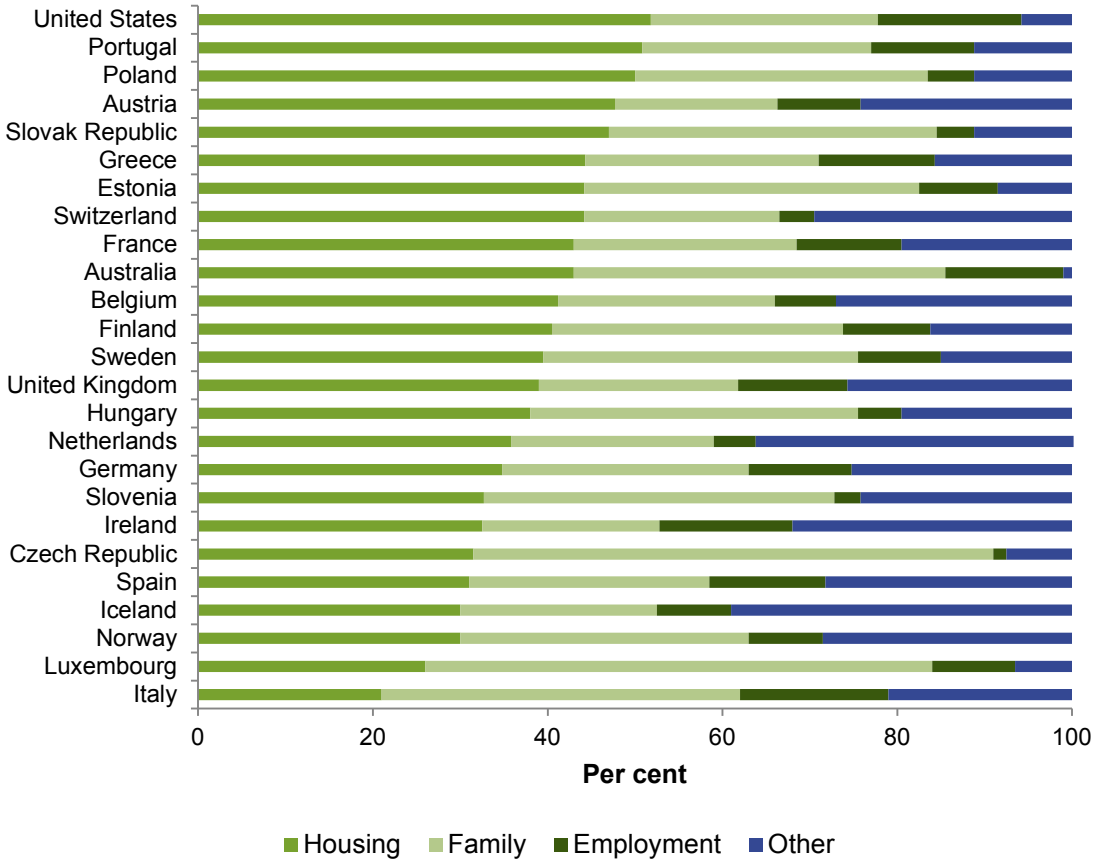
A number of common factors appear to influence residential mobility in different countries. Housing policies have a significant influence on mobility. Sánchez and Andrews (2011b) found that after controlling for household and country-specific factors, residential mobility was higher in countries with lower moving-related transaction costs, lower rent controls and tenant protection, a more responsive housing supply and greater access to credit.

Across countries, homeowners 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 OECD countries, housing and family reasons appear to be a much more important motivation for moving than employment (figure 5.10).

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 (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 skill 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.

Figure 5.10 **Main reason for moving, 2007[a]**



[a] Includes all residential moves.

Source: Sánchez and Andrews (2011b).

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 (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. ' … 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' (OECD 1999, p. 129). However, in some European countries, including France and the Netherlands, migration flowed in the other direction.

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 also 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.

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). This chapter focuses on commuting in Australia and briefly discusses available evidence on commuting overseas.

While long-distance commuting, in its various forms, is 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 (22 per cent

in 2006 to 25 per cent in 2011).[10] De Silva, Johnson and Wade (2011) also estimated overall numbers of long-distance commuters, based on a 100 km threshold, with a finding of 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*	
	no.	*%*	*no.*	*%*
Total workforce				
de Silva, Johnson and Wade[b]	141 671	1.6	**ne**	**ne**
KPMG	155 610	1.7	213 773	2.1
In resources sector[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
CFMEU	**ne**	**ne**	17 405	9.9
In resources sector in Western Australia				
The Chamber of Minerals and Energy of Western Australia[g]	**ne**	**ne**	46 800	52.0
Commutes to remote areas				
de Silva, Johnson and Wade[h]	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 denominator is the number of workers in the resources sector in Western Australia. **h** The denominator used is the number of workers in remote areas. **ne** Not estimated.

Sources: CFMEU, sub. 26; D'Arcy et al. (2012); KPMG (2013c); Productivity Commission (2013c); de Silva, Johnson and Wade (2011); WA Government, sub. 32.

10 KPMG also undertook a survey of nonresident beds used by mining and mining-related workers in mining regions in November 2012 to supplement its Census estimates. Using this approach, KMPG 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**

Place of work	*2006*	*2011*	*Change from 2006–11*	
	no.	*no.*	*no.*	*%*
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).

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

Place of usual residence	*Place of work*	*2006*	*2011*	*Change from 2006–11*	
		no.	*no.*	*no.*	*%*
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, p. 25).

The Department of Infrastructure and Transport (DIT 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 contained Perth.

Aviation data demonstrate the impact and growth of FIFO. About 30 per cent of domestic passenger movements at Perth airport were related to FIFO between 2011 and 2012 (DIT 2013). Passenger numbers at Karratha airport, a hub for FIFO workers, increased fivefold in the decade to 2012 (PC 2013c).

Characteristics of long-distance commuters

There is limited information about the characteristics of long-distance commuters. De Silva, Johnson and Wade (2011) analysed the characteristics of long-distance commuters on five different routes using the 2006 Census, 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 the East Pilbara were more likely to be technicians, tradespeople or machinery operators and drivers.
- About 70 per cent of long-distance commuters from Sydney to the Snowy River (NSW 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, tradespeople 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

	Esperance to Ravensthorpe or Dundas[a]	*Loddon to Melbourne*[b]	*Melbourne to Sydney*[c]	*Perth to East Pilbara*[d]	*Sydney to Snowy River*[e]
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 NSW ski fields are located). Typical commutes are about 500 km.

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

The Commission used the 2011 Census to analyse the characteristics of FIFO workers in the mining industry who commuted to mining regions in Western Australia, including from interstate, and compared these commuters with the Australia-wide mining workforce. The definition of mining regions and the methods used are based on Productivity Commission (2013c) (details are discussed in appendix B). For this analysis, the Commission estimated that at the time of the Census there were 15 000 such commuters. The key features of these commuters were:

- they were largely male and had their place of usual residence in Western Australia
- people aged 25–34 were overrepresented. The age distribution was otherwise similar to the broader mining workforce. Fewer were married than among the broader mining workforce
- a similar proportion had recently arrived in Australia (since 2010) as the broader mining workforce
- incomes were much higher than the national workforce average across the workforce, and were also higher than for the broader mining workforce.

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 mineral deposits being increasingly in more remote areas.

Changing work arrangements such as the shift away from the traditional 8-hour working day has 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 that:

> … [there has been 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)[11]. 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)[12]. 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 work camps in the region, and that there had been growth of 17 per cent per annum in the decade prior. Reasons for increases in commuting to and from work camps 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 $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).

11 Population data for both cities are from 2011 and are for Census Metropolitan Areas which consist of urban cores and surrounding urban fringes.

12 Fort McMurray's population was 73 000 in 2012 (Regional Municipality of Wood Buffalo 2013).

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. 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. But these types of commutes are also important for geographic labour mobility and efficient job matching. In addition to allowing people access to job opportunities, these types of commutes might also allow people to be closer to family, access lower-cost housing or pursue other lifestyle goals. It is difficult to verify the effects of long daily commutes on wellbeing.

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). 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. 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.

Lack of access to jobs locally might mean people commute long distances to work, which could reduce their wellbeing (BITRE 2011b). Business SA (sub. 11) reports that long commute times combined with shift work can have adverse effects on retention. However, average commute times for people in outer suburban areas are only slightly longer than for people in inner suburban areas, and average commuting times and distances do not appear to have changed much in the past decade (discussed below). This suggests that concerns about long commute times might be overstated.

The Commission has not received much information on intra- and intercity commuting in the course of this study.

Commuting within cities

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, average commute times for people in outer suburban areas are only 5 to 7 minutes longer than for people in inner suburban areas (table 6.5). This is likely to reflect the greater average speed of travel, lower levels of traffic congestion, a more dispersed set of work destinations, and differences in mode choice. For example, 62 per cent of commutes in 2006 by Outer Sydney residents were to an Outer Sydney workplace. 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.

Data in table 6.5 are from 2006–09. Commuting times and distances had not changed much in the years prior to these data being collected (BITRE 2010, 2011a, 2012, 2013). More recent data on commute times are not publicly available. However, the Commission understands that commute times have not changed much since these data were collected.

Table 6.5 **Average commute distance and time from place of residence to workplace across Australian cities[a, b, c]**

Various years

	Inner		*Middle*		*Outer*	
	Distance (km)	Time (min)	Distance (km)	Time (min)	Distance (km)	Time (min)
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	6.5	**na**	8.2	**na**	13.5	**na**

a 'Inner' refers to residents of inner suburban areas. 'Middle' refers to residents of middle suburbs. 'Outer' refers to residents of outer suburban areas. **b** Sydney distance data are for 2006. Sydney time data are for 2007. Melbourne data are for 2007-08. Brisbane time data are for 2009. Brisbane distance data are for 2006. Perth data are for 2006. **c** Commuting time estimates were not available for Perth. **na** Not available.

Sources: BITRE (2010, p. 196, 2011a, p. 7; p. 242, 2012, p. 7, 2013, p. 7).

Commuting from regional areas to capital cities

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 people) and Newcastle (8400 people). Commuting to Sydney was particularly important for the Wollongong and Wingecarribee regions (15 and 17 per cent of employed residents, respectively) (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 (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 and about 7 per cent of employed Sunshine Coast residents commuted to Brisbane in 2006 (BITRE 2013).

6.3 Telecommuting

Changes to technology alongside changes to the nature of work have enabled employers to move the job to the employee via flexible working strategies such as telecommuting (or teleworking). 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. 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 is growing in popularity as workplace norms evolve and access to high-speed broadband becomes easier and cheaper. 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).

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). 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'.

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:

- make work 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 over 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 making the job available to any worker with the adequate skills, irrespective of their location. 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'
- avoid the need for permanent relocation and can reduce the time and costs associated with commuting.

While telecommuting has an array of potential benefits, it also has potential downsides. These include:

- the risk of loneliness from not interacting with co-workers
- 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).

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.

How many people telecommute?

It is difficult to estimate how many people telecommute. There is no precise and agreed definition on who is a telecommuter. Some employees have formal telecommuting arrangements with their employers while others telecommute informally. Some employees telecommute regularly while others telecommute irregularly. It is unclear what threshold needs to be applied when estimating the number of telecommuters. Data on Australians working from home have been collected for many years (ABS 1996, 2001, 2006b, 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. And 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:

- 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 telecommute.
- 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 (HILDA) Survey from 2002–09 and found that:
  - rates of telecommuting among employees decreased slightly during this period, despite improvements in technology
  - in 2009, about 18 per cent of Australian employees undertook some work from home. Many of these people are likely to be 'day extenders' who do additional work at home
  - in 2009, about 7 per cent of Australian employees had a formal arrangement with their employer to work from home
  - most telecommuters do so on a part-time basis (they telecommute for less than eight hours per week) and work otherwise at their employer's location.

Who is telecommuting?

Propensity to telecommute differs by workers' characteristics. The ABS 2006 Time Use Survey found that employees were more likely to have a telecommuting arrangement with their employer if they were:

- working on a full-time basis
- working in the public sector
- part of a household with children under 15 years of age (Deloitte Access Economics 2011b).

The 2011-12 ABS Business Use of Information Technology survey indicates that workers are more likely to have the ability to work from home or another location if they are in the information media and telecommunications; financial and insurance services; professional, scientific and technical services; or mining industries (ABS 2013f).

In 2009, Sensis (2009) surveyed SMEs about their use of telecommuting and found that:

- 24 per cent of SMEs had telecommuters. Rates were highest in the ACT (29 per cent of SMEs) and lowest in Western Australia (19 per cent of SMEs)
- most businesses with telecommuters, on average, had about 60 per cent of their workforce telecommuting
- businesses in the communications, property and business services sectors were more likely to have telecommuters
- businesses in metropolitan areas, medium rather than small businesses and businesses that were not family based were all more likely to have telecommuters
- 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.

Colmar Brunton Research and Deloitte Access Economics (2012) found that:

- 47 per cent of mature workers (aged 45 years or over) did some work from home or remotely
- 16 per cent of mature workers had a formalised arrangement with their employer to work from home on a regular basis
- 13 per cent of part-time and casual workers telecommute.

Telecommuting overseas

The prevalence of telecommuting does not appear to be higher or lower in Australia than in other developed counties. 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, partly due 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 per cent 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 do some work from home each week but not the majority of their work (Deloitte Access Economics 2011b).
- In the European Union, rates of telecommuting varied across countries. In 2006, about 45 per cent of employees across 27 EU countries worked part of the time away from business premises and accessed IT systems from there. 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 highly geographically mobile. But the limited evidence available suggests long-term unemployed people and discouraged job seekers are much less mobile.
  - Lower rates of geographic labour mobility among long-term unemployed people and discouraged job seekers reflect a number of barriers to mobility including lower levels of education and skills, poorer health and greater reliance on family networks.
- Across areas of high unemployment and disadvantage, rates of mobility among employed and unemployed people vary widely.
  - People frequently move in and out of some areas, yet in others there is little movement.
- 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 before it occurs.

While the geographic labour mobility of all groups is important, of particular concern are people that 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 mismatch between the location and skills of workers and job vacancies, or a lack of demand for workers. While some of this unemployment is visible in official unemployment statistics, some is 'hidden' (box 7.1).

Box 7.1 **Visible and hidden unemployment**

According to international standards followed by the Australian Bureau of Statistics, 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 would 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 that 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

Type of labour	*Number of people*	*Proportion of the extended labour force (%)*[a]
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).

For individuals and their family, 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 (through the provision of unemployment benefits and social 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 for both employed people and people outside the labour force.[13] 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 and more likely to have moved between states and territories (figure 7.1).

Unemployed people are also more likely to have moved even when a variety of personal characteristics are taken into account. Moves between regional labour markets are more common among unemployed people regardless of gender, age (between 15 and 64 years), marital status, disability status, indigenous status, English proficiency, years of schooling, highest post-school qualification or type of work sought (part time or full time).

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 get a wider picture of the relationship between mobility and unemployment the Commission analysed data from the Household, Income and Labour Dynamics in Australia (HILDA) survey which includes labour force status both *before* and *after* a move.

[13] ABS labour force status classifications only includes the population aged 15 years and over.

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

[a] For unbiased comparisons between groups, these estimates include only the population aged between 15 and 64.

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

Across each of the 11 annual waves of HILDA between 2001 and 2011, people who moved were more likely to report being unemployed than employed or outside the labour force both in the same year in which they reported having moved, and in the previous year (before moving) (table 7.1). Despite the smaller sample size (the most recent HILDA wave includes about 400 unemployed people), HILDA data roughly align with Census data and provide further evidence of the high mobility of unemployed people as a group.

Table 7.1 **Rate of mobility by employment status before and after moving[a]**
HILDA waves 1 to 11 (2001 to 2011)

	Proportion of people who moved (%)	
	Employment status in year before move	*Employment status in year of move*
Employed	15	15
Unemployed	21	23
Not in labour force	12	13

[a] Calculated by taking the average of the proportion of people who moved between HILDA wave 1 and wave 2, wave 2 and wave 3, wave 3 and wave 4, and so on to wave 11. The original figures were weighted using the cross-sectional responding person weight for wave 11. For unbiased comparisons between groups, these estimates include only the population aged between 15 and 64.

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

Research by Bradbury and Chalmers (2002) and Bill and Mitchell (2006) further support this finding. Even after controlling for a wide variety of demographic, occupational and regional factors, these researchers found that being unemployed had a statistically significant positive relationship with one's propensity to move.

Studies from the United Kingdom have found a similar relationship (Andrews, Clark and Whittaker 2011; Böheim and Taylor 2002). The evidence from these studies is that the positive relationship between being unemployed and the probability of moving is stronger and more statistically significant for men than women.

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).

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. The limited evidence available suggests that the mobility of unemployed people declines with the duration of time on unemployment benefits. Using a dataset developed from administrative records of income support recipients, Dockery (2000) found a large (and, for men, highly statistically significant) negative relationship between residential mobility and time on unemployment benefits. This suggests that long-term unemployed people are much less mobile than short-term unemployed people.

Analysis of HILDA data suggests the mobility of discouraged workers is also relatively low. On average, across the past seven annual waves of the HILDA survey, about 10 per cent of discouraged workers reported moving in any one year. However the small number of discouraged workers sampled in the HILDA survey means this estimate has limited reliability.[14]

[14] This estimate was calculated using the method from Elliott and Dockery (2006). It is an average mobility rate across the last seven HILDA waves. Due to the small number of observations included, no weighting was applied. 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 which suggested discouragement. The average number of discouraged workers in these waves was 63 and the average number who had moved was six.

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 1.3 per cent.

Long-term unemployment rate (trend), August 2003 to July 2013

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

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 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 attained 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).

There are good reasons to expect that movement for work is likely to be more challenging for long-term unemployed people. As noted by Jobs Australia (sub. 20, p. 4):

> 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.

There is evidence that 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.

The challenges of moving for work for people on low incomes (including long-term unemployed people) were also emphasised 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.

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, sub. 20).

Finally, it is important to recognise that geographic mobility is by no means an unequivocal good, particularly for those on very low incomes. For example, mobility among unemployed people can result from a lack of stable or affordable accommodation choices. A lack of employment is also closely related to housing stress and an inability to pay rent is a primary cause of eviction (McLachlan, Gilfillan and Gordon 2013). Involuntary moves as a result of eviction (or other factors such as unstable relationships) 'usually result … in the mover making hurried and therefore less informed choices'(Marshall et al. 2003, p. 11). Such moves could make access to employment worse, not better (VCOSS, sub. 27).

For long-term unemployed people and people on low incomes, speculative moves to metropolitan areas and other areas of strong employment growth where living costs

are high can also increase the risk of entering poverty or homelessness if the job search proves unsuccessful in the first few months. Frequent movement in search of low-skill, casual jobs has been identified as a common path to homelessness (Marshall et al. 2003; McCaughey 1992).

Further, Marshall et al. (2003, p. 11) point out that 'frequent moving … may undermine the effectiveness of community-based programs and employment training … which are intended to improve peoples' economic opportunities'. Frequent moves can also make it more difficult to get accurate information about community services, employment opportunities and health care (Marshall et al. 2003). The negative effect of mobility on the ability to access community services is particularly an issue for regional and remote Indigenous communities (Prout 2008). High mobility can also have a markedly negative effect on educational outcomes for children, increasing the risk of the intergenerational unemployment (Hattie 2013).

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 the region, rather than moving to the region as unemployed people.

In determining where to live, unemployed people often have to carefully balance employment prospects with cost of living considerations. Regions with stronger economic growth may improve employment prospects, but these same regions also tend to have higher rents and house prices. 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 actually choose low living cost regions 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 (2002) 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 which 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.

Of the 40 regions that make up the top two per cent of SA2s by unemployment rate, there is still a significant degree of diversity. 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 Northern Territory where Indigenous Australians represent 80 per cent or more of the population (table 7.2).[15]

Table 7.2 **High unemployment areas by state and remoteness**
Census 2011

Area	*State*	*Remoteness classification*[a]	*Unemployment rate (%)*
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.

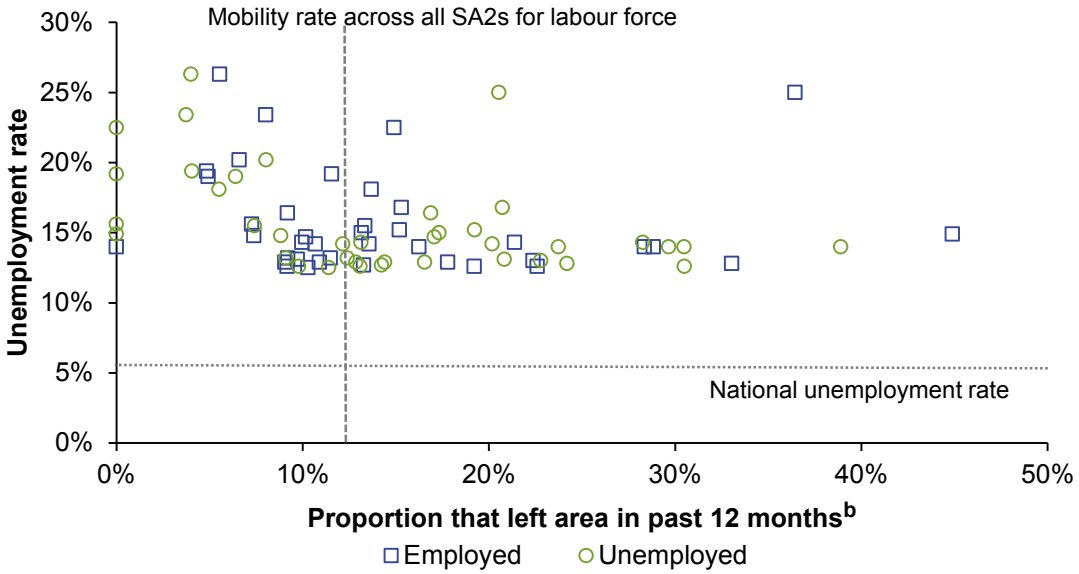
Sources: ABS (*Correspondences*, Cat. no. 1270.0.55.006; *Tablebuilder Pro, 2011,* Cat. no. 2073.0).

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 7.2). The proportion of unemployed people in these regions that moved to another region in the 12 months prior to the 2011 Census ranged between 0 per cent and 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.

15 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.

Figure 7.2 **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 that 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.

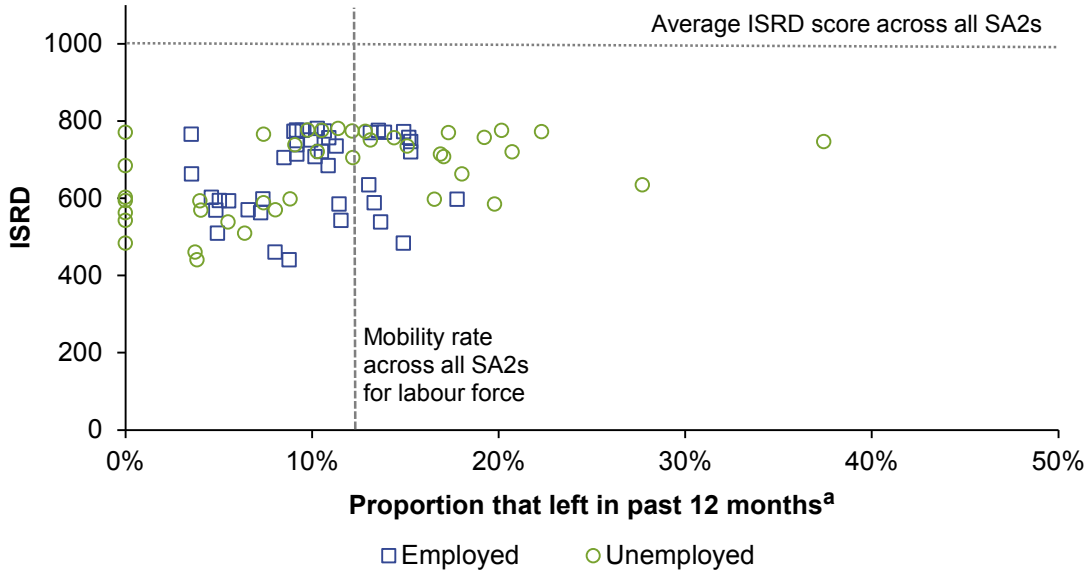
The Australian Bureau of Statistics produces a range of socio-economic indexes for areas. One of the more commonly used is the Index of Relative Socio-economic Disadvantage (IRSD) (Byron 2010). The IRSD ranks areas according to the proportion of relatively disadvantaged people in the area.[16] A low score indicates a high proportion of relatively disadvantaged people (ABS 2012i).

[16] ISRD 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

The mobility of employed and unemployed people in the top two per cent of areas of high disadvantage (figure 7.3) 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 7.3 **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 that 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 D).

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 'person-based' approaches rather than relying

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 2012i).

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, Lymperopoulou 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 Improving prospects for unemployed people

Regardless of whether unemployed people are inclined to move to lower unemployment regions, the available evidence suggests that mobility for the sake of mobility does little to improve the prospects of an unemployed person actually finding a job. While many studies have pointed to a positive correlation between moving and gaining employment, closer analysis suggests that unemployed people who choose to move tend to have other characteristics that explain their higher likelihood of finding employment (Bill and Mitchell 2006; Black, Kalb and Kostenko 2009; Mitchell 2008a).

Unemployment, particularly of an extended duration, is a complex problem and removing impediments to geographic mobility is but one piece of the puzzle. Even 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 long-term unemployed to take advantage of these opportunities.

Furthermore, many of the financial barriers that long-term unemployed people face relate more to taking a job than moving between labour markets to find a job. For

example, the Australian Social Inclusion Board (2011) and others have drawn attention to the high effective marginal tax rates that many income support recipients face. High effective marginal tax rates provide a major financial barrier to employment. Reducing these rates would increase incentives for income support recipients to pursue employment, regardless of location.

Nonetheless, programs that remove barriers to mobility for unemployed people may still have a role to play (chapter 10). Furthermore, by increasing the efficiency of the labour market, the removal of broader impediments to geographic labour mobility (chapter 12) may help to reduce the unemployment rate and therefore prevent long-term unemployment from occurring in the first place.

8 Impediments and enablers of geographic labour mobility

Key points

- Personal, locational and transitional factors interact to affect the likelihood of a person or household moving. Some factors serve to impede movement, while others enable movement.
- Of the many personal factors that affect mobility, education is the most significant enabler while the presence of children is the most significant impediment.
- A wide range of locational factors affect where people choose to move. These include wages, career prospects, housing costs, commuting times, proximity to family and friends, climate, quality and availability of infrastructure, and lifestyle.
  - These factors can also affect whether people choose to live and work in the same region, or separate their location of work from their location of residence by 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.
- Employment is not usually a primary motivation for moving, but employment is still a significant enabler. People usually consider employment a necessary but not sufficient basis for moving.
- Transitional factors relate 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. Factors influencing a decision to relocate can be divided into three categories: personal, locational and transitional.

Factors that make relocation harder (or less likely) can be regarded as 'impediments' to mobility. Factors that make relocation easier (or more likely) can be considered 'enablers' of mobility. The inclination of a person to relocate will depend on the cumulative effect of a range of different factors (chapter 2). In many cases, the greatest impediments occur when different personal, locational and transitional factors interact.

This chapter discusses each category of factors and the role they play as impediments or enablers of mobility. Conclusions are supported by evidence provided by study participants, academic literature and the results of econometric modelling conducted by the Commission (box 8.1).

Box 8.1 Modelling patterns of regional migration

To inform the Commission's understanding of regional migration patterns and assist in identifying impediments to geographic labour mobility, the Commission developed an econometric model based on a migration gravity model. The model is used to examine the relative attractiveness of different regions while taking account of the transaction costs of moving.

The Commission's econometric modelling aimed to examine the flows of people moving between regional labour markets (proxied by ABS Statistical Areas Level 4) using a number of explanatory variables. These variables capture the different features of source and destination regions and the transaction costs associated with moving. Data for the modelling were drawn from analysis of the 2011 Census and included moves within Australia in the 12 months prior to August 2011.

Regional features captured by the model include real wages, relative house prices, unemployment rate differentials, the share of the local population aged 20–34 years, relative socio-economic disadvantage, population density and the number of medical practitioners in each region. A number of these variables proxy for unobserved or unmeasurable regional features (for example, the number of medical practitioners proxies access to essential services in a region). Transaction costs are proxied by the home ownership rate in each region, the distance between regions, whether regions share a common border and whether regions are in the same state.

The modelling results suggest that people tend to relocate to areas with higher real wages and better access to services, and avoid areas with relatively high costs of living. The results also suggest that older people and people from areas of high 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.

These results are discussed further throughout this chapter and in more detail in appendix D.

For the final report, the Commission plans to conduct further econometric modelling (using a discrete choice model) to assess how different factors (and the interaction of these factors) affect the likelihood of a person moving. The model will use confidentialised unit record files from the 2011 Census (due to be released in late 2013). This will provide additional empirical evidence to support the discussion below.

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 suggested people tend to relocate more when they are young, well-educated, single, childless and working in high-skilled employment. Recent migrants and those with Indigenous backgrounds also relocate more often. But which 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 and academic research.

Life events and life course stages

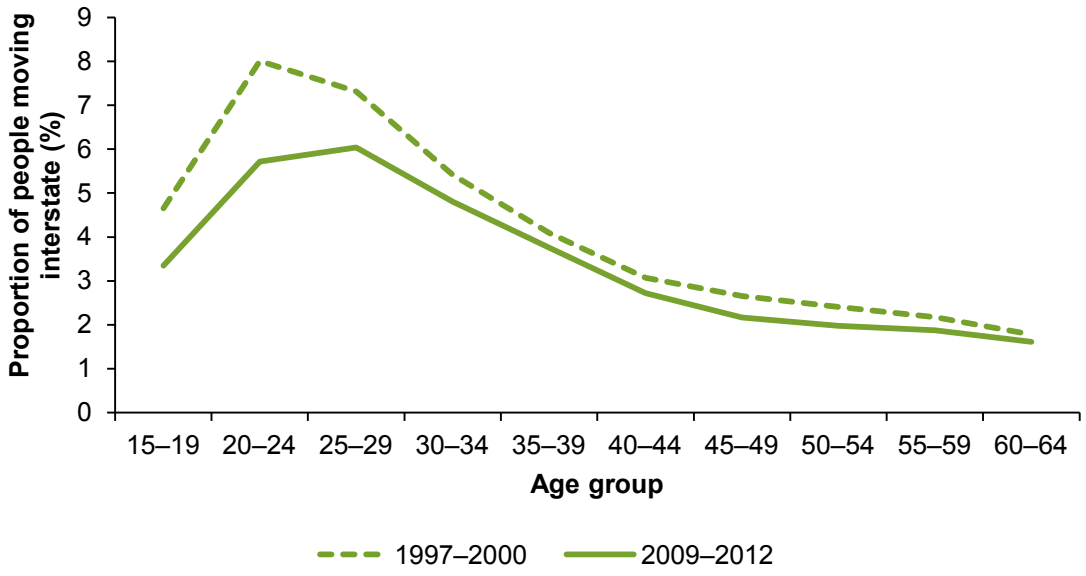
A key finding of chapter 5 was that mobility is closely correlated with age. Numerous studies from Australia and other developed countries have shown that residential moves (including moves between labour markets) are most common for people aged in their mid to late twenties and that frequency of movement gradually declines as people get older (ABS 2010a; Bill and Mitchell 2006; Clark and Dieleman 1996; Dieleman 2001). Prior studies have suggested that this is because moving is an investment, and young people have a longer period over which to reap the benefits of moving (Bill and Mitchell 2006; Sjaastad 1962). However, there is also strong evidence that the relationship between age and mobility is reflective of 'life events' — that is, major events that alter a person's life course. Life events that often coincide with a change of location include completing formal education, getting married, having children, becoming separated and getting divorced (Clark and Dieleman 1996).

Analysis by Clark (2012) suggests that life events and life course stages can fully explain the negative relationship 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. For moves between Australia's five major metropolitan areas (which are hundreds of kilometres apart or more), the relationship between age and mobility actually became positive.

Life events may help to explain the flattening of the age structure of residential mobility over time. For example, over the past fifteen years, interstate migration has declined across all age groups, but the strongest declines have been among younger people (figure 8.1). Fifteen years ago, the most mobile age group was 20–24 year olds. Now interstate migration is most common among 25–29 year olds. This is likely because many life events (such as moving out of home, completing formal education, getting married and having children) now tend to occur later in life (ABS 2013a).

Figure 8.1 **The age structure of interstate migration**
Interstate residential mobility rates averaged over four-year periods



Source: Productivity Commission estimates using ABS (*Migration, Australia, 2010-11,* Cat. no. 3412.0; *Australian Demographic Statistics, March 2013,* Cat. no. 3101.0).

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 a statistically significant increase in the probability of a household moving. However, Clark also found that, in general, households with children present were significantly *less* likely to move than those without children.

Furthermore, life events can have different effects depending on the distance of move analysed. For example, both separation and divorce are associated with an increase in the probability of moving, 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 necessitates a residential move, but those involved may be reluctant to move too far away due to the presence of children in the household or 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.

While empirical evidence is limited, life events and life course stages most likely also act as impediments and enablers of long-distance commuting. Overall, parents with young children are probably less inclined than other groups to take up long-distance commuting just as they are less inclined to move house. However, for the parents that do consider relocating their work, long-distance commuting may be the relatively more attractive option. For instance, the Minerals Council of Australia (sub. 6) argues 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 and accompanying changes in family dynamics also play an important in role in decisions about work relocation. 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 2013r).

The rise of dual-income households means that, more than ever before, 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). 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). However, it is important to note that the rise of dual-income households is not the only way in which higher female labour force participation affects mobility.

Rising female labour force participation is 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 significantly less mobile. Hence, if increased female labour force participation leads to fewer households with children, it could also enable mobility. In other words, the link between female labour force participation and mobility is far from straightforward.

Education, skills and occupation

Chapter 5 suggests education and skills enable mobility. The generally positive relationship between education and mobility is supported by a number of studies using data from Australia and other countries (Bill and Mitchell 2006; Clark and Dieleman 1996; Clark and Maas 2012; Clark 2012).

The level of education most closely related to increased mobility is somewhat unclear. Bill and Mitchell (2006) found that a low level of education (below year 11) was negatively correlated with a person's probability of internal migration, but that higher education levels had no statistically significant relationship with mobility. On the other hand, Clark and Maas (2012) found that when only longer distance moves (over 30 km) and moves for job-related reasons were considered, only university-level education had a significant (positive) association with mobility.

The distinction is important because it has some bearing on the causal relationship between education and mobility. Mitchell (2008b) posits that low-skilled workers may be less mobile because they have less resources to take advantage of employment opportunities when they arise. On the other hand, Clark (2012) suggests that the positive relationship between education and mobility reflects the higher returns to migration for highly skilled workers. It could be that both effects are in operation, but further research is required.

Education and skill level aside, a person's choice of occupation also clearly has an influence on their geographic labour mobility. 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 some industries, the effect of occupation may trump that of education. For example, analysis of Census data shows that construction and mining labourers (an occupation classified as low skilled) had a higher rate of residential mobility than almost any other occupation. This likely reflects the project-based nature of work in these industries.

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. In particular, Biddle and Markham (2013) have shown that most of the difference in mobility rates between Indigenous and non-Indigenous Australians is attributable to age differences between the two groups. Lower rates of homeownership 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 are much higher among Australia's Indigenous population.

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 Aboriginal 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 Aboriginal 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 finds that higher rates of home ownership tend to be associated with lower rates of inter-regional immigration (appendix D). To some extent, this may be because people who are more mobile are more inclined to rent — 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 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 wide 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).

While similar analysis is yet to be conducted for Australia, Watson (2011) has examined (non-geographic) labour mobility and the effect of different personality types. Controlling for a wide range of personal factors, Watson (2011) found that being an extrovert had a statistically significant positive effect on a person's likelihood of changing jobs. For women (but not men), openness to experience was also an enabler of labour mobility.

Frequently, the benefits and costs associated with moving are uncertain (chapter 2). Where people are risk averse, this uncertainty can 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 of 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 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, the importance of proximity to good schools and family is likely to be higher 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 are the same as those that influence where they live. However, new technologies and declining travel costs are opening up new opportunities for people to commute long distances and telecommute and thus live in a region different to 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.

Relative wages

In the past, researchers have placed relative wages at the forefront of economic models of movement between labour markets (Clark and Maas 2012). However, surveys of the labour force consistently find that most moves are made for reasons other than employment (chapter 5). 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).

This inclination to move for reasons other than employment is consistent across developed countries and may reflect shifting priorities associated with increasing wealth (Morrison et al. 2010). It may also be because the variation in wages across regions in developed countries for any given occupation, is rarely large enough, by itself, to justify a move.

However, this does not mean that employment is not an enabler of geographic labour mobility. On the contrary, Morrison et al. (2010) suggest 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. 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).

Furthermore, the results of the Commission's econometric modelling (which focuses on the broad forces attracting people to regions rather than the personal factors influencing individual decisions) suggest that people tend to move to regions with higher real wages (appendix D).

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 particularly 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 more 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:

> where 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 living costs (particularly in relation to housing). In these regions, the high cost of living can act as an impediment, at least partially offsetting the enabling effect of higher wages. Higher living costs may also lead people to choose long-distance commuting or telecommuting over permanent movement (where these options are available) so that they can take advantage of higher wages without suffering from higher living costs.

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 significant 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 particularly significant 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 fewer jobs are within easy reach than in inner suburban locations (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 D).

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 variety of available housing stock. 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

Proximity to family and friends can be an important consideration when a person (or household) is deciding both whether to move and where to move to. Often, family ties can impede mobility by holding people to their location of origin. People that 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 moving away from friends and family is a key reason given by workers in

the eastern states for not moving to Western Australia to pursue employment opportunities (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 familial connections after other family members had moved to the region at an earlier date.

Clearly, proximity to family is a case where locational and personal factors strongly interact. For example, proximity to family may be more important for people on low incomes who rely on family networks for support (chapter 7), people with ageing parents that require care, and people with young children. 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) has 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 that they could call on to spend a lot of time helping 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 (2013)[17] also show that knowing someone at a destination region was strongly related to the financial compensation that a person requires to take up a job in that region. They 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

[17] This paper is yet to be published and is still under review by the National Centre for Vocational Education and Research.

required for a person who did know someone in the region. This premium was significantly larger than that associated with being female, married or a homeowner.

Climate

The climate of a location can also be an important factor in a decision to move. An inhospitable climate may impede movement to a particular location while a pleasant climate can enable movement.

Evidence from Stimson and Minnery (1998) suggests the pleasant climate of the Gold Coast relative to other parts of Australia (particularly more southern capital cities) was a significant 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).

While the ideal climate is somewhat subjective, some climates are objectively inhospitable. This can serve as a significant 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 in the east Pilbara is likely an impediment to attracting workers to live in 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 growing mining community of Roxby Downs about 400 km north east.

Economic and social infrastructure

The quality and availability of a wide range of facilities and services factor into a person's decision about how and where to move. These include education facilities, health services, communications services and transport infrastructure. All else

equal, people are more inclined to move if the availability and quality of economic and social infrastructure at their proposed destination is better.

Some types of social and economic infrastructure are a factor for almost everyone considering a move (such as the quality of roads and the availability of emergency services in an area). Other types of social and economic infrastructure are more important for people with specific needs (CFMEU, sub. 26). For example, the quality and availability of childcare services is more important for people with young children.

The importance of social and economic 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 particularly focused on how a lack of infrastructure in regional and remote areas posed an impediment to movement to these regions. For example, the Western Australian Government (sub. 32) noted that a lack of affordable childcare facilities in regional Western Australia posed an impediment to women with children relocating there for work.

In some cases, the importance of social and economic infrastructure can be so significant that employers adopt strategies to work around it (chapter 9). Business SA (sub. 11, p. 2) gives the example of a business in the town of Millicent (400 km south east of Adelaide) that offers employees the option of partially paying for their children to undertake secondary and tertiary education in Adelaide:

> … the 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. It can 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 Services (sub. 27, p. 9) points out that, in some cases, poor social infrastructure in an area can impede residents from pursuing 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 wide 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 'diseconomies of scale' such as congestion, noise and air pollution, and crime that can discourage people from working and living there. In non-metropolitan areas, regional and coastal landscapes can also serve as drawcards.

Once again, the interaction between personal and locational factors is important. Evidence from the United States suggests that the importance of different environmental and lifestyle factors varies with age and family status. Younger people without children appear to value living in 'job-rich locations' with close proximity to entertainment such as restaurants and theatres while those with young children prefer areas with better residential amenities and natural environmental attributes such as larger backyards, playgrounds and parks (Kim, Horner and Marans 2005).

Environment and lifestyle factors appear to be particularly important as an enabler of migration to non-metropolitan coastal areas, a phenomenon encapsulated by terms like 'sea changing' and 'downshifting'. Many non-metropolitan coastal areas have experienced high population growth over recent decades driven by internal migration to these regions (Gurran and Blakely 2007). While retirees make up a significant proportion of this growth, overall, 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 relate to the one-off impediments and enablers associated with the act of changing where a person lives and works. Transitional factors tend to be most significant as impediments to residential mobility (rather than long-distance commuting or telecommuting) hence transitional factors may have the effect of increasing alternative forms of geographic labour mobility at the expense of residential relocation.

The significance of many transitional factors depends on their interaction with locational and personal factors. Some transitional impediments are likely to be larger for moves to more remote locations. The Commission's econometric modelling results suggest that distance is negatively associated with inter-regional immigration. Family size and composition may also 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.

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 foregone 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 information about job opportunities across regional labour markets more accessible (Kaplan and Schulhofer-Wohl 2012; Rhode and Strumpf 2003).

However, search costs continue to pose a particularly significant impediment when a change of work location also involves a change of residence. Although the internet may have also 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 moving, these searches could be even more costly than those associated with finding accommodation.

Adjustment costs

Adjustment costs refer to the financial and psychological costs directly associated with the relocation process. For people relocating their residence, the main adjustment costs involve the foregone leisure time and financial expense associated with moving themselves and their possessions to a new location (such as hiring a removalist). While the financial costs of moving short distances are relatively trivial, moving costs for long-distance moves can be quite substantial. 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 can also involve psychological costs such as a temporary sense of social dislocation that diminishes as a person adjusts to their new surroundings. Psychological adjustment costs can also be a factor for people that choose to long-distance commute or telecommute as an alternative to moving residence. For example, families of long-distance commuters may face psychological adjustment costs associated with taking on new household roles in response to the absence of a household member (Taylor and Simmonds 2009).

Administrative and legal costs

Perhaps the most significant transitional impediments to relocation are the associated administrative and legal costs. While there can be some administrative and legal costs associated with moving between rental properties (breaking a lease can be particularly costly), 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 agent's fees and a range of government fees of which stamp duty is the most significant. 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 between 1.8 per cent and 5.0 per cent of the total purchase price (table 8.1).

The legal and administrative costs associated with purchasing housing were frequently noted by study participants as a significant 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).

Table 8.1 **Government fees payable on home purchases in capital cities**[a]
September 2013

City	*Median house price ($)*[b]	*Stamp duty ($)*	*Mortgage registration fee ($)*	*Transfer fee ($)*	*Total fees (% of median house price)*
Sydney	640 000	24 290	105	209	3.8
Melbourne	500 000	21 970	85	1 339	4.7
Brisbane	445 000	6 825	157	962	1.8
Adelaide	392 000	15 930	148	2 825	4.8
Perth	515 000	20 438	160	270	4.1
Hobart	334 000	11 295	125	191	3.5
Darwin	568 000	28 116	133	133	5.0
Canberra[c]	547 800	19 490	121	234	3.6

[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 December quarter 2012. [c] The ACT Government has committed to gradually phasing out stamp duty over a 20 year period beginning in 2012.

Sources: ABS (*House Price Indexes: Eight Capital Cities*, Cat. no. 6416.0); Productivity Commission estimates.

Households surveys also suggest that legal and administrative costs (together with other transitional costs) play a significant role in making people more reluctant to move. A 2007-08 survey by the ABS (2009a) found that 26 per cent of households considered themselves unlikely to move in the 12 months following the survey because of the unaffordability of 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 that had not recently moved and were not happy with their current home, 23 per cent said the reason that they did not move was that 'the hassle and cost of finding and moving into a new house is prohibitive'. A further 10 per cent of participants said 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 lowers 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 levied that occurred between 1993 and 2005 resulted in a reduction in home sales of about 11 per cent — equivalent to roughly 39 000 foregone sales per annum.

There are some important caveats to make before drawing too strong a conclusion from the results of recent surveys and studies. The surveys noted 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, both these findings further reinforce the idea that transitional costs (and stamp duty in particular) are an important consideration in any decision to relocate.

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, these costs can have an outsized effect on a person's inclination to move.

Loss aversion — the tendency of 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 aggravate the effect of legal and administrative costs on mobility because homeowners 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 significant legal and administrative impediments associated with geographic labour mobility, they are not the only impediments. Other transitional impediments noted by study participants include legal and administrative costs and inconsistencies associated with moving between different 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 wide 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?

Determining which factors impede or enable mobility the most is challenging, 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 are often constrained by the available employment opportunities in different regions, a person's knowledge about those opportunities and their capacity to pursue them.

In some cases, as mentioned, people may consider alternatives to residential movement such as long-distance commuting and telecommuting which allow a person's location of work to be separate to the their location of residence. However, the availability of these options tends to be constrained to particular roles. For instance, telecommuting is only technically feasible for jobs that do not require a constant physical presence. Further, the costs involved in long-distance commuting (and to a lesser extent, telecommuting) mean that these options are only financially feasible for positions that are highly valued by the employer and for which local workers are unavailable.

A further complication is that decisions are often made by households rather than individuals in isolation. For example, the impacts of a move on children can loom large in a decision to relocate. For the increasing number of households with dual-income earners, deciding whether to move also means weighing up the effect of a move on the employment opportunities, wages and career prospects of two parties.

Deciding where to live and work is a dynamic process which often comes with uncertain outcomes. The factors that matters most will change over time as circumstances change and different opportunities arise. Frequently, people make decisions without knowing for certain whether a move will really 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 can also be important.

Consequently, there is considerable variation in the factors that are most important to people. However, in aggregate, econometric analysis and background research seem to suggest that personal factors are highly significant. In particular, education stands out as a significant enabler of mobility. Life events and life course stages also play important roles as both enablers and impediments. The presence of children in a household appears to be an especially significant impediment.

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. First and foremost, proximity to family is important — a desire to stay close to family is a significant impediment to movements that take a person a long way from their point of origin. However, other locational factors that affect family life are also significant. These include the employment prospects for a person's partner and the availability of social infrastructure such as childcare facilities and schools in any given location.

Other locational factors such as climate and lifestyle appear to be less significant in aggregate, but may still dominate decisions among people in particular demographics. In certain regions, limited housing choice and a lack of affordable housing can be an important impediment, especially for 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 significant enabler of geographic labour mobility, because people are generally only inclined to consider moving to locations where secure employment is expected.

Methodological challenges and data limitations mean that 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 not willing to uproot their families and move to work locations that may have less desirable amenities and infrastructure.

In general, transitional factors are unlikely to impede people who are determined to move, but at the margin, transitional factors can still be important enablers and impediments for people unsure whether to move, where to move to or how to move. Stamp duty on housing stands out as the most significant transitional impediment. However, for people in particular circumstances, a wide range of other transitional factors may also become significant (chapters 10 and 12). The search costs and financial adjustment costs associated with moving may be a particularly significant impediment for those on low incomes.

Not all impediments are insurmountable. Businesses can and do employ strategies to overcome, or compensate for, impediments to geographic labour mobility (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).

DRAFT FINDING 8.1

The main impediments to geographic labour mobility relate to personal factors, and in particular family circumstances. Attempts by government to act in contradiction to these factors are unlikely to be effective or improve community-wide wellbeing.

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 employees 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.
- Employers in some industries have had mixed success recruiting workers. Relatively more successful strategies have included:
  - Resource sector employers have used fly-in, fly-out work arrangements and international migrants on subclass 457 visas to alleviate skills shortages in regional and remote areas.
  - Health sector employers have had success targeting international medical graduates and people originally from regional and remote areas.
- However, employers in these and other sectors still face difficulties attracting and retaining employees. Research suggests that incentives provided in many cases might not be targeted at the actual reasons an individual is reluctant to relocate.

This chapter discusses the strategies employers use to attract and retain employees with a focus on those that change labour supply and demand in different regional labour markets (that is, affect the rate and type of geographic labour mobility) (section 9.1). These strategies target one or more elements of an person's decision to supply labour in a particular location in order to tip the balance towards working for a particular employer in a particular location (chapter 2). This chapter will look at strategies with respect to residential mobility and sourcing employees from the local area, as well as other approaches such as long-distance commuting and telecommuting.

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.

Sometimes employers' location and employment practices can have negative impacts on community wellbeing (chapter 3). Employers might have a role in mitigating such impacts and strategies used to do this are discussed in section 9.2.

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).

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.

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.

This section describes strategies employers use to attract employees through these different channels.

Strategies for recruiting local employees

Most employers will recruit locally in the first instance unless they face difficulties. Employers in regional and remote areas in particular often face difficulties as these labour markets are not as deep as metropolitan labour markets. Many people are also 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 (Haslam McKenzie 2007, sub. 30). As there are many different strategies used by employers, the discussion is focused on a few key areas raised by stakeholders and featured in the literature: training and recruiting Indigenous employees.

Training

Training is an important issue related to recruiting and retaining employees, particularly in regional and remote areas. Haslam McKenzie (2007) has stated that there are a lack of educational opportunities in these places, and non-metropolitan training facilities are generally of lower quality than those located in metropolitan areas. However, in some industries, having regional and remote area experience while training increases the likelihood of staff retention (Haslam McKenzie 2007).

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; NCVER 2011; 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 2011 survey of *Employers' use and views of the VET system* indicates that industries such as public administration and safety, other services and education and training have a significant proportion of employers that 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 wholesale trade industries (NCVER 2011). This could reflect the lower skill requirements of occupations in these industries (chapter 4).

The issue of what is the appropriate level of training that should be provided by employers has been raised by a number of stakeholders, particularly in relation to the resources sector. The Australian Council of Trade Unions (sub. 21) argues that resource 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 argues that fly-in, fly-out (FIFO) work arrangements have also been used at the expense of training local employees (CFMEU Mining and Energy and Construction and General Divisions 2011).

However, the resources sector argues that it invests a significant amount in training. Citing work it commissioned by the National Centre for Vocational Education and Research (NCVER), the Minerals Council of Australia (sub. 6) has asserted that it spends more on training than most industry sectors. NCVER (2013) also found:

- the mining industry spends over 5 per cent of its payroll on training
- 65 per cent of mining companies employee apprentices and trainees
- 5 per cent of its workforce is apprentices and trainees
- about 75 per cent of mining companies offer nationally recognised training

- about 80 per cent of mining companies offer support for structured training.

This study was based on a survey that was heavily focused on larger mining companies (NCVER 2013). As a result, some of these figures could overrepresent the total mining sector. The 2011 NCVER survey of *Employers' use and views of the VET system*, which included a randomly-selected sample found that of mining companies about:

- 30 per cent had apprentices/trainees
- 61 per cent used the vocational education and training system
- 47 per cent offered nationally recognised training
- 75 per cent offered informal training (NCVER 2011).

The mining sector generally performs well when compared to other industries, ranking highly on most of these types of training. However, Karmel and Mlotkowski (2010) found that the mining sector employs fewer apprentices than would be expected, given its share of trade employment. Some examples of resource companies' use of training follow:

- Bechtel has a commitment to support 400 apprentices using 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).

Recruiting Indigenous people

Regional and remote employers can target local Indigenous people for employment. The resources sector, in particular, is the largest private sector employer of Indigenous Australians, and the Minerals Council of Australia has a Memorandum of Understanding with the Australian Government which aims to increase employment and business development opportunities in mining regions (MCA, sub. 6).

Argyle Diamonds, for example, 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 get employment in the industry (APPEA, sub. 24).

While acknowledging that resource 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 some resource companies' strategies have often been only moderately successful, and that strategies will only be successful where Indigenous family and cultural values are taken into account.

Tourism industry employers also use strategies to recruit local Indigenous employees. 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 (University of Queensland and EC3 Global 2013).

Indigenous people have also been recruited by employers as part of 'grow-your-own' strategies. The strategies focus on people that are currently living in areas with labour shortages, or are originally from these areas. It is believed 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, recruiting local people has been found to be one of the more successful strategies to recruit health care professionals in 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 finding suitable employees in the local labour market, they can use strategies to encourage workers to relocate from other regions, either permanently or to undertake seasonal (often temporary) work. Employers often need to use such strategies more in regional and remote labour markets, because, as discussed earlier, it is more difficult to attract and retain suitable labour locally and to encourage people to relocate.

To overcome this reluctance to move, employers use a range of strategies — both pre- and post-move. These incentives often target family members as well. Pre-move incentives generally target the costs of moving, and can include subsiding 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, one 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. The business also provides assistance to employees who want to send their children to Adelaide for their secondary or tertiary education (Business SA, sub. 11).

Post-move incentives target both the worker's costs and benefits of moving. Strategies used to reduce the cost of living in the area include providing free or subsidised accommodation and providing allowances for other costs of living. Incentives 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. Benefits are often also provided to families, and can include community family events, counselling and spouse employment support and training.

Employers also use the promise of better future working conditions to encourage employees to move, such as providing a metropolitan-based position after working in a regional area for a certain amount of time. Employers also use 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 (CFMEU, sub. 26).

- Some resource sector companies have used training to facilitate relocation. For example, 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).

Strategies encouraging residential mobility are commonly used in the resources, agriculture, education and health care industries, state and territory police forces, and the Australian Defence Force (box 9.1), which often require employees to locate 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 providing or subsidising employees' accommodation. As employers have been offering these sorts of benefits for a long time, they are not necessarily being provided in response to current labour shortages.

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 its members with a variety of incentives to encourage and help with relocating. If members meet certain requirements the ADF subsidises the costs of moving including:

- the transactions 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 subsidising accommodation (including home purchases), meals and utilities, and providing 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. These can make it easier for the ADF to relocate members (Department of Defence 2013).

(Continued next page)

Box 9.1 (continued)

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 spouse's 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 looked at the payment of retention bonuses in the ADF have 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 et al. 2001, cited in Hoglin et al. 2011).

Resource sector employers

Resource companies provide a range of incentives to encourage relocation. They have a long history of providing accommodation support for their employees, 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 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).

Resource companies also provide or subsidise accommodation in already established towns and provide cost of living allowances. For example, Rio Tinto at its ERA Ranger Mine provided subsidised rental accommodation and an $11 000 per annum Family Location Allowance to its residential employees (Rio Tinto 2011b). Another resource company offers a $16 000 allowance to employees who live locally (AMMA, sub. 29).

Strategies used by government as an employer

In their role as employers, state and territory governments have historically provided accommodation and other benefits to education and health employees to address skills shortages in regional and remote areas. 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). 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 one-on-one professional support from a network of expert educators.

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 sector, governments have relied more on offering financial grants for health professionals to relocate to regional and remote areas.[18] For example, the Victorian Government has the Rural Relocation Grants program which assists public hospitals and health services finding 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

[18] Strategies used by governments to attract health care professionals to regional and remote areas where they are not the employer are discussed in chapter 11.

- 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).

Overall, the evidence on the effectiveness of strategies used to encourage health care professionals to relocate is mixed (Buykx et al. 2010; PC 2006, 2012c). Reviews of Australian Government strategies and international strategies suggest that many are not effective. However, some strategies appear to have had more success including bonded incentives, targeting individuals originally from regional and remote areas, and mandating international medical graduates to work in areas with shortages (discussed in more detail under international migration and in chapter 10).

There is further support from other research that financial incentives alone might not be sufficient and that a combination of financial and non-financial assistance is required to address the range of factors that influence location decisions of health sector workers (Buykx et al. 2010; Humphreys et al. 2009b; Mason 2013). However, Humphreys et al. (2009a) found that paid housing or provision of a vehicle reduced the risk of an employee leaving a small remote health service by over 50 per cent.

State and territory police forces also offer incentives to encourage police officers to work in 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 employers

Agriculture employers are generally more reliant on seasonal workers as employers have high and low periods of activity (Kilpatrick and Bound 2005). Employers often have difficulty sourcing seasonal labour, particularly in regional and remote areas, due to the temporary nature of the work and perceptions of unattractive working conditions (AgriFood Skills Australia, sub. 18; Western Australian Government, sub. 32).

A significant proportion of seasonal workers are sourced internationally on temporary visas such as the Working Holiday Visa Program and the Seasonal Worker Program. This is discussed in more detail later in the section.

Employers in the East Kimberley region of Western Australia have used strategies to encourage people to undertake, and stay in, seasonal work, 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 then recruiting and training new starters (Davies et al. 2009).

Cooperative cross-employer strategies have also been used to address issues of high labour turnover and insufficiently trained workers in seasonal agricultural work. 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 are 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).

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 employees 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, air-conditioning and internet connections in rooms, and room cleaning services. FIFO employees also generally receive extended recreation leave, and shift leave and commuting allowances (MCA 2011). Some employers offer employees 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).

FIFO work can be arduous. For example, shift arrangements have been raised by participants as a potential issue for employees' wellbeing (ACTU, sub. 21; CFMEU, sub. 26). Some studies suggest that long shifts could have a detrimental effect on workers' wellbeing and performance. 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 (Lifeline WA 2013). Furthermore, the study found that working long shifts can lead to disruptions in sleep, which led to fatigue.

Based on a survey of resource workers, the Australian Mineral and Mines Association (AMMA 2011) found that workers are generally happy with their roster cycles. Additionally, most workers reported receiving training that included fatigue awareness. 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, 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). The Australian Council of Trade Unions (sub. 21) reports that 'mummy rosters' emerged during the height of the resources boom in order to attract more females into the workforce.

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 employees to and from the mine for safety reasons. These employees receive similar accommodation to FIFO employees at other sites (Rio Tinto 2011b).

There have been cases where resource 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 resource companies are supporting the training and employment of Indigenous FIFO employees. 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). Many Indigenous people in Meekatharra were unemployed before the opportunity to undertake FIFO work arose (MCA, sub. 6).

Another example of resource companies using FIFO work as part of training is the Pathways to the Pilbara program. It involves around 120 Indigenous people from the Kempsey region working on a FIFO basis in the Pilbara. It is funded by the Australian Government. A key benefit of this program is the demonstration effect it provides. The program uses an intensive mentoring and support service. It reports a 92 per cent retention rate (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 has 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 to provide health services in regional and remote communities. The National Rural Health Alliance (2011) has asserted that FIFO and DIDO health services are important for people who would otherwise have no access to essential health services. Avana (sub. 14) argues that there is potential to use incentives to attract allied and other health 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. The Police Federation of Australia (sub. 2) has heard that this arrangement might be proving too costly. South Australia Police have used FIFO work practices at the Anangu Pitjantjatjara Yankunytjatjara Lands to supplement the local police force. The South Australian Government, Australia Government and South Australia Police have since constructed infrastructure for a permanent resident workforce and FIFO arrangements are now no longer used (Police Federation of Australia, sub. 2).

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 subclass 457 visas are most commonly used in the other services, mining, construction and health care and social assistance industries (appendix C). Use in the health care, resource, 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, particularly in regional and remote areas.[19] For example, the Victorian Government has a number of programs and support packages to attract health care professionals from overseas. Those packages include financial incentives and assistance to obtain general registration and other accreditation (Department of Health (Victoria) 2013d) (box 9.3).

Box 9.3 Victorian Government programs to recruit international health care professionals

The Victorian Government has a number of programs designed to attract international health care workers, often to work in regional and remote areas.

- 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. 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).

In addition, remote medical services in New South Wales have had success advertising job vacancies to Australians working overseas in developing countries,

[19] Australian Government strategies to assist private and public employers to recruit and retain international medical graduates are discussed in chapter 11.

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 (Rural Health Workforce Australia 2012).

Resources sector

Many resource sector companies employ international workers, with the worker either relocating to Australia for the length of their employment contract or long-distance commuting (such as from New Zealand or Indonesia (Rickard 2011)). International resource sector employees are commonly employed on subclass 457 visas. About 3 per cent of the mining workforce is employed under these arrangements (MCA, sub. 6).

These employees are generally provided with similar benefits to Australian employees who relocate or commute long distances, and can include accommodation, transport, removals and storage, health insurance and higher rates of pay (AMMA, sub. 29, attachment 2). Employers as sponsors of 457 visas are also required to ensure that the employee has adequate accommodation and that the employees' children have adequate provision of schooling (Khoo et al. 2007).

Some resource companies also use bonding incentives to improve retention rates. For example, one resource company has reported having a payback policy for certain costs such as flights if the employee leaves within 12 months (AMMA, sub. 29, attachment 2). The Construction, Forestry, Mining and Energy Union (sub. 26) argues that some employer-sponsored migration can actually impede geographic labour mobility by tying the worker to a particular employer in a specific location.

The resources sector contends that employing international workers on subclass 457 visas has been effective in helping the mining industry overcome skills shortages, and that without skilled migration, the mining industry might not have been able to respond as well to demand over the past decade. 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 cost of employing and sponsoring a 457 visa holder is approximately $60 000, meaning typically they will be used on an as needs basis (MCA, sub. 6). Research by NCVER (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 subclass 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).

Other industries

Temporary visa holders are an important source of workers for both the agriculture and tourism sectors. The agriculture sector sources a significant number of workers through the Working Holiday Visa Program and the Seasonal Worker Program. There were about 250 000 working holiday visas granted in 2012-13. The National Farmers' 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'. The tourism industry employs overseas migrants as a common strategy to address shortages (particularly skilled immigrants and working holiday makers) (Deloitte Access Economics 2011a).

Moving the job to the employee

Instead of employees having to relocate, employers can move the job to the employee. This could entail relocating the work premises or the employee 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, such as labour (chapters 2 and 4). Employers might also 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

Telecommuting is used by employers as a strategy to attract and retain employees. Telecommuting is more commonly undertaken by workers in the: information media and telecommunications; financial and insurance services; professional, scientific and technical services; or mining industries (chapter 6). Telecommuting

arrangements can be used to provide flexibility to employees and overcome the costs of having to relocate or commute.

The Australian Government has a goal of 12 per cent of the Australian Public Service (APS) (and the broader workforce) telecommuting by 2020. Currently, about 4 per cent of the APS telecommute at least 1–2 days per week. The Australian Government has a number of initiatives to increase telecommuting in the APS including trialling telecommuting in seven agencies in 2013 and advertising telecommuting opportunities in APS job vacancies from July 2014 (DBCDE 2013b).

The health care industry is using telecommuting for hard-to-staff positions. For example, Medibank first introduced teleworking 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 work from home (DBCDE 2013a).

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).

Resource 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 Minerals Council of Australia (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) has noted that this could have a negative effect on local communities, particularly Indigenous communities, due to the reduced need for employees from these areas.

9.2 Strategies to mitigate any negative effects of geographic labour mobility

Along with strategies to attract, retain and support employees, many employers also implement initiatives that are intended to deal with any negative impacts of their

operations (including the impact of geographic labour mobility) on the wider community. Employers implementing these strategies will generally be larger employers with market power and regional employers with activities of significance to the local economy. Strategies might be employer-initiated, 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.

Resource 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, BHP Billiton (2013b) spends one per cent of its pre-tax profit on community programs. 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 to access FIFO camp facilities (MCA, sub. 6; The Mac Services Group, sub. 9).

Resource 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 recreation facilities, such as pools, gyms and skate parks (Anglo American nd).

Resource 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).

Resource 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 less 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 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. For example, 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). In relation to their recruitment and retention activities, employers are generally the best placed to assess the effectiveness of the strategies they implement. In the case of profit maximising businesses 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 employees to various locations appear to have had mixed success. 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 employees to live in metropolitan areas
- using subclass 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 the employers, such as the police force, education and health, appear to have had less success using strategies to encourage relocation. Some have 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-fill areas (PC 2012c).

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 employees which can reduce the effectiveness of their strategies. Some impediments are related to government policy and regulation. Employers in industries such as mining, agriculture and tourism have raised concerns about requirements around the use of temporary visas, such as labour market testing requirements on subclass 457 visas and time and industry restrictions on working holiday visas (BCA, sub. 31; NFF, sub. 33; 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 starting school ages across jurisdictions
- a lack of affordable housing in regional and remote areas
- transactions costs incurred on buying and selling houses
- the flexibility of the workplace relations regime (Ai Group, sub. 19; BCA, sub. 31).

These topics are discussed in more detail in chapter 12.

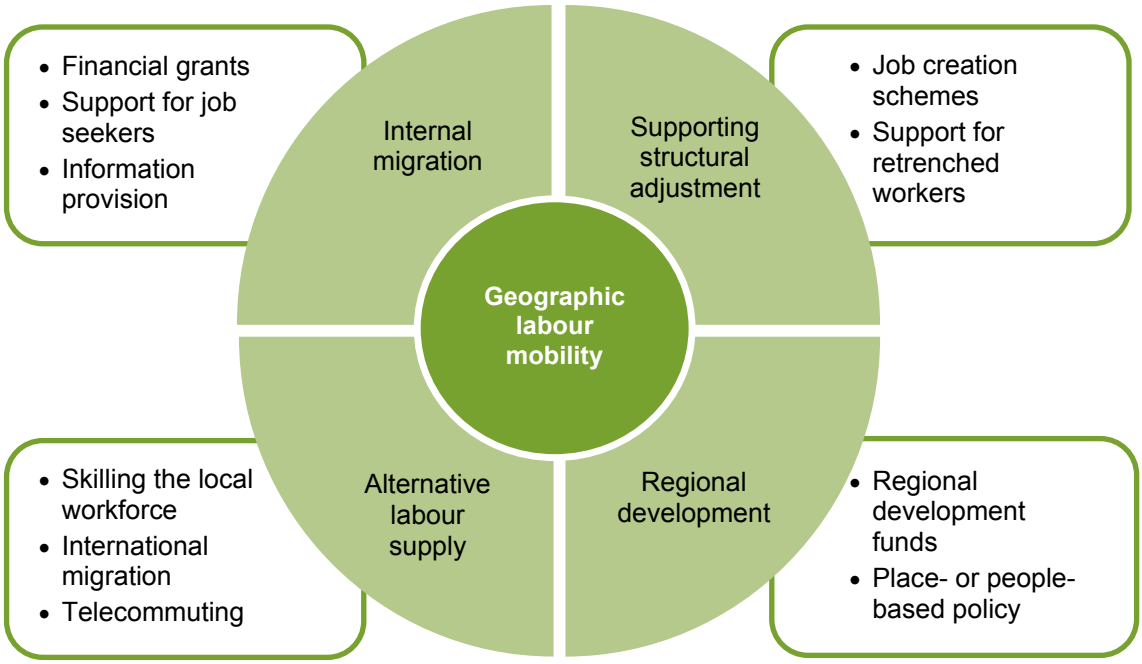
10 Government strategies

Key points

- Governments use a range of policies to directly influence where people live and work. They provide relocation incentives and information in an attempt to influence individuals' and firms' costs and benefits.
- Generally, government policies intended to directly facilitate geographic labour mobility have had limited effectiveness. Personal factors, which are not easily amenable to change, and their interaction with locational factors, dominate mobility decisions.
- Structural adjustment and regional development policies 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 are rare. Where evaluations have been conducted, evidence on the efficiency and effectiveness of these policies is scarce.
- To complement geographic labour mobility, governments have also been supporting other sources of labour supply, through skills development and international migration.
- A flexible training system that is responsive to the changing needs of individuals and firms is important to the efficient operation of the labour market.
- Temporary immigration has been a valuable tool in addressing skills shortages in hard-to-fill regions and occupations. Governments should ensure the benefits of temporary immigration are maximised by maintaining flexible arrangements and avoiding excessive regulatory burden.

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 businesses' mobility decisions, by addressing information asymmetries or providing incentives for moving. Some policies are targeted based on personal circumstances,[20] such as students from rural communities who are supported to return and work in these regions. In other cases, policies aim to balance the effects of existing rigidities. For example, governments may employ skilled temporary immigrants where the local workforce is reluctant to move to remote areas.
- 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.

[20] While a number of policies target specific individuals, few government interventions aim to change individual circumstances, such as risk aversion or personal preferences. Most of the major factors that affect geographic labour mobility — age, family circumstances, housing and lifestyle preferences — are outside the scope of government action (Sweet 2011).

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).

As discussed in chapter 3, the success of such policies can be measured in terms of efficiency and wellbeing. An efficient policy will support optimal 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 a multitude of factors influencing individuals' and firms' decisions. Governments have attempted to achieve this by either offering financial incentives, or bridging information gaps. 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

Where persistent skills shortages affect the provision of essential services, the Australian and state governments have offered incentive payments to attract employees. 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).[21] 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 (Rural Health Workforce Australia 2012).

The GPRIP has been in operation since 2010. An evaluation of the program has found that:

> [I]t 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 commented that 'the eligibility criteria of GPRIP prevents it from being as useful as it should be in recruiting doctors' (Rural Health Workforce Australia 2012, p. 19). According to Cessnock City Council, there are situations where the geographic classification used by governments does not accurately reflect remoteness levels, and therefore grants are not distributed appropriately (sub. 1).

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, including 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:

[21] 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, including 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).

> 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 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 (Rural Health Workforce Australia 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. 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).

While the overall 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, migration policies are seen as vital in addressing skills shortages in the health workforce (see International migration below). 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.

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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. The scheme offers grants of up to $7000 to people who move from metropolitan to regional areas (NSW Office of State Revenue 2013).

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 Decentralisation Taskforce, which reviewed the program, recommended increasing the grant amount so that it provides a 'meaningful incentive for regional relocation' (NSW Decentralisation Taskforce 2013, p. 6). 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 for those on income support who move to areas with lower employment prospects.

Incentives are available through the 'Move 2 Work' program, and its predecessor, 'Connecting People with Jobs'. 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 (Department of Employment 2013b). 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 (DEEWR 2012b).

The number of job seekers receiving assistance through these programs has been low. 'Connecting People with Jobs' was originally designed to assist up to 4000 job seekers over two years. However, between January 2011 and May 2013, only 1315 individuals relocated under this program, mostly to regional areas. Job seekers who moved were most likely to be male, under 39 years of age and without dependants (DEEWR, pers. comm., 11 July 2013). The average assistance provided was significantly below the maximum available per individual. A recent evaluation of Job Services Australia found that relocation assistance represents less than one per cent of debits under the Employment Pathway Fund (DEEWR 2012b).

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. Between September 2012 and June 2013, Centrelink considered that 1975 job seekers had moved to areas of lower employment prospects; however, only 89 had a preclusion period applied (DEEWR, pers. comm., 16 September 2013).

Although only few job seekers have applied for government support to move for work, Jobs Australia has argued that a relocation strategy for the unemployed is warranted. Submissions to the current review of the job services system, undertaken

by the Department of Employment, have also called for financial support for job seekers relocating and settling in new communities (Department of Employment 2013a). However, according to Jobs Australia:

> 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. (sub. 20, p. 4, emphasis in original)

Long-term unemployment is a highly complex policy problem. Supporting geographic labour mobility may contribute to more positive outcomes in some cases, 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, 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 mobility of labour. 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. Therefore, the Regional Australia Institute argues that:

> [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. (sub. 25, p. 7)

Governments undertake a wide range of activities in order to overcome information asymmetries. For example, the Australian Government funds the 'Fly-in/Fly-out Coordinators' project, which aims to connect suitable workers from their local area to fly-in, fly-out (FIFO) job opportunities in other regions (DIICCSRTE, sub. 23). State governments have also attempted to fill information gaps, by using marketing tools. For example, 'Workforce Growth NT' is a Northern Territory 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). The Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education 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' (DIICCSRTE, sub. 23, p. 8).

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.[22] 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; 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.

[22] For example, funding from the Australian Government for the Targeting Skills Needs in Regions program, which supported various projects relating to information provision, totalled $10 million over four years (DIICCSRTE, sub. 23). This compares to $77.7 million allocated for Dental Relocation and Infrastructure Support Scheme over a similar period (Department of Health 2013).

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. Waiting periods for some benefits were waived (Swan 2011).

The Australian Government has taken a similar approach in response to the forthcoming closure of Ford's manufacturing plants in Victoria (box 10.1).

Research has found that government support offered to retrenched employees is 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 information barriers and misconceptions about regions where jobs were available and, as a result, the affected employees were unwilling to move (Beer 2008).

Box 10.1 **Ford in Victoria: a recent example of structural adjustment**

In May 2013, Ford Australia announced its decision to close its manufacturing facilities in Geelong and Broadmeadows in 2016. About 1200 manufacturing employees are expected to be made redundant. The decision follows losses of about $600 million over five years (Ford Australia 2013).

In response to the closure, governments have put in place a number of initiatives intended to boost the number of new jobs created in these regions and to support retrenched Ford employees to find work. Total government funding for these initiatives is $66 million.

Employees affected by the Ford closures will be able to access career advice and training through the National Workforce Development Fund. The Australian Government committed a total of $15 million for this purpose. Local employment coordinators and labour adjustment officers will work with Ford employees, who will also have access to a number of job fairs (Gillard 2013).

All affected Ford employees will be eligible for significant support in looking for a new job, as part of the Automotive Industry Structural Adjustment Program. The Employment Pathway Fund will also offer employees funding for work-related equipment or for relocation purposes (Gillard 2013).

In order to support job creation in affected areas, 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 support employers to create jobs in affected areas.

Each fund will have a total budget of $24.5 million, with $15 million committed by the Australian Government, $4.5 million from the Victorian Government and $5 million contributed by Ford Australia. The first round of funding took place in the second half of 2013, and the funds are expected to operate until 2016 (AusIndustry 2013). Both governments will also contribute to the Automotive New Markets Program, which will have total funding of $12 million to support auto component manufacturers (Gillard 2013).

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 in response to a Ford restructure. The effectiveness and efficiency of this fund have not been evaluated in the years since it operated.

Employees and union representatives have voiced concerns that the jobs created as part of the new assistance packages will not be appropriate to their skill sets (Le Grand 2013).

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 1993a; PC 1999, 2012d). Throughout this period, the Commission

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)

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 the Ford manufacturing plants in Victoria 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. Historical research has indicated that policies were not aligned with individuals' and businesses' needs; using these insights in developing future policies may prevent inefficient spending.

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All governments, when developing structural adjustment programs, should ensure they are properly evaluated including how they promote or hinder geographic labour mobility. For example, this should apply to the programs announced by the Australian and Victorian Governments in response to the Ford closure in Victoria. A longitudinal study of the retrenched Ford workers 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 — whether to mitigate the effects of structural adjustment or address skills shortages outside urban areas. 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 support or complement 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 development of 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).

While the rationale behind regional development policies may have changed, 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**

Program	*Jurisdiction responsible*	*Key goal*	*Budget available*	*Timeframe*
Regional Development Australia Fund[a]	Commonwealth	Allocate grants to infrastructure projects identified by local communities	$1 billion	2011–2016
Resources for Regions	New South Wales	Support infrastructure projects in mining communities	$120 million	2013-14
Regional Growth Fund	Victoria	Support major projects in regional areas and fund local community initiatives	$1 billion	2011–2019
Royalties for the Regions	Queensland	Provide funding to regional councils for roads and infrastructure	$495 million	2012–2016
Riverland Sustainable Futures Fund	South Australia	Support business investment and diversification in the Riverland region	$20 million	2013–2017
Royalties for Regions	Western Australia	Fund a wide range of infrastructure and community projects in regional areas	$6.5 billion	2008–2013[b]
Tasmanian Government Innovation and Investment Fund	Tasmania	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 has 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 and Lands 2012; 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, relocation of government departments and general taxation measures.

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 initiative was developed by seven regional towns to promote the benefits of regional living and offer support to people considering moving. The initiative now receives funding from the New South Wales and Australian Governments (Evocities nd). 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 1993b). 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).

Support for regional areas is also offered through the taxation system, which 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. It was very critical of the fact that FIFO employees are eligible to claim the offset, and argued that the offset should only be available to permanent residents in regional areas (HRSCRA 2013). The Australian Mines and Metals Association suggested that personal income tax concessions could be a possible enticement to employees who might be considering relocating to regional areas for work (sub. 29).

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 separating the direct effect of government interventions from other economic and local factors that contribute to economic development, and comparing it to the expected regional economic performance without government intervention (BITRE 2003).

Research suggests that investment in regional development has not been effective in delivering its objectives. Two reasons have been suggested for this. First, the funding allocation mechanism does not focus on regions where government assistance can generate the best returns, as measured by increases in productivity and growth (Daley and Lancy 2011). Second, the responsibility for regional development has largely been transferred to communities and local organisations, without allowing them 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 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.

In addition to policies supporting skills development and international migration, the Australian Government supports employers that recruit workers from specific target groups, such as mature age people, Indigenous people or those with a disability (AusTrade 2013).

Skilling the local workforce

Stakeholders in a number of industries have reported challenges in finding suitably skilled local staff, and relying on commuters, itinerant 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 training system that is responsive to industry needs (AWPA 2013). Where 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, and lower than average educational attainment (ABS 2012e, 2013q).

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-aged 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 2012b). Highly disadvantaged people, who face significant barriers to employment, can receive additional support and funding (Job Services Australia 2013).

Despite these ongoing reforms, 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 echoed 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). Raising skill levels can have significant benefits across the economy. 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.

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 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 IMGs [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 has also been identified as an important source of workers for the tourism industry (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 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. (sub. 6, p. 1)

Employers in these industries have called on the government to ensure regulatory requirements do not impede the efficient employment of temporary immigrants and overseas visitors. Stakeholders called for the removal of the additional labour market testing requirements introduced recently for 457 visas (for example, BCA, sub. 31)[23], and for changes to the working holiday visa program to broaden eligibility and lower costs (NFF, sub. 33).

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) (see chapter 9 for further discussion on the effects of 457 visas). Some study participants warned of the need to balance these 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)

Broadly, 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 arrangements and avoiding excessive regulatory burden.

[23] The Australian Government has recently announced new guidelines, which exempt employers seeking 457 visas for highly skilled occupations from conducting labour market testing. Technical and trade occupations will continue to be subject to labour market testing (Cash 2013).

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 use a range of alternative sources of labour in order to attract employees with the required skills.
- While geographic labour mobility is assisting labour market adjustment, there is room for improvement.
  - Areas of skills shortages remain and, at the same time, there are areas of high unemployment.
- 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.
- 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 indirectly affect individuals' and businesses' mobility decisions.
- Not all impediments to geographic labour mobility are amenable to being influenced by governments, nor would this be appropriate in all cases. For example, attempts by governments to influence people's personal characteristics are unlikely to be effective.
- Large population shifts can impose external costs as well as benefits on affected communities. Governments have a role in addressing some of the 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 through 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. 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 efficiently across regional 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 operates through employers maximising profits and employing labour in the most efficient manner, and through employees maximising their wellbeing through matching with jobs in locations that are best suited to them and their families (box 11.1). In a well-functioning labour market, this occurs automatically by employers and employees responding 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 decision of relocation. 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 (chapter 8)(VCOSS, sub. 27).

At an economy-wide level, broad trends do seem to 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, labour does appear to be moving to areas with better job and income opportunities at both state and regional levels (chapters 4 and 5). This is supported by the Commission's econometric analysis, which shows that people tend to move to regions where real wages are higher (appendix D).

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 (chapter 8) given the different work and living arrangements available (chapter 2).

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 match.

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 from these decisions.

Employers

Employers 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.

The Commission has observed considerable flexibility in the labour market, attributable to actions by both employees and employers. Australians move relatively frequently (chapter 5) and may also be willing to undertake significant commuting to access jobs (chapter 6). On the other side of the equation, employers are offering an array of financial incentives and employment arrangements and are sourcing workers from a much wider geography than in the past (chapters 4 and 9). Both temporary and permanent immigration have been important channels to mitigate labour shortages in this context, particularly in the mining and construction industries (AMMA, sub. 29; APPEA, sub. 24; MCA, sub. 6). Further, the increasing

use of arrangements that allow workers to maintain their residence, such as telecommuting and long-distance commuting, support the finding of flexibility in the labour market (chapter 6).

These findings are generally supported in submissions and research by others. Earlier work by the OECD has found that labour mobility plays an important role in currency areas like the United States and Australia in response to factors that affect employment (OECD 1999). 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 notes the important 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. In Port Hedland in Western Australia, for example, the Construction, Forestry, Mining and Energy Union noted that population grew by 25 per cent over this period, a 'substantial population growth in response to industry needs' (sub. 26, p. 4).

Similarly, KPMG (2013b) found that increased mining activity is contributing to a demographic shift that is leading to higher levels of residential population growth in mining regions. Of the nine mining regions in Australia examined in the study, six experienced population growth at or above the national average between the 2006 and 2011 Censuses. The fastest growing mining regions were located in Western

Australia. The Pilbara, for example, experienced average growth of 7.3 per cent per annum over this period, almost five times the national average growth rate.

Several participants also noted that geographic labour mobility had enabled labour shortages to be mitigated during the resources boom (Prof. Fiona Haslam McKenzie, sub. 30; RAI, sub. 25). In particular, it appears that long-distance commuting such as fly-in, fly-out has been instrumental in attracting sufficient employees to mine sites during the resources boom, and spreading the benefits of the resources boom across the economy more broadly.

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. This is an important factor behind trends and patterns of geographic labour mobility in Australia, as the proportion of Australians living in cities has increased in the past century.

When looking at the characteristics of those who move, the Commission finds that, as expected, people who are likely to gain the most from moving are more likely to move. Young people, single people, recent immigrants, unemployed people and more highly educated and skilled people all move residence between labour markets more than other groups.

However, there are some areas of ongoing skills shortages, in certain occupations in regional and remote areas, while at the same time there remain regions of high 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 has shown the variable experience of areas with persistent unemployment and disadvantage (chapter 7). A lack of a clear relationship between joblessness and mobility suggests the need to proceed with caution when pursuing policies that attempt to address joblessness by encouraging geographic labour mobility (discussed below).

There are no simple levers to affect geographic labour mobility. Australian governments have a long history of trying to influence where people live and work, as part of regional development policies and structural adjustment support (chapter 10). The evidence suggests that these policies have generally not been effective. Benefits are likely to be higher if governments focus on creating an economic climate conducive to growth across *all* regions and *all* industries.

DRAFT 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, and should not be impeded by excessive regulation.

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). For example, 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, distance and relative house prices (appendix D).

While an impediment may affect geographic labour mobility, it may not be amenable to influence from governments, nor would this be appropriate in all cases (box 11.2). For example, it would not be efficient for governments to reduce all the costs of relocating for work to zero. The objective of public policy should be to focus on those 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.

It is not in the broader community's interest for government policy to be used to mitigate impediments to geographic labour mobility 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.

Attempts by government to influence certain personal factors, even where these impede geographic labour mobility, are unlikely to be effective or improve community-wide wellbeing. For example, government is limited in its ability to influence life course events, such as having children or getting divorced (chapter 8).

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 staff. This could involve governments removing existing distortionary policies or introducing new policy that addresses market failure. Governments may also wish to 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, and 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 generally 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 responses, 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 a government response 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 wish 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 most effectively 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 staff 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).

Similarly, the ability of governments to influence some locational impediments, such as climate, is also limited. However, other locational factors such as housing

prices and economic and social infrastructure are more amenable to government policy. As other reviews, including previous Productivity Commission work has concluded, 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 judgements 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. In particular, 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). For example, this includes taxation, planning and occupational licensing. These policies have been put into 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 these 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 is, in part, a response to high housing costs and lack of infrastructure in remote areas (chapter 6).

DRAFT FINDING 11.2

Poorly designed policies, in areas such as taxation, housing and occupational licensing, include in their negative consequences 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 barriers 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 the draft report as it has not identified any policies or distortions warranting policy intervention that *significantly* impede geographic labour mobility in Australia. A key finding is that personal factors, and their interaction with locational factors, tend to dominate relocation decisions. 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 2009 Productivity Commission 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 large 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 econometric modelling presented in this report provides insights into the effects of various factors on mobility (appendix D). It 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 of most interest to us — from both an efficiency and wellbeing perspective — if it results in people moving from weaker to stronger labour markets, increases incomes and reduces 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 important 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 joblessness can reduce wellbeing from the perspective of individuals, their family, and the wider community. Some regional unemployment seems unresponsive to macro conditions and to existing policy levers. 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). Even 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. Under these circumstances, disadvantage can compound with the lack of geographic labour mobility.

Joblessness, 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, will help to reduce the unemployment rate and therefore prevent joblessness occurring in the first place. An awareness of how existing disadvantage can compound with a lack of geographic labour mobility may also assist policy development. However, other policy responses are also required, particularly relating to improving 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 effects can be negative, such as increased traffic congestion, reduced housing affordability and demand on the local 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. 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 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' (sub. 9, p. 1). 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. Infrastructure provision and planning can be complicated at the local government level by a lack of capacity and clarity of roles and responsibility 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 distributed across the country.

Nevertheless, there is room for improvement. The Commission's analysis has identified pockets of persistent joblessness across the country as well as acute skills shortages. Further, there are some policies that governments could reform that, in addition to generating broader efficiency and wellbeing benefits, would lessen impediments to geographic labour mobility. 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 these distortions on geographic labour mobility. The Commission has also observed elements of labour market flexibility, such as through 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.

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 housing 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 the Commonwealth Rent Assistance payments, may be creating further barriers to mobility, particularly for low income individuals. The Australian Government should consider reviewing the structure of Commonwealth Rent Assistance, to ensure it does not act as a disincentive to geographic labour mobility.
- Through the Job Services Network, job service providers should engage directly with employers across regional labour markets. Geographic labour mobility would also benefit from more cooperation and collaboration between providers.
- Jurisdiction-based licensing is an impediment to mobility and competition. The reform efforts in this area by the Council of Australian Governments have been slow, and need to be reinvigorated with streamlined governance and institutional arrangements.
- State and local governments are broadly responsible for managing the effects of geographic labour mobility. Local governments should have the capacity and capability to manage population shifts in their area. State governments should emphasise local consultation and knowledge as part of their planning and approval processes.
- 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.

Attempts by governments to directly support geographic labour mobility have had only limited effectiveness in promoting movement of labour to areas of skill shortages (chapter 10). However, other government actions can have an impact on the mobility decision of individuals and firms through the operation of broader policies, developed for purposes other than geographic labour mobility.

These 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 2013b), that 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

Taxation arrangements

Different taxation arrangements have implications for the costs and benefits of moving for both individuals and firms. Tax payers who live or work in remote areas can be eligible for the zone tax offset (chapter 10). In addition, other taxation measures, such as the fringe benefits tax and housing taxation, can have an important effect.

Fringe benefits tax

Fringe benefits such as subsidised housing can be provided by companies to employees 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 subject to tax (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 House of Representatives Standing Committee on Regional Australia's Inquiry into the use of 'fly-in, fly-out' workforce practices in regional Australia generally 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 claimed the changes will lead to adverse effects for geographic mobility and increased labour turnover, as a result of the 12 months limit on claiming the exemption in a given location (sub. 29). 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. While

the effect of recent changes to the LAFHA is yet to be assessed fully, it may be useful to review their impacts 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.

Housing taxation

A broader concern arising from the current taxation system is its effect on the housing market. 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, land tax exemptions for the principal place of residence and the first home owners grant. Australia's Future Tax System Review (the Henry tax review) supported the exclusion of owner-occupied housing from means testing on the grounds that it is a key source of retirement savings (Treasury 2010). It has been argued that such concessional treatment has led to the high rate of home ownership in Australia (CFMEU, sub. 26).

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 (OECD 2005; Sánchez and Andrews 2011a).

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 (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; 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 of 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 2013). Other jurisdictions should consider similar changes.

DRAFT RECOMMENDATION 12.1

Where this has not already occurred, 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 (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 2013; Western Australian Government, sub. 32).

Stakeholders have raised concerns about the availability of appropriate land and the efficiency of planning and land release processes (for example, AMMA, sub. 29; BCA, sub. 31; HHMAC, sub. 22). Recent years have seen many attempts to reform this area (box 12.1), but the policies introduced are yet to deliver significant benefits.

Box 12.1 **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 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 (PC 2011c, p. XXVIII).

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 2013).

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, Victoria, Queensland and Western Australia. New planning policies have been implemented in South Australia, while the Northern Territory and the ACT have focused on reducing transaction costs for home buyers (NHSC 2013).

Planning restrictions, along with the effects of housing taxation, have been linked to deteriorating housing affordability in metropolitan areas. As a result of higher house prices, many households have been moving to urban fringe areas, which often have poor access to transport and jobs (Kelly 2013).

Housing affordability is also important in regional mining communities. 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).[24]

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).

[24] The National Housing Supply Council ceased its operations in November 2013 (Treasury nd).

DRAFT RECOMMENDATION 12.2

State and territory governments should ensure there is 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 significant proportion of moves by renters are involuntary, due to factors such as eviction and leases ending (chapters 5 and 7). Nonetheless, a well-functioning private rental market is important to an efficient level of geographic labour mobility (ACTU, sub. 21; CFMEU, sub. 26).

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 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). 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 land release processes, skills shortages and local governance issues (AHURI 2012). According to the Western Australian Government, the steep rents in mining areas present 'a critical barrier to labour movement' (sub. 32, p. 9).

Governments have taken a number of steps in an attempt to increase the supply of affordable rental dwellings. For example:

- 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. In 2011-12, over 8600 dwellings were rented to eligible tenants, and over 31 000 dwellings were planned or under construction (Department of Families, Housing, Community Services and Indigenous Affairs 2012). State

governments have also developed affordability policies, such as the Queensland Housing Affordability Strategy (Department of Infrastructure and Planning (Queensland) 2012).

- The Housing Affordability Fund provides a total of $400 million in funding to state, territory and local governments to reduce planning and infrastructure costs. The fund has supported residential developments that offer affordable rental housing (Milligan et al. 2013).

On the demand side of the rental market, the Australian Government supports low-income private renters. Households who receive income support payments may be eligible for Commonwealth Rent Assistance (CRA). In 2011-12, the government paid more than $3.3 billion in rent assistance, to over 1.1 million households (SCRGP 2013).

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 payments. The eligibility and payment rules are covered by both the *Social Security Act 1991* and the *New Tax System (Family Assistance) Act 1999*. As a result, individuals may receive duplicate payments (Australian Government 2013a).

The exact rate of assistance is based on the 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 2013b).

Given the variation in rental costs, the effect of CRA on affordability changes by jurisdiction. On average, across Australia, CRA entitlements amounted to 30 per cent of the rent paid by eligible households in 2012. This varies between 35 per cent in regional Victoria and 27 per cent in the ACT (SCRGP 2013). 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, 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.

DRAFT RECOMMENDATION 12.3

In keeping with recommendations from the Australia's Future Tax System Review, the Australian Government should review the level, indexation and eligibility for Commonwealth Rent Assistance to assist the mobility of low income workers in rental accommodation.

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 partnership 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 2013j). 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 found that public housing eligibility conditions restricted geographic labour mobility (IC 1993b).

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 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)' (sub. 32, p. 14). For example, in Victoria, a single-person household may only earn up to $501 per week to be eligible for public housing (Department of Human Services 2013a). 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 public housing, 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.

Job services system

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 to mobility and are less likely to move (chapter 7).

Governments offer an array of services to the unemployed, including relocation support (chapter 10). According to Jobs Australia, 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 the job services system. There is an opportunity to address these barriers in the review of the system currently undertaken by the Australian Government, prior to renewing the contracts of job service providers in 2015 (Department of Employment 2013a):

> 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. (Jobs Australia, sub. 20, pp. 7–8)

Past reviews of the job services network 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 job service providers identify potential employers who may not have job vacancies, and 'market' individual job seekers directly to them. Successful job service providers also tend to cooperate often with other employment organisations (DEEWR 2012c).

The issues of employer engagement and collaboration across the job services system 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). 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.

DRAFT RECOMMENDATION 12.4

The Australian Government's review of employment services should examine barriers within the jobs services system to the geographic mobility of unemployed people. Providers should be encouraged to work directly with employers to identify new opportunities for job seekers, including opportunities outside their immediate labour market region where relevant.

Industrial relations

Australia's system of industrial relations can influence the degree of labour market flexibility and the effectiveness of market signals. 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 2013h), 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 only covered 16 per cent of the workforce (ABS 2013h).

Stakeholders have raised a number of concerns regarding the effectiveness of industrial relations arrangements, primarily regarding lack of flexibility (Ai Group, sub. 19; BCA, sub. 31; MCA, sub. 6). A case in point is Tasmania, where average wages are high compared with the state's productivity (ABS 2012c, 2012d, 2013q). 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.

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:

> 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. (sub. 21, p. 16)

A portable long service leave scheme would contribute to mobility in the labour market. However, it would also impose additional costs for 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 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. (sub. 27, pp. 9–10)

A recent survey of Regional Development Australia committees has found widespread concerns regarding the current condition and development of transport infrastructure. The most commonly reported concerns that may affect geographic labour mobility included:

- a lack of public transport, particularly in outer metropolitan, regional and remote regions
- the need for better road infrastructure that will improve access to employment centres, and reduce congestion and commuting times
- the challenges to rail infrastructure, through increased rail freight
- and the reduction in air services between regional centres, particularly in tourism areas (ABS 2013t).

All levels of government direct considerable funding to transport infrastructure. Infrastructure Australia was established in 2008 to advise governments on infrastructure issues. Its National Infrastructure Plan, submitted to COAG in 2013, called for substantial reforms to infrastructure planning and investment, including encouraging private investment, selling government infrastructure assets and expanding 'user pays' funding arrangements (Infrastructure Australia 2013).

While governments devote substantial resources to this issue, participants in this study have highlighted a number of areas where policy can be more timely and effective. 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. More broadly, the Ai Group recommended that:

> Government at all levels must commit to a sustained and continuing investment in transport infrastructure. Government as well as public and private transport network operators should explore innovative ways to encourage more efficient utilization of existing transport networks and infrastructure. (sub. 19, p. 16)

In the past, the Commission has called on governments to ensure the timely provision of efficient economic infrastructure (PC 2009a). As well as supporting productivity growth, efficient infrastructure provision underpins a well-functioning labour market, including geographic labour mobility.

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 Australia 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).

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.

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 acknowledged 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).

In 2009, COAG decided to introduce national occupational licensing, beginning with real estate and construction related occupations. The task of implementing this reform was given to the National Occupational Licensing Authority (NOLA), established in 2012. However, the authority has come across numerous challenges and reform progress has been slow (box 12.2). These challenges were also recognised by the Commission in 2012:

> Given continued delays in implementing the first tranche of [the National Occupational Licensing System] and the limited number of occupations included, effective and transparent mutual recognition mechanisms will continue to be necessary into the foreseeable future. (PC 2012b, p. 60)

Box 12.2 **National occupational licensing reform**

National occupational licensing is part of the seamless national economy reforms (COAG 2009b), and was motivated in part by recommendations made by the Productivity Commission (for example, Australian Government 2006; PC 2003).

The Intergovernmental Agreement for a National Licensing System for Specified Occupations was signed in April 2009, aiming to establish a national licensing body by January 2011 and commence national licensing by July 2012 (COAG 2009a). However, the implementation of reform has encountered numerous problems.

The National Occupational Licensing Authority (NOLA) was established in May 2012. Its governance structure is complex — it is overseen by COAG's Standing Council on Federal Financial Relations, the National Licensing Steering Committee, the National Licensing Taskforce (which is being wound down) and a Deputy Senior Officials Meeting. As a result, 'there is no single advocate for, or champion of, the project' (sub. 17, p. 10), which has affected policy development and implementation.

The reform needs to bring together 24 different regulatory schemes across different industries. Coupled with the complex governance structure, this has resulted in significant delays and difficulties.

According to the NOLA:

> Current governance 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. (sub. 17, p. 10)

Implementing the national licensing system has also hit significant hurdles:

- Conduct requirements, which are separate to licensing, remain outside the scope of reform, creating an inefficient system that is confusing for operators and consumers. This issue was also recognised by the Commission in a review of COAG's Regulatory and Competition Reform Agenda (PC 2012b).
- The National Law requires amendments to account for additional complexities that were uncovered as the policy was developed. Western Australia and the ACT have not yet passed the required legislation.
- The state regulators, which will administer the national licensing regime, will integrate their 18 existing computer systems, rather than create a new one.
- Licence fees will continue to vary by jurisdiction. Applicants will be required to apply only in their state of residence (NOLA, sub. 17).

The concept of national licensing is supported by some in the business community (Ai Group, sub. 19; AMMA, sub. 29; BCA, sub. 31), while others believe it may have negative effects on the professional standards in some of the occupations involved (Real Estate Institute of Australia 2013). COAG is expected to make a final decision on this reform by the end of 2013. If agreed by COAG, national licensing for four occupations will commence in 2014 (DIICCSRTE, sub. 23). The NOLA believes implementation is unlikely to occur prior to December 2014 (sub. 17).

While the costs of implementing the reform, in terms of time and effort, have been significant, the benefits of national licensing are difficult to estimate. In 2012, the Commission expected only minor prospective gains from this reform, assuming it is well implemented (PC 2012b). The NOLA has submitted that:

> [V]arious policy decisions have steadily eroded the maximum benefits that could have been achieved. Decisions to permit jurisdiction-based licence fees, integrate existing register systems, and allow jurisdiction-based conduct requirements have increased the complexity and cost of the reforms, while reducing the potential economic and efficiency benefits. These key policy examples outline some of the problems in achieving the maximum economic benefit of the reform.
>
> Governance arrangements have also impacted on the implementation timeframes, as new levels of approvals have been added … and key policy decisions must compete with other priorities for attention from senior decision-makers. (sub. 17, p. 19)

The NOLA has called for changes to the governance structure and the reform implementation, in order to ensure timely implementation of national licensing that will maximise potential benefits. Among others, these changes include:

- identifying the most appropriate ministerial council responsible for this reform, and ensuring decisions are given priority
- introducing a national licensing fee, which will be consistent across jurisdictions, and creating a single national licensing database (sub. 17).

The Commission believes that the benefits of the national licensing reform will not be realised without a strong commitment to implementation, and a streamlined approach to governance and institutional arrangements. Unless changes are made, this reform is unlikely to be implemented in a timely manner and to deliver its full potential benefits.

DRAFT RECOMMENDATION 12.5

COAG should take remedial action now to ensure:

- ***national occupational licensing reforms commence in 2014***
- ***the reform's governance structure is streamlined, in order to facilitate timely decision making***
- ***reform processes, such as licensing fees and systems, are simplified and consistent across all jurisdictions.***

Cross-jurisdiction licensing and skills recognition is a barrier to mobility in some other occupations. For example, the Police Federation of Australia 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. (sub. 2, p. 10)

To address this issue, the Police Federation of Australia 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 (Police Federation of Australia, sub. 2).

School education

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 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).

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

The changing trends of 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.

These issues have been of particular importance in mining regions, where a rapid increase in economic activity has 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 12.3).

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 2011-12, expenditure under the program reached $1.2 billion and overall since its inception, it has reached over $6 billion (Department of Regional Development and Lands 2012). 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' (CSRM 2012, p. 23). Since 2012, Queensland and New South Wales have also introduced similar policies, though on a much smaller scale (chapter 10).

Box 12.3 **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). In addition, 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 (CSRM 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 tried to respond 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 (LGAQ) 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. (sub. 5, p. 8)

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). The Parliamentary FIFO Inquiry called for earlier consultations with local government and increased support for councils to develop their skill base and capacity (HRSCRA 2013). According to the LGAQ:

> [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. (sub. 5, p. 8)

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 large 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 in areas such as management and planning (LGMA 2013). Particularly in regional areas, skills

shortages have a significant effect on local government and their capacity to deliver essential services (LGAQ, sub. 5).

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 (CSRM 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:

> 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. In some cases a shire's operating budget has doubled but has not been accompanied by an increase in staffing levels necessary to effectively manage the increased budgets. 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. (sub. 6, p. 19)

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 (CSRM 2012). The Local Government Managers Association has developed a workforce strategy that focuses on developing existing skills and enhancing productivity (including removing any barriers to geographic labour mobility) (LGMA 2013). Past Commission reports have called for reviews of local governments' capacity in order to enable them to carry out their roles effectively (PC 2012a, 2013b). 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). 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).

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, the state agreements negotiated with mining companies often 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).[25]
- 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 research has called for a review of the restrictions imposed on councils' capacity to raise their own revenue (PC 2008). These calls have been echoed by stakeholders in this study (Muswellbrook Shire Council, sub. 15).

Stakeholders have also raised concerns about the financial assistance grants received by local governments. 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 Government (Financial Assistance) Act 1995* (Commonwealth Grants Commission 2012). These allocations are in part based on a set of 'disabilities' to reflect the specific circumstances of councils. While these disabilities include population growth, this reflects the increase in the resident population, rather than the number of people who use council services, commonly referred to as its service population (HRSCRA 2013).

This distinction is particularly important in regions where there are significant numbers of temporary residents, such as tourists or FIFO workers. In their case, the grants are determined based on a smaller population than the one they serve in practice (HRSCRA 2013). A high proportion of temporary residents can place

[25] Councils can apply to vary the rate increase, as required. Most applications are approved by the state government (PC 2008).

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). However, there are significant difficulties in defining and estimating the size of service populations. The Commission recommends addressing these data shortcomings through improved information collection and better use of existing data (section 12.4).

DRAFT RECOMMENDATION 12.6

State governments should ensure that local governments have the capacity and capability to manage the effects of population change in their areas. In particular, 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.***

12.4 The need for better data and policy evaluation

Patterns of mobility, and the factors that influence employees' and firms' location decisions, need to be well understood so that governments are able to plan appropriately for population growth. While some of the data and evidence needed to meet these policy aims are currently collected, and used to inform policy design, there are still some gaps that need to be addressed.

The limitations of population statistics

Many policy decisions, particularly those affecting local governments, rely on appropriate measures of population. The ABS currently produces two measures of population, which can reflect significant differences (box 12.4). Further, the lack of a reliable measure of service populations creates challenges for policy makers and service providers, who have been grappling with this issue for many years (ABS 2008b, 2009c; Cook 1996; Lee 1999; Markham et al. 2013).

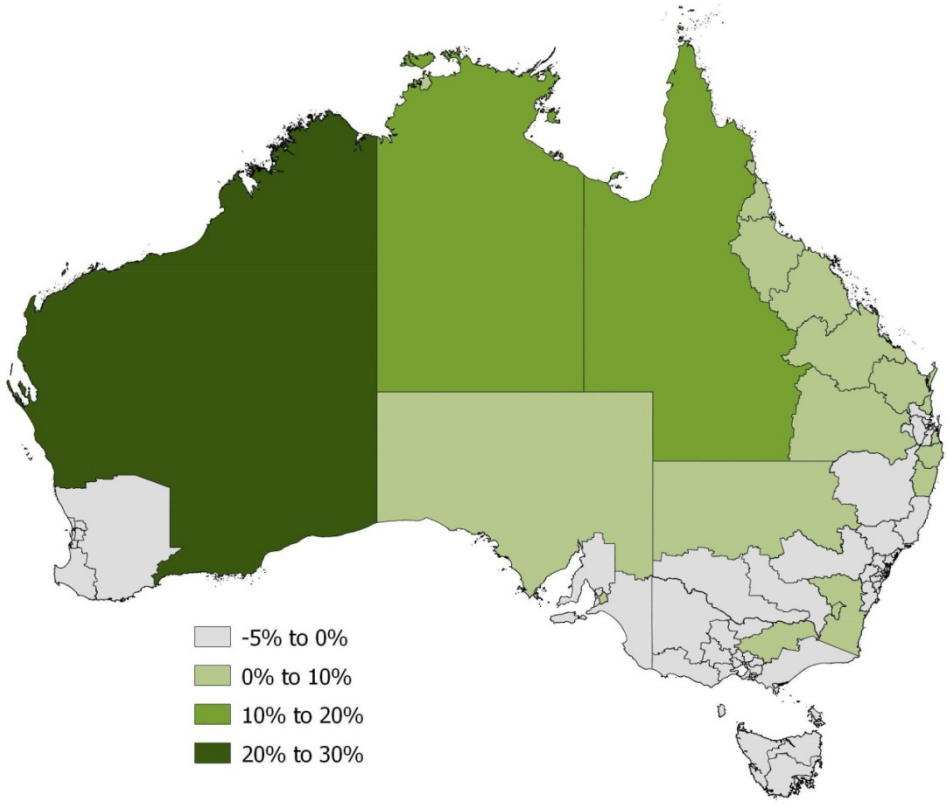
Box 12.4 **Population measures**

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 2013c). The Census figures differentiate between two definitions of population:

- enumerated population is the count of people where they spend census night
- resident population includes people who usually reside in a region.

For some individuals, determining the location of usual residence can be difficult. The ABS is reviewing the possibility of including new questions in the 2016 census, to improve the data on these populations (sub. 12).

Percentage difference between enumerated and usual resident population, 2011



Source: ABS 2012d (*Reflecting a Nation: Stories from the 2011 Census, 2012-2013*, Cat. no. 2071.0).

The concept of a service population is not well defined, and it has numerous limitations, 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). These complexities are captured in the way that the ABS 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. (ABS 2013u)

These 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 need for the development of a definition, for the specific purpose of funding local government, was raised during the Parliamentary FIFO Inquiry (HRSCRA 2013). The inquiry recommended that the Australian Government fund the ABS to establish a cross-jurisdictional working group to develop and implement a method for the accurate measurement of service populations in resource communities.

The issue of population definitions and data has also been raised as part of a review currently undertaken by Commonwealth Grants Commission into local government funding allocation. A final report is expected in December 2013 (Commonwealth Grants Commission 2012). The recommendations of this review are likely to have a significant effect on councils' funding arrangements.

There is no established methodology for estimating service populations (ABS 2008b). There are, however, a number of possible sources of information that can be used to develop such estimates. Examples include changes to statistics produced by the ABS, the use of administrative data and the use of information collected by the private sector.

- The Census is the most extensive collection of population statistics, undertaken by the ABS every five years. The Census has limitations in reflecting temporary mobility trends, and the data are often published many months after it was collected. The ABS is looking to improve the data collected in the Census (sub. 12). However, analysis of the findings will still require a significant amount of time and will still be available only at five year intervals.

- 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 movements[26] (ABS 2013k). Adding questions to the survey or linking data to employer information could provide valuable insight on where people live and work.[27]
- Examples of administrative data include Medicare records, which reflect 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 2012g). Subject to confidentiality requirements, these data could be used to develop timely estimates of permanent and temporary population changes. Generally, administrative data are underutilised in Australia, and the Commission has called for more extensive use of this valuable information source (PC 2013a).
- 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).

There is a pressing need for data improvements in relation to service populations. 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.

26 The labour force survey has been used by researchers to investigate geographic labour mobility, by linking data to other sources (Flatau et al. 2002).

27 Data on geographic mobility was included in publications based on the labour force survey up until 2004 (ABS 2004).

DRAFT FINDING 12.1

There are gaps in the understanding and measurement of geographic mobility, particularly of temporary or service populations. This could be hampering local governments' planning and funding allocations. Although the ABS and other organisations have made some improvements, more can be done, in particular exploring greater use of administrative data.

INFORMATION REQUEST 12.1

The Commission seeks information on:

- *the different definitions and measures of temporary or service populations*
- *possible solutions to data gaps, such as expanding existing data collections and using alternative data sources.*

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 also 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.

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 conducted an inquiry into the impediments to regional industry adjustment and called for additional monitoring and evaluation of programs (IC 1993b).

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 (table A.1). These submissions are 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. A list of participants is provided in table A.4.

The Commission thanks all those who have contributed to this study and now seeks additional input towards its final report. The Commission welcomes further submissions to discuss the substance of the draft report, including responses to the information requests, draft recommendations and findings.

Table A.1 **Submissions**

Participant	*Submission no.*
AgriFood Skills Australia	18
Ai Group	19
Ausfilm	28
Australian Bureau of Statistics (ABS)	12
Australian Council of Trade Unions (ACTU)	21
Australian Mines and Metals Association (AMMA)	29
Australian Petroleum Production and Exploration Association (APPEA)	24
Avana	14
Biddle, Dr Nicholas	13
Business Council of Australia (BCA)	31
Business SA	11
Cessnock City Council	1
Construction, Forestry, Mining and Energy Union (CFMEU)	26
Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (DIICCSRTE)	23
Department of Premier and Cabinet (SA)	34
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
Isaac Regional Council	16
Jobs Australia	20
Local Government Association of Queensland (LGAQ)	5
Minerals Council of Australia (MCA)	6
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
Police Federation of Australia	2
Regional Australia Institute (RAI)	25
Regional Development Australia (RDA) Hunter	10
The MAC Services Group	9
Victorian Council of Social Service (VCOSS)	27
Western Australian Government	32

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)

(Continued next page)

Table A.2 (continued)

Participant
Canberra
Minerals Council of Australia
National Farmers' Federation
Regional Australia Institute
Royal Australian Air Force
Treasury (Australian Government)

Table A.3 Teleconferences

Participant
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

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
Dany Turner	Department of Education, Employment and Workplace Relations
Peter Elliott	Department of Planning and Community Development (Victorian Government)
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

(Continued next page)

Table A.4 (continued)

Participant	*Organisation*
Canberra (5 September 2013)	
Michael Claessens	AgriFood Skills Australia
Peter Davidson	Australian Council of Social Services
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

B Measuring geographic labour mobility

Geographic labour mobility can only be observed indirectly from a number of geographic, demographic and labour force data sets. 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 has chosen to use 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, family and family background.

Residential moves are 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 (2012) 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 SA4 (Statistical Areas Level 4) 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 geographical 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, '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' (ABS 2010e, p. 2).

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
- there are 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:[28]

- 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 currently considering the feasibility of including questions relating to second residence in the next Census (sub. 12) to improve estimates of resident population and service population.

KMPG (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 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.

[28] 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.

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 is 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 is used, the Census is likely to undercount because some long-distance commuters might be at their usual residence on Census night, because 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) estimated the number of FIFO workers in the resources sector in statistical regions known to be important mining regions.[29] 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 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; Colmar Brunton Research and Deloitte Access Economics 2012; Deloitte Access Economics 2011b; Ai Group 2012).

Other analysis

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 characteristics of these people.
- ABS Job Vacancies — a quarterly survey on job vacancies by state and territory and by industry.
- Department of Education, Employment and Workplace Relations employment research and forecasts.

The HILDA survey has been used to examine motivations for moving. 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 Citizenship have been used to analyse migration trends and patterns.

[29] 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.

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). Table C.1 outlines the distribution of Australia's population by remoteness, defined by proximity to services. The majority of Australians live in major cities. Just over 2 per cent of Australians live in remote or very remote areas.

Table C.1 **Australian population by remoteness area, 2011[a]**

	Population	*Proportion*
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

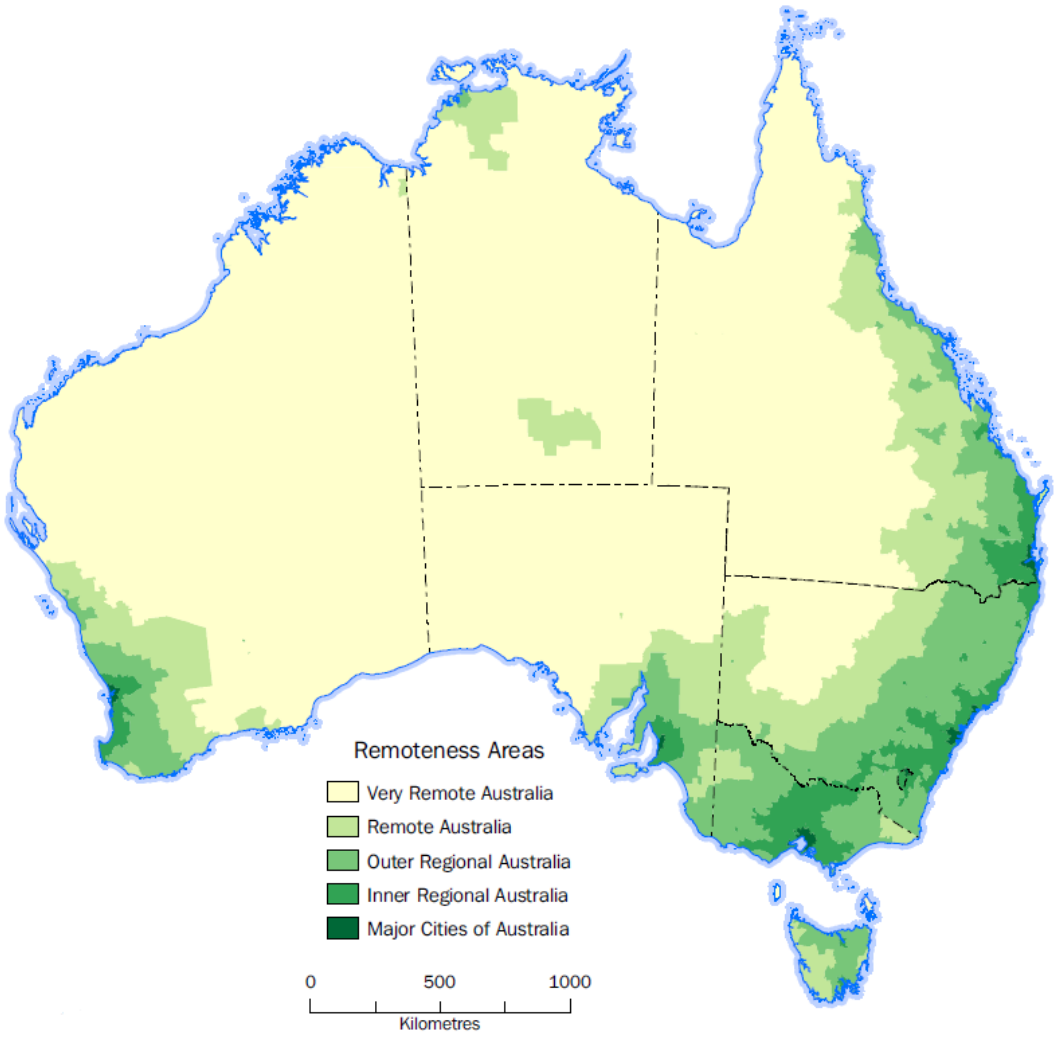
a Based on the Australian Standard Geographical Classification. This standard was replaced by the Australian Statistical Geography Standard, which has a similar remoteness classification.

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

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)

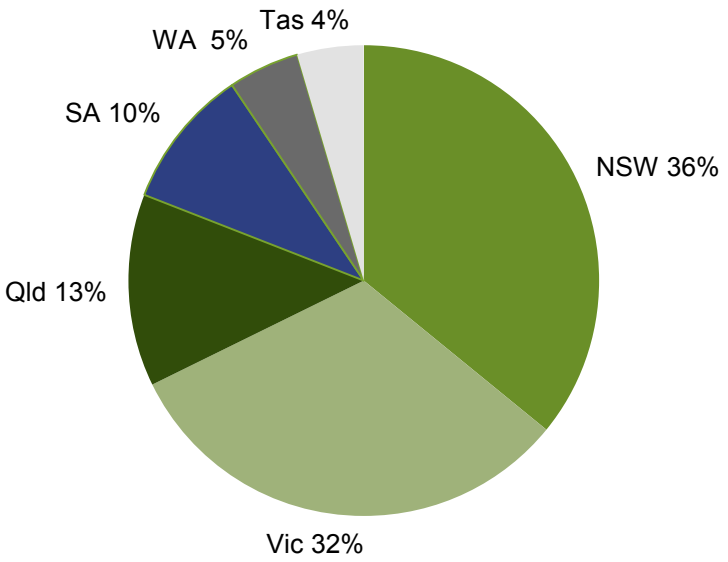
C.2 History of geographic settlement in Australia

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, Queensland and Western Australia had a smaller share of the population than they do today, and South Australia and Tasmania had a much larger share of the population in 1901. The ACT and the Northern Territory had not yet been established.

Figure C.2 **Australia's population by state and territory, 1901[a, b]**



[a] Aboriginal and Torres Strait Islanders were not counted in these figures. [b] The ACT and the Northern Territory had not been established in 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.

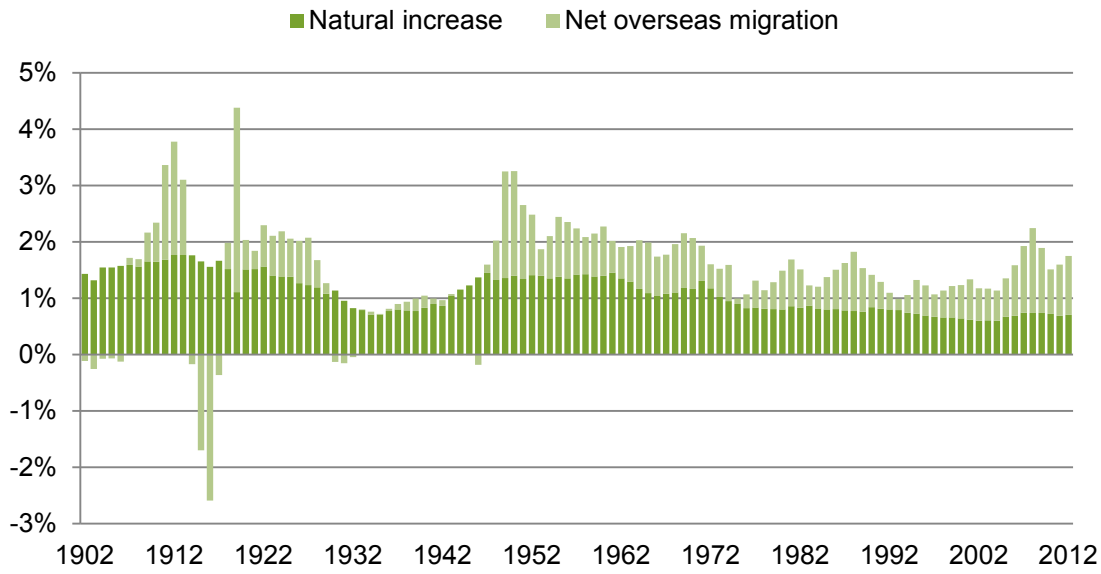
International migration

International migration has had 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 migration to population growth has been substantial, and has varied over time (figure C.3). Net migration varied significantly in times of war, as troops left Australia to fight overseas and then returned from overseas. Net 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 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 has 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 from December in the year considered to December in the previous year. [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 2012f, p. 7)

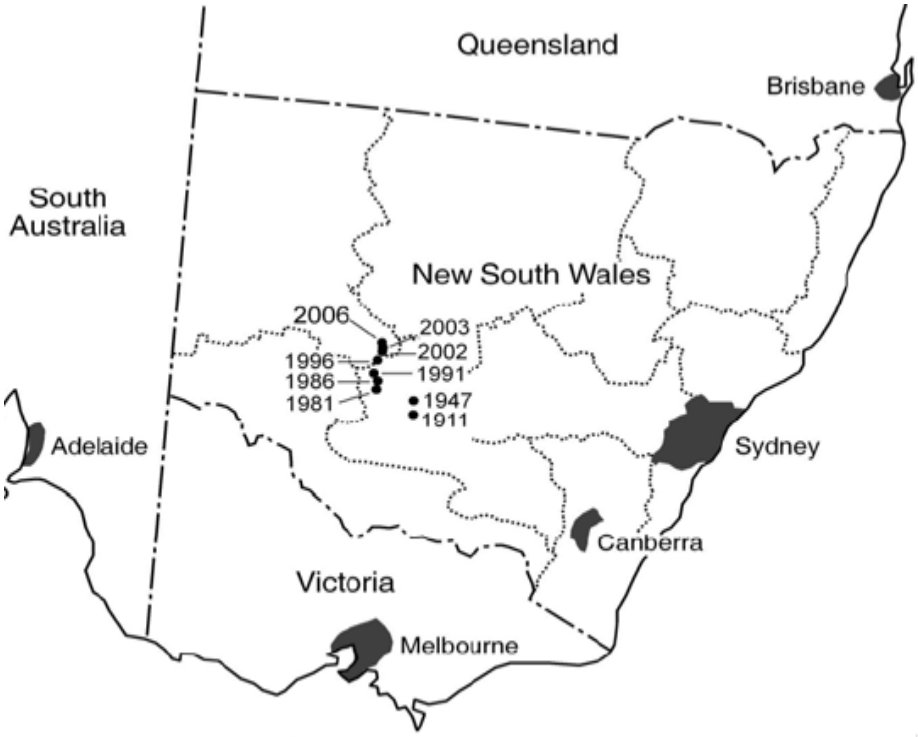
Source: Productivity Commission estimates using ABS (*Australian Demographic Statistics*, Cat. no. 3101.0).

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) finds that Australia's population distribution is distinctive, and has remained remarkably stable over the past 150 years.

Figure C.4 shows the Australian 'population centroid' — that is, the mean centre of population. The centroid has changed little over time. 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 in the centroid, reflecting faster population growth in Queensland and Western Australia relative to the other states.

Figure C.4 **Australian population centroid over time[a]**
1911–2006



[a] The population centroid is the mean centre of population.

Source: Hugo and Harris (2011).

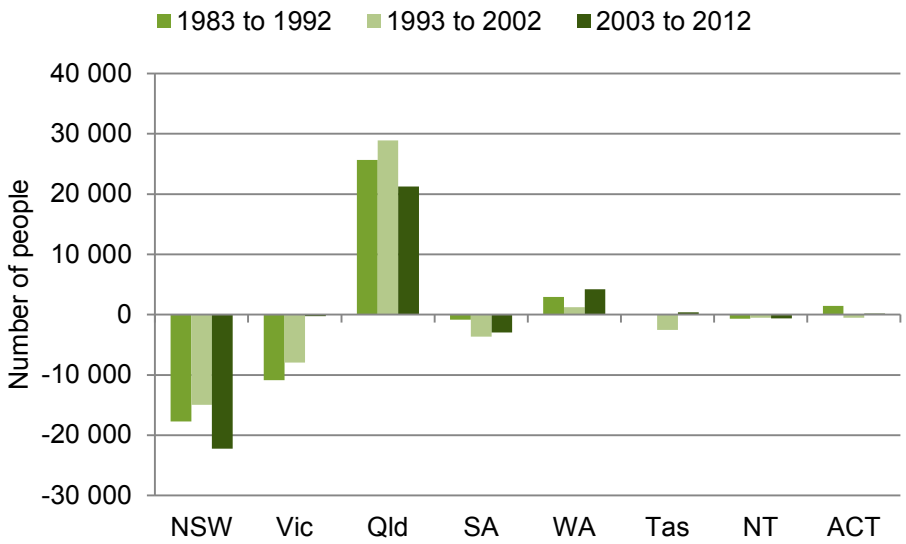
Population growth across states and territories

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 nd). Tasmania, and to a lesser extent South Australia, have grown more slowly than other states, as they have lost population to other states (ABS 2008a).

Many Australians move from one state or territory to another. Data on net interstate migration — the difference between the number of people moving to a state and departing that state — are available 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 the ACT and negative in South Australia and Tasmania.

Figure C.5 **Net interstate migration by state and territory, 1983–2012[a]**
Annual average over 10 year period



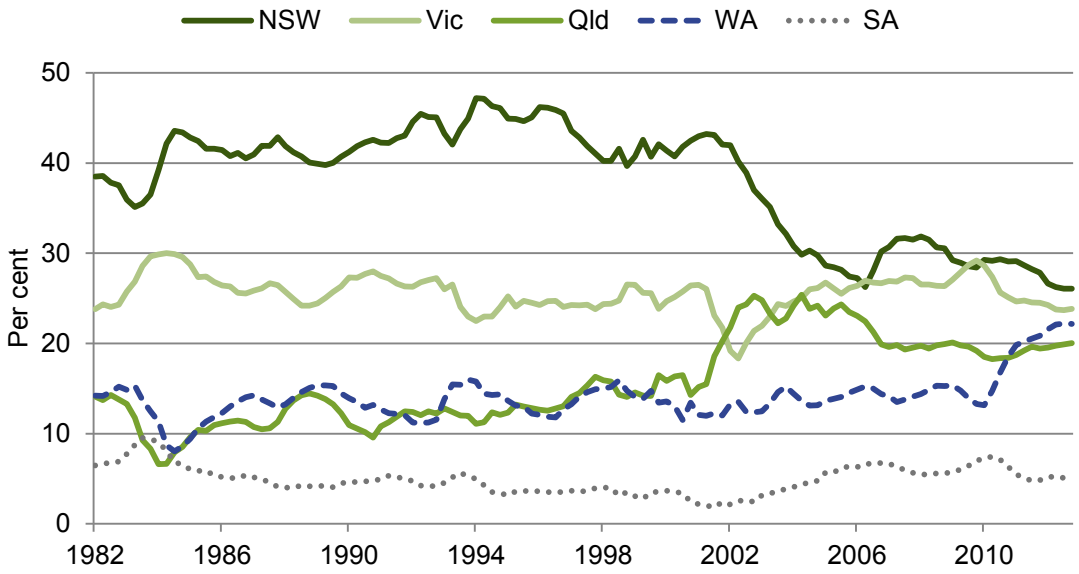
[a] Net interstate migration is the difference between the number of people moving to a state and the number of people departing.

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 inflows of international migrants. 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 migrants 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 international migrants settling in regional and remote areas. This trend has also been observed in the United States (RAI nd). This could be due to a number of factors including government programs which oblige or encourage migrants to settle outside of capital cities, and growing numbers of international migrants working in the mining industry as a result of the resources boom.

Figure C.6 **Net overseas migration, by 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 2012f, p. 7). 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

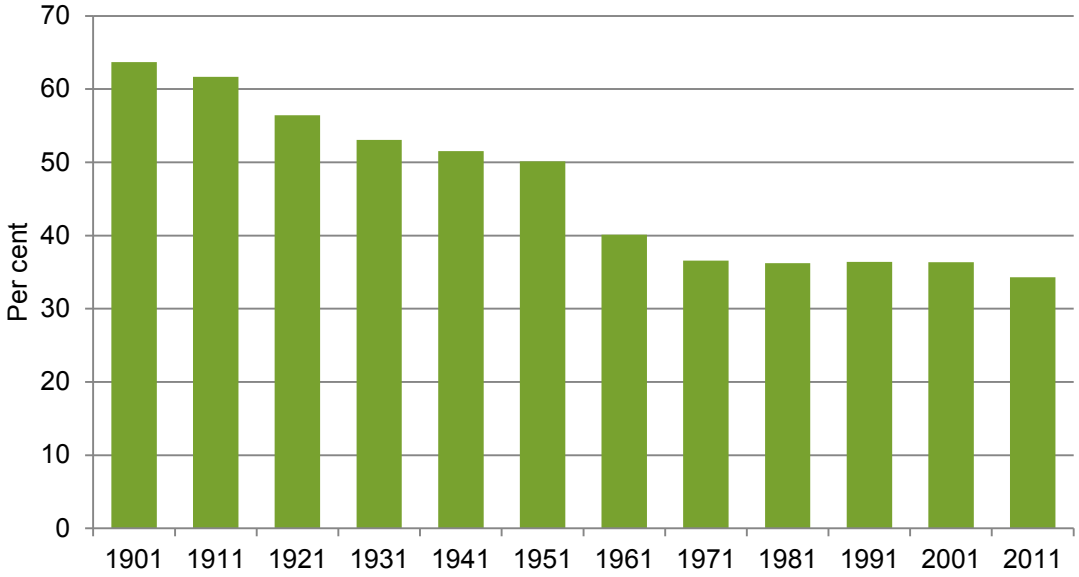
The proportion of people living in urban areas has increased since Federation (figure C.7). This increase was most apparent from Federation until the 1970s. Reasons for this trend could include:

- generally faster employment growth and wage growth in urban and metropolitan areas due to:
  - manufacturing industries being established, predominantly in urban areas
  - higher growth in the services sector, predominantly in urban areas
  - agglomeration benefits of cities.

- the motor car, which:
  - enabled suburbanisation, which consequently might have improved the amenity of living in a city
  - 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. Regional towns compete to sell goods and services to people from a wider region. If one town is larger and has a greater variety of goods and services this draws people to shop there, which over time will increase the employment base and can lead to much higher population growth than in surrounding towns. An initial advantage can be reinforced
  - location relative to transport infrastructure. Some towns are located near a major highway or a rail line. As traffic increases, well-located towns might grow more quickly than other towns.
- greater mechanisation and productivity in the agricultural sector, requiring fewer workers
- declining commodity prices, droughts and other natural disasters
- large-scale immigration and the preference of migrants 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 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. This section provides a summary of Australia's permanent and temporary migration programs.

Permanent migration

Australia's permanent 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

	Visa subclass	*no.*	*%*
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 migrants to Australia. Migrants 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.

On average, New Zealand-born migrants are younger than other migrants (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. Twenty-four 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 vs. 83 per cent for males and 75 per cent vs. 70 per cent for females). Patterns of work by industry were broadly similar for NZ-born and the broader Australian population. However, NZ-born people were less likely to work in health care and social assistance; NZ-born males were more likely to work in construction (21 per cent vs. 15 per cent of Australian workers); and NZ-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 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, more than 6000 higher than the previous year (DIAC 2013b).

Temporary migration

In addition to permanent migration, Australia grants temporary visas. In September 2013, there were over one million temporary visa holders resident 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 particularly important for seasonal work, such as in agriculture and tourism (Job Services Australia 2013; National Farmers' Federation, sub. 33). 457 visas are used across a wide range of industries, and have been important in filling skills shortages (box C.2).

Table C.3 **Temporary entrants in Australia, 30 September 2013**

	Work rights[a]	*30/09/2012*	*30/09/2013*		*change*
		no.	*no.*	*%*	*%*
Student visa holders[b]	Restricted	342 270	346 970	20.0	1.4
Visitor visa holders[c]	Various	191 950	200 590	11.6	4.5
Temporary skilled (subclass 457) visa holders[d]	Yes	175 580	196 450	11.3	11.9
Working holiday makers visa holders[e]	Yes	145 660	166 260	9.6	14.1
Bridging visa holders	No	111 670	111 980	6.5	0.3
Temporary graduate (subclass 485) visa holders	Yes	39 170	30 350	1.8	-22.5
Other temporary visa holders[f]	..	28 620	31 390	1.8	9.7
Total temporary visa holders	..	*1 034 920*	*1 083 980*	*62.6*	*4.7*
New Zealand (subclass 444) visa holders[g]	Yes	644 710	648 200	37.4	0.5
Total temporary entrants in Australia	..	*1 679 630*	*1 732 180*	*100.0*	*3.1*

[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 and secondary applicants who are allowed to work in Australia for up to four years. [e] Working holiday visas are for 12 months. Visa holders can work for a maximum of six months with one employer. Eligible visa holders can apply for a second working holiday visa. [f] Includes various visa subclasses not elsewhere included, which may or may not have work rights. [g] 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: DIAC (2013d).

Box C.2 **457 visas**

The 457 visa subclass was introduced in 1996, and was designed to address skill shortages by allowing employers to recruit skilled foreign nationals when appropriately skilled Australians could not be found (DIAC 2013e; Tham and Campbell 2011).

Employing a foreign national on a 457 visa is a three-stage process. First, a business 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, a business 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 must exceed the Temporary Skilled Migration Income Threshold (indexed annually and currently set at $53 900) or be 'no less favourable' than for an Australian performing equivalent work.

Relevant legislation was amended by the previous Australian Government. The *Migration Amendment (Temporary Sponsored Visas) Act 2013* (commenced late June 2013) introduced 'labour market testing' for 457 nominations.[30] Standard business sponsors are required to provide:

- information about any retrenchments or redundancies of Australians working in the nominated position in the four months prior to the nomination
- evidence of attempts to recruit suitably qualified Australians to the position.

In November 2013, the new Australian Government announced its intention to exempt high-skilled occupations from labour market testing (Cash 2013).

The number of 457 visa applications granted and the number of (primary and secondary) 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 June 2013, the industries that employed the most 457 visa holders in absolute terms were other services (13 per cent of 457 visa holders), followed by construction (12 per cent) and health care and social assistance (11 per cent).[31]

As a proportion of total workforce in an industry, 457 visa holders were most common in information media and telecommunications (4 per cent of the total industry workforce), mining (3 per cent) and other services (3 per cent).

New South Wales had the most 457 visa holders (36 per cent), followed by Western Australia (22 per cent) and Victoria (21 per cent). As a proportion of the total employed workforce in each state, 457 workers were most common in Western Australia (1.8 per cent of the total workforce), followed by the Northern Territory (1.1 per cent), New South Wales (1.0 per cent) and Victoria (0.8 per cent) (ABS 2013o; DIAC 2013c).

30 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).

31 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 1993a) 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 1993a; 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 provincial cities (IC 1993a). 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' 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 1993a; 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 some 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 1993a).
- 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. 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) (RAI nd). 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 long standing 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 — for 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 (Elliot 2012). 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 — for 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 too, and an important factor in positive net interstate migration in Queensland.
- 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).

- Smaller provinces, and particularly those on the Atlantic coast, tended to lose population to other provinces in most years and over the period. The Atlantic provinces tend to have the lowest incomes and highest unemployment rates (Statistics Canada 2013b, 2013c).[32] This has been attributed in part to a 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 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.

Total interprovincial migration 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. Bernard et al. (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.

[32] The Atlantic Provinces are New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island.

D Econometric modelling

D.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 D.2. Section D.3 contains the specification of the conceptual model and section D.4 implements the model. The results are discussed in section D.5 and the key messages resulting from this exercise are reported in section D.6. Detailed data description is provided in attachment D.1 and detailed estimation output is presented in attachment D.2.

D.2 Framework for analysis

In deciding whether and where to relocate, individuals aim 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 leisure and non-work activities, 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 both the one-off and ongoing expected costs and benefits, and applying a discount to the future stream of costs and benefits. The element of expectation is important since future costs and benefits cannot be known with certainty.

This 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 potential 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 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: differences in the cost of housing between locations; the income forgone by other household members if they cannot find a job; the costs of moving away from 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 gravity-inspired model of regional migration used in this analysis is based on the basic gravity model of migration (box D.1). The general specification of the model is discussed below.

$$M_{sd} = \beta_0 + X_s'\beta_1 + X_d'\beta_2 + Z_{sd}'\beta_3$$

where,

- M_{sd} is the rate of immigration from the source region, *s*, to the destination region, *d*
- X_s' is a vector of explanatory variables capturing different features of region *s* (push factors)
- X_d' is a vector of explanatory variables capturing different features of region *d* (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).

Modelling 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 D.1 **The basic gravity model of migration**

By analogy with trade, migration in a basic gravity model is assumed to be driven by the attractive forces between the source and destination regions (or countries) 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 ED_d) and by the transaction costs involved in migrating (C_{sd}).

Over time, explanatory variables expected to influence migration have been added to the basic specification above to better explain the movements of people or labour across countries or regions. While most of these models have been developed to examine patterns in international migration, they have also 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.

D.3 Model setup

This section develops the model used, based on the theoretical framework presented in section D.2. This section also discusses alternative model specifications and highlights the limitations of the current approach.

The conceptual model

The inter-regional immigration rate to region *d* from region *s* 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 immigration rate and is expressed as the number of people moving into a destination region as a percentage of the estimated resident population in the destination region. These are the people who in the 2011 Census said they had moved residence in the previous year.[33] In this analysis, a 'region' means an ABS Statistical Area level 4 (SA4) (discussed further in section D.4).

Specifying the dependent variable as the inter-regional immigration rate results from the research questions in the terms of reference. Key issues of interest include the capacity of regions to attract extra people, which features of a region attract people, and whether people are relocating to where there are job opportunities. The immigration rate is thought to be an appropriate indicator to examine these issues (box D.2).

The explanatory variables — conceptual level

The list of explanatory variables relevant for the conceptual model is reported in table D.1 and the rationale for choosing these variables is discussed below.

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**, also affect financial returns, especially if someone is relocating to look for work.

[33] 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. However, data for most explanatory variables are available at the Statistical Area level 4 only for the past few years.

Box D.2 **Choosing the dependent variable**

The choice of dependent variable depends on the research question to be addressed. Given the interest in this study on issues relating to the destination region, and its ability to attract labour, the inter-regional immigration rate is used as the dependent variable. The immigration *rate* is also used because it yields more meaningful coefficients from the modelling than when migration flows in *levels* are used. Others have used regional migration flows in levels or the emigration rate as the dependent variable. Researchers who have used inter-regional migration flows include:

- Rohlin (2000), who examines the link between modernisation of cities and migration flows to and from Brisbane and Stockholm
- Gunderson and Sorenson (2010), who examine the reasons for increased domestic emigration from California counties
- Van Lottum and Daan (2012), who investigate the factors that have driven internal migration in Indonesia, with a particular focus on how economic and social conditions in different provinces affect the inclination to migrate.

Researchers who have used emigration rates include Grogger and Hanson (2011), who examine whether those who are more educated are more likely to emigrate (positive selection) and whether more educated migrants tend to settle in destination countries with high rewards to skill (positive sorting).

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 influence 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 **capacity** to undertake a move, since people who are socially and economically disadvantaged may find it harder to relocate.

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 services and entertainment**, and **congestion**.

Table D.1 **Explanatory variables in the conceptual model**

Explanatory variable	*Classification*
Economic variables	
Financial returns (source)	Push factor
Financial returns (destination)	Pull factor
Relative costs of living	Pull factor
Probability of finding a job	Pull factor
Demographic characteristics	
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

Transaction costs — these may increase the costs of moving and are represented by a range of variables capturing the **social**, **financial** and **psychological** costs of moving.

- 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.
- Homeowners 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 drivers license if moving interstate). Moving to a neighbouring region is also likely to be less costly.

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.[34]

- A model of population movement.

[34] If the main objective of modelling was to examine immigration 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.

  - 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 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 D.5 and the rest of the results are reported in attachment D.2.

D.4 Implementing the model

This section briefly describes the explanatory variables and proxies used in the econometric model that implements the conceptual model discussed earlier. A more detailed description is provided in attachment D.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 obtained at or converted to the SA4 geography. According to the ABS (2010e), SA4s are designed to represent 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 they work (labour demand) (ABS, sub. 12).

Relocation to a different SA4 (or regional labour market) will often necessitate a change in job, with implications for the measurement of geographic labour mobility. In total, 87 SA4s were included in the analysis, yielding 7482 gross flows between regions.[35]

Explanatory variables — econometric model

The full list of explanatory variables included in the econometric model is reported in table D.2.

[35] This is based on the 88 SA4s covering the whole of Australia (discussed in box B.1 in Appendix B) minus 'Other Territories'.

Table D.2 **Explanatory variables in the econometric model**

Explanatory variable	*Classification*
Economic variables	
Real wages (source)	Push factor
Real wages (destination)	Pull factor
House price ratio	Pull factor
Unemployment rate differential	Pull factor
Demographic characteristics	
Population (source)	Push factor
Share of population aged 20–34 (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	
Homeownership rate (source)	Transaction cost
Distance	Transaction cost
Common border	Transaction cost
Intrastate move	Transaction cost

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 from the average wage and salary income (as provided to the ABS by the Australian Tax Office (ABS 2013i)) in an SA4, deflated by a regional consumer price index (CPI).
- 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

- The larger the **population in the source region**, the larger the pool of potential migrants. It is measured as the resident population in the source region as at June 2011. While population size in the destination region is also relevant, it is already captured by the immigration rate.

- 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, which proxies for the capacity to move. It ranks regions on a continuum from most disadvantaged to least disadvantaged (box D.3).

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.[36] It is expressed as the number of medical practitioners per 1000 people.

[36]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.

Box D.3 **The Index of Relative Socio-economic Disadvantage**

The Index of Relative Socio-economic Disadvantage (IRSD) is a general socio-economic index that summarises information about the economic and social conditions of people and households in a region.

The IRSD captures measures of relative disadvantage. A low score indicates relatively greater disadvantage in general while a high score indicates a relative lack of disadvantage in general. 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 (Queensland) and highest in Forrest (ACT).

Source: ABS (2013g).

Transaction costs

- The **homeownership rate** in the source region proxies for some of the social and financial costs involved in moving. It is calculated as the number of occupied private dwellings that are owned outright, owned with a 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 of different SA4s.
- A **common border** variable is included because short-distance moves to neighbouring regions are less costly. It is measured by a dummy variable indicating whether two SA4s are neighbouring.
- An **intrastate move** variable captures the differences in costs between interstate and intrastate moves (for example, the cost of getting a new drivers license if moving interstate). It is measured by a dummy variable indicating whether the source and destination SA4s are within the same state.

Descriptive statistics

This section briefly discusses selected descriptive statistics of the data used to estimate the econometric model. Other descriptive statistics, such as data for models other than those presented in this section and a correlation matrix are reported in attachment D.1.

Table D.3 reports the range of the variables used in the econometric model as well as their average by remoteness category. All the immigration rates in table D.3 are expressed as the number of immigrants into a region per 1000 residents. While these rates differ across population groups, they do not vary much across remoteness categories — except for machinery operators and drivers. The immigration rate of this category of workers is three times higher in remote areas than in major cities and regional areas, consistent with the strong demand in mining regions and these workers responding by relocating there.

Average real wages tend to be higher 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 wage premiums that mining companies often pay to attract such workers.

The data are also consistent with:

- major cities providing better access to services and having a lower incidence of socio-economic disadvantage
- homeownership rates tending to be lowest in remote areas
- remote areas having a higher proportion of young people than regional areas.

Table D.3 **Descriptive statistics by remoteness structure**[a]

Variables	*Unit*	*Range*	*Average*		
			Major cities	*Regional*	*Remote*
Migration flows[b]					
Labour immigration rate	per 1 000	0 – 15	0.38	0.28	0.49
Professionals immigration rate	per 1 000	0 – 5	0.10	0.05	0.10
Machinery operators and drivers immigration rate	per 1 000	0 – 2	0.02	0.02	0.06
Young population immigration rate	per 1 000	0 – 12	0.26	0.17	0.28
Real wages					
Real wages	$000	35.9 – 76.6	51.5	41.9	44.4
Real wages — professionals	$000	49.8 – 90.0	67.6	57.1	57.2
Real wages — machinery operators and drivers	$000	38.3 – 85.2	47.8	51.8	60.4
Other explanatory variables					
House price ratio		0.1 – 7.9	1.1	1.0	1.1
Unemployment rate differential		-5.3 – 5.3	..	..	..
Population share 20–34	%	11.1 – 35.8	20.8	15.7	21.0
Homeownership rate	%	30.3 – 81.4	64.6	65.7	44.2
Index of Relative Socio-economic Disadvantage		759.2 – 1 102.1	1 023.2	970.2	871.0
Population	000	37.4 – 684.2	329.2	167.3	125.6
Population density		0.1 – 4 650.5	1 054.2	12.6	0.1
Medical practitioners	per 10 000	7 – 156	38	20	14
Distance	km	5.3 – 3 838.8	..	..	..

a Data for the models presented in this section. Statistics for additional models are in attachment D.1. **b** All the immigration rates are relative to the estimated resident population in the destination region. **..** Not applicable

Source: Productivity Commission estimates.

The distribution of labour force immigration rates is presented in figure D.1. These rates are small, with most moves amounting to less than 0.02 per cent of the resident population in the destination region. Of the 4214 flows to a major city, 81 per cent are smaller than 0.04 per cent. This is because major city SA4s have relatively large populations. The relatively high rates (0.3 to 1.5 per cent) represent 169 flows, of which 132 are to major cities, 25 are to regional areas and 12 are to remote areas.

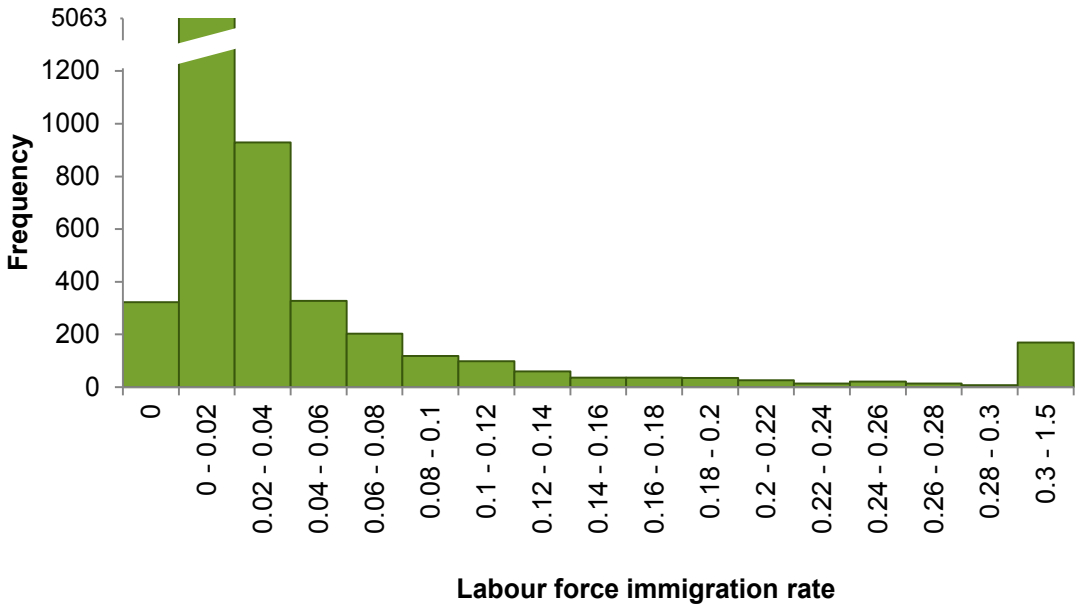
- The 132 major city flows are dominated by moves within the inner SA4s of major cities (for example, from South East Perth to South West Perth).[37]
- The 25 regional flows are dominated by intrastate moves. In Victoria, Western Australia and South Australia, these moves are mostly from major cities to

37 As discussed in section D.3, a common border variable is included in the econometric model to partly account for this.

regional areas, while in other states and territories they are mostly inter-regional moves.

- Of the 12 remote flows, half are within Western Australia to Outback Western Australia and the remainder are intrastate moves to outback regions.

Figure D.1 **Distribution of labour force immigration rates**

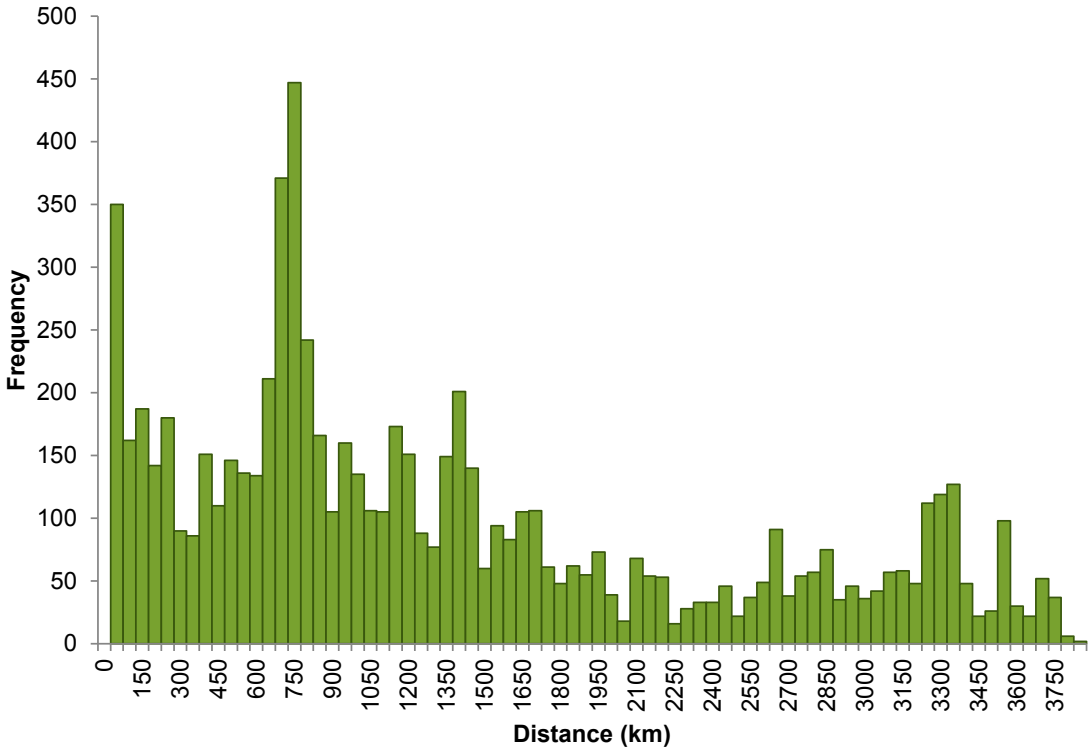


Source: Productivity Commission estimates using ABS (*TableBuilder Pro, 2011*, Cat. no. 2073.0).

There is significant variation in the distances between the 87 SA4s (figure D.2).

- Almost 50 per cent of routes are less than 1000 km.
- Approximately 6 per cent, or 447 routes, are between 700 km and 750 km.
- Less than 15 per cent of routes exceed 3000 km.

Figure D.2 **Distribution of distances between SA4s[a]**



a In total, there are 7482 routes (or distances) represented in the histogram. The histogram consists of 80 bins, each representing approximately 50 km.

Source: Productivity Commission estimates.

Of all moves to a different SA4 in the year leading to the 2011 Census, 492 063 (or 74 per cent) were within the same state (table D.4). Out of the 198 311 NSW workers who moved, 150 917 workers relocated to a different SA4 within the state. Moreover, the migration flows suggest there are cases of high correlation between worker inflows and outflows at the state level. For example, 2532 workers relocated from Western Australia to New South Wales and 2614 workers relocated from New South Wales to Western Australia.

Table D.4 **Labour force migration by state, August 2010–11[a]**

	Place of residence on Census date 2011 (destination)								
	NSW	*Vic*	*Qld*	*SA*	*WA*	*Tas*	*NT*	*ACT*	*Total*
NSW	*150 917*	11 659	18 873	2 520	4 913	998	1 807	6 624	198 311
Vic	10 325	*122 474*	8 806	2 697	4 817	1 374	1 632	1 633	153 758
Qld	15 590	9 660	*120 751*	2 183	5 591	1 346	2 408	1 810	159 339
SA	2 439	3 463	2 873	*31 953*	1 834	369	999	530	44 460
WA	3 589	4 431	3 941	1 150	*61 619*	673	882	476	76 761
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	190 642	156 484	161 160	42 584	81 506	8 286	9 371	11 554	661 587

a The following regions are excluded: Other Territories; Overseas; Not stated. **..** Not applicable.

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

Of all the workers who relocated to a different SA4 in the year leading to the 2011 Census date, 418 990 (or 63 per cent) moved from one major city SA4 to another (table D.5). Approximately 84 000 workers relocated to regional areas from major cities and remote areas. Further, about 23 000 workers relocated to remote areas from major cities and regional areas.

Table D.5 **Labour force migration by remoteness, August 2010–11**

	Place of residence on Census date 2011 (destination)			
	Major cities	*Regional*	*Remote*	*Total*
Major cities	418 990	75 644	13 964	508 598
Regional	73 899	52 597	8 767	135 263
Remote	8 754	7 934	1 038	17 726
Total	50 1 643	136 175	23 769	661 587

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

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 confirm that the assumed relationship exists. The results give a good indication of which variables are positively or negatively associated with inter-regional immigration.

The modelling does not capture some of the factors that matter for an individual moving as part of a household. Very often, people do not relocate by themselves but with their family. The decision to move is therefore a household decision and will

account for the expected costs and benefits of all household members. For example, an individual may take into account how relocation will affect household income and the probability of their partner finding a job in the new location.

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 homeownership rate is used to proxy for ongoing social and financial costs of moving, but could instead capture wealth and age effects that are associated with homeownership, or a combination of effects associated with these variables.

Some might argue that competing sources of labour (for example, from long-distance commuters and international migrants) affect the inter-regional movement of labour. However, these do not fit in the standard gravity framework. In addition, it can be argued that the effects of competing sources of labour are already captured by the destination wage indicator.

D.5 Results and discussion

In this section, the results from the model of labour force movement are used to examine immigration patterns.[38] These results are provided in table D.6. To make the interpretations of the coefficients more meaningful, the movement of workers from South West Perth to Outback Western Australia is used to illustrate the implications of the results. The characteristics of these regions are used in conjunction with the estimated coefficients to discuss their marginal effect on inter-regional immigration, ceteris paribus (table D.7). The 2011 Census indicates that 1472 workers immigrated to Outback Western Australia from South West Perth between August 2010 and August 2011. The results in the following sections are discussed in terms of this base level of immigration.

[38] 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.

Table D.6 **Results from an econometric model of inter-regional immigration for the labour force**[a]

Explanatory variables	*Unit*	*Estimated coefficients*	*Standardised regression coefficients*
Number of observations		7 482	..
Constant		-0.14*	..
Economic variables			
Real wages (source)	$0000	-0.010*	-0.085
Real wages (destination)	$0000	0.015*	0.12
House price ratio		-0.016*	-0.12
Unemployment rate differential		-0.00036	-0.0065
Demographic characteristics			
Population (source)	0000	0.00053*	0.07
Population share 20–34 (source)	%	0.00097*	0.044
Index of Relative Socio-economic Disadvantage (source)		0.00019*	0.10
Amenity/quality of life			
Population density ratio		-0.00000023	-0.0063
Medical practitioners (destination)	Per 1000	0.0029*	0.078
Transaction costs			
Homeownership rate (source)	%	-0.0012*	-0.097
Distance	1 000 km	-0.0027*	-0.028
Common border		0.23*	0.52
Intrastate move		0.060*	0.24

a Estimated using ordinary least squares and robust standard errors. * means that a variable is significant at the 5 per cent significance level. **..** Not applicable.

Source: Productivity Commission estimates.

Labour market variables influence regional immigration

The results suggest that workers tend to move across regional labour markets in a way that is consistent with the theoretical impact of 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 $10 000 increase in the real wage in Outback Western Australia is associated with 34 additional workers leaving South West Perth for Outback Western Australia (a 0.015 percentage point increase in the immigration rate).
  - Conversely, an increase in the real wage in South West Perth reduces the regional wage differential and reduces incentives to relocate. In the estimated model, a $10 000 increase in the real wage in South West Perth is associated with 23 fewer workers leaving the area for Outback Western Australia (a 0.01 percentage point reduction in the immigration rate).

Table D.7 **Selected characteristics of the source and destination regions used for comparison**

	Source region: Perth - South West	*Destination region: outback Western Australia*
Real wage	$54 867	$51 804
Unemployment rate	4.9 per cent	4.1 per cent
Median house price	$460 000	$435 000
Share of population aged 20–34	20 per cent	23 per cent
Homeownership rate	68.0 per cent	45.5 per cent
Index of Relative Socio-economic Disadvantage	1 034.3	945.8
Population density	602	0.1
Population	373 330	225 131
Medical practitioners per 1000 people	3	1
Remoteness classification	Major city	Remote area
Flow of labour from South West Perth to Outback Western Australia	1472[a]	
Distance	601.2 km	
Common border	No	
Intrastate move	Yes	

[a] A positive flow of labour from South West Perth to Outback Western Australia is recorded even though the average real wage is lower in the latter region. There may be a number of reasons for this, including that workers are moving to Outback Western Australia because of the relatively higher probability of finding a job, as indicated by the lower unemployment rate. This could also be due to the fly-in, fly-out workers who live in Perth (and report their wages in Perth) but work in Outback Western Australia. Finally, this could be attributed to other factors not included in the model.

Source: Productivity Commission estimates.

- Changes in unemployment rate differentials do not seem to affect inter-regional immigration (the unemployment rate differential is statistically insignificant). A 1 percentage point increase in the unemployment rate in Outback Western Australia relative to South West Perth does not reduce the number of workers leaving South West Perth for Outback Western Australia (estimated effect is smaller than 1 worker). Potential explanations for this insignificant coefficient are:
  - workers who relocate usually have a job already lined up in the destination region and are therefore not really influenced by the unemployment rate (the probability of finding a job)
  - employment is usually crucial to long–distance movements because it makes them possible. Few long–distance moves are undertaken unless secure employment is assured at the destination region (Morrison et al. 2010)
  - the unemployment rate at the SA4 level may include some degree of measurement error.

There are factors that seem to reduce regional immigration

The results point to the presence of potential negative influences on mobility that increase the costs and disamenity of moving and are associated with reduced inter-regional immigration. The model has used several indicators to represent these negative influences. The social and financial costs of moving are represented by the following indicators: homeownership 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.

- Owning a house as an indicator of attachment to where people are living — a 10 percentage point increase in the homeownership rate in South West Perth is associated with 27 fewer workers leaving South West Perth for Outback Western Australia (a 0.012 percentage point reduction in the immigration rate).
- The distance between two regions — Perth and Outback Western Australia are approximately 600 km apart while Sydney and Outback Western Australia are approximately 2600 km apart. The additional 2000 km are associated with 12 fewer workers moving to Outback Western Australia, equivalent to a 0.0054 percentage point reduction in the immigration rate (the actual flow of workers from Sydney to Outback Western Australia is approximately 410).
- Relatively high house prices — a $255 000 increase in the median house price in Outback Western Australia would increase the Outback Western Australia-South West Perth house price ratio from 0.95 to 1.5. The increase in housing costs would be associated with 20 fewer workers leaving South West Perth for Outback Western Australia (a 0.0088 percentage point reduction in the immigration rate).
- Living in a socially and economically disadvantaged region is 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 immigration. The negative sign of this variable suggests that, on balance, the negative influences are stronger. However, these negative influences are very small and do not appear to be statistically significant.

There seem to be positive influences on regional immigration

The results indicate that a number of factors are associated with more people moving into a region. These include:

- easier access to services (proxied by medical practitioners per 1000 residents) — an increase from 1 to 3 medical practitioners per 1000 residents in Outback Western Australia is associated with 13 additional workers leaving South West Perth for Outback Western Australia (a 0.0058 percentage point increase in the immigration rate)
- a larger pool of potential migrants in the source region (proxied by the source region population) — a 100 000 increase in the pool of potential migrants in South West Perth is associated with 12 additional workers leaving South West Perth for Outback Western Australia (a 0.0053 percentage point increase in the immigration rate).

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 immigration and immigration to neighbouring regions are more common, as indicated by the positive and significant coefficients on the dummy variables capturing intrastate moves and moves to 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 immigration.

In the estimated labour force model, the two variables with the largest standardised coefficients are the destination real wage and the regional house price ratio, indicating that the potential financial return of moving and the relative costs of living have the strongest influence on inter-regional immigration. The social and financial costs of moving (proxied by the homeownership rate) and the incidence of social and economic disadvantage (proxied by the IRSD) also have relatively large effects.

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 D.8 show that the results are consistent across the following specifications of the dependent variable:

1. movement of those aged 20–34
2. movement of professionals — a higher–skilled occupation
3. movement of machinery operators and drivers — a lower-skilled occupation.

Table D.8 **Results from additional econometric models of inter–regional immigration**

	Unit	*20–34 age group*	*Professionals*	*Machinery operators and drivers*
Economic variables				
Real wages (source)	$0000	-0.0079*	-0.0011	0.00070*
Real wages (destination)	$0000	0.0097*	0.0036*	0.0013*
House price ratio		-0.011*	-0.0037*	0.000087
Unemployment rate differential		-0.00033	-0.00047*	-0.000085*
Demographic characteristics				
Population (source)	0000	0.000331*	0.000086*	0.0000435*
Population share 20-34 (source)	%	0.0012*	0.00053*	0.000012
Index of Relative Socio-economic Disadvantage (source)		0.00013*	0.000058*	0.0000015
Amenity/quality of life				
Population density ratio		-0.00000017	-0.000000129*	-0.0000000044
Medical practitioners (destination)	Per 1 000	0.0025*	0.0013*	-0.000014
Transaction costs				
Homeownership rate (source)	%	-0.00069*	-0.00031*	-0.000037*
Distance	1 000 km	-0.0022*	-0.0012*	-0.00037*
Common border		0.16*	0.053*	0.013*
Intrastate move		0.040*	0.014*	0.0033*

Source: Productivity Commission estimates. * means that a variable is significant at the 5 per cent significance level.

There is strong consistency across different specifications when it comes to the sign and statistical significance of the estimated coefficients. Out of a total of 13 variables, 10 variables maintain their sign across all four specifications while 6 variables maintain their sign as well as their statistical significance. The

inconsistency in the sign and significance of some of push factors (such as real wages in the source region) aligns with previous empirical findings (for example, Hunt (2006) and 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. For example, the marginal effect of a 10 percentage point increase in the homeownership rate in South West Perth on the number of workers who would tend to leave South West Perth for Outback Western Australia varies from zero for machinery operators and drivers to 27 workers in the broad labour force.

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.

D.6 Key messages

The modelling results provide some interesting insights into the mechanisms that may be influencing regional immigration. Key messages from the analysis are:

- market signals, especially real wages, play a role in the movement of people across regional labour markets
- there are negative influences on mobility that increase the cost and disamenity of moving and are associated with reduced regional immigration
  - these include the social and financial costs of moving, relative costs of living, and social and economic disadvantage
- there are positive influences on regional immigration
  - these include easier access to services, short–distance moves, and being relatively young.

Attachment D.1 — Detailed description of the data

There were 13 explanatory variables used in the econometric model. Additional details about these variables (where necessary) are provided in table D.9, along with data sources used. Details about the dependent variable are also provided.

Table D.9 **Variables used in the econometric model**

Variable name	*Definition and source*
Dependent variable	
Inter-regional immigration rate	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 are used to estimate the movement of people across regions. In other words, regional migration is measured by the number of people who relocated to a different SA4 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 2013i)) 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).
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 2013s).
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	Sourced from the 2011 Census of Population and Housing.
Homeownership 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 kilometre. Data were sourced from the ABS National Regional Profile.

(Continued next page)

Table D.9 (continued)

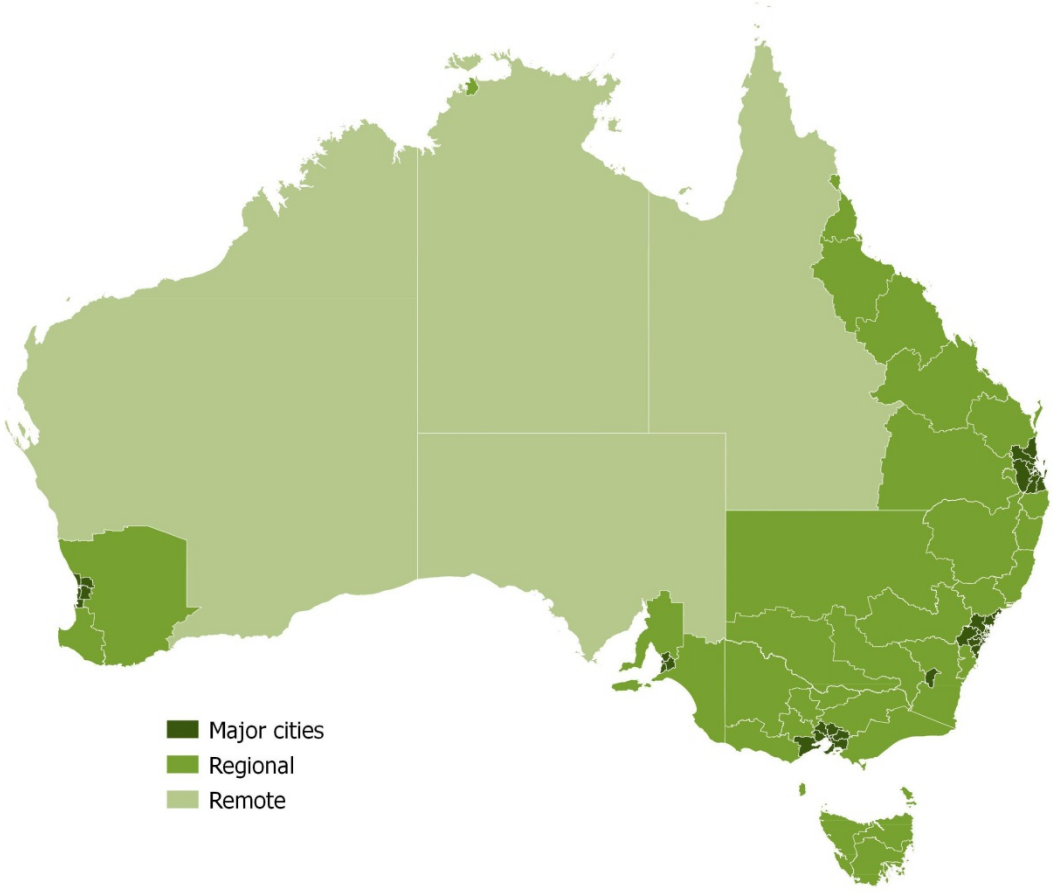
Variable name	*Definition and source*
Medical practitioners	Constructed as the number of medical practitioners in an SA4 divided by the estimated resident population. Data were sourced from the 2011 Census of Population and Housing.
Distance	The distance variable measures the straight-line distance between the population centroids of different SA4s. Population centroids were calculated by: • determining the geographic centroids of all SA2s within an SA4 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 SA4s have a contiguous land border.
Intrastate move	Constructed using ABS data by determining if the source and destination SA4s are in the same state or territory.
Other variables used in model construction	
Regional CPI for Queensland	Sourced from 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 87 SA4s across three broad remoteness categories. The full list of SA4s is provided in table D.10 and a breakdown of SA4s by remoteness category is provided in figure D.3. Using ABS data, the Commission categorised 49 SA4s as major cities, 34 as regional areas, and 4 as remote areas.

Table D.10 **List of SA4s included in sample**

SA4s arranged by state/territory			
New South Wales	Sydney - Outer West and Blue Mountains	**Queensland**	Adelaide - West
Capital Region	Sydney - Parramatta	Brisbane - East	Barossa - Yorke - Mid North
Central Coast	Sydney - Ryde	Brisbane - North	South Australia - Outback
Central West	Sydney - South West	Brisbane - South	South Australia - South East
Coffs Harbour - Grafton	Sydney - Sutherland	Brisbane - West	**Western Australia**
Far West and Orana	**Victoria**	Brisbane Inner City	Bunbury
Hunter Valley exc Newcastle	Ballarat	Cairns	Mandurah
Illawarra	Bendigo	Darling Downs - Maranoa	Perth - Inner
Mid North Coast	Geelong	Fitzroy	Perth - North East
Murray	Hume	Gold Coast	Perth - North West
New England and North West	Latrobe - Gippsland	Ipswich	Perth - South East
Newcastle and Lake Macquarie	Melbourne - Inner	Logan - Beaudesert	Perth - South West
Richmond - Tweed	Melbourne - Inner East	Mackay	Western Australia - Outback
Riverina	Melbourne - Inner South	Moreton Bay - North	Western Australia - Wheat Belt
Southern Highlands and Shoalhaven	Melbourne - North East	Moreton Bay - South	**Tasmania**
Sydney - Baulkham Hills and Hawkesbury	Melbourne - North West	Queensland - Outback	Hobart
Sydney - Blacktown	Melbourne - Outer East	Sunshine Coast	Launceston and North East
Sydney - City and Inner South	Melbourne - South East	Toowoomba	South East
Sydney - Eastern Suburbs	Melbourne - West	Townsville	West and North West
Sydney - Inner South West	Mornington Peninsula	Wide Bay	**Northern Territory**
Sydney - Inner West	North West	**South Australia**	Darwin
Sydney - North Sydney and Hornsby	Shepparton	Adelaide - Central and Hills	Northern Territory - Outback
Sydney - Northern Beaches	Warrnambool and South West	Adelaide - North	**Australian Capital Territory**
Sydney - Outer South West		Adelaide - South	Australian Capital Territory

Figure D.3 **Map of SA4s by remoteness[a]**



[a] Some SA4s consist of smaller areas of different remoteness categories. The final categorisation of those SA4s was based on the population distribution and the remoteness category in which a greater proportion of the population falls into.

Source: Productivity Commission estimates based on ABS data.

None of the independent variables are highly correlated to other independent variables (table D.11). The highest correlation coefficient is 75 per cent (between the IRSD (source region) and real wage (source region)).

Table D.11 **Correlation matrix for the variables included in the labour force model[a]**

	Lab	*Ws*	*Wd*	*Une*	*Dis*	*Hpri*	*Pops*	*Den*	*Med*	*Yng*	*IRSD*	*How*	*Neigh*	*Intra*
Lab	1.00													
Ws	0.10	1.00												
Wd	0.08	-0.01	1.00											
Une	-0.02	0.35	-0.35	1.00										
Dis	-0.26	0.07	0.07	0.00	1.00									
Hpri	-0.06	-0.48	0.67	-0.25	-0.05	1.00								
Pops	0.13	0.28	0.00	-0.08	-0.07	-0.28	1.00							
Den	-0.04	-0.07	0.15	-0.02	0.07	0.23	-0.13	1.00						
Med	0.08	-0.01	0.67	-0.18	0.00	0.52	0.00	0.16	1.00					
Yng	0.15	0.57	-0.01	0.13	0.05	-0.34	0.42	0.03	-0.01	1.00				
IRSD	0.09	0.75	-0.01	0.42	-0.03	-0.38	0.32	-0.26	-0.01	0.32	1.00			
How	-0.07	-0.20	0.00	0.07	-0.15	0.13	0.07	-0.24	0.00	-0.63	0.29	1.00		
Neigh	0.61	-0.03	-0.03	0.00	-0.25	-0.04	0.00	-0.03	-0.02	-0.01	-0.02	0.01	1.00	
Intra	0.45	0.03	0.03	0.00	-0.50	0.02	0.03	-0.03	0.00	-0.01	0.03	0.02	0.38	1.00

a *Lab* is the labour force inter-regional immigration rate, *Ws* is real wages (source), *Wd* is real wages (destination), *Une* is unemployment rate differential, *Dis* is distance, *Hpri* is house price ratio, *Pops* is estimated resident population (source), *Den* is population density ratio, *Med* is medical practitioners (destination), *Yng* is share of population aged 20-34 years (source), *IRSD* is Index of Relative Socio-economic Disadvantage, *How* is homeownership rate (source), *Neigh* is common border, and *Intra* is intrastate move.

Source: Productivity Commission estimates.

Attachment D.2 — Supplementary econometric output

This attachment presents the econometric outputs from estimated models of regional migration not reported in the appendix (table D.12). These are:

- a model of population movement
  - a model of population movement for those of working age (15–64 years)
- a model 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 support the conclusions presented in this appendix.

Table D.12 **Supplementary econometric output**

	Unit	*Population*	*Working-age population*	*Unemployed*	*Managers*	*Technicians and trade workers*	*Community and personal service workers*	*Clerical and administrative workers*	*Sales workers*	*Labourers*
Economic variables										
Real wages (s)	$0000	-0.015*	-0.013*	-0.0012*	-0.00019	0.0013*	-0.000050	-0.000056	-0.0018*	0.00057*
Real wages (d)	$0000	0.017*	0.015*	0.00011	0.00095*	0.0025*	0.0014*	0.0042*	0.0023*	0.00062*
House price ratio		-0.024*	-0.019*	-0.0011*	-0.0019*	-0.00057*	-0.00069*	-0.0018*	-0.0014*	-0.00050*
Unem rate differential		0.000038	-0.00015	0.00015*	-0.00012*	-0.00015*	-0.00016*	-0.00013*	-0.00012*	-0.00017*
Demographic characteristics										
Population (s)	10 000	0.00097*	0.00072*	0.000070*	0.000047*	0.000087*	0.000050*	0.000058*	0.000047*	0.000041*
Share 20-34 (s)		0.00086	0.0010	-0.000063*	0.00012	-0.0000035	0.000065	0.00027*	0.000043	-0.000018
IRSD (s)[a]		0.00022*	0.00021*	0.000011*	0.000020*	0.0000094*	0.0000099*	0.0000090*	0.000014*	0.00000088
Amenity/quality of life										
Population density ratio		-0.00000029	-0.00000027	-0.000000042*	-0.000000051*	-0.0000000344*	-0.000000051*	-0.000000061*	-0.000000034*	-0.000000026*
Medical pract (d)	Per 1 000	0.0036*	0.0035*	0.00024*	0.00032*	0.00030*	0.00046*	0.00042*	0.00035*	0.000057
Transaction costs										
Homeown (s)	%	-0.0017*	-0.0014*	-0.00014*	-0.00013*	-0.00011*	-0.000086*	-0.000043	-0.000068*	-0.000061*
Distance	1 000 km	-0.0038*	-0.0032*	-0.00024*	-0.00042*	-0.00096*	-0.00011*	-0.00034*	-0.00030*	-0.000028
Comm border		0.38*	0.29*	0.016*	0.026*	0.030*	0.024*	0.032*	0.020*	0.019*
Intrastate move		0.099*	0.077*	0.0057*	0.0058*	0.007*	0.0065*	0.0073*	0.0048*	0.0046*

a IRSD stands for Index of Relative Socio-economic Disadvantage. * means that a variable is significant at the 5 per cent significance level.

Source: Productivity Commission estimates.

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