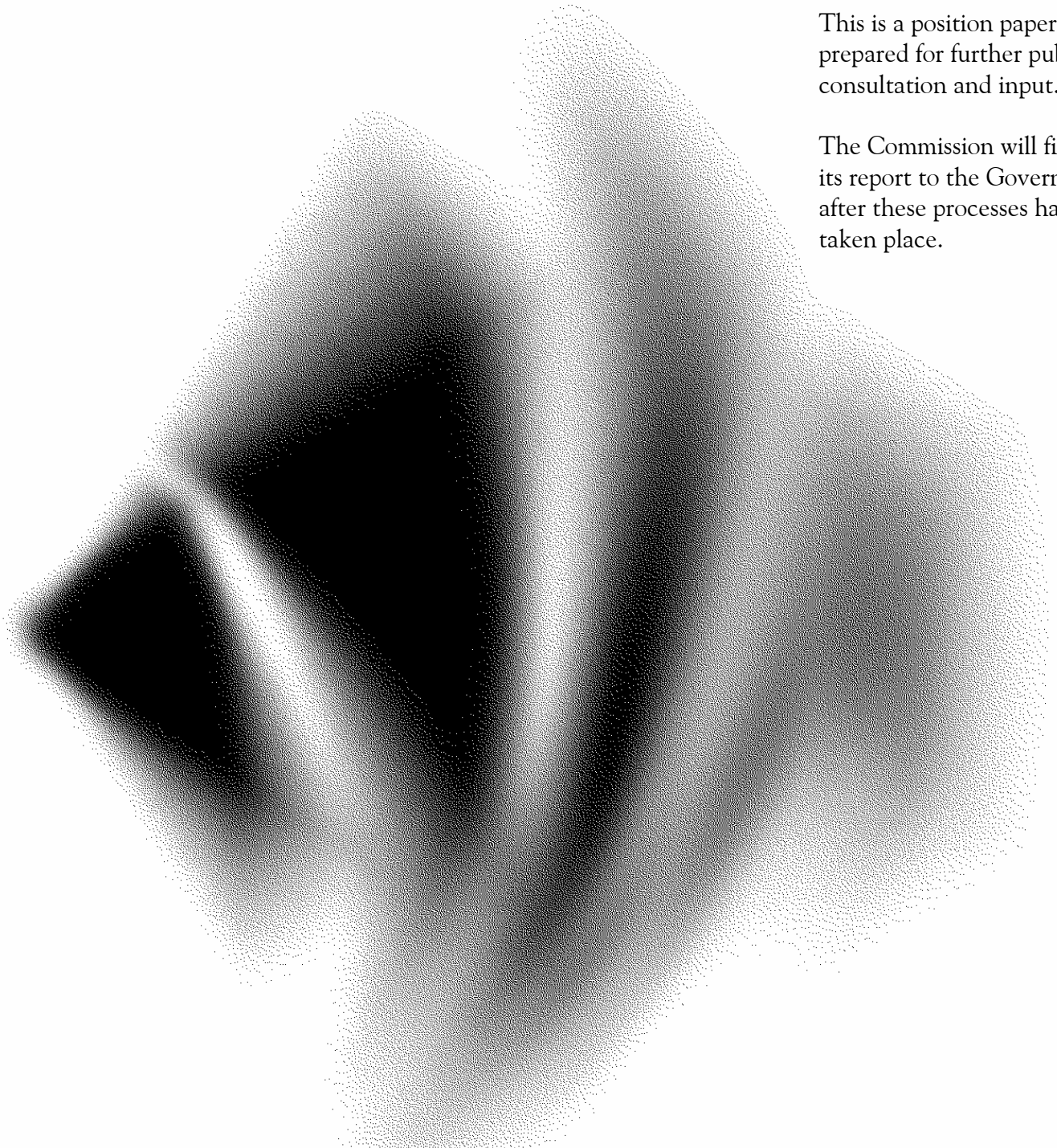
Australian Government
Productivity Commission

Economic Impacts of Migration and Population Growth

Productivity Commission Position Paper

This is a position paper prepared for further public consultation and input.

The Commission will finalise its report to the Government after these processes have taken place.



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An appropriate citation for this paper is:

Productivity Commission 2006, *Economic Impacts of Migration and Population Growth*, Position Paper, January.

The Productivity Commission

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Opportunity for further comment

You are invited to examine this position paper and to provide written comments to the Productivity Commission.

Written comments should reach the Commission by Friday 24 February 2006. If possible, please provide a copy of your comments by email or on a computer disk. Further details about how to make a submission are available on the Commission's website for this study, which is provided below. After comments have been received and roundtable discussions held with some interested parties, a final report will be prepared and submitted to the Australian Government in late April 2006.

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Terms of reference

THE IMPACT OF MIGRATION AND POPULATION GROWTH ON PRODUCTIVITY GROWTH IN THE AUSTRALIAN ECONOMY

PRODUCTIVITY COMMISSION ACT 1998

The Productivity Commission is requested to undertake a research study examining the impact of population growth, including migration, on Australia's productivity growth. Productivity growth is a major driver of improvements in real per capita living standards, so there is value in identifying the ways in which population growth and the human capital aspects of migration can affect productivity.

In undertaking the study the Commission is to:

1. report on the nature of international migration flows over the last decade and the extent to which Australia has participated in them, in particular, flows of skilled migrants
2. examine the impacts on skill levels in the Australian population generally, as well as within different industries and occupations, of skilled and unskilled migration
3. assess the relationship between migration, its different permanent and temporary categories, population growth, population and workforce diversity and productivity in Australia, its States and Territories and regions (where possible) and assess likely future developments, quantifying impacts where possible and drawing on the experience of other OECD countries
4. identify the mechanisms through which the impacts of migration and population growth on productivity are transmitted
5. report on any legislative or other impediments which prevent Australia realising the potential productivity gains from migration and from effective use of Australia's population and workforce diversity, and
6. consider the impact of migration and population growth on labour force participation and economic growth more broadly.

The Commission is required to provide a report within nine months of receipt of this reference. The report is to be published.

PETER COSTELLO
Received: 25 July 2005

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Abbreviations and explanations

Abbreviations

AEI-NOOSR	National Office of Overseas Skills Recognition
ASCED	Australian Standard Classification of Education
ASCO	Australian Standard Classification of Occupations
ASIC	Australian Standard Industry Classification
BCA	Business Council of Australia
CoPS	Centre of Policy Studies
DEWR	Department of Employment and Workplace Relations
DIMIA	Department of Immigration, Multicultural and Indigenous Affairs
ENS	Employee Nomination Scheme
GDP	Gross Domestic Product
GNP	Gross National Product
GSM	General Skilled Migration
GSP	Gross State Product
IASS	Invest Australia Supported Skills program
JSCM	Joint Standing Committee on Migration
LSP	Labour Supply Projection
LSIA	Longitudinal Survey of Immigrants to Australia
LTM	Long-Term Migration
LTV	Long-Term Visitors
MES	Main English Speaking
MFP	Multifactor Productivity
MODL	Migration Occupations in Demand List

NAT	New Arrivals Tracker
NFI	Net Foreign Income
NFL	Net Foreign Liabilities
OECD	Organisation for Economic Cooperation and Development
ORE	Occupations Requiring English
PC	Productivity Commission
RSMS	Regional Sponsored Migration Scheme
SAS	Skilled Australian Sponsored
SD	Statistical Division
SIOS	Skilled Independent Overseas Students
SIR	Skilled Independent Regional
SSRM	State-Specific Regional Migration
STNI	State, Territory Nominated Independent
TRA	Trade Recognition Australia

OVERVIEW

Key points

- Migration has been a key influence on Australian society and the economy
  - affecting the size, composition and geographic location of the population and workforce.
- Recent changes to Australia's migration program include a greater emphasis on skills, increased numbers of temporary immigrants, and more diversification in the country of origin.
- The number of Australians leaving this country, permanently and long-term, has risen markedly in recent years.
  - But the number has been considerably fewer than those coming to Australia.
- Migration has increased the absolute size of the population and economy. The more interesting question, however, is its effect on income per capita and productivity.
- Economic effects of migration arise from demographic and labour market differences between migrants and the Australian-born population, and from migration-induced changes to population growth.
- We would not expect additional migration to have a substantial impact on income per capita and productivity because
  - the annual flow of migrants is small relative to the stock of workers and population.
  - migrants are not very different from the Australian-born population and, over time, the differences become smaller.
- Some effects of migration are more amenable to measurement and estimation than others.
- In this study, a general equilibrium model is used to simulate the impact of a 50 per cent increase in the level of skilled migration on productivity and economic performance over twenty years.
  - Average hours worked per capita is projected to be 1.3 per cent higher than in the base case in 2024-25.
  - Income per capita would be 0.6 per cent higher or $335 greater in 2024-25.
- Modelling provides only a guide to some of the effects.
  - The results are in keeping with research both here and overseas, which finds migration has relatively small but generally benign economic effects.
- The greater emphasis on skills in Australia's migration program has been associated with better labour market outcomes for migrants.
- English language proficiency stands out as a key factor determining ease of settlement and labour market success.

Overview

Migration has been an important influence on Australian society and economy. Today, Australia has about 7 million more people due to migration since the Second World War. In 2001, about 4.5 million people (23 per cent of the population) and 2.4 million workers (25 per cent of the workforce) were born overseas.

The Australian Government has asked the Commission to examine the impacts of migration and population growth on Australia's productivity and economic growth. The Commission has been requested to report on:

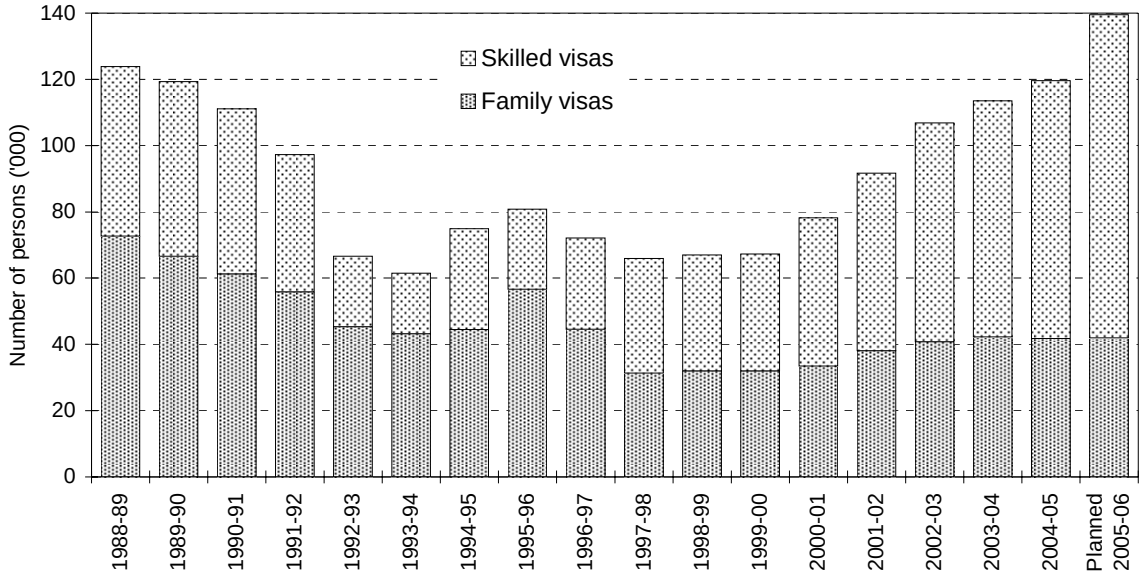
- the nature of international migration flows
- the impact of migration, particularly skilled migration, on the labour force
- the effects of migration and population growth on productivity and economic growth
- legislative and other impediments preventing Australia from realising productivity gains from migration and population growth.

Changing nature of migration

Over the last decade, Australia has increasingly focussed on skills in its (permanent) Migration Program. The proportion of skilled immigrants in the Migration Program has increased from about 29 per cent in 1995-96 to about 70 per cent in the planned level for 2005-06 (figure 1). An increasing proportion of skilled permanent immigrants is being selected through onshore applications by overseas students on temporary visas.

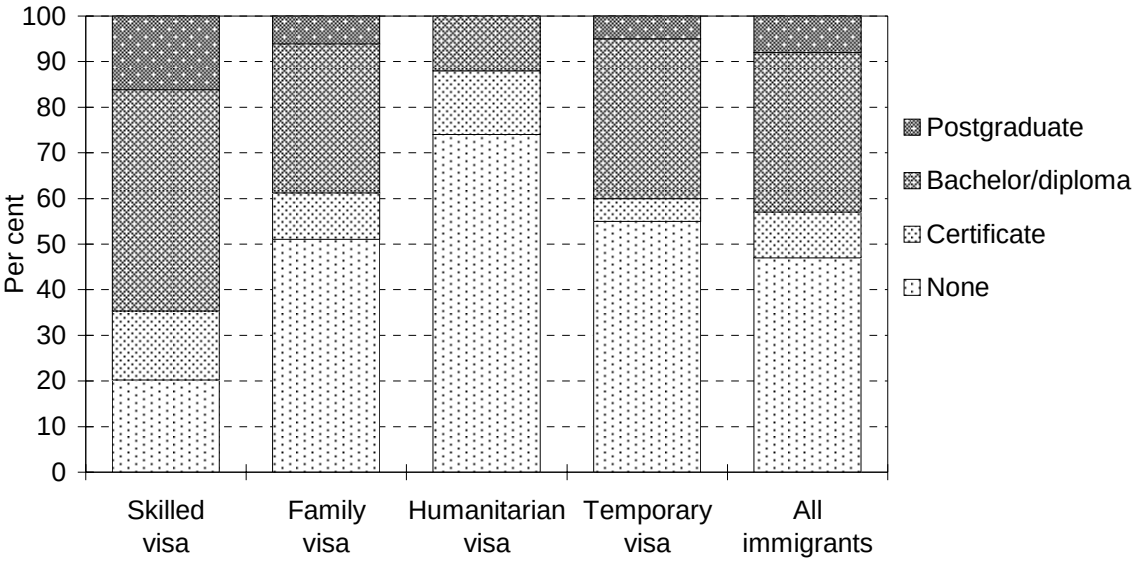
Skilled workers are also increasingly coming to Australia as temporary business immigrants. Between 1995-96 and 2003-04, the number of temporary business entrants increased from about 180 000 to about 340 000.

Figure 1 **Composition of the permanent Migration Program**
1988-89 to 2005-06



The education level of immigrants is higher in the skilled visa groups compared with other visa groups (figure 2).

Figure 2 **Post-school education level of immigrants**
Proportion of immigrants in each visa group between 2000 and 2004



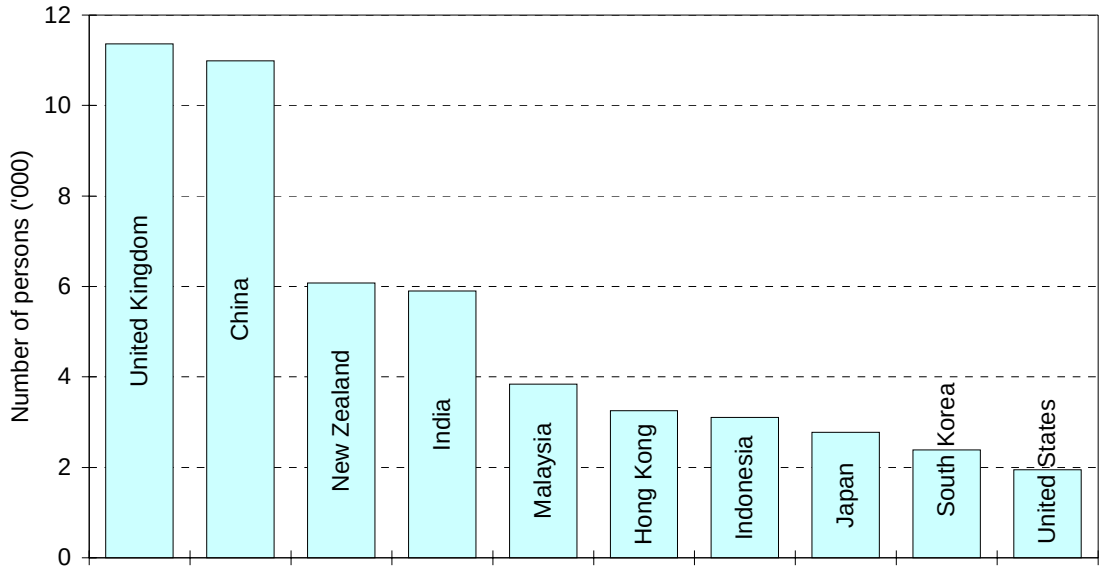
About 80 per cent of immigrants in the skilled visa group have post-school qualifications compared with about 50 per cent for family visa groups and about 27

per cent for humanitarian visa groups. The increasing proportion of skilled migrants is raising the average skill level of immigrants.

Diversification of country of origin

The countries of origin of immigrants to Australia have become more diverse over time. During the 1950s and 1960s, large proportions of immigrants were from the United Kingdom, Ireland and Europe. In 2004, the United Kingdom still provided the largest number of immigrants to Australia. However, many Asian countries are now significant sources, including China, India, Malaysia, Hong Kong, Indonesia, Japan and South Korea (figure 3).

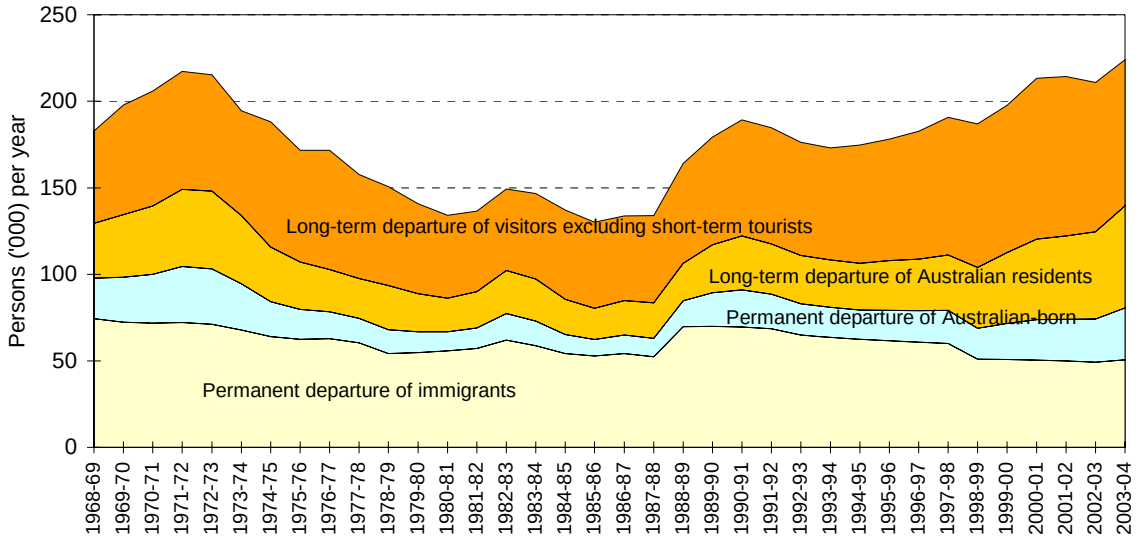
Figure 3 **Country of origin of permanent and long-term immigrants**
Top 10, 2004



Emigration from Australia

It appears that Australian residents are also becoming increasing internationally mobile. Permanent and long-term departures have been increasing over the last two decades (figure 4). Emigrants tend to be highly educated and of prime working age. Most Australian-born permanent emigrants depart for the United Kingdom, New Zealand and the United States. Overseas-born permanent emigrants depart for New Zealand, the United Kingdom, Hong Kong, China, the United States and Singapore. A significant proportion of people leaving Australia are immigrants and long-term temporary residents.

Figure 4 **Permanent and long-term departures**
1968-69 to 2003-04



Migration, population size and ageing

Net migration has contributed to a greater population size (figure 5). Currently, net migration is contributing about half of Australia's total annual rate of population growth of about 1.2 per cent. Over time, the rate of migration has varied, with lower intakes in times of recession.

The proportion of prime working-age people in the annual immigration flow is generally high compared with the Australian-born population (figure 6). However, in the long-run, the cumulative effect of immigration on the age distribution is less pronounced because immigrants themselves age. In 2004-05, the proportion of immigrants in the 15–44 age groups for the skilled, family and humanitarian visa groups was about 66, 64 and 52 per cent, respectively (figure 6). This compares with about 44 per cent for the Australian-born population and 43 per cent of the stock of all immigrants in Australia in 2001.

Figure 5 **Migration's contribution to Australia's population growth**
1971-72 to 2003-04

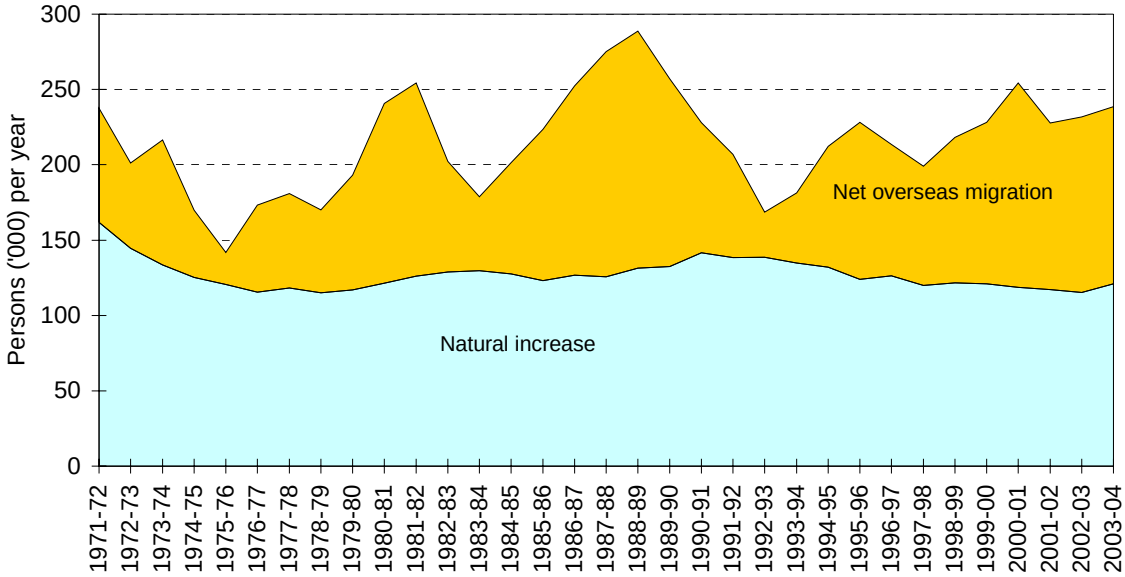
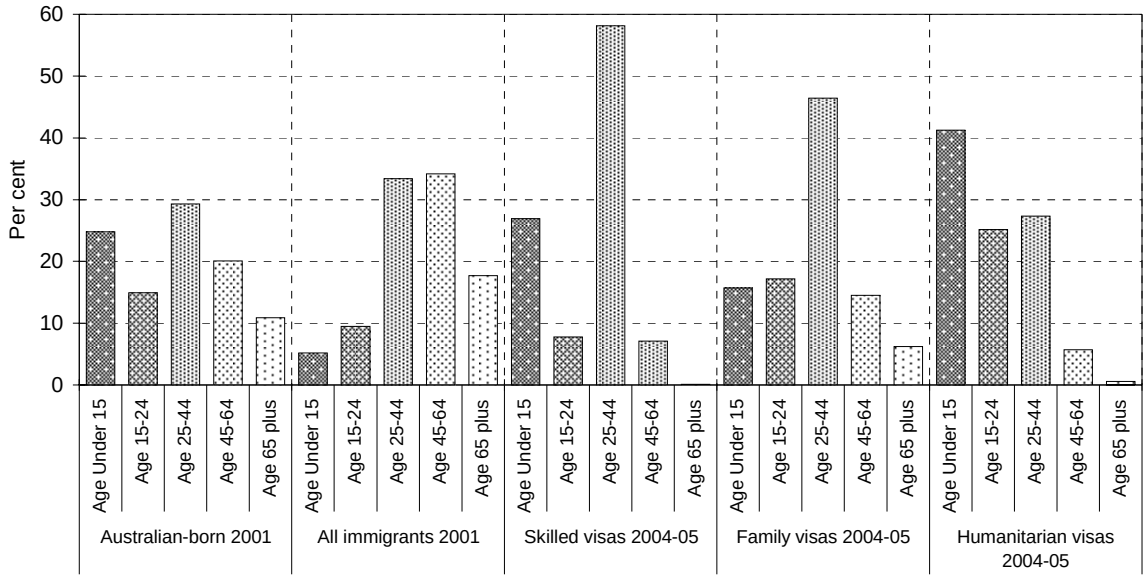


Figure 6 **Age distribution of immigrants and Australian-born**



What are the links to per capita income and productivity?

The Commission has been asked to examine the effects of migration and population growth on Australia's productivity and economic growth. In addition, the Commission is to identify the causal links involved.

Although migration increases the absolute size of the economy, for the purpose of this study, economic growth is expressed in per capita terms (per head of population). In terms of the living standards of individuals (and families), it is income (and consumption) per capita that is most relevant. The limitations of using an indicator such as Gross National Product (GNP) per capita as a measure of welfare have long been recognised. Nevertheless, it does allow us to reveal much about the economic consequences of migration and population growth. The aspects not captured by GNP are considered in qualitative ways in the report.

The various ways through which migration and population growth may be linked to productivity and income per capita growth include:

- supply of labour, composition of labour supply, and labour market adjustment
- capital, investment, current account balance and terms of trade
- sectoral reallocation of economic activity
- public goods, transfer payments and taxation
- economies of scale and competition
- natural resources, land and environmental externalities
- international trade and technology transfer.

Analysis of each link provides insights into the separate effects of each element. However, such partial analysis may be inappropriate for drawing inferences about the overall economic effects.

Modelling the impact of higher levels of skilled migration

To help it assess the overall impact, the Commission has used a general equilibrium model (the Centre of Policy Studies (CoPS) MONASH Model) as part of its evaluation. The model is a simplification of the features of the economy and the adjustment process. Therefore, the results of the simulation exercise should be viewed only as a guide.

The Commission has simulated the impacts on the economy of a 50 per cent increase in the level of skilled migration. The effect of this increase is estimated as the difference in the economic outcomes between the base-case and increased-migration simulation.

The base-case and increased-migration simulation have a number of features in common. These include the migration and population projections used in the Commission's report on the economic implications of an ageing Australia, and the

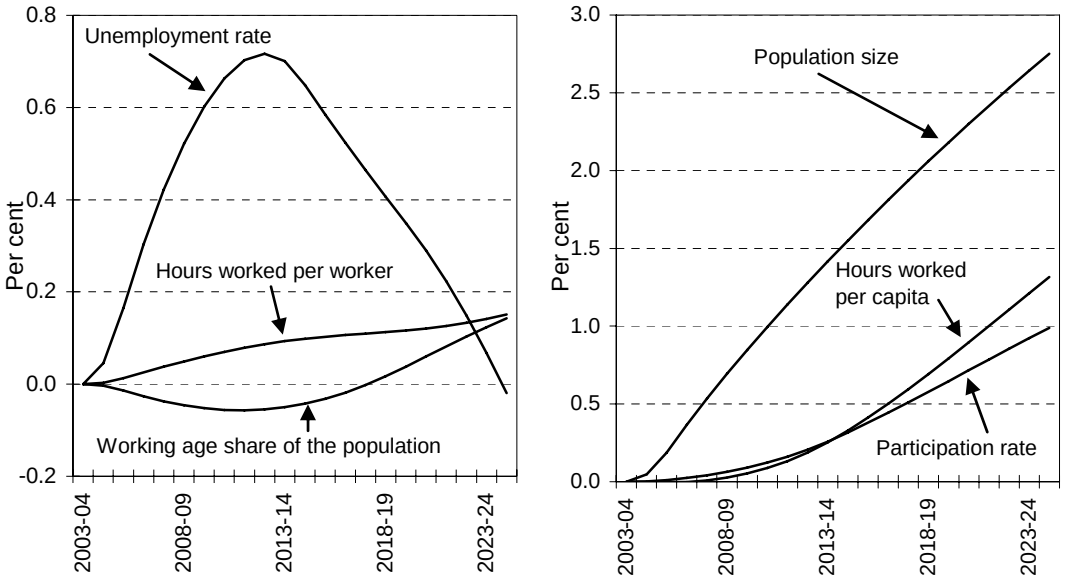
CoPS projections for technological progress and macroeconomic conditions. The Commission has estimated the effects on population size and the supply of labour resulting from the increase in skilled migration.

Projected effect of migration on labour supply

To estimate the effect of migration on labour supply (hours worked per capita) in the Australian economy, the Commission has developed a demographic–labour market model called the New Arrival Tracker (NAT). Using NAT, projections are made of the effect of increasing the annual level of skilled migration from 2004-05 by 50 per cent (about 39 000 persons).

The increase in the level of migration is projected to have a small effect on the average annual rate of growth of the population (up by about 0.13 per cent). By 2024-25, the population is about 2.7 per cent larger than it would otherwise have been (figure 7). The working age share of the population is projected to increase over time, with the cumulative effect of migration over 20 years increasing the share by about 0.17 per cent. The participation rate also increases over time, with the cumulative effect of migration and the evolving demographics of the new arrivals. By 2024-25, the participation rate is projected to be about 1 per cent higher than it would otherwise have been.

Figure 7 **Projected deviation in labour supply from a 50 per cent increase in the level of skilled migration**



The unemployment rate initially increases, reflecting the fact that migrants tend to have higher unemployment rates when they first arrive. The unemployment rate

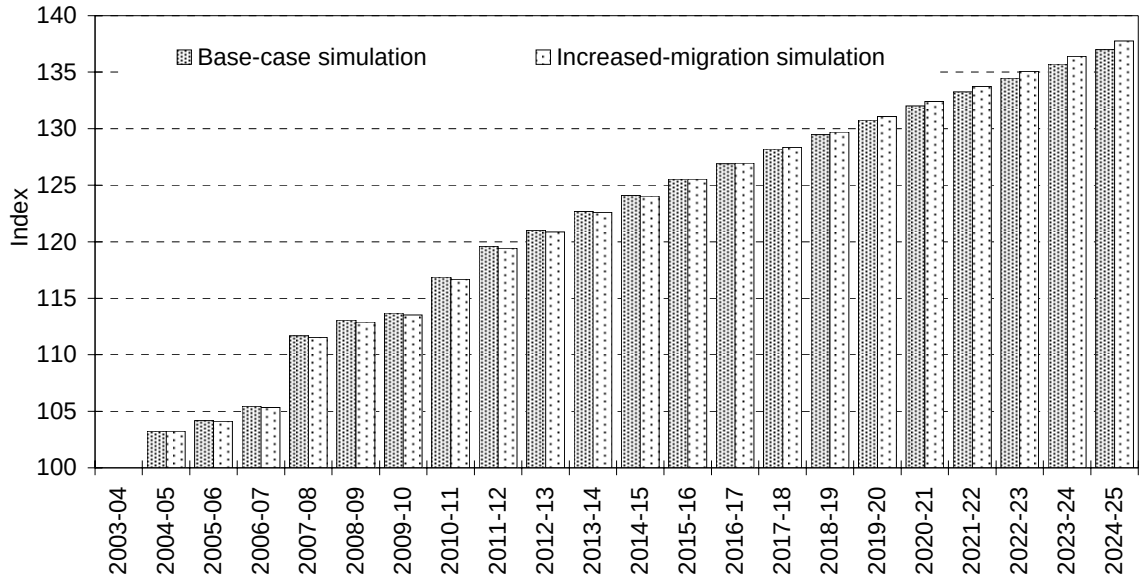
then decreases with length of residency. Over time, the cumulative effect of decreasing unemployment rates of new arrivals early in the period starts to outweigh the higher unemployment rates of new arrivals late in the period, and overall unemployment rate decreases. By 2024-25, the skilled migrants are contributing to a negligible decrease in the unemployment rate of about 0.02 per cent.

The cumulative effects of the increase in skilled migration are projected to increase hours worked per capita in the economy. By 2024-25, labour supply (hours worked per capita) is about 1.3 per cent higher than would otherwise be the case.

Projected overall effect of skilled migration on income per capita

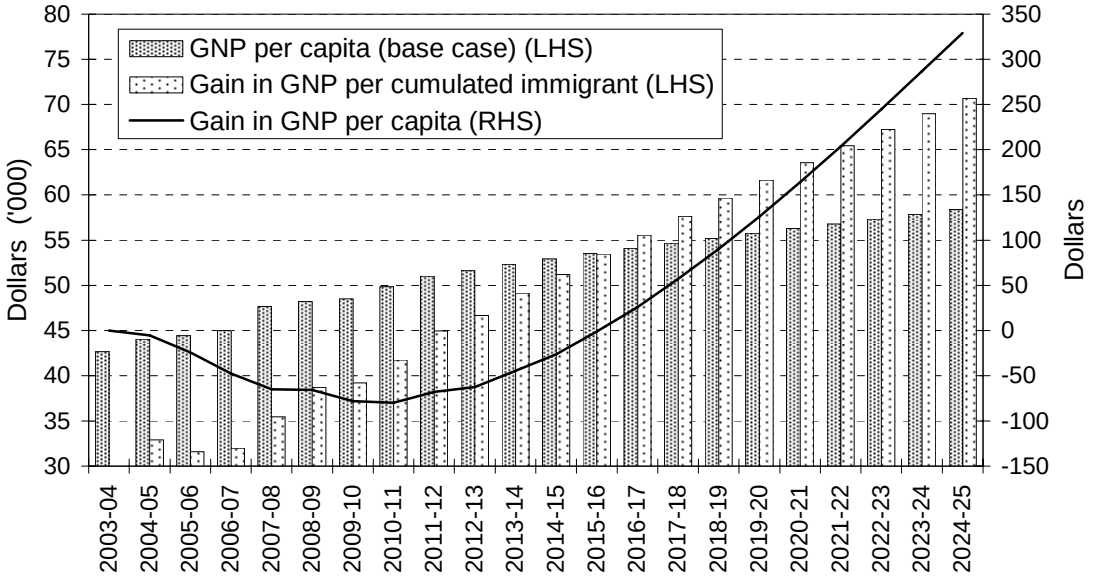
The overall effect on income per capita of increasing the level of skilled migration relative to the base case is shown in figure 8. In both cases, real annual income rises over the period.

Figure 8 **Projected index of annual income (real GNP) per capita**
Constant 2003-04 dollars



Although the average impact of the increase in skilled migration on per capita income is very small, each migrant does make a relatively large contribution in the long run (figure 9). By 2016-17, the average increase in GNP per immigrant is above that for the Australian population in the base case. Consequently, from this point on, migration contributes to an increase in average GNP per capita.

Figure 9 **Contribution of skilled migration to real GNP per capita**
Constant 2003-04 dollars

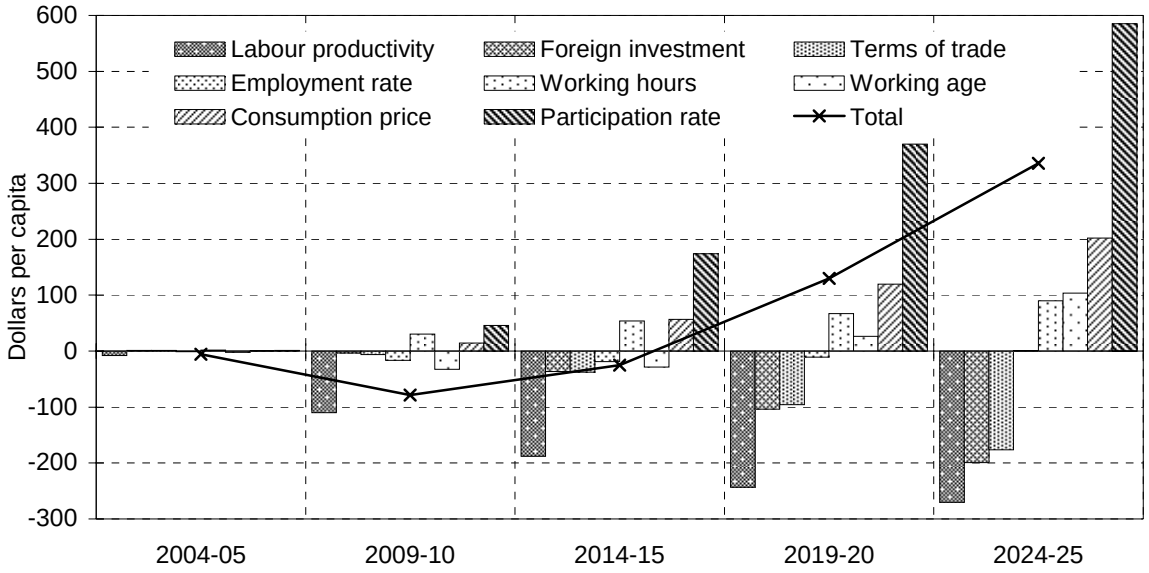


The overall result depends on the contributions of a number of factors, some of which are positive, and others negative. The different contributions of the factors affecting income per capita in the simulated outcome relative to the base case are illustrated in figure 10. Initially, the negative contributions of the terms of trade, foreign ownership of capital and lower labour productivity (resulting from capital dilution) are larger than the positive contributions from labour supply.

Over time, the labour supply contributions increase at a faster rate than the decrease in labour productivity and the result is positive, albeit very small. By 2024-25, annual income per capita is about $335 (or about 0.6 per cent) higher than it would otherwise have been.

The effect of labour market participation becomes the dominant positive force, with the macroeconomic effects arising from changes to the terms of trade, labour productivity and interest paid to foreigners partly offsetting this effect. It should be emphasized again that the overall impact is very small and the individual contribution of each of these factors are also very small.

Figure 10 **Factors contributing to annual income per capita**
Constant 2003-04 dollars



Some possible economic effects not modelled

Like other researchers in this field, it has not been possible for the Commission to quantify all effects that an increase in skilled migration might have on productivity and income per capita. There is also uncertainty about how to link migration specifically to these effects. Some of these omitted factors are discussed below.

Capital and investment

The accumulation of capital could be affected by the amount of capital that migrants bring with them and the extent to which they send remittances to their countries of origin. In addition, the faster rate of net investment needed to restore the capital to labour ratio could provide an opportunity to adopt new technology at a faster rate, thereby contributing to higher productivity and living standards.

Economies of scale and competition

The increase in population size could contribute to an increase in productivity and income per capita through the exploitation of economies of scale, particularly in the non-traded goods sectors of the economy. A higher density of population may also create 'agglomeration' or thick market effects in some cities or regions.

A larger population (and domestic market) could also improve productivity by enhancing competition in domestic markets, by supporting a larger number of firms competing against each other.

Natural resources, land and environmental externalities

Increasing the size of the economy increases the demand for natural resources (fixed and renewable) and land. If the supply of these resources is limited, then a larger population can contribute to lower productivity and income per capita.

Substitution and the development of new technologies can reduce the drag on productivity arising from the scarcity of natural resources and land. However, a drag remains, with its size dependent on the ease and cost of substitution between natural resources/land and other factors of production.

The links between population size and environmental externalities, such as congestion and pollution, are similar to those for natural resources. The avoidance of pollution and congestion can ameliorate the decline in living standards and productivity. However, a decrease is still likely to remain, with its extent partly dependent on the policies implemented by governments and the ease and cost of substitution of technologies having lower congestion and pollution.

Public goods, transfer payments and taxation

The diversity of migrants has the potential to alter:

- the mix of public goods provided by all levels of government (for example, education and health)
- the mix and levels of the various transfer payments made by all levels of government (for example, social security)
- the level of taxation revenue collected by all levels of government.

An increase in skilled migration could increase income tax revenue from a larger workforce per head of population earning higher incomes. It could also reduce transfer payments through a reduction in the proportion of the population receiving social security. Offsetting this could be an increase in the provision of public goods and services. If the net result is a surplus, then the government has options regarding balancing the budget or saving or retiring debt, which in turn may impact on per capita income and productivity.

Trade and technology transfer

Through their links to, and knowledge of, international markets, migrants might facilitate access to more valuable markets, causing a reallocation of the nation's resources to exports having a higher value.

Migrants might also possess skills that facilitate the importation and adoption of new technologies, thereby raising productivity and income per capita. Migrants also transfer their skills to existing residents.

Collective impact of these non-modelled economic effects

It is not possible to provide any empirical assessment of the net effect of the economic effects which are not modelled. Some of the effects will be positive while others negative. The exploitation of economies of scale could potentially have positive effects on per capita income, while the damage to the environment, particularly in certain cities or regions, could have negative effects. Having said this, it should be recalled that the effect of our simulation is to increase the size of the population by less than 3 per cent by 2024-25. While further refinements to the modelling could be undertaken for the Final Report, we would expect the net impact of these effects to be small.

Impediments to realising productivity gains from migration

Changes to the selection criteria of Australia's migration program have been successful in targeting migrants with characteristics and attributes typically associated with better outcomes for successful migrant settlement and improved labour market outcomes. Migrants are now better educated, have better English language skills and have more pre-migration labour market experience than their predecessors. This has translated into superior labour market outcomes. This said, the overall impact of migration on per capita income and productivity is likely to have remained small.

English language proficiency

English language proficiency is an important factor influencing the labour market success of immigrants. The importance of good English language skills appears to be increasing with the increasing skill level of immigrants. The increasing number of migrants originating from non-English speaking countries places a greater

premium on English language skills for the overall success of the migration program.

Efficacy of skills assessment and recognition processes

Compared with other countries, the Australian regime for assessing and recognising overseas skills is generally regarded as well-developed and successful in achieving its objectives. However, a number of potential issues have been identified by interested parties which might provide a basis for 'fine tuning' of the current arrangements. Examples include removing some of the complexities of different bodies involved in the same or similar processes and improving the information available to prospective immigrants.

Impediments arising from Australia's tax system

Some participants considered that key aspects of the Australian taxation regime create barriers to attracting and retaining skilled migrants.

There are potential economic benefits from certain tax reforms aimed at removing unnecessary barriers and complexity for both temporary and permanent immigrants wishing to live and work in Australia.

Australian emigration

There is concern about the potential cost to the Australian economy arising from skilled Australians emigrating overseas, thereby taking with them valuable human capital. There would appear to be only limited scope for government policy to influence emigration flows from Australia. However, there are potential economic gains from engaging more with Australians living abroad, as well as providing a conducive environment to which emigrants may return.

The next step

In this draft report, the Commission has presented its preliminary analysis of the economic effects of migration and population growth on productivity and economic growth.

The Commission now invites comments from interested parties on the analysis. Drawing on the comments received, the Commission will prepare its final analysis for submission to the Australian Government by late April 2006.

1 Introduction

1.1 Background to the study

Migration has played a key role in shaping Australia's society and economy. Today, Australia has about 7 million more people attributable to migration since the Second World War. In 2001, 4.5 million people (23 per cent of the population) and 2.4 million workers (25 per cent of the workforce) were immigrants (chapter 2). Net migration has therefore been a significant factor contributing to a larger population, workforce and domestic economy.

The Commission has been asked by the Australian Government to examine the impacts that migration and population growth have on Australia's productivity and economic growth. Specifically:

- the nature of international migration flows
- the impact of migration, particularly skilled migration, on the labour force
- the effects of migration and population growth on productivity and economic growth
- legislative and other impediments preventing Australia from realising productivity gains from migration and population growth.

The study's terms of reference are reprinted in full at the beginning of this report.

1.2 Scope of the study

The Commission has interpreted key aspects of the terms of reference as follows.

The economic impacts of migration and population growth

Migration, with its many and varied objectives, can impact on Australian society in a number of ways. However, the Commission has focussed specifically on the economic impacts of migration and population growth on Australia's productivity

and economic growth. The economic framework linking these elements is set out in chapter 3 of this position paper.

Defining economic growth

For the purpose of this study, economic growth is expressed in per capita terms. For individuals and families, it is the income (and consumption) *per capita* that is most relevant to their standard of living and it is therefore more informative for policy purposes. The policy relevant question is: does immigration add to per capita income?

Defining productivity

Productivity is the relative rate at which outputs of goods and services are produced per unit of input (including labour, capital and raw materials). An increase in productivity means that either more output can be produced using the same level of inputs, or less inputs are necessary to produce the same level of output.

For the purpose of this study, productivity growth is expressed as labour productivity, typically measured as real GDP per hour worked. This definition accords with the Commission's approach to productivity analyses used in its other work. The link between this definition of productivity and the overall economic framework proposed for this study is presented in crhapter 3.

Immigrants and emigrants

The Commission has adopted the view that all Australian residents born overseas are considered immigrants, regardless of their year of arrival and their age at the time of migrating to Australia. Emigrants are those residents who have left Australia on a permanent or long-term basis, regardless of their country of birth and age at the time of emigration.

The terms of reference require the Commission to also take into account the different permanent and temporary categories of migration.

Impediments to realising potential economic gains

In undertaking part 5 of the terms of reference, the Commission has considered only the impediments that specifically affect Australia's ability to achieve potential productivity and economic growth gains from migration. The policies, legislation and programs examined are those that specifically target migration and migrants

(such as skill recognition and assessment programs and language training). There could be a range of other more general policies and programs which affect the entire Australian population (including migrants), such as labour market regulation. Although such policies and programs might be important, they are considered to be beyond the scope of this study.

1.3 Conduct of the study

In undertaking this study, the Commission has consulted widely. Discussions were held with academics, state and federal government officials, peak body representatives and other interested parties. The research team also benefited from feedback at a roundtable workshop held in Canberra on 31 August 2005. Submissions were also sought from interested parties and 29 were received (appendix A).

The Commission has approached the study from a number of perspectives. A comprehensive qualitative assessment of the relevant literature, including the large amount of previous empirical research on the economic impacts of migration and population growth, has been undertaken.

The Commission's empirical analysis has sought to provide a better understanding of how the attributes and characteristics of the migrant intake effect economic growth. It has also looked to examine more closely the economic mechanisms at work across different industries, occupations and migrant categories. The analysis has been informed by the latest data, where possible.

As part of its analysis, the Commission contracted the Centre of Policy Studies at Monash University to undertake general-equilibrium modelling. The consultants report on the work done for this position paper is available on the Commission's website (www.pc.gov.au/study/migrationandpopulation.html).

The Commission has also appointed an independent reference panel to review and report on its modelling for this study. The reference panel consists of Professor Paul Miller, Dr Peter E. Robertson and Professor Rod Tyers. Preliminary feedback has been received on modelling undertaken for this position paper. A report on the views of the panel will be published as part of the final report.

Next step

Interested parties now have the opportunity to comment on the Commission's preliminary analysis in this position paper through further written submissions. The

Commission also plans to hold roundtable discussions with interested parties on the findings contained in this position paper. The Commission will then prepare its final report and present it to the Australian Government by late April 2006.

1.4 Structure of the report

This draft report is structured as follows.

An overview of recent international and Australian migration and population trends is provided in chapter 2. This discussion is supported by appendix B (international migration trends), appendix C (Australia's migration policies and flows) and appendix D (characteristics of Australia's migrants).

The economic framework for the study is outlined in chapter 3. In this chapter , the key mechanisms through which migration and population growth influence productivity and living standards are identified.

The effects of changes in labour supply, labour productivity, and growth in population size and the economy, are considered in chapters 4 to 6. Supporting material is presented in appendices B to E.

Other economic effects of migration and population growth are considered in chapter 7 and an overall assessment of the impact of migration on living standards is provided in chapter 8. Further detail about the Commission's modelling and methodologies are provided in appendix F and G.

The legislative and other impediments to productivity and economic growth from migration and examined in chapter 9.

2 Trends in migration

Key Points

- During the last few decades, the international flows of migrants have increased and their characteristics have changed.
  - There has been increasing diversification of countries of origin, increasing temporary flows of migrants and increasing skilled migration.
- Generally, migration flows into and out of Australia have followed similar patterns to those overseas.
- In Australia, the focus of the Migration Program has increasingly been on skilled migration, with an increasing proportion of immigrants entering via the Skilled Stream.
- In Australia, temporary immigration has increased significantly over the last 10 years.
- Movements out of Australia have been increasing in recent years, with emigrants generally being 'highly skilled' and aged between 20 and 44 years.
- Net overseas migration contributes to growing population size and marginally raises the proportion of 'younger' aged working people in the population, with little impact on the ageing of the entire population.
- In recent years, immigrants from China and other Asian countries have increased significantly as a proportion of total arrivals to Australia.
- Compared with the Australian-born population, immigrants have a higher propensity to settle in major cities, particularly for those immigrants who have been residing in Australia for less than 15 years.

2.1 International migration flows

In order to put Australian migration flows in context, it is useful to examine trends in migration flows worldwide. In doing so, it is useful to consider the factors driving global trends in international migration flows.

Today's international migration flows are connected to broader processes of international economic integration that have been taking place in recent decades. These changes have increased the scale and breadth of international migratory movements. Changes have included (Hugo 2004a):

- increasing economic integration
- the information and transport revolutions
- globalisation of labour markets
- the development of a commercialised immigration industry
- the proliferation of new social networks and diasporas around the world
- changes in government policy, particularly with respect to skilled migration.

These changes have led to an increasing proportion of the world's population for whom migration is an accessible option. They have also led to changes in the nature of migration flows, with diversification of countries of origin, increasing temporary migration flows and an emphasis on skilled migration among the key trends in international migration flows.

Trends in international migration

It was estimated that there were almost 200 million international migrants worldwide in 2005, more than double the number recorded in 1980 (GCIM 2005). A disproportionate number of these migrants live in developed countries. Almost one in ten people living in the more developed regions is a migrant, compared with fewer than one in 70 people in developing countries (UN 2002). The disproportionate number of migrants in developed regions appears set to continue, with the total net growth in migrant numbers between 1990 and 2000 occurring in developed regions (UN 2002).

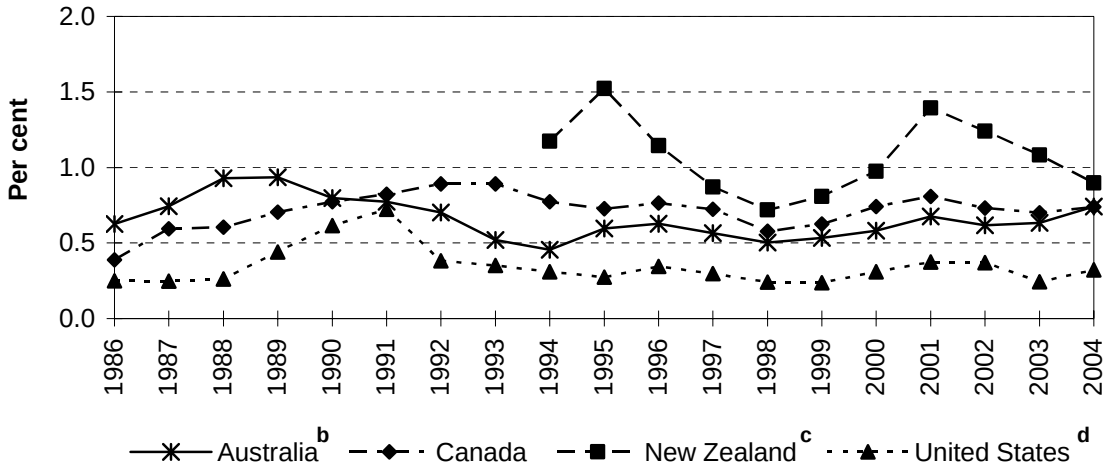
Although migration flows have increased recently, they have still not reached the levels recorded in the early twentieth century. Back then, liberal migration policies and falling transport costs led to huge flows of people (Fischer 2003). Migration flows in the early twentieth century were especially large from Europe to the United States, Canada, Australia and New Zealand.

The United States, Canada, Australia and New Zealand remain among the few countries in the world admitting immigrants for permanent settlement (IOM 2005). Because of this, these countries are typically grouped together for analytical purposes (IOM 2005; OECD 2005b) and it is useful to refer to this group as 'settlement countries'. Given the importance of settlement countries, the analysis here focuses on this group. Information is also included on some other OECD member countries, for which reliable data are generally available.

Although immigration flows to settlement countries have increased since the mid-1980s (appendix B), they have remained fairly steady as a proportion of the population (figure 2.1).

Figure 2.1 **Flows of permanent immigrants to settlement countries, 1986 to 2004[a]**

Percentage of total population



a Data include settler arrivals as well as permanent residency visas granted onshore. Comparability across countries is limited by data collection processes, as detailed in appendix B. **b** Data refer to financial years (July to June of the year shown). **c** Data not available before 1994. **d** Data refer to financial years (October to September of the year shown).

Sources: Citizenship and Immigration Canada (2005); DIMIA (2004a); OECD (2005b and earlier editions); Statistics New Zealand (2005); US Department of Homeland Security (2005).

Australia's immigration flows are often smaller (relative to the size of the total population) compared with other settlement countries. Australia's immigration flows are also smaller compared with many other OECD countries (appendix B). However, care should be taken in making such comparisons, as data are collected from different sources in different countries, and the definition of an immigrant also varies between countries. For example, Germany includes some short-term visitors as immigrants, which are not included in migration numbers in most other OECD countries (OECD 2005b).

Although Australian immigration flows are not particularly large, Australia ranks second (to Luxembourg) among OECD countries in terms of the proportion of the population born overseas (Dumont and Lemaitre 2005). Comparing numbers of immigrants in the population can be more useful than comparing flows because estimates of the number of foreign-born residents are more consistent across countries and total immigrant numbers give a better indication of the cumulative importance of migration to a society.

Some immigration occurs outside the bounds of formal migration programs, where people would like to migrate but are restricted in their capacity to do so legally. By their very nature, such illegal immigration flows are difficult to measure and are not captured in the migration flow data presented in this chapter. Illegal immigration flows are significant in the United States, where it is estimated that 10 million migrants (nearly one third of the foreign-born population) are present without authorisation (GCIM 2005). Illegal immigrants are much less prevalent in isolated countries, such as Australia and New Zealand, making up less than 5 per cent of the total immigrant population (OECD 2005b).

Immigration flows into settlement countries (and into developed countries more generally) are restricted by government policy. The level of illegal immigration and queues to migrate are indicators of the extent to which government policy is restricting immigration flows.

Migration flows into some other OECD countries are examined in appendix B. Comparisons across a wider range of countries are more difficult because of data issues. For example, growth in immigration flows as reported by the OECD (2005b) has been faster in the United Kingdom than in any of the settlement countries. However, these inflows measure all immigration of longer than one year duration. Thus, it is difficult to make direct comparisons between the United Kingdom and the settlement countries.

Diversification of country of origin

Trends in international migration relate both to numbers of migrants and to their characteristics, such as country of origin. There has been some diversification of the country of origin of migrants in recent years.

Historically, the majority of migrants to OECD countries came from a small number of source countries. These included neighbouring countries as well as countries with historical ties, for example the United Kingdom with Australia, and Europe more broadly with the settlement countries.

Since the early 1980s, there has been some diversification of migration movements and an increase in the range of nationalities involved. Immigrants are coming from India and China in growing numbers. Several new source countries have also emerged, including Bangladesh, Hong Kong, Indonesia, Malaysia, Pakistan, Sri Lanka and Thailand.

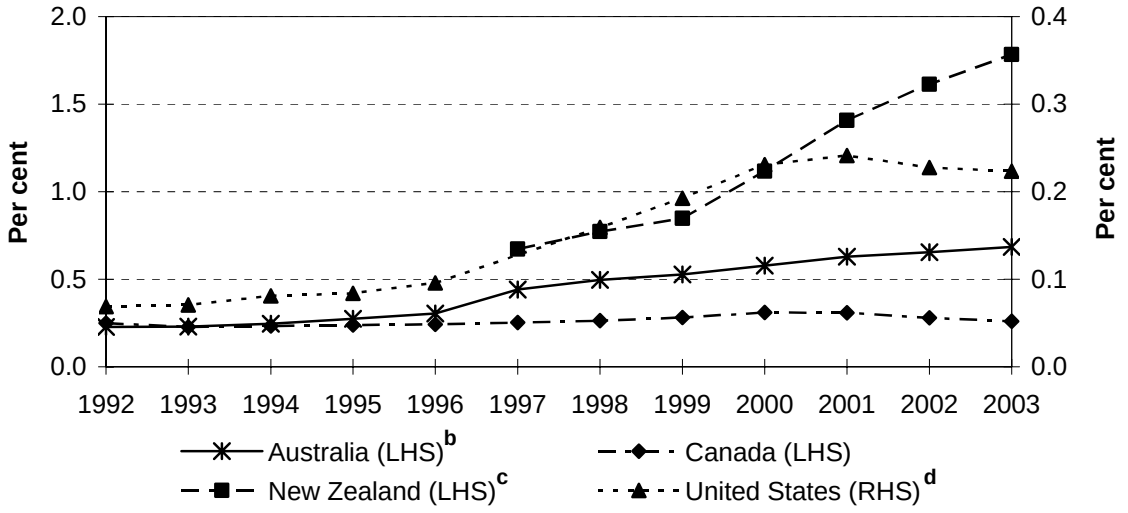
Many of the changing drivers of migration noted above explain the diversification of countries of origin. For many of the new source countries, rapid income growth

and higher levels of education have also been important in increasing the number of people able to finance a long-distance move.

Emergence of temporary migration

The changing drivers of migration have also been important in the emergence of temporary migration. Although temporary migration has been occurring for decades, the scale of temporary migration to the settlement countries increased rapidly during the 1990s (figure 2.2). Temporary migration to several other OECD countries also increased during the 1990s (appendix B).

Figure 2.2 Entries of temporary workers into settlement countries, 1992 to 2003[a]



a Comparability across countries is limited by different data collection processes, as detailed in appendix B. Data do not include foreign students. **b** Data refer to financial years (July to June of the year shown). **c** Data not available before 1997. **d** Data refer to financial years (October to September of the year shown).

Sources: OECD (2005b and earlier editions); US Department of Homeland Security (2005).

The emergence of temporary migration has also relied on favourable policy settings in destination countries. Most OECD countries have a favourable attitude to temporary immigration, although this has not always been the case. In Australia, for example, temporary immigrants were emphatically eschewed in favour of permanent migration until the 1980s (Hugo 2004a). This changed in the 1990s, and today, temporary workers are valued in Australia for their contribution of 'new ideas, contacts, understanding, skills and technology' (DIMIA 2005j).

Foreign students are another type of temporary migrant and their numbers increased rapidly in OECD member countries during the 1990s. The number of foreign students hosted by OECD countries increased by 50 per cent between 1990 and

2001 (OECD 2004b). Foreign students are of particular importance to Australia. The number of foreign students in Australia increased by almost 300 per cent between 1990 and 2001 (OECD 2004b). As of 2002, only the United States, United Kingdom and Germany hosted more foreign students than Australia (OECD 2005b).

Trends in skilled migration

The OECD has observed that migration flows of skilled workers rose substantially during the 1990s (OECD 2002). This has been the case for flows both to and between OECD countries, although developing countries remain the main countries of origin.

Measuring highly skilled migration flows is difficult due to a lack of internationally comparable data (Auriol and Sexton 2002). Part of the difficulty arises because countries measure inflows by visa type, which does not necessarily reflect the skills of immigrants. For example, a person entering under a skilled visa would be expected to have higher skills than someone entering under family reunion, but this is not necessarily the case.

However, government policies with respect to skilled migration can be compared. In an international context, it has been suggested that over the past decade governments have reduced barriers to the immigration of highly skilled people. Concurrently, barriers have been increasingly created against immigration of unskilled people (Hugo 2004a). These trends can be examined in more detail by focusing on the settlement countries.

In the United States, family members continue to dominate immigration flows (OECD 2005b). For permanent immigration, skilled programs are generally limited to fairly specific and narrowly defined areas of skill shortage and represent a small proportion of total immigration (IOM 2003). Temporary immigrants are an exception, with the majority of temporary work visas issued to highly skilled workers (OECD 2005b).

In the other settlement countries, skilled immigration plays a more important role. Canada, Australia and New Zealand all have systematic points testing for selecting permanent skilled immigrants, based on characteristics including education, work experience, age and language skills. In each of these countries, an increasing emphasis on skilled immigration during the 1990s has been observed (Bedford, Ho and Lidgard 2001; Green and Green 1999; Khoo 2002).

The distinction between the trend towards skilled immigration in Canada, Australia and New Zealand and the continued dominance of other categories of immigration in the United States are evident from table 2.1.

Table 2.1 **Permanent immigrants entering settlement countries under skilled categories 1991, 1999 and 2001**

Percentage of all immigrants

Country	*1991*	*1999*	*2001*
	%	%	%
Australia	37	42	60
Canada	18	47	55
New Zealand	**na**	47	68
United States	18	22	17

na Not available.

Source: IOM (2005).

2.2 Australian perspective

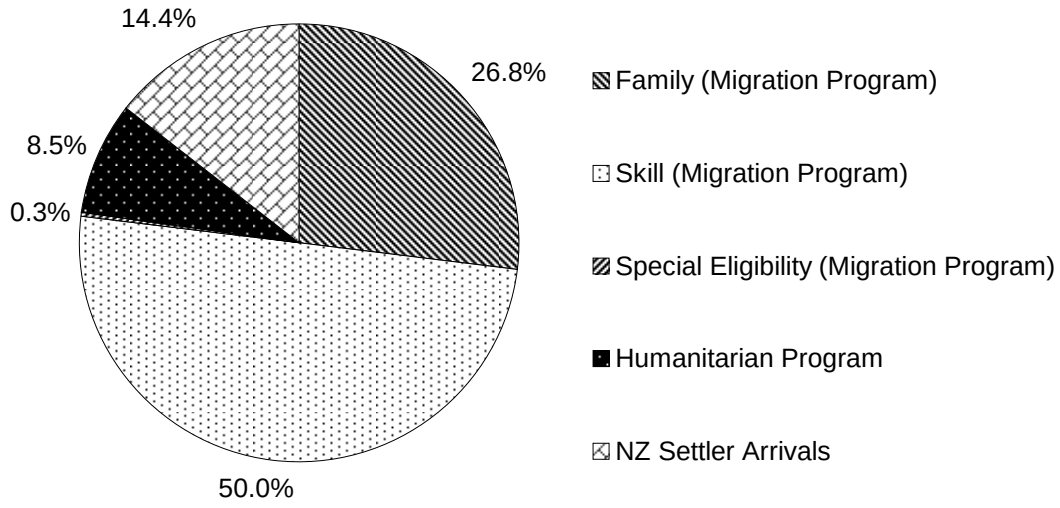
Migration has played a key role in shaping Australia's society and economy. It has contributed significantly to Australia's population, with almost one quarter of the current Australian population born outside Australia.

Australia's immigration program consists of immigrants arriving under a range of permanent and temporary visa types. Figures 2.3a and 2.3b highlight the proportions of visas granted under the permanent and temporary visa categories in 2004-05. The main program under Australia's permanent immigration process is the Migration Program, accounting for around 77 per cent (120 070) of the permanent visas granted in 2004-05 (figure 2.3a). The Skill Stream accounted for around 65 per cent (77 880) of the visas granted under the Migration Program in 2004-05.

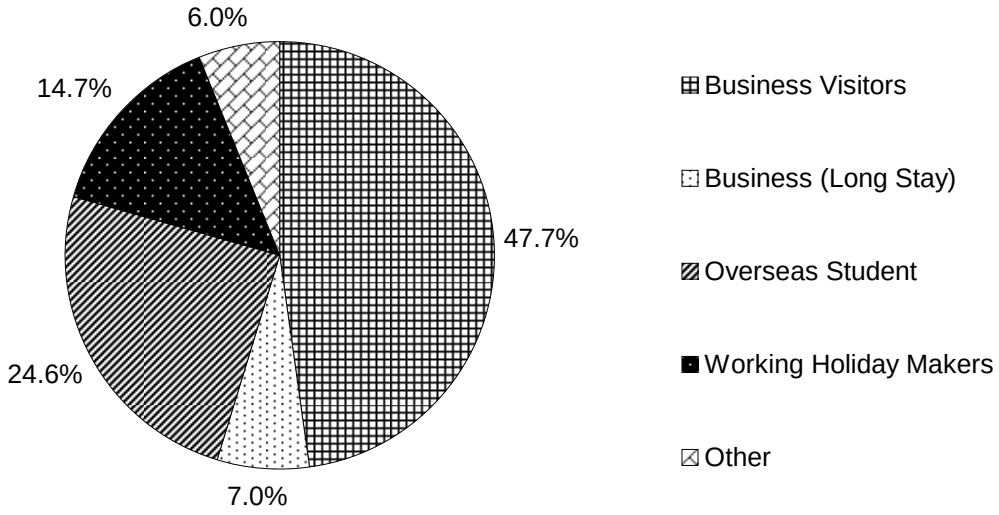
The temporary visa categories listed in figure 2.3b exclude tourists, sponsored family visitor and medical treatment visas granted in 2004-05. As a proportion of the 711 160 temporary visas granted in 2004-05, business visas (including 'Long Stay' visas, which can be valid for up to four years) accounted for around 55 per cent (389 280) of the temporary visas granted in 2004-05. Overseas student visas accounted for around a quarter (174 790) of the temporary visas granted in 2004-05 (figure 2.3b).

Figure 2.3 **Australian immigration visas granted, selected categories, 2004-05[a]**

(a) Permanent visas



(b) Temporary visas[b, c]



a Visas granted do not necessarily match the number of arrivals. **b** Excludes 3 234 930 tourist visas, 10 660 sponsored family visitor visas and 3940 medical treatment visas granted in 2004-05. **c** The main visa classes included in 'Other' are Social/Cultural Events, International Relations, Medical Practitioner and Educational.

Source: DIMIA (unpublished).

Following the FitzGerald Report (FitzGerald 1988), more effective and clear selection procedures were developed for the migration process. Current migration policy has a greater emphasis on skilled migration, with the proportion of Family Stream visas granted decreasing since the late 1990s.

Immigration

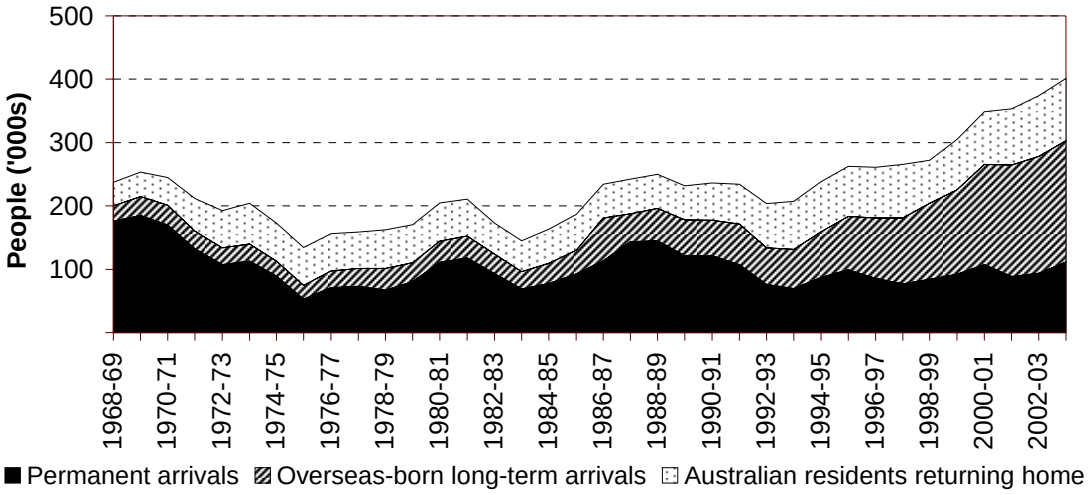
In 2004-05, about 4.1 million visas were granted, of which 96 per cent were temporary visas (generally less than 12 months) and mostly for tourists. Excluding tourist, sponsored family visitor and medical treatment visas, the main visas granted under the temporary immigration program were for business visitors (54.7 per cent in 2004-05), overseas students (24.6 per cent) and working holiday makers (14.7 per cent) (figure 2.3b).

Around 155 630 visas (including New Zealand settler arrivals) were granted under the permanent immigration category in 2004-05, accounting for around 4 per cent of total visas granted.

Permanent immigration

Permanent immigration numbers reflect permanent and long-term temporary visas granted for immigrants entering Australia under the Migration Program, the New Zealand Settler Arrivals Stream and the Humanitarian Program. Long-term temporary arrivals have increased significantly in the last 10 years. Although permanent arrivals historically constituted the largest share of permanent and long-term temporary arrivals, they are now the smallest share (figure 2.4). A

Figure 2.4 **Permanent and long-term temporary arrivals, 1968-69 to 2003-04[a]**



a Long-term temporary arrivals are sub-divided into overseas-born people who intend to stay in Australia for more than 12 months and Australian residents returning home who have been abroad for more than 12 months.

Sources: Hugo (2004b); ABS, *Overseas Arrivals and Departures*, Cat. no. 3401.0.

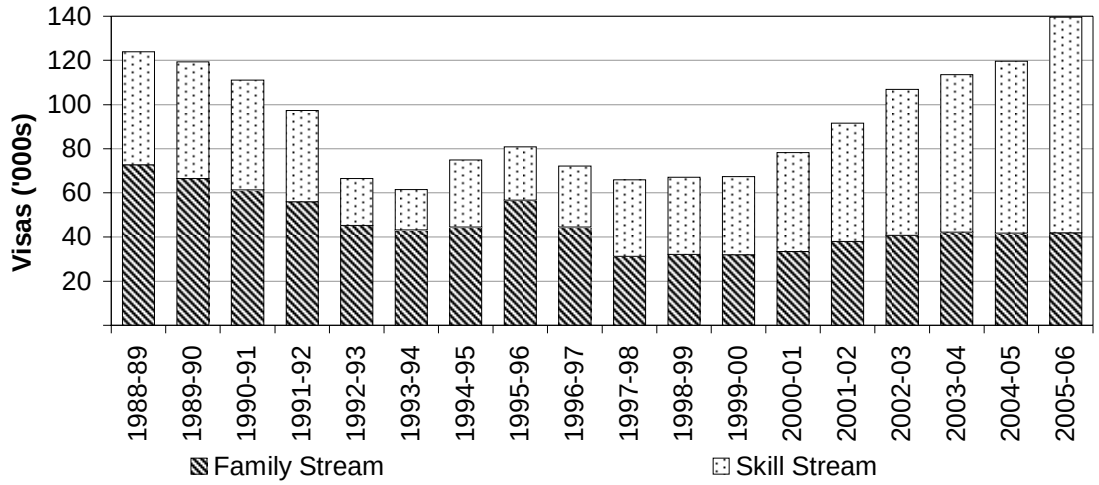
number of policy changes — including the expansion of working rights for temporary migrants and increasing the flexibility for immigrants to change their status from temporary to permanent residency — are likely to have influenced the number of immigrants arriving under long-term temporary visas.

The Humanitarian Program usually accounts for around 10 per cent of permanent visas granted each year. Humanitarian visas are predominantly granted offshore, mainly to immigrants from Africa (71 per cent), the Middle East and South West Asia (25 per cent) (Appendix C).

Migration Program

The Migration Program accounts for the majority of permanent visas granted in Australia, and consists predominantly of two streams: the Skill Stream and the Family Stream (figure 2.3a). Over the years, the Skill Stream has accounted for an increasing proportion of total the Migration Program (figure 2.5). The planned proportions of visas to be granted in 2005-06 are around 70 per cent and 30 per cent for the Skill and Family Streams, respectively. This shift reflects a number of recent

Figure 2.5 **Permanent visas granted under the Migration Program, 1988-89 to 2005-06[a, b]**



a The 2005-06 data reflect the 'upper limit' planned levels, with the planned levels for the Migration Program in 2005-06 ranging from 130 000–140 000. **b** Migration Program numbers do not include New Zealand citizens or holders of Secondary Movement Offshore Entry (Temporary), Secondary Movement Relocation (Temporary) and Temporary Protection Visas. Numbers have been rounded and totals might not be the exact sum of components.

Source: DIMIA (2005g) and unpublished DIMIA data.

policy changes, including the:

- shifting of the points tested 'Concessional' family category from the Family to the Skill Stream, emphasising a change from the family reunion aspect to the labour market aspect of the Migration Program
- increase in the total skilled immigrant intake
- strengthening of points test for the Skill Stream to raise the skill level of selected immigrants
- enabling onshore application of long-term temporary visas by students who have completed their studies in Australia (appendix C).

Skill Stream

In 2004-05, the Skill Stream accounted for around 65 per cent of visas granted under the Migration Program. This stream consists of a number of categories for prospective immigrants where there is demand in Australia for their particular occupational skills, outstanding talents or business skills. Immigrants must satisfy a points test that includes skills, age, work experience and English language ability (appendix C).

Some of the visa classes and sub-classes within the Skill Stream are capped (appendix C). In 2004-05, about 77 per cent of the visas granted under the Skill Stream were for the General Skilled Migration (GSM) category — comprising mainly the Skilled Independent visa category (69 per cent of the visas granted under the GSM).[1] The Skilled Independent visa is one of the main visa groups accessible to overseas students — with a growing proportion of these visas being granted onshore since the 1 July 2001 policy change enabling successful Australian-educated overseas students with qualifications in high demand to apply for this visa type without leaving Australia. In 2004-05, around 35 per cent of the 41 108 Skilled Independent visas granted were to overseas students. The planned number of Skilled Independent visas for 2005-06 is about 49 000.

A number of State-Specific and Regional Migration (SSRM) initiatives have been introduced since 1996-97, enabling State/Territory governments and regional employers to employ skilled immigrants (on permanent or temporary visas) to fill skill shortages in their jurisdictions. Over 37 600 visas have been granted since the introduction of SSRM initiatives (12 725 in 2003-04 — representing about 18 per cent of the total Skill Stream). Most of the visas granted have been for migrants settling in Victoria and South Australia (appendix D).

[1] The description of these visa classes and subclasses is provided in appendix C, table C.6.

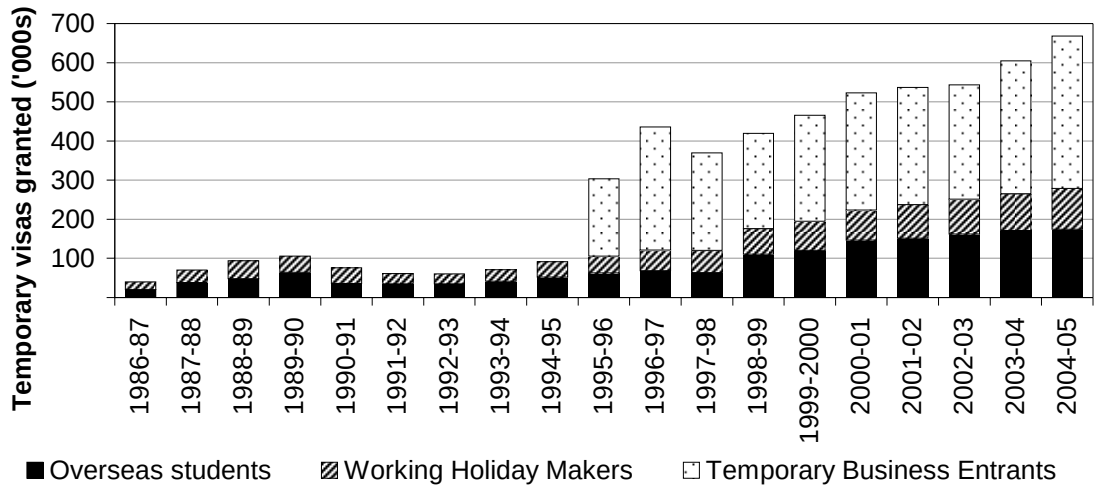
In July 2004, the Skilled Independent Regional (SIR) visa category was introduced. It enables potential GSM applicants who fall just short of the pass mark to stay in Australia for three years on the condition that they live and work in regional Australia. In 2004-05, 1440 SIR visas were granted, with planned numbers for 2005-06 expected to be higher.

Temporary immigration

Temporary visas are granted for visitors who usually stay in Australia for less than 12 months. However, certain temporary visa categories, such as the Business Long Stay visas, allow immigrants to stay for up to four years. Further, Working Holiday Makers visas can be extended to more than 12 months and visas granted to overseas students are for the duration of their studies. The main temporary visa class granted in 2004-05 was the tourist visa, with 3 234 930 visas granted in 2004-05 (around 82 per cent of total temporary visas).

The main visa classes that allow temporary immigrants to work while in Australia include the Working Holiday Makers visa, Overseas Student visa, Business Visitors visa and Business Long Stay visa. The effects of the changes to the temporary immigration policy are reflected in figure 2.6. The level of temporary migration to Australia has increased significantly during the last 10 years. The largest increase (232 per cent from the previous year) occurred in 1995-96, largely attributable to

Figure 2.6 **Temporary visas granted, 1986-87 to 2004-05[a, b]**



a Overseas student visas include visas granted onshore and offshore. **b** Temporary business entrants include Business Visitors visas and the Business Long Stay visas.

Sources: DIMIA, *Population Flows: Immigration Aspects*, various editions; DIMIA (unpublished data); Hugo 2004a.

the introduction of the Temporary Business Entry visa class. Working Holiday Makers and Overseas Student visas have also grown considerably.

Three recent policy changes (appendix C) have influenced the nature of Australia's temporary immigration:

- an expansion of working rights under the temporary migration scheme
- an increased regional focus in the allocation of temporary visas
- an increased flexibility to move from temporary to permanent residency.

At the end of June 2004, there were an estimated 590 566 temporary visa holders in Australia, about 3 per cent of the Australian resident population (DIMIA 2005c). In 2002, nearly 70 per cent of the stock of Australia's temporary immigrant population had working rights of some kind or another (appendix C).

Emigration

The analyses on emigration in this section are based on those leaving permanently or on a long-term basis (12 months or more). The data on emigrants are based on self-reported information from passenger cards, which is based on the 'intentions' of people moving out of Australia. As these intentions could change over time, some caution is needed in interpreting the data. Nevertheless, the passenger cards information is the main data source for emigration and does provide useful information on trends in emigration.

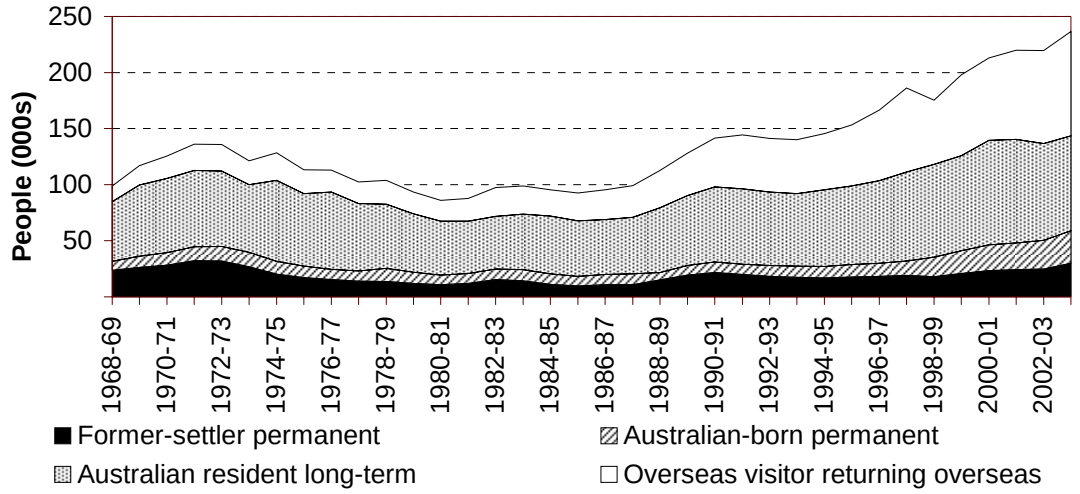
Overall, permanent and long-term emigration has been trending up over recent decades. The total permanent departures reached their highest level in 2003-04, with about 59 000 people leaving Australia (figure 2.7).

People emigrate for a number of reasons. For example, overseas-born emigrants, especially those who have been in Australia for one or two years, might return to their country of birth because of feelings of homesickness. Younger immigrants might return to their country of birth because they are needed by their family. Older overseas-born immigrants sometimes leave Australia after they retire.

However, the main reason for leaving, according an Australian emigration survey conducted in 2002, is economic:

> … the most favoured response of both males and females for leaving Australia was *'better employment opportunities'*, although it was somewhat higher for males (59.3 per cent) than for females (34.2 per cent). (Hugo et al. 2003, p. 44)

Figure 2.7 **Permanent and long-term departures, 1968-69 to 2003-04[a, b]**



a By description on the card the departures information is grouped into the following categories: 'Visitor or temporary entrant departing' (card description) = 'Overseas visitors returning overseas' (publication description); 'Australian resident departing temporarily' (card description) = 'Australian residents departing long-term' (publication description); and 'Australian resident departing permanently' (card description) = 'Permanent departures' (publication description), which is further disaggregated into Australia born and former settlers using information from other sources. 'Overseas visitors' includes persons on temporary resident, student and visitor visas. Long-term movements include Australian residents departing temporarily with the intention to stay abroad for 12 months or more. 'Australian residents' includes Australian citizens, New Zealand citizens indicating permanent residence and non-citizens on permanent residence visas. **b** The data are based on the 'intentions' of people moving out of Australia and these intentions might change over time so there is significant 'category jumping'.

Sources: Hugo (2004b); DIMIA 2005c.

Males and females both gave 'professional development', 'career advancement', 'higher income' and 'lifestyle' as reasons for leaving Australia. Females also indicated 'marriage/partnership' and 'partner's employment' as reasons for emigrating (Hugo et al. 2003).

There is a large number of Australian citizens residing overseas. According to the Department of Foreign Affairs and Trade (DFAT), on 31 December 2001, there were about 859 000 (4.3 per cent of the 2001 population) Australian citizens living overseas long-term or permanently. A further 265 000 Australian citizens were overseas on a shorter term basis (Hugo et al. 2003).

In December 2001, almost half of the Australians residing overseas lived in countries of the European Union. About half of these (200 000) were residing in the United Kingdom. Greece has the second largest community of Australian citizens (135 000), most likely Greek-born Australian residents and some second-generation Australians of Greek heritage. The third largest Australian expatriate community was found in the United States (106 410), followed by New Zealand (68 000). In the Asian region, Hong Kong had the largest number of Australian citizens (46 000),

with Indonesia, Japan and Singapore being the other main Asian destinations (Hugo et al. 2003).

Emigration by overseas-born

Just over half (about 30 000) of emigrants departing Australia permanently in 2003-04 were born overseas — the highest in absolute terms since the early 1970s. The proportion of overseas-born permanent departures as a percentage of total permanent departures has remained fairly steady since the late 1990s. Past research suggests that the highest skilled component of the immigration intake is most prone to emigration from Australia. Further, with increasing emphasis on skilled migration, an increase in former settler loss is likely (Hugo et al. 2003).

Of the overseas-born who depart Australia permanently, the highest proportion tends to be those born in New Zealand (about 7000 in 2003-04). The UK-born emigrants were the second largest group, with about 4600 people departing permanently in 2003-04. Emigrants born in the North East Asian region also account for a large proportion of permanent departures, mainly those born in China and Hong Kong (appendix D).

Most overseas-born emigrants (about 65 per cent in 2003-04) who leave Australia permanently tend to have lived in Australia for more than five years. However, around 10 per cent leave Australia permanently after less than a year of residence in Australia (DIMIA 2005c). According to DIMIA (2005b), a majority of overseas-born emigrant groups return to their country of birth. In 2003-04, the main intended countries of residence included New Zealand, the United Kingdom, Hong Kong, China, the United States and Singapore (appendix D).

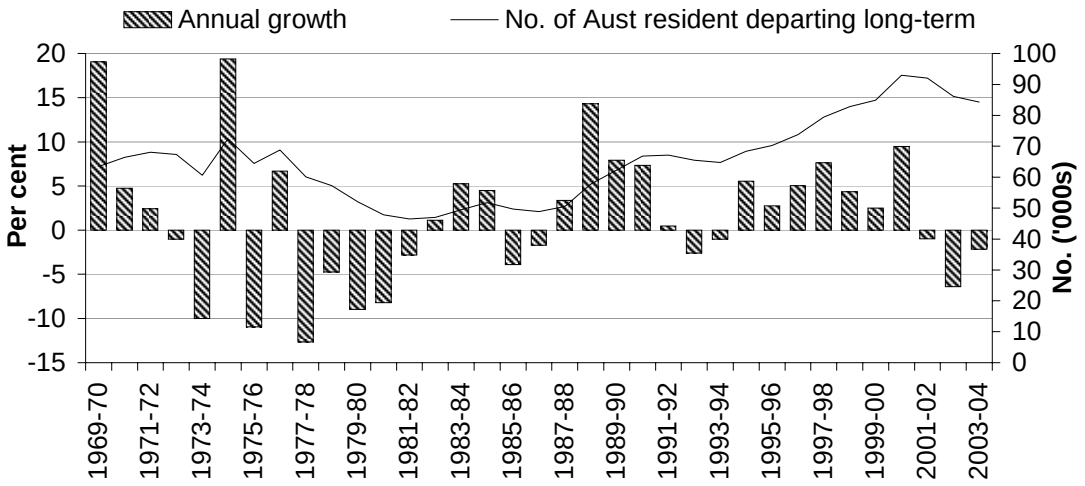
Emigration by Australian-born

In 2003-04, 29 100 Australian-born people departed permanently — the highest number recorded. Most Australian-born emigrants are moving to the United Kingdom, New Zealand and the United States. In 2003-04, about 55 per cent of Australian-born emigrants departed permanently for these three countries (appendix D).

The information collected on Australian emigrants departing on a long-term basis is in terms of Australian ‘residents’ rather than Australian born. Residents include Australian citizens, New Zealand citizens with permanent residence and other permanent residents. The largest number of Australian residents (about 93 000) departing on a long-term basis was recorded in 2000-01. Since then, the number of

Australians departing long-term has decreased, with about 84 300 long-term emigrants recorded in 2003-04 (figure 2.8). Combining Australian-born emigrants departing permanently and Australian residents leaving on a long-term basis, in 2003-04, there were 113 476 emigrants — around 55 per cent higher than in 1969-70 (73 454 emigrants).

Figure 2.8 **Australian residents departing Australia on a long-term basis — annual growth and numbers (RHS), 1969-70 to 2003-04[a, b]**



a Long-term departures are defined as those departing temporarily with the intention to stay abroad for 12 months or more. 'Australian residents' includes Australian citizens, New Zealand citizens indicating permanent residence and non-citizens on permanent residence visas. **b** Caution is needed when examining the data. The data are based on the 'intentions' of people moving into or out of Australia and these intentions might change over time so that there is significant 'category jumping'. Further, there are visa categories for entry into Australia that overlap short- and long-term categories. For example, holders of Temporary Business Entrants visas may stay in Australia for periods of up to four years and, hence, overlap the short-term and long-term movement categories.

Sources: Hugo 2004a; DIMIA 2005c.

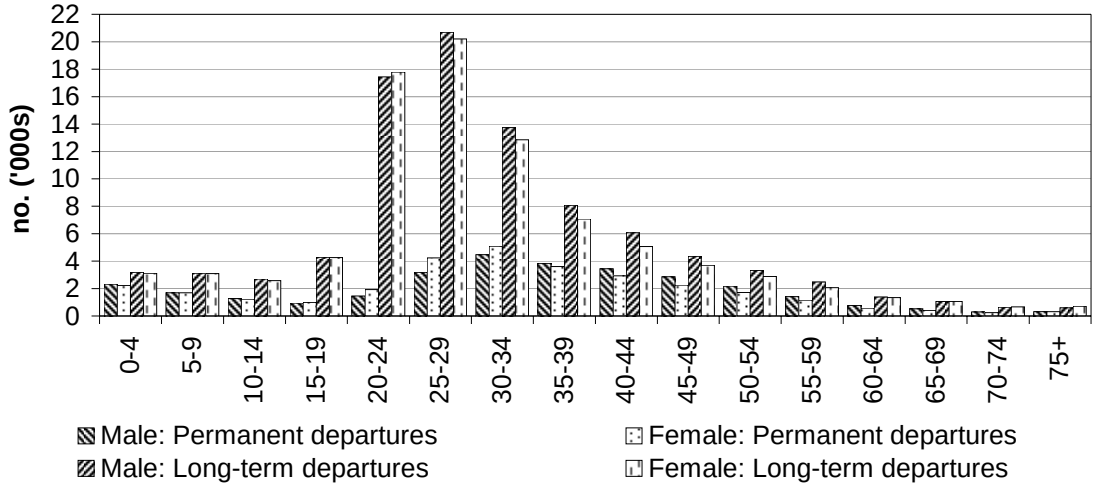
Characteristics of Australian emigrants

As with all migration processes, emigration is selective towards particular economic and demographic characteristics. There is a high proportion of young adults in the Australian emigrant population, especially among long-term departures (figure 2.9). In 2004, the most common age of emigrants departing permanently was the 30–43 year group (4480 male and 5099 female emigrants). The most common age group of emigrants departing Australia on a long-term basis was in the 25–29 year group (20 703 male to 20 212 female emigrants) (figure 2.9). According to Hugo et al (2003):

> In the long-term movements, the pattern of Australian residents leaving in their 20s and returning in their 30s is apparent. (p. 32)

Overall, there were more male than female emigrants departing permanently or on a long-term basis in 2004.

Figure 2.9 **Permanent and long-term departures by sex and age, 2004[a]**



a Permanent departures include Australian and overseas born. Long-term departures include Australian residents, which includes Australian citizens, New Zealand citizens indicating permanent residence and non-citizens on permanent residence visas.

Source: ABS (unpublished data).

According to Hugo et al. (2003), workforce participation rates in 2002 were generally higher among emigrants (Australian-born permanent departures and Australian resident long-term departures) across all age groups, except 15–24 year olds. Further, the percentages of male and female emigrant workforces that were unemployed in 2002 was around 1 per cent or less, compared with 7–8 per cent for the Australian population.

In addition, the majority of Australian emigrants are from the high skill occupation categories, 'Managers and Administrators' and 'Professional'. According to DIMIA (2005b) and Hugo et al. (2003), Australia gains more skilled immigrants than it loses. (More detailed analyses on the skill levels of emigrants are found in chapter four.)

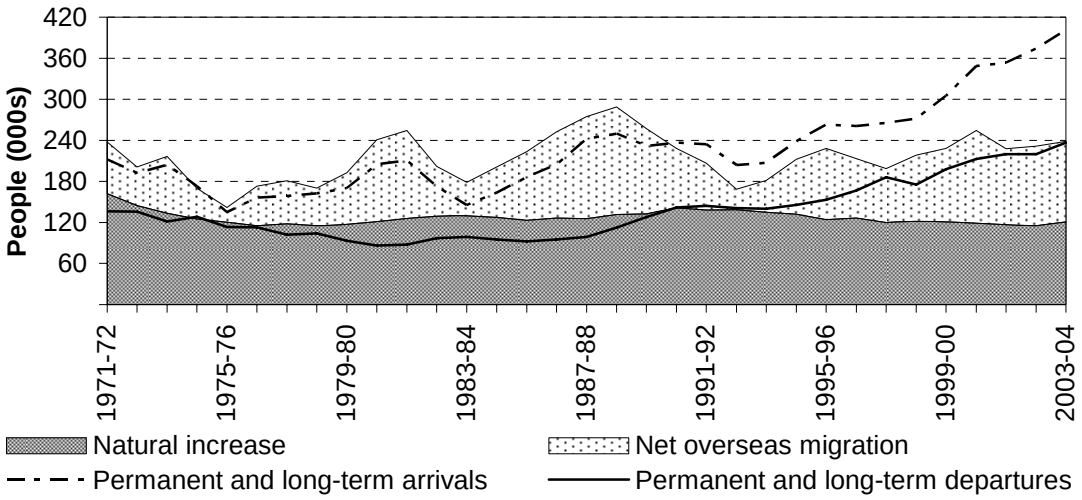
2.3 Migration and Australia's population

In this section, the contribution of migration to Australia's population size is outlined. The section then briefly summarises the country of origin, the age and settlement patterns of immigrants.

Net overseas migration and Australia's population

Net overseas migration is the excess of permanent and long-term immigration over permanent and long-term emigration. Australia's population grew by about 34 per cent (or 1.3 per cent per year) between 1972 and 2004, from 13.3 million to 20.2 million. Net overseas migration was a significant contributor to this growth (figure 2.10). The net overseas migration peak of about 157 400 people in 1988-89 contributed 55 per cent to Australia's population growth in that year. The trough in 1975-76 contributed only 15 per cent (about 21 200 people) to population growth (ABS 2004b). Since 1972, about 41 per cent of Australia's population increase has been due to migration.

Figure 2.10 **Australia's population growth, 1971-72 to 2003-04[a, b]**



a Natural increase is the number of births minus the number of deaths. Net overseas migration is taken from ABS calculations. It is the excess of permanent and long-term immigration over permanent and long-term emigration adjusted for category jumping and multiple movements. **b** Permanent and long-term departures less permanent and long-term arrivals in this figure do not equal net overseas migration as shown in this figure. This is because permanent and long-term departures, and permanent and long-term arrivals do not adjust for category jumping, but the net overseas migration figures do.

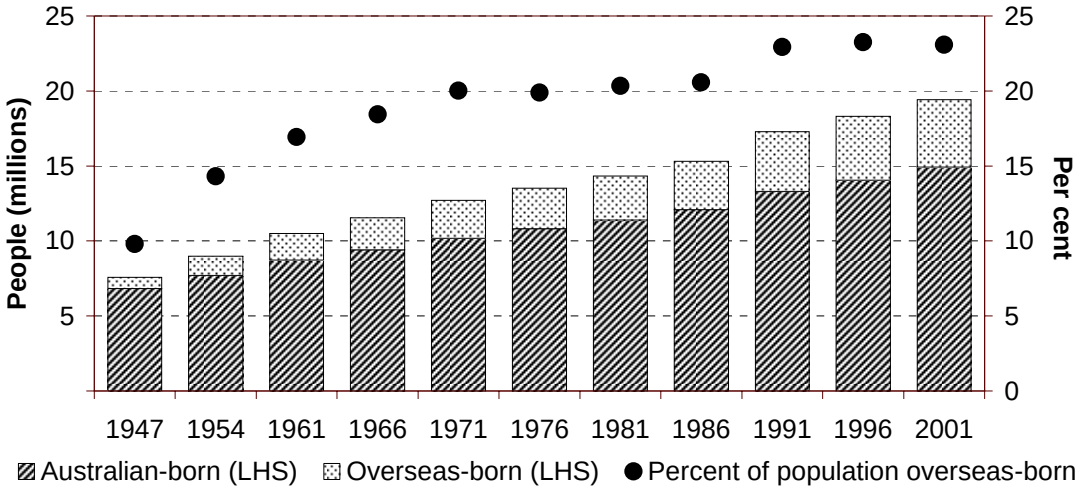
Source: ABS (2004), *Australian Historical Population Statistics*, cat. no. 3105.0.65.001 (table 3).

In terms of the contribution of net overseas migration to Australia's population size, annual migration flows have had a considerable cumulative effect. In 1947, 10 per cent of the population was born overseas. In 2001, 23 per cent of the population was born overseas (figure 2.11).

There is also a second-generational effect of net migration, as the children of immigrants represent a contribution to population growth that would not otherwise have taken place. Kippen and McDonald (2000) estimate that between the Second World War and 2000, immigration was responsible for adding 7 million people to

the population. If post-war immigration had been zero, the Australian population would have been only 12 million instead of over 19 million in 2000.

Figure 2.11 **Australia's population by country of birth, 1947–2001[a]**



a Census years.

Source: ABS dx, *Australian Historical Population Statistics*, Cat. no. 3105.0.65.001.

Country of origin, age and settlement patterns of immigrants

The following section discusses the changes that have occurred in the countries of origin of immigrants. This section also briefly examines the age structure and settlement patterns of immigrants.

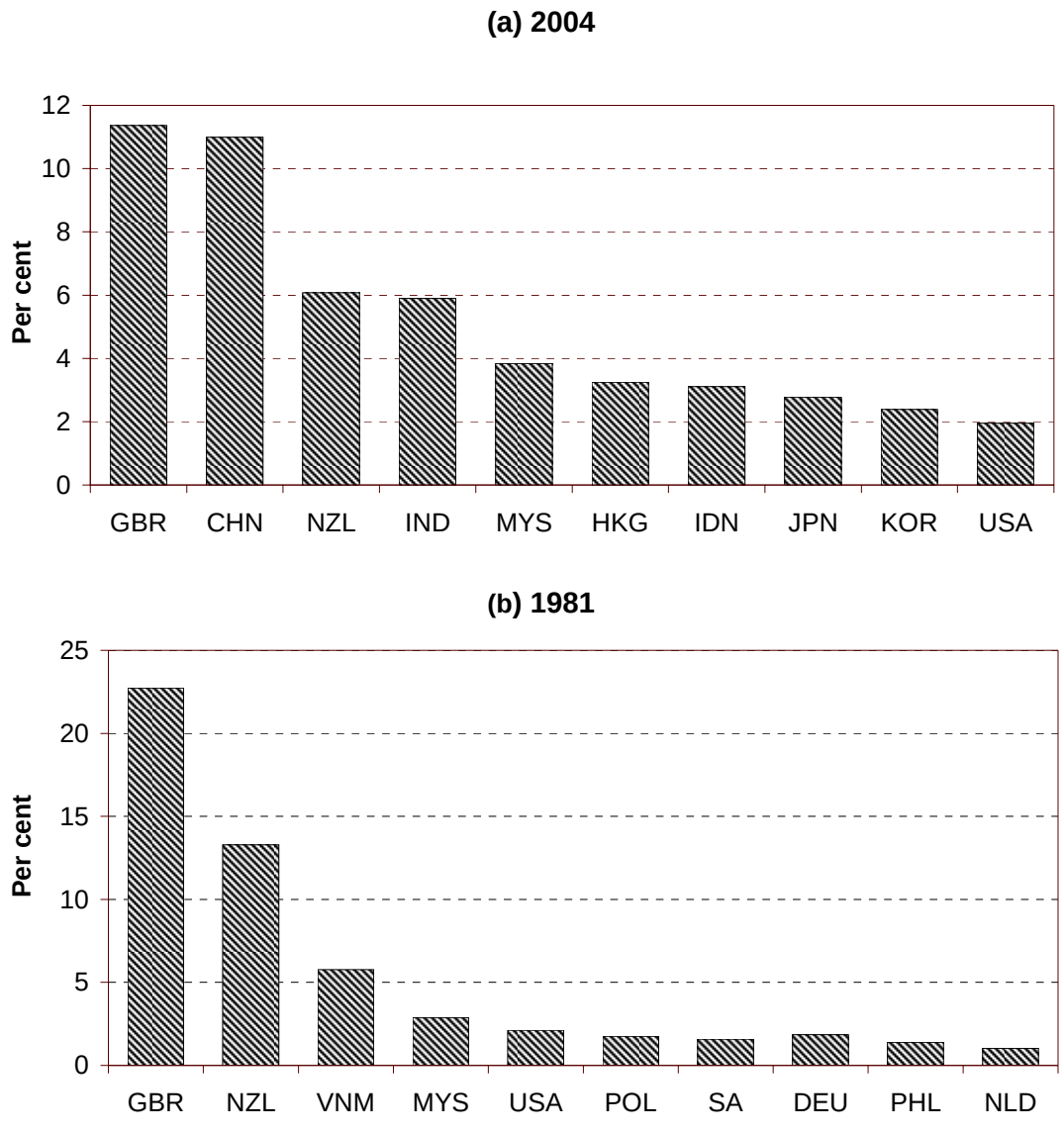
Country of origin

The cultural mix of immigrants to Australia has diversified, particularly over the last five decades. During the 1950s and 1960s, high proportions of immigrants from Europe reflected the role Australia played in resettling people displaced by the Second World War. The growing proportion of immigrants from the United Kingdom and Ireland was accompanied by substantial migration from Southern Europe, particularly from Yugoslavia, Greece and Italy.

Towards the end of the 20th century, there was a decrease in immigration from European countries and an increase from the Asia-Pacific region. Although historically the United Kingdom and Ireland were the largest single sources of immigrants to Australia, by the late 1970s and early 1980s, immigrants were increasingly likely to have been born in countries of the Asia-Pacific region (ABS 2002a).

Figure 2.12 displays the total number of permanent and long-term arrivals from the top ten countries in 1981 and 2004. In 1981, immigrants mainly originated from the UK (48 362), followed by New Zealand (28 277) (figure 2.12b). In 2004, the UK still was the main source country for immigrants (46 884), with China the next main source country (45 327) (figure 2.12a).

Figure 2.12 **Permanent and long-term immigrants by top ten country of arrival, 2004 and 1981[a, b]**



Source: ABS (unpublished data).

Mainly English Speaking (MES) countries (the United Kingdom, New Zealand, the United States and South Africa) accounted for around 40 per cent (84 464) of

permanent and long-term arrivals to Australia in 1981. By 2004, these countries accounted for only 21 per cent (85 334) of arrivals.

European countries such as Germany, Poland and Netherlands were also identified as main source countries for immigrants in 1981, accounting for around 5 per cent of arrivals (about 9800 immigrants). By 2004, however, the main source countries for immigrants were from the Asian region, with China, India, Malaysia, Hong Kong, Indonesia, Japan and South Korea accounting for around 32 per cent (133 025) of arrivals to Australia (figure 2.12a).

Age

The main impact of net overseas migration on the age structure of the resident population is to contribute a larger proportion of people of early working age. The flow of immigrants is overrepresented by people in their early teens to mid thirties. In 2003-04, around 72 per cent of net overseas migration was in the 15–34 age group compared with 28 per cent of the Australian resident population (ABS 2005a). An increase in the current levels of net overseas migration, however, would have little impact on ageing. As noted by McDonald and Kippen:

> Levels of annual net migration above 80 000 become increasingly ineffective and inefficient in the retardation of ageing. (ABS 2005a, p. 16)

Recent immigration policies have had a stronger focus on obtaining younger immigrants. The GSM, for example, focuses on obtaining immigrants aged less than 45 years, with maximum points awarded for those aged between 18 and 29. In 2004, immigrants in the 15–29 age group accounted for 47.5 per cent (195 943 people) of permanent and long-term arrivals — an increase of around 10 percentage points from 1991. Immigrants aged 15–44 years accounted for 74.5 per cent of permanent and long-term arrivals in 2001 compared with less than 67 per cent in 1971, 1981 and 1991.

Settlement patterns

In terms of the proportion of all overseas-born people in Australia, immigrants have a high propensity to settle in New South Wales. In 2001, 35.9 per cent of overseas-born people in Australia resided in New South Wales. Victoria had the second highest proportion of overseas-born people (26.3 per cent), followed by Queensland (15.0 per cent), Western Australia (12.1 per cent) and South Australia (7.2 per cent), with the ACT, Tasmania and the Northern Territory having proportions of less than 2 per cent (appendix D). According to Hugo (2004b), in

recent years, Queensland has experienced an increase in the number of newly-arrived immigrants (appendix D).

As a percentage of each jurisdiction's population, Western Australia had the highest proportion of overseas-born people — 28.6 per cent in 1991, decreasing to 27.0 per cent in 2001 (appendix D, figure D.5). Victoria and New South Wales also tend to have a high proportion of overseas-born people as a proportion of their population (23.4 per cent for each jurisdiction), followed by the ACT (21.6 per cent) South Australia (20.3 per cent) and Queensland (17.2 per cent).

Regional settlement patterns

In 1947, almost 50 per cent of Australia's population lived outside major urban areas, decreasing to 35 per cent in 2001 (Hugo 2004b).

Based on the Remoteness Area classification, in 2001, around 66 per cent of Australia's total population resided in major cities, 32 per cent lived in inner or outer regional centres and 3 per cent lived in remote or very remote areas (appendix D). Relative to the Australian-born population, immigrants tend to have a greater propensity to settle in Australia's major cities. In 2001, around 83 per cent of overseas-born people in Australia resided in major cities compared with around 61 per cent of the Australia-born population. The impact of immigrants in major cities is under-estimated since the children born to overseas-born people after arrival in Australia are included in the Australian-born population. In 2001, around 24 per cent of the Australian-born population lived in inner regional areas compared with 11 per cent of overseas-born. Around 12 per cent of the Australian-born population lived in outer regional areas compared with 5 per cent of overseas-born. Around 3 per cent of the Australia-born population lived in remote and very remote areas compared with 1 per cent of overseas-born (appendix D).

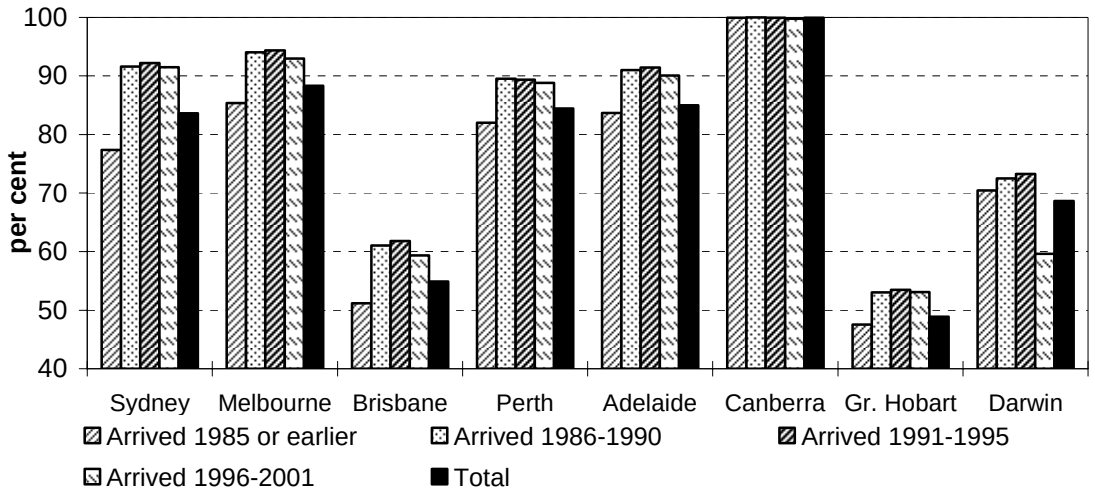
Settlement patterns by recency of arrival

This section briefly examines the settlement patterns of immigrants by recency of arrival at the level of the Statistical Division (SD) for each State and Territory.

In 2001, the majority of overseas-born people in most States and Territories resided in capital city SDs. In the case of Tasmania, just under half of the overseas-born people (22 172) resided in Greater Hobart (figure 2.13). After the ACT (which has only two SDs), the jurisdiction with the highest proportion of overseas-born residing within its capital city SD was Victoria, with 88.3 per cent (954 048 people). The other jurisdictions with more than 80 per cent of the overseas-born population residing in the capital city SD were South Australia (251 953 people in Adelaide),

Western Australia (418 333 people in Perth) and New South Wales (1 233 538 people in Sydney) (figure 2.13).

Figure 2.13 **Percentage of overseas-born residing in capital city Statistical Divisions by recency of arrival by, 2001**



Source: ABS 2001 Census (unpublished).

Around 55 per cent (338 128 people) of the 616 242 overseas-born people in Queensland resided in Brisbane in 2001. Other SDs in Queensland with relatively high overseas-born populations included Moreton (24.0 per cent), Far North (5.8 per cent), Wide Bay-Burnett (3.9 per cent) and Northern (3.3 per cent) (appendix D). (Appendix D contains more information on settlement patterns by each jurisdiction's SD and by immigrants from MES and Non-English Speaking countries.)

Generally, there is a higher propensity for immigrants who have been in Australia for less than 15 years to reside in the capital cities. The five capital cities, Sydney, Melbourne, Brisbane, Perth and Adelaide, accounted for about 80 per cent of Australia's overseas-born population in 2001. The proportion of overseas-born people in these cities was higher for those arriving after 1985 than for those arriving in or before 1985 (figure 2.13). In fact, there were only small variations (around 1–2 per cent) over time in the proportions of overseas-born residing in these capital cities between 1986 and 2001.

3 Linking migration, population and productivity

Key points

- The key drivers of the economic effects of migration are:
  - the level of migration relative to the size of the population
  - the differences between migrants and the existing resident population.
- The main sources of differences include gender, age, level of education, field of qualification, country of origin, English language proficiency, work experience, wealth and geographical region of initial settlement.
- The characteristics of migrants are influenced by:
  - the entry conditions for each visa category (skilled, family and humanitarian)
  - the self-selection and motivation of migrants entering under each visa category.
- Migration and population size influence productivity and income per capita through a number of channels including:
  - changes to the supply of labour, including its size and skill composition
  - changes to macroeconomic variables, such as savings, investment, capital stock, the capital to labour ratio, the balance on current account and the terms of trade
  - changes to the sectoral structure of the economy
  - the potential for economies of scale and increased competition in the domestic economy
  - the endowment of natural resources and potential for environmental externalities
  - the effects on the government sector, including transfer payments and government revenues and expenditures
  - the effects on trade and the transfer of technology.
- The overall impact depends on the sum of the contributions of these influences, some of which are positive and others negative, and is essentially an empirical matter.

The Productivity Commission has been asked to examine the effects of migration and population growth on Australia's productivity and economic growth and to identify the causal links involved. These links are sketched out in this chapter. In

the following chapters and appendices, the links are explored in more detail, both conceptually and empirically.

3.1 Economic growth and living standards

Before proceeding, it is useful to clarify some of the economic growth concepts and terminology used in this chapter.

Migration can affect society in many ways. In this study, the focus is explicitly on the effects on productivity and economic growth, as set out in the terms of reference. Thus, the important social and cultural effects of migration are not generally covered, except where they are linked to, and affect, productivity and economic growth.[1]

Improving the living standards of the community is one of the main goals of governments in administering public policy. For the purpose of this study, living standards are measured using indicators of real income per capita and real consumption per capita. The measures used are real Gross Domestic Product (GDP) per capita, real Gross National Product (GNP) per capita and real aggregate consumption per capita.

The limitations of GDP as a measure of welfare have long been acknowledged (Barro 1997; Jackson et al. 1994). Notwithstanding its limitations, GDP per capita is still widely used as a measure of living standards. By using GDP per capita and related indicators, a great deal can be revealed about the economic consequences of migration and population growth. Aspects of welfare not captured by GDP are considered separately and often in a qualitative way.

The economic growth metrics are expressed in per capita terms because income (or consumption) per person is most relevant to the standard of living of individuals in Australia. Thus, growth measured in per capita terms is more informative for policy purposes. The absolute sizes of the economy and population are less relevant when considering living standards.[2]

For the purpose of this study, productivity growth is expressed as labour productivity, typically measured as real GDP per hour worked. This follows the

[1] The Department of Immigration, Multicultural and Indigenous Affairs (DIMIA 2005h) has sponsored a separate study examining the social benefits and costs of migration.

[2] For other matters, such as national security, the size of the economy and the population might be more relevant.

conventional approach used to study economic growth at the macroeconomic level. To capture the per capita dimension of economic growth, the production and productivity concepts are expressed in the *intensive form*, such output per hour worked and capital per hour worked (Barro 2004).

Whose living standards are we assessing?

The economic effects of migration and population could be assessed from the perspective of various groups in the Australian population. These groups could include Australian-born, existing immigrants, existing residents (Australian-born plus existing immigrants), future immigrants, or all of the groups mentioned.

Existing residents could be concerned about the impacts on their income of current and future migration. Their concern could relate to their level of income or its relativity to that of new immigrants. Consequently, the political and policy debate invariably includes discussion of the effects on the income of existing residents and new immigrants. Indeed, the effects on the income of 'natives'[3] is the principal subject of a significant proportion of the studies into the economic impacts of migration.[4]

Estimating the income redistribution consequences of immigration for existing residents and new immigrants is more complex than estimating the effects on average income per capita. Income redistribution can occur through many pathways. Some examples of these pathways are the systems of transfer payments, provision of public services (health and education), all forms of taxation, labour market outcomes and changes in wealth. Estimation also requires the 'tracking' of the outcomes for existing residents and migrants.

Nonetheless, the Commission is endeavouring to provide some insights into the income redistribution effects of migration and population growth (chapter 7).

3.2 Size and diversity are keys to the economic effects

The links between migration, population and the economy are complex. The economic effects depend partly on the level of migration relative to the size of the

[3] The term 'native' is widely used in the literature (particularly in the United States) to describe someone born in a country.

[4] Examples include Card 2005, Parasnis, Fausten and Smyth 2005, Junankar and Mahuteau 2005, Chang 2004, and Borjas 2003.

population. The rate of growth of the population and the economy are directly related to the rate of migration. In turn, a faster growing economy can affect the rates of growth in productivity and income per capita.

However, migration affects much more than growth rates and the sizes of the population and economy. Migration affects a diverse set of demographic factors, which can cause adjustment throughout the economy (box 3.1).

Box 3.1 **Links between migration and demographic and economic factors**

Migration flows can influence demographic and economic factors in various ways, including through:

- the number of migrants (net migration to Australia), which can affect the rate of growth of the population and the economy
- the gender and age distributions of migrants, which can affect economywide fertility rates, labour supply, household consumption and savings, and government revenues and expenditures
- the geographical location of settlement, which can affect regional labour supply and congestion in large cities
- the occupation, level of qualification, work experience, country of origin, and fluency in English, all of which can affect the labour market
- the self-selection of immigrants could mean that they have characteristics, such as motivation and determination to succeed, which are higher than those of the resident population
- the amount of capital transferred into and out of Australia, which can affect savings and investment and the balance of payments

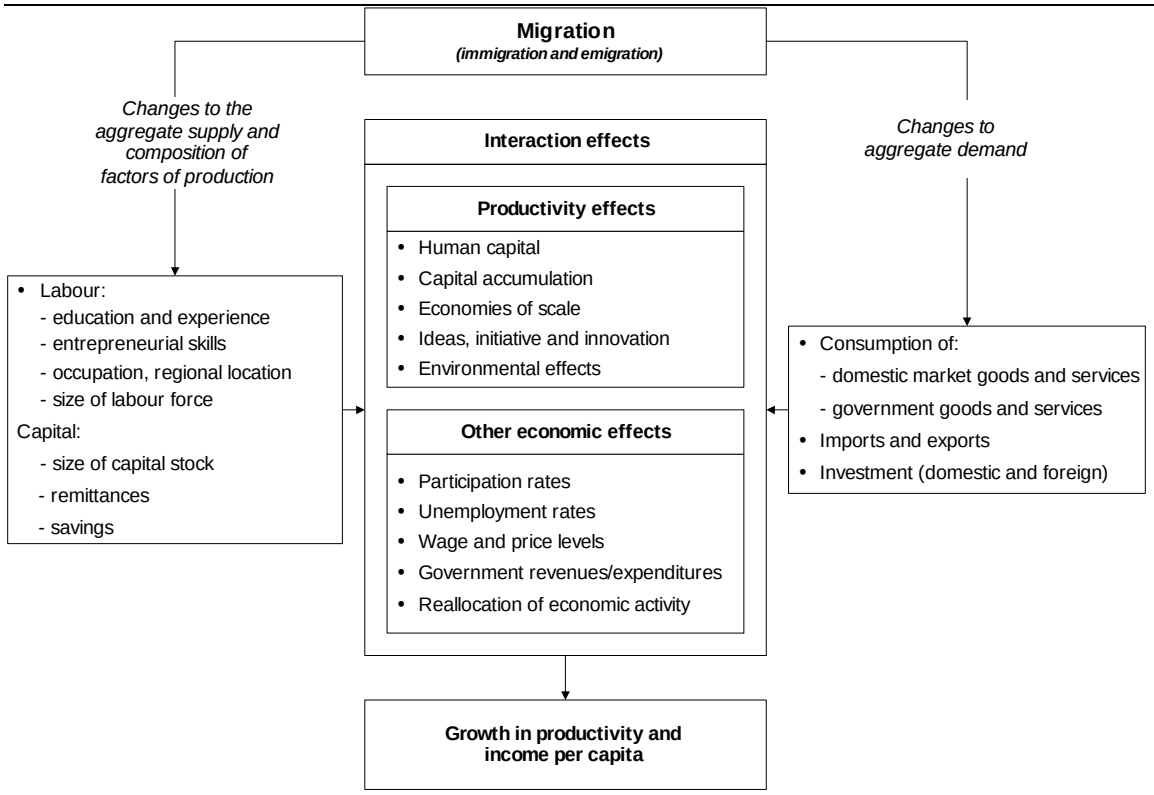
The policy settings of the migration program and the self-selection of migrants are important determinants of the diversity of immigrants (Chiswick 1999). The motivation for migration is likely to differ across visa categories (for example, skilled, family and humanitarian). Thus, immigrants in each category can have different characteristics compared with those of the Australian-born and existing migrant populations, or migrants of another visa category.

The characteristics of migrants also could change with the length of residency in Australia. Moreover, the Australian-born children of immigrants could have different characteristics compared with the rest of the Australian-born population.

Thus, the cumulative effects of diversity arising from migration can change the evolution of the economy.

A stylised representation of the links between migration and the economy is presented in figure 3.1. It illustrates how migration can alter many of the supply and demand relationships in the Australian economy.

Figure 3.1 **Stylised links between migration and the economy**



Source: Adapted from Meikle (1985); Wooden et al. (1994) Junankar et al. (1998).

Positive net migration is likely to result in a faster growing population and economy. It could also change the structure of the economy, depending on the extent to which the characteristics of migrants differ from those of existing residents. Given the policy settings of Australia's migration program, the economic effects of migration are also likely to vary by industry, occupation and geographical location.

However, the changing size and structure of the economy, *per se*, is not the central issue for this study. The relevant question is: what are the implications for growth in income per capita and productivity? The focus of this study is explicitly about how

migration is linked to income per capita and productivity. These links also provide insights into how migration affects the redistribution of income between existing residents and new immigrants.

The key linkages are described briefly in the next section. These linkages are elaborated on in the following chapters and appendices.

3.1 Overview of migration's links to productivity and income per capita

There is a large body of literature about the economic effects of migration and population growth. The purpose of these studies varies widely and a range of analytical frameworks and quantitative techniques is used. Foster (1996) has a useful introduction to the approaches applied in Australia. Borjas (2003, 1999 and 1995) provides an overview of the approaches used for the United States. The migration and economic environments in Australia and the United States are quite different. Consequently, the focus of the studies in each country differ. In the United States, the principal focus is on the labour market effects on American-born.

It is a complex task to identify the ways in which migration and population growth are linked to productivity and income per capita growth. A systematic approach is to synthesise the theory and principles found in the fields of economic growth, macroeconomics and the economics of labour markets. This approach also facilitates the clustering of the linkages into thematic groups.

The thematic grouping of the links discussed below reveals a large number of complex factors. Partial analysis of each link provides insights into the effect of each element. However, such partial analysis is generally inappropriate for drawing inferences about the overall economic effects. An overall assessment needs an overarching framework that takes into account the contributions of all of the linkages. Thus, the Commission is using a general equilibrium model as part of its evaluation.

The main links, through which migration and population growth can affect productivity and living standards, are briefly discussed below. Ultimately, however, which are most relevant is an empirical matter, as highlighted by analyses in the following chapters and appendices.

Supply and composition of labour

Immigration increases total labour supply in the economy. However, growth theory shows that it is labour supply per head of population that is relevant to understanding growth in income per capita (Weil 2005).

The effects on labour supply per capita can be understood easily by expressing hours worked per capita as the product of the following ratios:[5]

- total hours worked divided by the number of people in employment
- number of people in employment divided by the number of people in the labour force (employment rate)
- number of people in the labour force divided by the number of working age people (participation rate)
- number of working age people divided by the total population.

Migration could alter these ratios with the net result dependent upon the labour market outcomes for both migrants and the resident population. The labour market outcomes are determined by three principal factors:

- the number of migrants arriving in various visa categories relative to the size of the existing population
- the extent of differences in characteristics between immigrants of various visa categories and the existing population
- the labour market adjustment to the initial changes in the supply of labour arising from migration.

Analysis of the labour market adjustment arising from migration needs to accommodate a relatively high degree of labour market segmentation (for example, labour differentiated by skill and occupation). This is especially the case for Australia, where migration policy targets migrants in specified occupations and skills. In addition, the self-selection of migrants entering under various visa categories (skilled, family or humanitarian) can also modify the labour market attributes of migrants because the motivation for migration can differ between visa categories.

[5] This form of ratio analysis has been used to illustrate the effects of ageing on GDP per capita (PC 2005b).

Labour market outcomes also have income redistribution effects of migration. In this respect, a key issue is the extent to which the wages of existing residents change by occupations, skill categories, industries and regions.

In Australia, immigration initially changes the supply of labour by occupation, educational attainment, skills and region of migrant settlement. The demand for the various types of labour is also likely to differ across industries. The labour market adjustments across industry sectors could vary depending on:

- the labour intensity of the sector
- substitution possibilities between migrant and existing resident workers (Chiswick 1989; Grossman 1982)
- substitution possibilities between skilled and unskilled workers (Chiswick 1989; Hamermesh and Grant 1979)
- substitution possibilities between occupations
- the relative growth of sectors arising from the reallocation of sectoral activity (Appleyard and Field 1992)
- any labour market rigidities.

Increasing the supply of skilled labour causes adjustments in the labour market. To reach a new equilibrium with a higher ratio of skilled to unskilled workers in the economy, the marginal physical product (and real wage) of skilled workers would be expected to decrease, all else equal. Correspondingly, the marginal physical product (and real wage) of unskilled workers would be expected to rise.

The productivity of a larger labour supply depends, in part, on what happens to the supply of capital.

Capital accumulation

Growth theory suggests that macroeconomic conditions regarding savings and investment are important determinants of the level of labour productivity and income per worker (Barro 1997; Benge and Wells 2002; Romer 2001; Weil 2005). If the rate of net investment is unable to sustain the capital to labour ratio with a faster growing workforce caused by migration, then labour productivity and real wages could decrease, all else equal. This process is referred to as capital dilution.

Migration can alter the supply of labour in diverse ways across skill levels, occupations and industries. The resulting adjustment of the capital to labour ratio is

likely to differ across industries. The extent of the adjustment depends on the initial capital to labour ratios (labour intensity), the elasticities of substitution between labour and capital, and the sectoral reallocation of economic activity.

The capital dilution effect has been used often to argue that migration leads to a decrease in real wages (Borjas 1995). To bring about equilibrium in the economy with a lower capital to labour ratio, the marginal physical product of labour and real wages decrease, all else equal. Correspondingly, the marginal physical product of capital and the rate of return on capital increase.

The decrease in the real wage does not necessarily mean that the income per capita of existing residents decreases (Borjas 1995). The higher return on capital can contribute to higher income per resident (to the extent that the capital is owned by existing residents). The net result of these two effects determines the overall outcome.

The effect of capital dilution is likely to be smaller for a small, open economy, such as Australia. A higher rate of investment can be met from foreign investment if the rate of domestic saving and investment is too low. In this environment, there would be more limited long-term effects on real wages and rates of return on capital, all else equal.

However, income per capita can still be affected even though real wages and rates of return are not significantly affected by capital dilution. Some of the GDP will be owed to, and distributed to, foreign investors. Thus, the relevant measure of income accruing to Australian residents is GNP rather than GDP. GNP is equal to GDP plus Net Foreign Income (NFI). Returns paid to foreign investment make a negative contribution to NFI.

There is another way that the capital to labour ratio could be affected. It can arise if foreign investment is used to increase the capital stock or if imports grow as a consequence of the larger economy. In these situations, to achieve a sustainable current account balance, it could be necessary to expand exports. This expansion could lower the prices received for exports, leading to a decrease in the terms of trade and real GDP. To the extent that domestic rates of return on capital are determined by international markets, the marginal physical product of capital would need to rise in order to raise the marginal value product of capital. In turn, this would decrease the marginal physical product of labour, real wages, the capital to labour ratio, and labour productivity.

The accumulation of capital can also be affected by the amount of capital that migrants bring with them, and the extent to which they send remittances to their country of origin (Brown 2005; Lopez-Cordova and Olmedo 2005).

Finally, the faster rate of net investment could provide an opportunity to adopt new technology at a faster rate, thereby contributing to higher productivity and living standards.

Economies of scale and competition

As noted in chapter 2, migration to Australia has contributed significantly to population growth. If economies of scale are present, then the increase in population size could contribute to an increase in productivity and income per capita. This source of productivity is cited often as a potential benefit of migration (BCA 2004, Corden 2003, Foster 1996, Garnaut 2002 and Withers 2003d).

An important issue is the extent to which the increase in population translates into an increase in demand for the goods or services of those sectors that exhibit economies of scale.

Corden (2003) suggests that the link between economies of scale and the size of the population is most relevant in sectors producing goods and services that are not traded internationally (for example domestic transport, communications and public administration — the 'provision of public goods').

Population size (and domestic demand) could be less relevant to internationally traded goods and services sectors because economies of scale can be achieved through international trade. A caveat here, raised by both Corden (2003) and Withers (2003b), is the extent to which transport costs are impeding exports. Australia's transport costs could be high due to the 'tyranny of distance'. In this case, a larger domestic market might provide a platform to lower unit costs of supply. Thus, offsetting high transport costs and providing a platform for breaking into export markets. Whether this occurs depends, in part, on the extent to which economies of scale arise from a modest increase in the size of the population.

There are other ways in which a larger population could affect productivity. These effects arise from those externalities that are themselves manifested as economies of scale. The externalities arise from the higher density of population and economic activity. This effect is often referred to as 'agglomeration' or 'thick markets'.

Agglomeration of economic activity can:

- increase knowledge spillovers between firms (Morrison Paul and Siegel 1999)
- lead to economies of localised industry arising from shared inputs in production (repair, accounting, legal) (Quigley 1998)
- exploit greater specialisation between firms and any economies of scale in local transport networks (Ciconne and Hall 1996)
- reduce transaction costs (matching work skills to job requirements) (Quigley 1998)
- increase the adoption of new technology by increasing the domestic capability to undertake research and development (Keller 2002)
- reduce risk arising from diversity of customers and non-coincident fluctuations in sales (Quigley 1998).

Finally, a larger population (and domestic market) might improve productivity by enhancing competition in domestic markets, by supporting a larger number of firms which compete against each other (BCA 2004; Corden 2003). This could reduce the misallocation of resources arising from monopolistic pricing behaviour.

Natural resources, land and environmental externalities

Increasing the size of the economy increases the demand for natural resources (fixed and renewable) and land. Growth theory suggests that if the supply of these resources is limited, then it can result in lower labour productivity and income per capita (Romer 2001). The effect is similar to that of capital dilution described above.

Linking migration and population size to the use of natural resources and its productivity effects needs to consider similar issues to those discussed in economies of scale. Natural resources and land can be used in the production of most goods and services. But, in the context of migration, it is their use in the production of non-traded goods and services that is most relevant. Migration and a larger population contribute to an increase in demand for non-traded goods and services. An exception arises if migration leads to deterioration in the balance on current account. To sustain the balance on the current account, an increase in exports might be required. In turn, this could increase the demand to use the natural resources embodied in the exports.

If the supply of natural resources cannot keep pace with growth in their demand (regardless of the source of demand), then the price for natural resources rise. Over time, the increase in price encourages substitution to alternative inputs and the development of new technologies. These developments allow the economy to decrease the intensity of the use of natural resources (Romer 2001; Weil 2005).

Substitution and the development of new technologies can reduce the drag on productivity arising from the scarcity of natural resources and land. However, a drag remains and its size depends on the ease of substitution between natural resources/land and other factors of production. The potentially lower productivity arising from limited natural resources and land needs to be balanced against the other productivity effects of migration and population growth.

The links between population size and environmental externalities, such as congestion (traffic congestion, congestion in national parks) and pollution are similar to those described above for natural resources. The main difference is that the effects of these externalities are not necessarily reflected in market prices (Weil 2005; Clarke and Ng 1993). Thus, government intervention may be required to internalise these effects, such as establishing property rights, pollution taxes, subsidies, or regulations.

The avoidance of pollution and congestion can moderate the decrease in living standards and productivity. But, the abatement and enforcement costs must also be considered. The overall impact depends on both the internalisation of the externality and the ease of substitution of technologies that have lower congestion and pollution (costs of abatement).

Once again, this decrease in productivity from environmental externalities needs to be balanced against the other productivity effects of migration and population growth.

The income redistribution effects arising from the increasing relative scarcity of natural resources and land are likely to be in favour of existing residents. They accrue as increasing resource rents to existing residents, if they own the resources (Clarke and Ng 1993). The exception would be the dilution of per capita resource rents for those resources embodied in exports, where prices are set by international markets (Garnaut 2002). The income redistribution effects arising from internalising environmental externalities depend on the level of the externality, the policies implemented to internalise them and their costs of abatement. In other words, it is difficult to determine the effects without knowledge about the specific policy implemented by government to solve the problem.

Public goods, transfer payments and taxation

The diversity of migrants has the potential to alter the:

- mix of public goods provided by all levels of government (for example education, health)
- mix and levels of the various transfer payments made by all levels of government (for example, social security)
- level of taxation revenue collected by all levels of government.

Governments use fiscal policy to achieve a number of objectives, such as macroeconomic management of the economy, income redistribution and economic growth.

However, only the efficiency effects of changes to government expenditures and revenues are relevant to productivity and income per capita. According to growth theory, it is possible for fiscal policy (taxation and government expenditure) to have long-run implications for economic growth (Zagler and Durnecker 2004).

For example, positive externalities could exist in education, health, research and development and public infrastructure. In such circumstances, there could be a role for government to facilitate provision so that the benefits of these externalities are captured (Weil 2005; Zagler and Durnacher 2004)

On the revenue side, taxes can distort private agents' decisions with respect to labour supply and capital accumulation. These distortions can alter the productivity of the economy (Diewert and Lawrence 1995; Freebairn 1995). On the other hand, distortionary taxes can also be used to internalise any externalities arising from private decisions regarding the accumulation of human and physical capital, and research and development.

To illustrate how migration might affect efficiency, consider an increase in skilled migration. This could increase income tax revenue because a larger workforce per head of population is earning higher wages. It could also reduce transfer payments through a reduction in the proportion of the population receiving social security. Offsetting this would be an increase in the provision of public goods and services. If the net result were a surplus, then the government might consider reducing tax rates to maintain the budget in balance. This could reduce the deadweight loss of taxation and improve productivity.

Alternatively, governments might choose to increase the provision of services, increase savings or retire debt. The efficiency effects depend on the government response to the initial changes in expenditures and revenues, and the extent of any externalities and distortions.

The nature of the taxation and transfer payment systems is also pertinent to income redistribution effects. In the above example, existing residents would benefit from reduction in the tax rate.

Sectoral reallocation of economic activity

The diversity of migrants can lead to a reallocation of economic activity between the various sectors of the economy. The change in the relative size of each sector can affect the growth rate in productivity at the aggregate level. This is because the aggregate rate of productivity growth is a weighted average of the sectoral rates of growth in productivity, with the weights equal to the relative size of each sector.

Generally, rates of productivity growth differ across sectors. The reallocation of economic activity across sectors changes the weights assigned to each sector. The aggregate rate of productivity growth could increase if the reallocation of activity were to result in higher weights for sectors with higher rates of productivity growth (Gollop 1985; Weil 2005). It is also possible for the restructuring of the economy tocontribute to a lower aggregate rate of growth in productivity.

Trade and technology transfer

Migrants, through their links to and knowledge of international markets, might facilitate access to more valuable markets, causing a reallocation of the nation's resources to exports having a higher marginal value.

Migrants might also possess skills that facilitate the importation and adoption of new technologies, thereby raising productivity and income per capita. It also might be possible for migrants to transfer their skills to existing residents (Stromback 1994). The skill transfer could occur by training provided by skilled migrants, cross-cultural skills and the imparting of attitudes favourable to increased efficiency.

Conclusion

There are many factors to consider in evaluating the effects of migration and population growth on productivity and growth in per capita income. Some contribute positively, others negatively. The overall outcome depends on the sum the contributions. The magnitude of these contributions is essentially an empirical matter.

The likely contributions of the various factors to productivity and growth in income per capita are explored in the following chapters and appendices.

4 The diversity of the migrant workforce

Key points

- Immigrants work more hours per head of population than the Australian-born population, boosting economic output per capita. This is a consequence of:
  - a high proportion of the immigrant population being old enough to work
  - employed immigrants working slightly longer hours than Australian-born workers.
- The immigrant population works more despite a lower workforce participation rate. Participation and unemployment rates of immigrants depend on their age, gender, level of education, English ability and the length of time they have been in Australia.
- Immigrants entering Australia under skilled visa categories have higher participation and lower unemployment rates than their counterparts entering under family and humanitarian visas.
- Because immigrants — especially those entering under skilled visas — work more, increasing skilled immigration is likely to have a positive but small effect on hours worked. A 50 per cent increase in skilled immigration is estimated to increase the supply of labour per capita in Australia by about 1.3 per cent after 20 years.
- Immigration also has the potential to affect the hours worked by other Australians. However, studies have failed to find a link between immigration and unemployment among the existing population.
- Children of immigrants work less hours per capita than the rest of the Australian-born population, because fewer are old enough to work. This offsets some of the effect of immigrants on hours worked per head of population.
- Emigrants appear to work more than the people they leave behind. However, the effect of emigration on hours worked in Australia is likely to be small compared with the effect of immigration, because there are many more immigrants in Australia than Australian-born people overseas.
- Immigrants and emigrants alike have relatively high levels of formal education. They tend to be more concentrated in skilled occupations than the rest of the Australian population.

Migration has the potential to change the composition of the Australian labour supply. These changes relate to the proportion of the population in work, the time spent at work, and workforce skills and roles. Any of these factors can affect output from the Australian economy.

Growth theory indicates that it is labour supply per head of population that is relevant to understanding growth in income per capita. Migration has the potential to alter the supply and productivity of labour when the characteristics of migrants differ from those of the existing population. This is illustrated in box 4.1, where GDP per capita is decomposed into the product of hours worked per capita and labour productivity. Hours worked per capita is discussed in this chapter and the effect of migration on labour productivity is examined in chapter 5.

Box 4.1 **Decomposing GDP per capita**

Income per capita can be expressed as the product of hours worked per capita (the focus of this chapter) and labour productivity, measured as real output (GDP) per hour worked (discussed in chapter 5):

$$\frac{GDP}{POP} = \frac{Hours}{POP} \times \frac{GDP}{Hours}$$

where POP is the total population, GDP is real gross domestic product and Hours are total hours worked.

In turn, hours worked per capita can be expressed as the product of four ratios:

$$\frac{Hours}{POP} = \frac{POP15+}{POP} \times \frac{LF}{POP15+} \times \frac{EMP_t}{LF_t} \times \frac{Hours}{EMP}$$

$$= \frac{POP15+}{POP} \times \frac{LF}{POP15+} \times (1-UR) \times \frac{Hours}{EMP}$$

where POP15+ is the population aged over 15 years, EMP is the number of persons employed, UR is the unemployment rate and LF is the labour force (people in work or looking for work). Also:

$\frac{POP15+}{POP}$ = proportion of the total population that is of working age

$\frac{LF}{POP15+}$ = participation rate

$1-UR = \frac{EMP}{LF}$ = employment rate

$\frac{Hours}{EMP}$ = hours worked per worker.

Source: PC (2005b).

Labour supply per capita can be easily understood by expressing hours worked per capita as the product of the following ratios (box 4.1):

- number of working-age people divided by total population
- number of people in the labour force divided by number of working-age people (participation rate)
- number of people in employment divided by number of people in the labour force (employment rate)
- total hours worked divided by number of people in employment

These factors vary with the characteristics of immigrants entering under the various visa groups. Therefore, this chapter begins by looking at the post-school education, occupation and industry of employment of immigrants (sections 4.1 and 4.2). After this, the effect of immigrants on each of the factors contributing to hours worked per capita are analysed individually (sections 4.3 to 4.6). Then we conclude by looking at the overall effect of migration on labour supply per capita (section 4.11).

The overall effect of migration on hours worked per capita also includes the effect of emigration, which is discussed separately following the analysis of immigration (section 4.9). Migration can also affect the composition of the labour supply through second generation effects. The children of immigrants might have different characteristics to third or greater generation Australians, leading to additional long-term effects on the composition of the labour supply. These effects are also considered in this chapter (section 4.8).

4.1 The education levels of immigrants

Immigration brings in people who have varying levels of skills across a broad range of fields. The skilled visa groups of the Migration Program are specifically designed to target principal applicants who have desired skills. However, immigrants in this group also include 'secondary' applicants, such as partners and children. The secondary applicants do not necessarily have the same skill levels as the principal applicant.

A proportion of immigrants entering under other visa groups also have skills. However, there are likely to be some qualitative differences in skills between those entering under skilled and other visa groups. For example, the qualifications of those in the non-skilled visa groups are not assessed for their equivalence to standards in Australia.

Here, educational attainment is used as a measure of skill. Four categories of educational attainment are used. In ascending order, they are no post-school education, certificate level, bachelor degree or diploma level, and postgraduate level.

Effects of immigration on the education levels of the workforce

Immigrants tend to be more highly educated than Australian-born people. Throughout the 1990s, a greater proportion of immigrants than Australian-born residents had post-school qualifications (figure 4.1). In 2001, immigrants were more likely to have qualifications at postgraduate and bachelor degree or diploma levels.

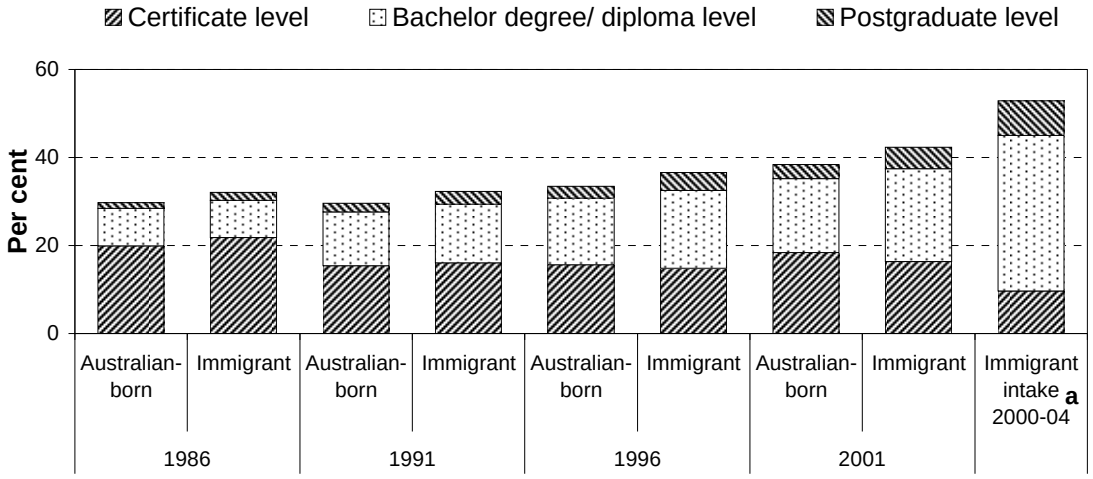
They were also more likely than Australian-born persons to have year 12 or higher level schooling (DIMIA, sub. 22).

Immigrants are more highly educated partly because the Australian immigration program has a clear objective to attract skilled immigrants. Of around 135 000 places provided for in the 2004-05 Migration and Humanitarian Programs, 77 800 were for skilled immigrants. Table 4.1 shows that the education level of immigrants is higher for those entering under skilled visas compared with other visa types. However, many of those entering under other visa types are still highly educated.

The objective to attract skilled immigrants gained increased emphasis during the late 1990s (Khoo 2002). This has meant that recent immigrants are more skilled than those who entered in the early 1990s (Cobb-Clark 2006; Richardson et al. 2001). Over half of all immigrants between 2000 and 2004 held some form of post-school qualification (figure 4.1).

Figure 4.1 **Proportion of Australian-born persons and immigrants with post-school qualifications**

1986 to 2001 Censuses



a Immigrants who arrived in Australia between 2000 and 2004, were still in Australia in November 2004 and planned to stay in Australia for at least 12 months.

Source: Commission estimates based on unpublished ABS Census and Labour Force Status and other Characteristics of Migrants Survey data.

Table 4.1 **Post-school education level of immigrants**

Proportion of immigrants in each visa group between 2000 and 2004[a]

Visa type	*No post-school education*	*Certificate level*	*Bachelor degree/ diploma level*	*Postgraduate level*
	%	%	%	%
Family stream	50.8	10.4	32.4	6.4
Humanitarian	74.3	13.9[c]	11.8[c]	0.0[d]
New Zealand citizen	53.7	15.8	24.7	5.8[c]
Skilled	20.1	15.1	48.8	16.1
Long-term temporary[b]	55.0	4.8	34.9	5.4
All immigrants	46.9	9.7	35.5	7.9

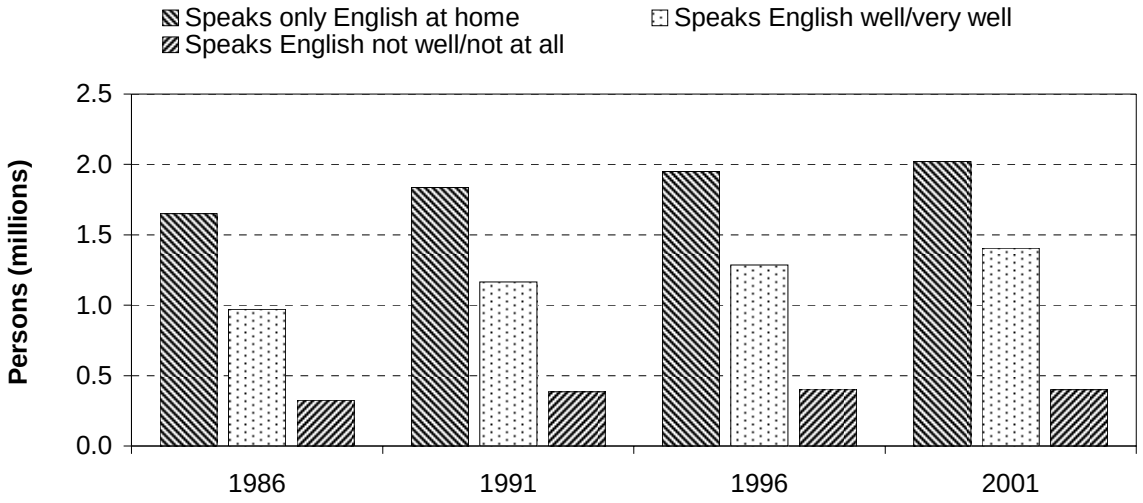
[a] Rows might not add to 100 per cent as a result of rounding. [b] Includes only people planning to stay in Australia for at least 12 months. [c] Estimate has a relative standard error of 25 to 50 per cent. [d] Estimate has a relative standard error of over 50 per cent.

Source: Commission estimates based on unpublished ABS Labour Force Status and other Characteristics of Migrants Survey data.

In Australia, an important factor influencing immigrants' labour market outcomes is their proficiency in English. Based on data from the 2001 Census, most immigrants speak only English at home (figure 4.2), about 80 per cent of whom came from countries where English is the major language. Of those immigrants who speak another language at home, most claim to speak English well or very well. About 10 per cent of all immigrants speak English 'not well' or 'not at all'.

Figure 4.2 **English ability of immigrants**

1986 to 2001 Censuses



Source: Commission estimates based on unpublished ABS Census data.

Like formal education levels, the self-reported English ability of recently arrived migrants has improved. Over 20 per cent of immigrants who arrived in the five

years prior to each of the 1986, 1991 and 1996 Censuses claimed that they spoke English 'not well' or 'not at all'. This compares with about 16 per cent in the 2001 Census and for those arriving between 2000 and 2004 (unpublished ABS Labour Force Status and other Characteristics of Migrants Survey data).

Effect of immigration on education of other Australians

It has been suggested that immigration can affect the skill levels of the existing Australian population. For example, the Australian Manufacturing Workers Union noted in its submission that '[t]emporary skilled migration is a substitute for capability building through skills training' (sub. 20, p. 9).

Immigration by skilled people could have a negative effect on the education and training of existing Australians through at least two mechanisms. First, by providing an alternative source of skilled workers, immigration could affect the *demand* for skilled Australian workers. Employers might choose to hire skilled immigrants rather than train local residents. Second, immigration could also change the return to skills in Australia. This would affect the incentives for individuals to undertake training, so that the *supply* of skilled workers in Australia could be lower than it otherwise would be.

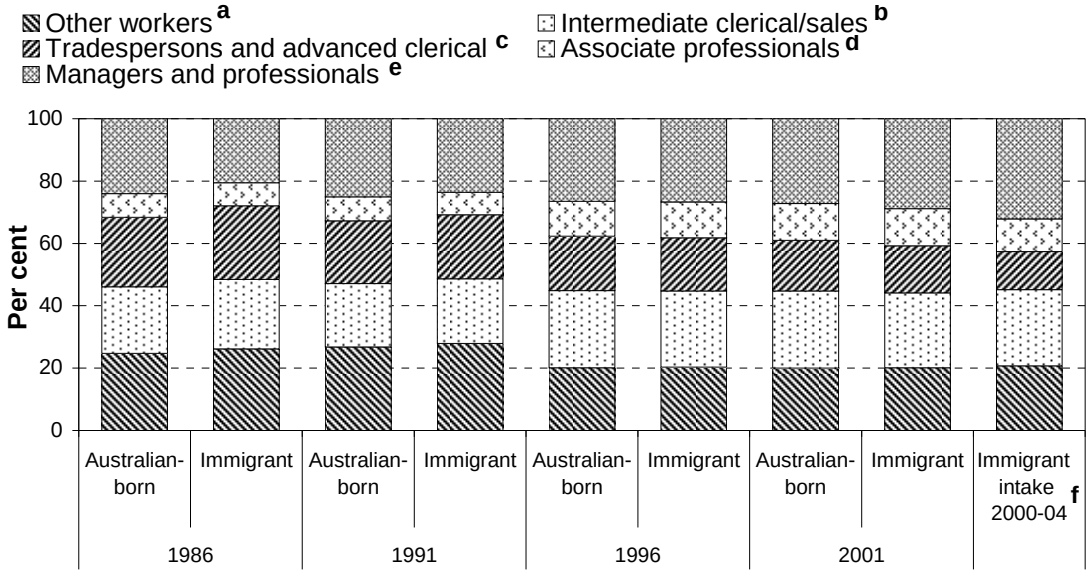
As an offset to any such effects, some researchers (for example, Baker and Wooden 1992) have suggested that skilled immigrants might be able to pass on their ideas and skills to the rest of the workforce, so that immigration might be a complement to, rather than a complete substitute for, domestic training. There is evidence of some Australian companies recruiting foreign workers specifically to improve the skills of their local workers (Northern Territory Government, sub. 25). Stromback (1994) found that most immigrants entering under the Employer Nominated Scheme and the Temporary Residence Program in Western Australia provided training to their co-workers.

Empirical studies have typically found a small overall impact of immigration on the training levels of existing workers. Using a large, individual-level database, Baker and Wooden (1992) conclude that immigration did not displace training activities in Australia, although immigration was found to have a small negative impact on in-house training. Withers (2003b) also suggests that demand for goods and services by immigrants will contribute to an increase in demand for skilled workers and thus new training slots, offsetting the negative effects on training of other Australians.

4.2 Immigration and the supply of labour by occupation and industry

Reflecting their higher educational attainment, immigrants tend to work in more skilled occupations than Australian-born workers. In 2001, a higher proportion of immigrants than Australian-born workers were managers, professionals or associate professionals. There has been a trend towards an increasing proportion of immigrants working in more skilled occupations. Since 1986, the proportion of immigrants working in higher skill occupations has increased compared with Australian-born residents (figure 4.3).

Figure 4.3 **Occupation of employed persons**
1986 to 2001 Censuses



a Elementary clerical, sales and service workers, and labourers and related workers (Australian Standard Classification of Occupations (ASCO) skill level 5). **b** Intermediate clerical, intermediate production, clerical, sales, service and transport workers (ASCO skill level 4). **c** Tradespersons and related workers, advanced clerical and service workers (ASCO skill level 3). **d** Associate professionals correspond to ASCO skill level 2. **e** Managers, administrators and professionals (ASCO skill level 1). **f** Immigrants who arrived in Australia between 2000 and 2004, were still in Australia in November 2004 and planned to stay in Australia for 12 months or more.

Source: Commission estimates based on unpublished ABS Census and Labour Force Status and other Characteristics of Migrants Survey data.

For a given education level, immigrants work in less skilled occupations than do Australian-born people. Of people with diploma level or higher education, immigrants are less likely than the Australian-born to be working as managers or professionals (table 4.2). This is especially so for recently arrived immigrants (consistent with the findings of Green, Kler and Leeves 2005). Other evidence suggests they often work in less skilled occupations compared with their occupation

prior to migration (Willams, Murphy and Brooks 1997). Both of these studies found that the occupational-skill mismatch is particularly marked for immigrants from non-English speaking backgrounds.

Table 4.2 **Education and occupation of immigrants and Australian-born persons**

Proportion of employed persons in each occupation class, 2004

Post-school education	*Arrival in Australia*	*Managers and professionals*	*Associate professionals*	*Tradespersons and advanced clerical*	*Intermediate clerical/ sales*	*Other workers*
		%	%	%	%	%
Postgraduate level	2000-04	66.8	10.8	3.4	9.8	9.1
	1990-99	68.1	9.7	5.5	14.2	2.5
	Before 1990	77.4	11.3	2.9	5.3	3.1
	Born in Australia	81.7	9.7	2.2	5.4	1.1
Bachelor degree/ diploma level	2000-04	42.0	7.6	8.9	25.0	16.7
	1990-99	39.9	14.6	9.6	24.1	11.8
	Before 1990	56.7	14.2	6.5	16.3	6.4
	Born in Australia	58.4	15.1	6.9	13.7	5.9
Certificate level	2000-04	14.2	12.5	33.3	24.2	15.9
	1990-99	8.1	11.4	34.6	22.4	23.7
	Before 1990	13.7	15.6	33.2	23.5	14.1
	Born in Australia	11.9	13.6	34.2	26.2	14.1
No post-school education	2000-04	3.1	7.8	10.5	31.5	47.1
	1990-99	8.1	9.6	12.9	32.9	36.5
	Before 1990	11.2	11.4	14.3	34.2	28.8
	Born in Australia	10.2	9.9	14.1	33.9	31.9

Source: Commission estimates based on unpublished ABS Survey of Education and Work data.

The distribution of immigrant workers by industry is compared with that of Australian-born persons in table 4.3. In 2001, the Manufacturing, Property and Business Services, and Retail industries were the three biggest employers of both migrant and Australian-born workers.

Relative to Australian-born workers, immigrants were less likely to work in Agriculture, Forestry and Fishing and more likely to work in Manufacturing. In 1986, immigrants were more likely than Australian-born people to work in Construction, though this was not so by 2001. Immigrants' historical propensity to work in Manufacturing and Construction has been suggested as an explanation for why immigrants fare poorly in the labour market during recessions (Ackland and Williams 1992).

The distribution of the employment of immigrants across industry continues to change. Immigrants entering Australia between 2000 and 2004 were less likely to work in Manufacturing than their predecessors. They were more likely to work in Property and Business Services or Accommodation, Cafes and Restaurants.

Table 4.3 **Employed immigrants and Australian-born persons by industry**
Proportion in each industry[a]

	1986		*2001*		
Industry	*Australian-born*	*Migrants*	*Australian-born*	*Migrants*	*Migrant intake 2000-04*[b]
	%	%	%	%	%
Accommodation, cafes and restaurants	3.2	4.0	4.8	5.8	9.1
Agriculture, forestry and fishing	7.0	2.4	4.8	1.9	0.9[c]
Communications	2.2	2.0	1.8	2.1	1.3
Construction	6.4	8.0	6.9	6.8	6.0
Cultural and recreational services	1.9	1.5	2.7	2.0	1.6
Education	7.4	5.6	7.7	6.3	6.7
Electricity, gas and water	2.1	1.7	0.8	0.6	0.4[c]
Finance	4.9	3.7	3.8	4.2	5.0
Government	6.7	5.1	4.9	3.7	2.1
Health	8.4	8.7	9.7	10.7	12.0
Manufacturing	12.9	22.0	11.1	16.4	10.8
Mining	1.5	1.4	1.0	0.8	0.7
Personal services	3.3	2.8	3.9	3.1	2.5
Property and business services	6.4	7.0	10.8	13.1	19.0
Retail	14.4	12.9	15.7	12.3	9.6
Transport	5.6	5.2	4.4	4.5	5.4
Wholesale	5.8	6.1	5.3	5.7	7.0
All industries	100.0	100.0	100.0	100.0	100.0

[a] Totals might not add as a result of rounding. [b] Immigrants who arrived in Australia between 2000 and 2004, were still in Australia in November 2004 and planned to stay in Australia for 12 months or more. [c] Estimate has a relative standard error of 25 to 50 per cent.

Source: Commission estimates based on unpublished ABS Census and Labour Force Status and other Characteristics of Migrants Survey data.

Although immigrants do not differ greatly from Australian-born people in their employment by broad occupation and industry groups, they can make up a large part of the workforce in certain occupations. For example, immigrants made up almost 40 per cent of people in Australia with bachelor degrees or higher in the accounting field and over 30 per cent of people working as accountants in 2001 (Birrell and Rapson 2005). In industries with a large immigrant workforce, immigrants might have an impact on the job prospects of Australian-born people.

4.3 Immigration and the working age population

Excluding intergenerational effects, immigration has increased the proportion of the population of working age, thus contributing to a higher level of labour supply per capita.

Because the children of immigrants born after entry to Australia are part of the Australian-born population, the immigrant population in Australia has historically been older than the Australian-born population. The immigrant population is a mix of immigrants entering Australia just recently and in earlier years. Immigrants who entered Australia many years ago will now be older than when they entered. As a result, although around a quarter of immigrants are below working age when they enter Australia, only a small proportion of the immigrant population — around 5 per cent — was aged under 15 in 2001 (table 4.4). In contrast, about 25 per cent of the Australian-born population was younger than 15 years.

The older age of immigrants is accentuated because rates of net migration to Australia (as a proportion of the population) peaked around 1950 and remained high until the late 1960s (Withers and Pope 1993). This has meant that there is a relatively large cohort who entered Australia during this period who are now older than the recent arrivals.

Table 4.4 **Age distribution of immigrants and Australian-born populations**

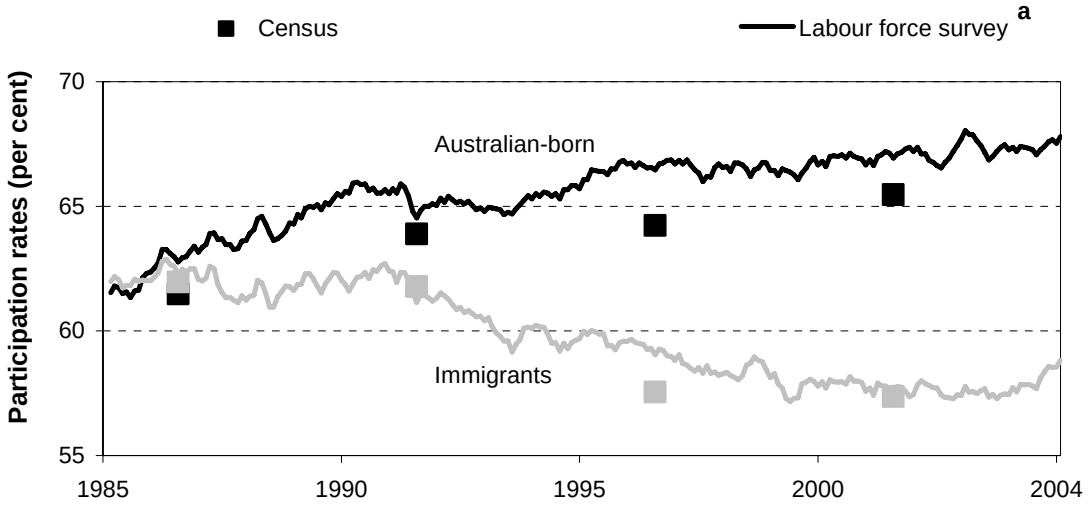
			Migration and humanitarian programs 2004-05			
Age	*Immigrants 2001*	*Australian-born population 2001*	*Skilled*	*Family*	*Humanitarian*	*Total*
	%	%	%	%	%	%
Under 15	5.2	24.8	26.9	15.7	41.2	24.8
15 to 24	9.5	14.9	7.8	17.2	25.2	12.5
25 to 44	33.4	29.3	58.1	46.4	27.3	51.4
45 to 64	34.2	20.1	7.1	14.5	5.7	9.3
65 plus	17.7	10.9	0.1	6.2	0.6	2.1

Source: Commission estimates based on unpublished ABS Census and Department of Immigration and Multicultural and Indigenous Affairs movements database.

4.4 Immigration and labour force participation

Since the mid-1980s, the immigrant population has had a lower participation rate than the Australian-born population (figure 4.4). This has contributed to a decrease in the number of hours worked per head of population in Australia.

Figure 4.4 **Participation rates of immigrants and Australian-born people**
Persons aged over 15 years



a Three month moving average.

Source: ABS unpublished Census data and ABS (*Labour Force, Australia*, Cat. no. 6291.0).

The increase in the difference between participation rates of immigrants and Australian-born people during the late 1980s and 1990s is explained using the information in table 4.5. The Commission's analysis indicates that participation rates depend on education, age, gender and (for immigrants) English ability (appendix E). In 2001, immigrants had a participation rate about 8 percentage points lower than the Australian-born population. The poorer English ability of some immigrants accounted for about 5 percentage points of the difference in participation rates between immigrants and Australian-born people. About 3 percentage points of the difference was due to the immigrant population being older than the Australian-born population. The difference was 1 percentage point smaller because of the higher education of immigrants. About 1 percentage point of the difference was not explained by the factors considered. 'Unexplained' differences are those not explained by age, gender, education or English ability and include the impact of recently arrived migrants.

Immigrants have low participation when they first arrive in Australia, increasing with time spent in the country. This conclusion is based on a separate analysis, presented in appendix E (table E.2). This analysis showed that immigrants tend to have lower participation during their first five to fifteen years in Australia. The analysis also shows that compared with Australian-born people with the same characteristics (education, age, gender, English ability) immigrants have higher participation rates, by around 3 percentage points.

Table 4.5 **The difference in participation rates between immigrants and the Australian-born population**

1986 to 2001 Censuses

	1986	*1991*	*1996*	*2001*
	Percentage points			
Overall difference[a]	-0.3	2.7	7.0	8.3
Factors contributing to the difference:				
English ability	2.3	3.4	5.2	4.8
Age distribution	1.0	1.3	2.3	3.1
Gender mix	-0.7	-0.3	-0.2	-0.1
Education level	-0.4	-0.5	-0.7	-0.9
Unexplained	-2.5	-1.2	0.4	1.3

a The Australian-born participation rate minus the immigrant participation rate. Includes only Census responses that identify age, education and English ability.

Source: Commission estimates based on regression analysis reported in appendix E.

An analysis of the participation rates of more recent immigrants is described in table 4.6. Immigrants entering Australia between 2000 and 2004 had lower participation rates than both Australian-born people and immigrants who arrived between 1990 and 1999. These participation rates can be expected to rise with length of residence in Australia, for some years.

Participation rates vary widely across visa categories (table 4.6). These differentials largely appear to reflect the underlying characteristics of individual immigrants, rather than differences in visa categories per se (Cobb-Clark 2000, 2003; Miller 1999). Immigrants entering Australia under the skilled migration program tend to be highly educated and of prime working age. This contributes to a higher participation rate compared with immigrants in other visa categories.

There is also evidence that among otherwise similar immigrants, those entering under skilled visas participate more. Cobb-Clark (2006) finds that immigrants in skilled visa categories tend to have higher participation rates than those arriving under family and humanitarian visas, even after accounting for age, education, English ability and other characteristics. The Commission's analysis reported in appendix E supports this conclusion.

The higher participation of otherwise similar immigrants under skilled visas might be because of qualitative differences in the skills between entrants under different visas. Because the qualifications of those in the non-skilled visa groups are not assessed for their equivalence to standards in Australia, they might not be as useful in the labour market as the qualifications of skilled visa holders. There might also be differences in the motivations of skilled visa holders compared with those under

other visa types. Entrants under skilled visas might be more likely to have migrated for economic reasons and thus more inclined to seek work.

Table 4.6 **Participation rates of immigrants**
By year of arrival, visa group and age group, 2004

		Age				
Year of arrival	*Visa*	*15-24*	*25-44*	*45-64*	*65 & over*	*Total*
		%	%	%	%	%
2000 to 2004	Skilled	60.3[c]	85.3	77.9	0.0[d]	82.0
	New Zealand citizen	71.6[c]	87.0	81.3	0.0[d]	80.7
	Family stream	57.5	62.9	50.9	0.0[d]	57.9
	Humanitarian	53.3[d]	40.8[c]	38.9[d]	0.0[d]	39.6
	Temporary visa[a]	31.6	57.6	37.6[c]	7.7[d]	43.1
	Total	43.9	71.8	63.1	1.9[d]	62.1
1990 to 1999[b]		66.8	75.7	70.1	3.8	68.3
Australian-born		72.0	82.8	71.5	8.5	67.3

[a] Temporary residents planning to stay in Australia for 12 months or more. [b] Total for all visa classes. [c] Based on estimates with relative standard errors greater than 50 per cent and likely to be unreliable. [d] Based on estimates with relative standard errors between 25 per cent and 50 per cent.

Source: Commission estimates based on unpublished ABS Labour Force Status and other Characteristics of Migrants Survey data.

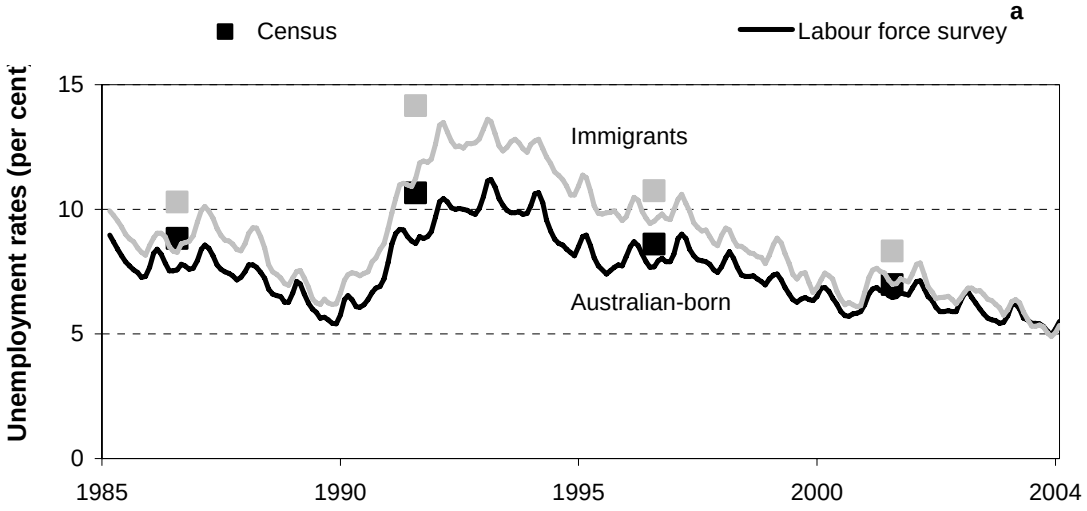
Immigrants might also affect overall participation rates by affecting the participation of other Australians. However, this effect is likely to be small. The impact of immigrants on unemployment rates of the Australian-born population has the potential to be more significant (section 4.5).

In summary, immigrants have a lower participation rate than does the Australian-born population. This is entirely because of compositional differences between the immigrant and Australian-born populations. Immigrants participate more compared with Australian-born people with the same characteristics. However, their participation is lower if they have recently arrived in Australia or speak English poorly. Immigrants living in Australia under skilled visas participate more than people under family and humanitarian visas. Most (but not all) of the difference between visas is attributable to differences in the composition of immigrants between visa categories.

4.5 Immigration and unemployment rates

By the early 2000s, there was little difference between the unemployment rates of immigrants and Australian-born people (figure 4.5). This was a change from the early 1990s, when the unemployment rate of immigrants was as much as 3 percentage points higher than that of the Australian-born population.

Figure 4.5 **Unemployment rates of immigrants and Australian-born**
Persons aged over 15 years



a Three month moving average.

Source: ABS unpublished Census data and ABS (*Labour Force, Australia*, Cat. no. 6291.0).

The greater difference in unemployment rates in the early 1990s was posited by some researchers to be due to the recession and immigrants' relative concentration in recession-prone industries (Ackland and Williams 1992). Others have found that the improved employment outcomes for immigrants arriving in Australia around 2000 largely reflected improvements in their characteristics, such as education and English ability (Richardson et al. 2001). These improvements were considered to be partly due to changes to migration programs: an increasing proportion of immigrants entering under skilled migrant visas and tighter eligibility criteria for entry.

At the time of the 2001 Census, immigrants had an unemployment rate over 1 percentage point higher than the Australian-born population, due to the interaction of various factors (table 4.7). The poorer English ability of some immigrants contributed to unemployment being 1.7 percentage points higher for the immigrant population compared with the Australian-born population. Offsetting this, the older age and higher education levels of immigrants contributed to decreases in their unemployment rates by almost 1 percentage point and 0.4 percentage points respectively. Nevertheless, almost a full percentage point difference between the unemployment rates of the immigrant and Australian-born populations was because of 'unexplained' differences.

Table 4.7 **The difference in unemployment rates between immigrants and the Australian-born population**

1986 to 2001 Censuses

	1986	*1991*	*1996*	*2001*
	Percentage points			
Overall difference[a]	-1.3	-3.4	-2.1	-1.3
Factors contributing to the difference:				
Age distribution	1.3	1.5	1.1	0.9
Education level	0.1	0.3	0.4	0.4
Gender mix	0.0	-0.1	-0.1	0.0
English ability	-1.8	-3.2	-2.4	-1.7
Unexplained	-0.9	-1.9	-1.1	-1.0

[a] The Australian-born unemployment rate minus the immigrant unemployment rate. Includes only Census responses that identify age, education and English ability.

Source: Commission estimates based on regression analysis reported in appendix E.

As in the case of participation rates, part of the 'unexplained' difference in unemployment rates arises from immigrants who arrived in Australia recently. Separate analysis presented in appendix E (table E.3) indicates that immigrants who have been in Australia for less than 15 years tend to have higher unemployment rates than would be expected had they been in Australia for longer. This means that when immigrants first come to Australia, they are more likely to be unemployed. The likelihood of being unemployed decreases with time in Australia. However, even immigrants who have been in Australia for longer than 15 years are more likely to be unemployed than an Australian-born person with the same age, education, gender and English ability (appendix E; table E.3).

More recent data on unemployment among immigrants indicate that those arriving recently continue to have higher unemployment rates than immigrants who have been in Australia longer (table 4.8). Unemployment rates also vary across visa categories, with immigrants arriving under skilled visas having lower unemployment rates than those under family and humanitarian visas.

Differences in unemployment rates across visa types are largely explained by differences in the characteristics of the immigrants entering under the different categories (Cobb-Clark 2006). It is mostly because of their higher education and concentration in the prime working ages that immigrants under skilled visas have lower unemployment rates than family and humanitarian entrants.

However, unemployment rates of immigrants entering under skilled visas are lower than those of otherwise similar holders of family or humanitarian visas. Eighteen months after arriving in Australia, holders of skilled visas are likely to have lower

unemployment rates than those of immigrants under other visas, even after adjusting for age, education and other characteristics (Cobb-Clark 2006).

Table 4.8 **Unemployment rates of immigrants**
By year of arrival, visa group and age group, 2004

		Age				
Year of arrival	*Visa*	*15-24*	*25-44*	*45-64*	*65 & over*	*Total*
		%	%	%	%	%
1990 to 2004	Skilled	0.0[d]	5.2	1.8[c]	0.0[d]	4.3
	New Zealand citizen	7.0[c]	2.4[c]	6.9[c]	**na**	3.8
	Family stream	21.3[c]	8.4	5.4[c]	0.0[d]	8.8
	Humanitarian	25.0[d]	14.1[c]	22.2[c]	**na**	16.9[c]
	Temporary visa[a]	7.3[c]	5.9[c]	7.1[d]	0.0[d]	6.4[d]
	Total	11.4	5.8	5.2	0.0[d]	6.2
2000 to 2004[b]		11.3	7.0	5.2[c]	0.0[d]	7.6
1990 to 1999[b]		11.6	4.9	5.1	0.0[d]	5.1
Australian-born		10.3	3.9	2.8	0.4	4.9

[a] Temporary residents planning to stay in Australia for 12 months or more. [b] Total for all visa classes. [c] Based on estimates with relative standard errors greater than 50 per cent and likely to be unreliable. [d] Based on estimates with relative standard errors between 25 per cent and 50 per cent. **na** Not applicable.

Source: Commission estimates based on unpublished ABS Labour Force Status and other Characteristics of Migrants Survey data.

Effect of immigration on unemployment rates of other Australians

The effect of immigration on unemployment rates of other Australians is an empirical issue, as it involves evaluating two offsetting impacts. On the one hand, immigrants might obtain jobs that would otherwise have been filled by Australians. In the absence of a fall in wages, this could increase unemployment among the existing Australian population. On the other hand, immigration also stimulates demand for goods and services in the local economy. Seeking to meet this demand, local producers are likely to expand output and employ more people.

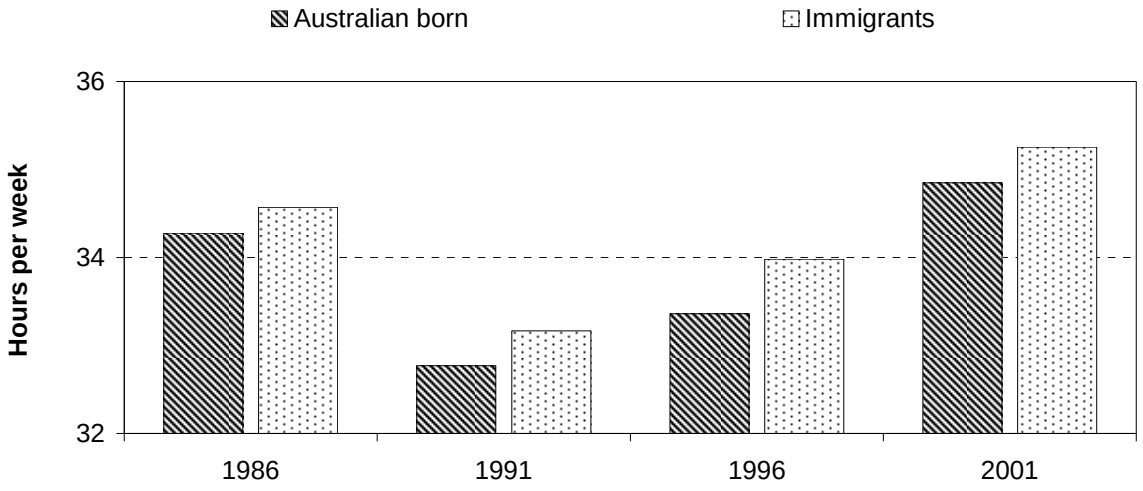
Studies that compare these offsetting effects generally find that immigration does not cause unemployment among existing Australians. In a recent paper, Chapman and Cobb-Clark (1999) show that, in theory, immigration can either increase or decrease the job prospects of unemployed Australian residents. However, they find that with realistic assumptions, immigration improves the short-run employment prospects of unemployed residents in 'practically all' labour market circumstances. Chapman and Cobb-Clark also provide a useful summary of empirical studies in Australia, Canada and the United States, which generally find that, at an aggregate level, immigration is not associated with higher levels of unemployment.

The finding that immigration has not caused unemployment at an aggregate level does not imply that it cannot lead to higher unemployment for specific groups. Immigration could worsen the labour market outcomes of people who work in sectors of the economy that have high concentrations of immigrant workers (DeVoretz 2001).

4.6 Immigration and working hours

Employed immigrants worked an average of around half an hour per week longer than Australian-born workers based on analysis of data obtained from the 1986 to 2001 Censuses (figure 4.6). There was little change in this pattern between Census collections.

Figure 4.6 **Hours worked by immigrant and Australian-born workers**
1986 to 2001 Censuses



Source: Commission estimates based on unpublished ABS Census data.

The difference in working hours between immigrant and Australian-born workers arises from differences in age and in industry and occupation of employment (table 4.9). Workers of prime working age (25 to 64 years old) work longer hours on average than younger and older workers. In 2001, immigrants worked about half an hour longer because a smaller proportion of immigrant workers were aged between 15 and 24. Immigrants worked almost a further half an hour longer because of the occupations and industries they worked in.

Table 4.9 **The difference in working hours between immigrant and Australian-born workers**

1986 to 2001 Censuses

	1986	*1991*	*1996*	*2001*
	Hours per week			
Average difference[a]	-0.2	-0.6	-0.6	-0.4
Factors contributing to the difference:				
English ability	0.2	0.2	0.3	0.5
Interaction between occupation and industry[b]	0.0	0.0	0.0	0.0
Gender mix	0.1	0.1	0.0	-0.1
Industry	-0.1	-0.1	-0.3	-0.2
Occupation	-0.2	-0.2	-0.2	-0.2
Age distribution	0.1	-0.2	-0.3	-0.5
Unexplained	-0.3	-0.4	-0.1	0.1

[a] Hours worked per week by Australian-born workers minus hours worked per week by immigrant workers. Includes only Census responses that identify age, occupation, industry and English ability. [b] Adjusts for the interaction effect between occupation and industry. For example, there is a much greater difference between management and less skilled roles (which are often part-time) in retail than in many other industries.

Source: Commission estimates based on regression analysis reported in appendix E.

English ability is another important factor influencing the working hours of immigrants. In 2001, the average working hours of immigrants were around half an hour lower because immigrants with lesser English ability tended to work fewer hours.

Thus, immigrant working hours are different because of the characteristics and work choices of immigrants, rather than because they are immigrants per se. Given their age, industry, occupation, time in Australia and English ability, immigrants did not work significantly different hours to Australian-born people in 2001 (appendix E table E.4).

4.7 Immigration and regional labour supply

Immigration can have relatively large effects on regional labour markets. In regions where immigrant settlement is concentrated, the effects on local labour supply can be more significant than the effects on the entire Australian labour market. However, most immigrants settle in major cities (appendix D), where their effect on the labour market is smaller because the new immigrants arriving each year are a small proportion of the population.

Those immigrants who do settle in regional areas, where their impact can be more substantial, have better relative labour market outcomes than those settling in major cities. In 2001, the differences in participation and unemployment rates between

Australian-born people and immigrants were lower in regional areas (particularly in remote areas) than in major cities (table 4.10). This generally occurs across all States and Territories.

This does not mean that sending immigrants to regional areas will necessarily ensure better outcomes. Skilled designated area sponsored immigrants have been shown to have worse labour outcomes six months after arrival than immigrants under other skilled visa types (Richardson 2005).

Table 4.10 **Participation and unemployment rates across regions**
Immigrants and Australian-born populations, 2001 Census

	Major city		*Inner regional*		*Outer regional*		*Remote*	
	Australian-born	*Immigrants*	*Australian-born*	*Immigrants*	*Australian-born*	*Immigrants*	*Australian-born*	*Immigrants*
	%	%	%	%	%	%	%	%
Participation rate	67.5	58.0	61.1	52.2	63.6	56.4	66.4	64.3
Unemployment rate	6.4	8.3	8.4	8.8	7.7	8.7	5.4	5.1

Source: Commission estimates based on unpublished ABS Census data.

4.8 Intergenerational effects

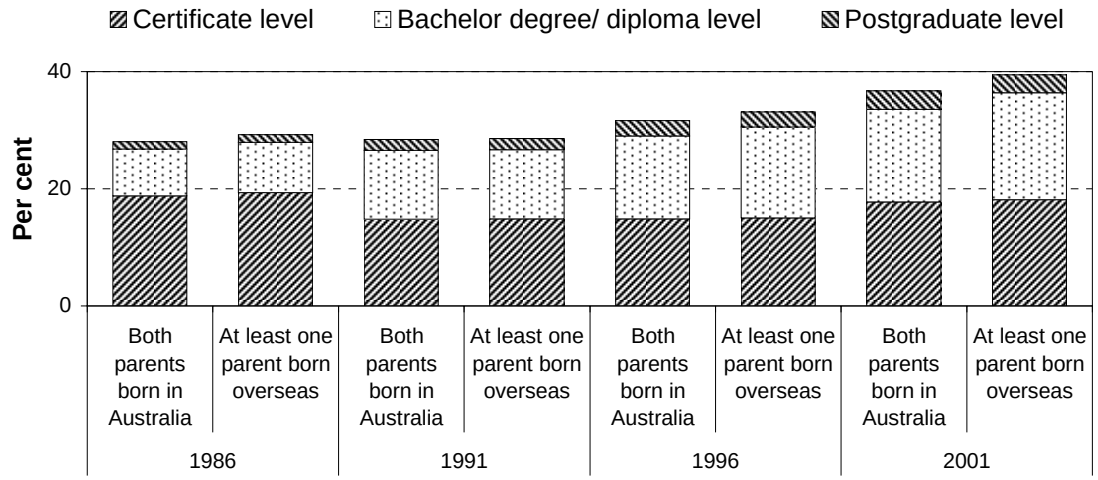
In 2001, there were 3.5 million second generation Australians — people born in Australia who have one or both parents born overseas. Second-generation Australians might have different labour market outcomes compared with third- and higher-generation Australians. If this is the case, second-generation Australians will represent a further long-term compositional effect of migration on the supply of labour.

Fewer second generation Australians are of working age than other Australian-born people. At the time of the 2001 Census, 71 per cent of second-generation Australians were of working age, compared with 77 per cent of people with both parents born in Australia.

Second generation Australians are also more highly educated than other Australian-born people. In particular, second-generation Australians are more likely to hold a qualification at bachelor degree or diploma level (figure 4.7). In 2001, a similar proportion of second-generation Australians was working in skilled occupations, compared with people with both parents born in Australia (table 4.11).

Figure 4.7 **Proportion of Australian-born persons with post-school qualifications**

By parents' birthplace, 1986 to 2001 Censuses



Source: Commission estimates based on unpublished ABS Census data.

Table 4.11 **Occupation of employed Australian-born persons by parents' birthplace**

1986 to 2001 Censuses

	1986		*1991*		*1996*		*2001*	
Occupation	*Both parents born in Australia*	*At least one parent born overseas*	*Both parents born in Australia*	*At least one parent born overseas*	*Both parents born in Australia*	*At least one parent born overseas*	*Both parents born in Australia*	*At least one parent born overseas*
	%	%	%	%	%	%	%	%
Managers and administrators	10.2	7.8	11.6	9.0	10.5	8.0	10.2	8.2
Professionals	14.9	15.4	15.7	16.1	17.3	17.6	17.9	18.9
Associate professionals	7.9	7.8	8.3	8.2	11.5	11.5	11.9	12.2
Tradespersons	15.1	16.4	14.1	15.4	13.1	14.0	12.5	13.0
Other occupations	51.9	52.7	50.3	51.4	47.7	48.9	47.5	47.7

Source: Commission estimates based on unpublished ABS Census data.

To some extent, differences in the occupations and qualifications between second generation and other Australian-born people could be explained by the differences in their age structures. Khoo et al. (2002, p. vii) avoid this issue by comparing cohorts of second and higher generation Australians in the 1996 Census and find that 'the second generation as a group are doing or has done better than their peers who are at least third generation in terms of educational attainment and occupational status'.

Differences in the age structure of second generation and third and higher generation Australians are also important when comparing their participation and unemployment rates. For a given age group, there is little difference between the participation and unemployment rates of second generation Australians and other Australian-born people (table 4.12). However, for the group as a whole, second generation Australians have higher participation and unemployment rates because of their concentration in the younger age groups.

Overall, second generation Australians are likely to work fewer hours per capita than the rest of the Australian-born population. This is because less are old enough to work. However, second generation Australians might also have, positive effects on income per capita. For example, the second generation might have higher incomes, because they are highly educated.

Table 4.12 **Participation and unemployment rates of Australian-born persons by parents' birthplace**
2001 Census

		Age				
		15-24	*25-44*	*45-64*	*65+*	*Total 15+*
		%	%	%	%	%
Participation rate	At least one parent born overseas	66.9	82.8	69.7	8.4	67.7
	Both parents born in Australia	68.8	81.8	69.5	8.4	65.2
Unemployment rate	At least one parent born overseas	13.1	5.9	4.4	2.1	7.5
	Both parents born in Australia	13.1	6.0	4.4	1.9	6.8

Source: Commission estimates based on unpublished ABS Census data.

4.9 Emigration and labour supply

The other side of the migration story concerns the emigration of Australian residents. Each year since the mid-1990s, over 100 000 Australian residents have emigrated on a long-term or permanent basis. This is less than inflows of foreign residents, but by no means insignificant.

Emigrants are not a representative sample of the population they leave behind. They tend to be concentrated in the prime working years (table 4.13). They also tend to be more skilled than the Australian population as a whole (Hugo, Rudd and Harris 2003; Fullilove and Flutter 2004). These characteristics shape the effect of emigration on the Australian labour supply.

Table 4.13 **Age distribution of emigrants and Australian population**

Age	*2004-05 resident departures*	*Australian population 2004*
	%	%
Under 15	13.5	19.8
15 to 24	14.7	13.8
25 to 44	52.4	29.3
45 to 64	16.9	24.2
65 plus	2.5	13.0

Source: Department of Immigration and Multicultural and Indigenous Affairs movements database and ABS (*Australian Demographic Statistics*, cat. no. 3101.0).

Emigrants generally work in highly skilled occupations. More than 60 per cent of emigrants who provided an occupation on their outgoing passenger card stated that they were managers, administrators or professionals (table 4.14). This compares with less than 30 per cent of the Australian population as a whole (figure 4.3).

Because of their high level of skills and their age distribution, emigrants are likely to work more hours per person than the population they leave behind. A higher proportion are of working age (table 4.13). Outgoing passenger card data suggest that emigrants have higher participation and lower unemployment than the Australian population. Given their concentration in highly skilled occupations, they would also be expected to work longer hours.

The loss of highly skilled Australian residents has led to some concerns of a 'brain drain' from Australia. The number of Australian-born people with tertiary education living in other OECD countries has recently been estimated at 120 000 (Docquier and Marfouk 2005). This estimate should be considered a lower bound: OECD countries are the destination for about two-thirds of Australian-born people leaving Australia permanently (DIMIA 2005c).

Table 4.14 **Occupation of Australian residents departing permanently or long-term[a]**

Occupation	*1999-2000*		*2003-04*	
	number	%	number	%
Managers and administrators	13 244	15.7	15 389	15.7
Professionals	35 326	41.7	44 122	45.0
Associate professionals	8 207	9.7	8 977	9.2
Tradespersons	5 607	6.6	6 342	6.5
Other occupations	22 255	26.3	23 232	23.7
Total	84 639	100.0	98 062	100.0

a Includes only persons stating an occupation on their passenger card when departing Australia. Totals might not add as a result of rounding.

Source: Passenger card data in Birrell et al. 2005a.

The estimated number of Australian-born people overseas is a useful measure of the cumulative importance of emigration, as it excludes returned emigrants and immigrants to Australia who have left again. Birrell, Rapson and Smith (2005a) have pointed out that many emigrants are young people going 'to see the world' and many others are recently arrived immigrants leaving. Such movements comprise 'brain circulation' rather than brain drain. It has been suggested that returning emigrants often accumulate more skills while overseas than their peers who remain in country (Barrett and O'Connell 2001; Co, Gang and Yun 2000).

Overall, Australia appears to achieve a significant net brain gain. Although the estimate of 120 000 tertiary-educated Australian-born people living overseas is a lower bound, it indicates that skill loss through emigration is small compared with the more than 1.5 million overseas-born people with tertiary education living in Australia (Docquier and Marfouk 2005). Birrell et al. (2004) also assessed whether Australia was losing those at the highest level of education. They examined the movement of people who had obtained PhD qualifications between 1996 and 2001. They found that Australia had a net inflow of these highly qualified people over the period 1996 to 2001.

Because emigrants are likely to work more hours per person, on average, than the broader Australian population, emigration has a small negative effect on hours worked per person in Australia. The effect is small because the number of Australian-born persons overseas is small relative to the foreign-born population in Australia — the total number of Australian-born people in other OECD countries has been estimated at 270 000 (Dumont and Lemaitre 2005) compared with 4.5 million overseas-born people in Australia in 2001. Although Australia's expatriate community numbers around 1 million (Fullilove and Flutter 2004), around a quarter of these people are overseas temporarily and many are not Australian-born. The flows of Australian residents overseas are dominated by temporary movements and remigration of immigrants.

4.10 Projecting the effect of changes in immigration flows on labour supply

The analysis presented above gives some idea of differences between the labour supply of migrants and the Australian-born population. Those differences are reflective of migration over a long period of time. However, it gives little indication of the effect that the current migration program, or variations in the current program could have on the total Australian labour supply.

To understand more fully the effects of migration into the future, the Commission has developed a model called the New Arrival Tracker (NAT). This model is described in detail in appendix F. The NAT is an extension of the Labour Supply Projection model used to make demographic and labour force projections for the Commission's report on the economic implications of an ageing Australia (PC 2005b).

The NAT is used to simulate the Australian labour supply under two different migration scenarios. The first is a base-case simulation, which projects the supply of labour over the next 20 years based on a continuation of 2004-05 migration flows. Under the base case, migration flows under humanitarian, family and skilled visas are assumed to remain at 2004-05 levels until 2024-25. The second simulation projects the labour supply effects of a 50 per cent increase in immigrants entering Australia under skilled migration visas — about 39 000 extra immigrants each year. The difference between the base-case and increased-migration simulation is used to estimate the effects of an increase in the level of skilled migration. These estimates are projections rather than forecasts — they project what would happen *if* the assumptions in the simulations were to hold, rather than forecasting what *will* actually happen.

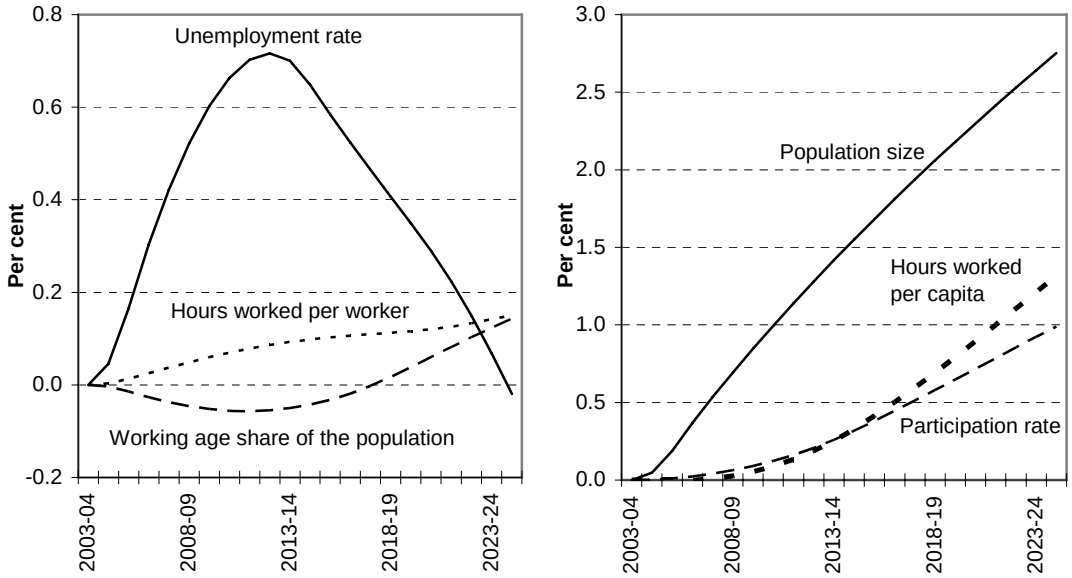
The increase in the level of skilled migration has a small effect on the rate of population growth (figure 4.8). By 2024-25, the population is about 2.7 per cent larger than it would otherwise have been. The working age share of the population increases over time, with the cumulative effect of migration over 20 years increasing the share by about 0.15 percentage points.

Participation rates also increase over time with the cumulative effects of the extra skilled migration. Participation rates initially increase slowly, because recently arrived immigrants participate less than immigrants who have been in Australia longer. As the additional skilled immigrants from earlier in the period spend more time in Australia, their participation rates increase. This causes the participation rates to become larger. By 2024-25, participation rates are about 1 per cent higher than they would otherwise have been.

Unemployment rates initially increase, reflecting the fact that immigrants tend to have higher unemployment rates when they first arrive. The unemployment rate then decreases with length of residency. Over time, the cumulative effect of decreasing unemployment rates of the arrivals from early in the period starts to outweigh the higher unemployment rates of those arriving late in the period, and overall unemployment rates decrease. By 2024-25, the skilled immigrants have little effect on the unemployment rate.

The cumulative effects of the increase in skilled migration are to increase hours worked per person in the economy. By 2024-25, hours worked per capita are about 1.3 per cent higher.

Figure 4.8 **Percentage differences in labour supply arising from a 50 per cent increase in the level of skilled migration**



Source: Commission projections from the Labour Supply Projection model (scenario 2) and NAT reported in appendix F.

4.11 Overall assessment

In 2001, the immigrant population in Australia worked more hours per capita than the Australian-born population (table 4.15). Hours worked per capita is an important factor contributing to income per capita. Four factors contribute to hours worked per capita:

- number of working-age people divided by total population.
- number of people in the labour force divided by number of working-age people (participation rate)
- number of people in employment divided by number of people in the labour force (employment rate)
- total hours worked divided by number of people in employment

The immigrant population worked more hours per capita mainly because a greater proportion of immigrants were of working age. This was offset somewhat by the

children of immigrants, a higher proportion of whom are not old enough to work. All else equal, the extra hours worked per capita by the immigrant population would have contributed to a positive (if temporary) increase in income per capita.

Table 4.15 **Hours worked per capita per week[a]**
1986 to 2001 Censuses

	Units	*Immigrants*				*Australian-born*			
		1986	1991	1996	2001	1986	1991	1996	2001
Proportion of working age	%	90.8	93.1	94.2	94.8	71.2	73.3	73.9	75.2
Participation rate	%	62.0	61.8	57.5	57.4	61.5	63.9	64.2	65.5
Unemployment rate	%	10.3	14.2	10.7	8.3	8.8	10.6	8.6	7.0
Hours per worker	Hrs/week	34.6	33.2	34.0	35.3	34.3	32.8	33.4	34.9
Hours worked per capita	Hrs/week	17.4	16.4	16.5	17.6	13.7	13.7	14.5	16.0

a Hours per person calculated as the product of the proportion of working age, participation rate, employment rate and hours per worker, as outlined in box 4.1.

Source: Commission estimates.

Employment and participation rates vary significantly across the immigrant population depending on education, age, gender, English ability and time spent in Australia. Because the skilled migration program targets highly educated people of prime working age, immigrants under skilled visas have higher employment and participation rates than immigrants arriving under family or humanitarian visas. Further, even when comparing immigrants with similar characteristics, immigrants under skilled visas are more likely to be participating and employed than are family and humanitarian immigrants.

Looking at history alone does not provide insights into the current and future effects of migration. The Commission's analysis of the effects of the current skilled migration program simulated the effect of a 50 per cent increase in the level of skilled migration. By 2024-25, the increase in skilled migration increases the proportion of the population of working age, the participation rate and the hours worked by each worker. These changes effect a 1.3 per cent increase in hours worked per capita in Australia by 2024-25 (table 4.16).

Immigration can also affect the labour supply if immigrants cause the hours worked by other Australians to change, through changes in their unemployment, participation or weekly hours worked. This is a difficult and often controversial topic. However, there is little evidence that immigration causes unemployment among the existing Australian-born population and effects on participation and working hours can reasonably be assumed to be small in the aggregate.

Table 4.16 **Simulation of the labour supply effects of an increase in skilled migration**

		2004–05		*2024–25*	
	Units	*Base-case simulation*	*Increased-migration simulation*	*Base-case simulation*	*Increased-migration simulation*
Population	Number	20 228 190	20 237 920	24 855 754	25 539 730
Proportion of working age	%	80.2	80.2	82.6	82.7
Participation rate	%	63.5	63.5	59.9	60.5
Unemployment rate	%	5.6	5.6	4.9	4.9
Hours per worker	Hrs/week	33.6	33.6	32.6	32.6
Hours worked per capita	Hrs/week	16.1	16.1	15.3	15.5

Source: Commission projections from the Labour Supply Projection model (scenario 2) and NAT reported in appendix F.

Like immigrants, emigrants from Australia tend to be highly skilled and concentrated in highly skilled occupations. They are also likely to work more hours per person than the Australian population as a whole. However, any effects of emigration are likely to be small, since the number of Australian-born people overseas is an order of magnitude smaller than the number of overseas-born people in Australia.

5 Migration and productivity

Key points

- On average, immigrants earn more per hour worked than Australian-born workers. This is principally because immigrants are, on average, more educated, older, more likely to live in capital cities and work in different industries compared with Australian-born workers.
- If we control for these differences in composition, immigrants will generally earn less than a comparable Australian-born worker.
- English language skills are an important determinant of immigrants' hourly incomes. In particular, immigrants with poor English skills earn less than other workers with equivalent education and experience.
- The increased skills focus of Australia's migration program has resulted in new immigrants earning higher incomes than in the past, due mainly to their higher levels of education.
- Relatively few immigrants live in regional areas. The hourly income of those who do, however, is higher than of their Australian-born counterparts.
- Policy simulation results suggest that an increase in the number of skilled migrants would not improve labour productivity overall. The increase in migration leads to a decrease in the level of capital available to each worker . This decrease is the result of the economy adjusting to the expansionary impact of a larger population and workforce. In addition, there is a rebalancing of economic activity that favours less productive sectors — such as construction. This results in a decrease in multifactor productivity.

Labour productivity is an important determinant of economic growth and income per capita (see discussion in chapter 3 and chapter 4, box 4.1). Labour productivity is the ratio of (the value of) output to labour input and depends on the efficiency with which labour and other inputs (such as capital and land) are combined to produce goods and services. In the context of economywide productivity and economic growth, labour productivity is typically defined as real GDP per hour worked. An individual worker's productivity is also highly correlated with his or her real wage, as outlined in section 5.2.

In recent years, Australia's migration program has focussed on attracting skilled individuals of working age. In part, at least, this policy has been predicated on the proposition that the skills and experience of these workers will have a positive

impact on the average skill level of the Australian workforce and, in turn, labour productivity.

In what follows, we examine the impact of migration on productivity in two ways. First, we analyse the evidence on the productivity of migrants currently in the Australian labour force, assessing whether or not there are differences in their productivity relative to Australian-born workers. As a proxy measure for their productivity, we utilise income per hour worked, which is indicative of a worker's marginal productivity. In comparing income, we draw on human capital theory to understand those characteristics, if any, that contribute to differences in the incomes of immigrant and Australian-born workers.

In the second half of this chapter, we examine the question of whether migration, all other things being equal, improves Australia's aggregate productivity, as measured by real GDP per capita. Insights into this issue are drawn from a general equilibrium modelling analysis.

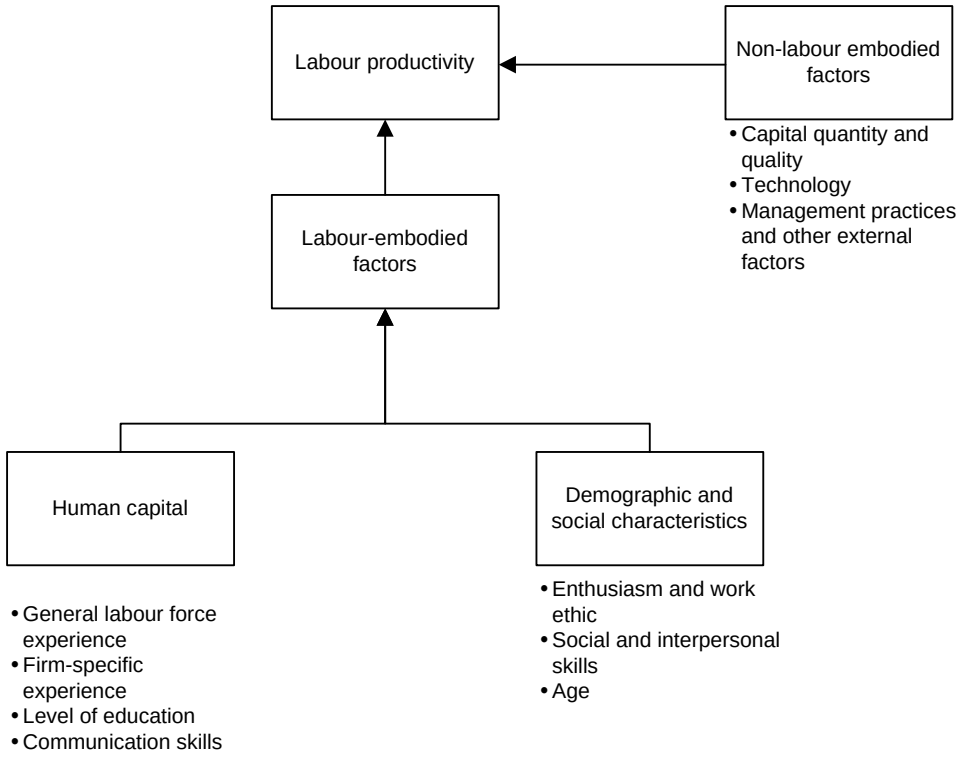
5.1 Migration, human capital and productivity

A large number of factors affect labour productivity. These factors include the quality of the workforce (which can be measured by its stock of human capital), as well as the quality and availability of physical capital and other inputs. These factors can be characterised as those which are embodied in workers (labour embodied) and those which cannot be attributed to labour (non-labour embodied).

In terms of labour-embodied factors, human capital theory suggests that differences in workers' productivity can be explained by differences in the workers' respective productive characteristics (Becker 1962; Mincer 1974). Non-labour embodied factors that affect productivity include the level and quality of capital available per worker, and the level of prevailing technology.

When considering how immigrants affect productivity, all of these factors and general labour market conditions need to be taken into account. Box 5.1 gives a stylised representation of how the human capital, demographic and other characteristics of migrants, by differing from other workers, might be expected to influence productivity.

Box 5.1 **Some stylised links between a worker's characteristics and their productivity**



Human capital

Human capital refers to the stock of productive knowledge and skill embodied in an individual as a result of education, training and experience. Chiswick and Miller (1995) set out three basic requirements of 'human capital': that it is embodied in the person; is productive in the labour market or in consumption; and there are costs (including opportunity costs) to its acquisition. Skills acquired through formal education (especially post-school), communication skills and labour force experience all fulfil these requirements.

Education

In the human capital literature, education is considered fundamental to an individual's productivity (Becker 1964; Mincer 1974). In general, we expect more educated workers to be more productive and more highly paid than less educated workers.

This general proposition might not hold if there is a relative shortage of less educated workers in the economy, such that demand for their service increases their wages relative to that of more educated workers. Similarly, a worker with more years of education than another, might not enjoy higher earnings if their qualifications are considered inferior, or not in demand.

Labour force experience

Human capital theory and several empirical studies suggest a positive relationship between a worker's age and their productivity (for example, Dustmann and Fabbri 2003; Dustmann and Van Soest 2002). The precise 'shape' of the relationship is not clear; however, most empirical studies find evidence that returns to labour force experience increase at a decreasing rate.

Recent migrants, regardless of their prior general labour experience, will generally have less local firm-specific human capital than Australian-born workers, or migrants who have been in Australia for some time. As such, the productivity of immigrants might be expected to improve the longer they are in Australia as they continue to gain local, relevant work experience (Chiswick 1986).

Communication skills

Communication skills are an important determinant of labour productivity and earnings (Chiswick and Miller 1985, 1995; Shields and Wheatley Price 2002).

There are a number of mechanisms through which a person's language ability will affect their labour market outcomes. These include the degree to which proficiency in English can affect a person's search for employment or allow them to convince a prospective employer of his or her broader abilities (Dustmann and Fabbri 2003). Language skills are also a necessary condition for positions that require communication ability (for instance, jobs in the service sector).

Other traits and characteristics of immigrants and productivity

Aside from their human capital, migrants possess characteristics, temperaments and traits that might both be different from those of other workers and affect their productivity.

Enthusiasm and work ethic

It is often suggested that migrants are more enthusiastic and possess a greater 'work ethic' than other workers. A survey conducted by Turner and Norman (1985) noted that in the opinion of employers, 'migrants exhibit generally a propensity to work harder and longer and seek overtime more intensively than the Australian-born worker' (p. 96). Of course, if the 'work ethic' of migrants leads them to work longer hours, rather than with greater intensity, this might not translate into greater productivity.

There are a range of factors that could explain why immigrants might exhibit greater enthusiasm than other workers. For instance, it could be that immigrants, having endured the costs and efforts involved in migration, represent a self-selected group who are, on average, 'more able and more highly motivated' than others (Chiswick 1978; Borjas 1987). This, however, assumes that the motivation for immigrants is financial. Family immigrants and refugees do not generally migrate for purely financial reasons. As such, while they might be highly motivated (in terms of their migration decision), this might not translate into a superior work ethic (Chiswick 1999).

Another factor that might lead immigrants (especially recently arrived immigrants) to work harder than non-migrants is the lack of established networks in their new country. Recently arrived immigrants might work harder in order to overcome deficiencies in networks, communication skills and other productive factors enjoyed by the established workforce (McDonald and Worswick 1999).

Temporary migrants, and other immigrants who are likely to return to their country of origin, might work harder in order to accrue savings. For immigrants who are able to earn higher real wages in their host country than in their home country, building savings allows them to 'smooth' their consumption following their return home (Galor and Stark 1991). Alternatively, the desire to send remittances to family remaining in their home country could also provide an explanation for observed greater work intensity.

Age at migration

A substantial body of research suggests that age at the time of migration can have a significant impact on labour market outcomes, particularly in the initial years after arrival. Borjas (1995) finds that older immigrants can be expected to earn less than their peers, after taking into account education, labour force experience, years since migration and other traits. Schaafsma and Sweetman (2001), in a study of Canadian

migrants, also find 'a sizeable correlation with age at immigration and earnings even after controlling for cohort effects and a range of demographics'.

5.2 What is the evidence on the labour productivity of migrants?

There is no measure or data set that directly compares the productivity of immigrant and Australian-born workers. However, given certain assumptions, economic theory suggests that wages can provide an approximation for a worker's productivity (box 5.2). According to theory, the marginal productivity of labour is an important determinant of wages and, other things being equal, a more productive worker will earn more per unit of labour supplied than a less productive one.

Box 5.2 **Wages as an indicator of productivity**

In competitive markets, the theory of labour demand suggests that firms employ labour up to the point at which the marginal revenue generated to the firm of an additional hour worked is equal to labour's marginal cost (the hourly wage rate). Among other things, the productivity of the worker determines the output (and revenue) generated by the firm from the hour of work.

By comparing the wage rates of migrants with Australian-born workers, differences in the wage rate can be interpreted as the difference in the productivity of those workers.

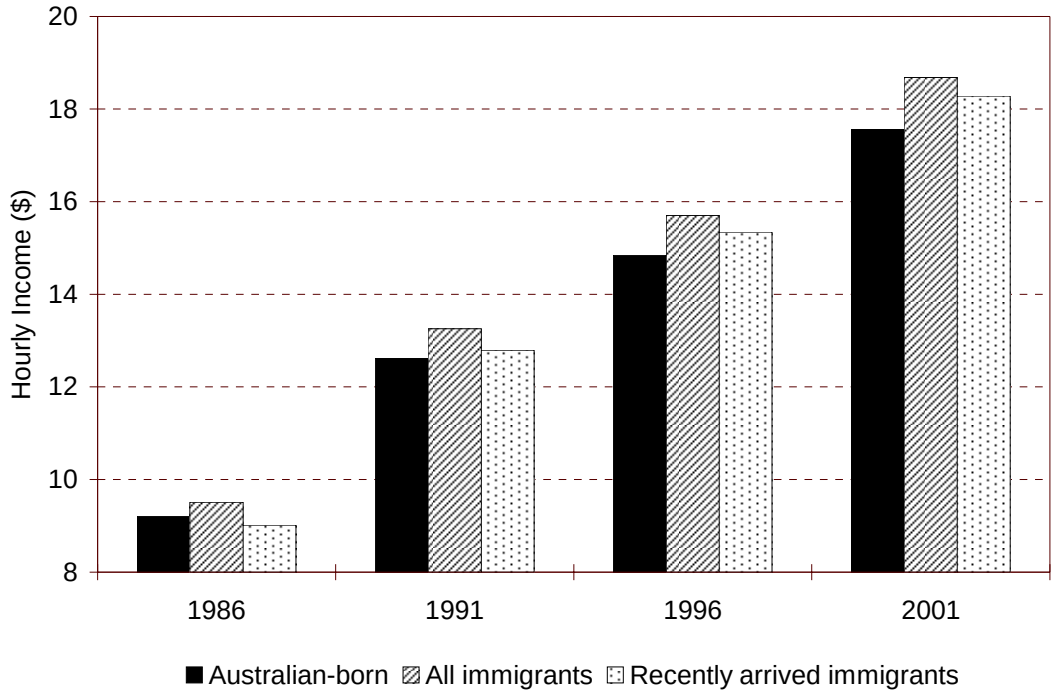
In practice, wages might not always equal a worker's value of marginal physical product at a point in time. Market imperfections mean that the wage might under- or over-estimate a worker's productivity. However, it is reasonable to expect that wages are generally correlated with productivity across the labour market. In this way, a comparison of wage relativities between certain groups of workers can provide a useful indication of relative productivity.

The estimated nominal hourly income for immigrants and Australian-born workers, at the time of the 1986, 1991, 1996 and 2001 Census collections, is shown in figure 5.1. The estimated income of recently arrived immigrants (who, at the time of the Census, had been in Australia for less than five years) is also identified.

Three observations can be made. First, the median hourly income of immigrants is slightly higher compared with Australian-born workers. Second, over time, the median hourly income of immigrants has increased slightly faster compared with Australian-born workers. Finally, the median hourly income of recently arrived immigrants has increased faster than for Australian-born workers.

Figure 5.1 **Comparison of median hourly income, immigrants and Australian-born workers**

1986 to 2001, nominal



Source: Commission estimates based on unpublished Census data.

The differences in the hourly income of immigrants and Australian-born workers could be a reflection of a number of factors, including:

- differences in their human capital (education, labour force experience and language ability)
- region of settlement (the relative proportions of immigrants and Australian-born workers living in capital cities or regions)
- differences in demographics (age and gender)
- industry of employment and occupations.

To fully understand the underlying causes of the observed differences in hourly incomes, we need to know the relative importance of each of these factors. Furthermore, our analysis needs to reveal the nature of the differences; are they due to immigrants and Australian born workers having a different composition of these factors, or are there innate differences that cannot by explained by composition alone. Put another way, it is important to know if an immigrant were compared to an Australian-born worker of the *same* age and *same* education, would the immigrant would still be expected to earn more.

To shed light on these issues, the Commission undertook two separate but related analyses. First, hourly income data were regressed on a set of explanatory variables. The regression analysis provides insight into the importance of various factors in explaining variations in hourly income for both Australian-born and immigrant workers. In order to decompose the contributions of composition and innate differences to the observed gap in the median hourly income of immigrants and Australian-born workers, these regressions results were decomposed using the Blinder-Oaxaca method (appendix G).

Around 80 per cent of variation in hourly income in each Census period (as indicated by the adjusted R-square score) can be explained by the regression model (table 5.1). The variables in the equation are drawn from human capital theory and previous empirical work (Chiswick 1978; Borjas 1986; Stromback 1985; Tran-Nam and Nevile 1988; McDonald and Worswick 1999). The explanatory variables are age (as a proxy for work experience), level of post-school education, gender, region of residence ('capital city' or 'other'), industry of employment, and migrant status. The explanatory variables were categorical binary dummies (for details, see appendix G).

Consistent with theory and prior empirical work, hourly income is strongly, positively correlated with post-school educational attainment and age. From table 5.1, we can also observe that gender and location of residence affect hourly income. Other things being equal, being a female workers and or being a worker located in regional Australia, is negatively correlated with earnings.

The industry in which a person is employed also explains a significant proportion of variation in hourly income. The importance of this non-labour embodied factor might reflect unobservable structural rigidities in the economy, which result in workers' human capital earning different returns in different sectors.

Importantly for this study, the results indicate that, other things being equal, being an immigrant is negatively correlated with hourly income. This, in conjunction with the knowledge that on average immigrants have higher incomes, suggests that differences in composition explain much of the story.

Table 5.1 **Estimated income per hour worked (dollars), immigrants and Australian-born workers — regression 1**

1986, 1991, 1996 and 2001

	2001	*1996*	*1991*	*1986*
Adj. R-square	0.80	0.79	0.79	0.73
Intercept	11.24	9.70	8.33	5.88
Age				
25 to 44	4.63	4.13	3.55	2.38
45 to 64	4.98	4.94	4.27	2.72
65 and over	8.04	8.08	7.51	3.89
Education				
Postgraduate level	8.91	8.91	9.37	5.56
Bachelor level	5.52	5.32	5.92	4.50
Certificate Level	0.70	0.72	0.82	0.98
Other demographics				
Live in a regional area	-0.48	-0.51	-0.45	-0.27
Female	-1.68	-1.20	-1.18	-0.57
Migrant	-1.33	-2.03	-2.09	-1.37
Industry				
Accommodation, cafes & rest.	-0.05[a]	0.37	0.63	0.51
Agriculture, forest. & fish.	-2.74	-2.39	-2.59	-2.11
Communications	5.76	4.59	3.23	2.86
Construction	2.79	1.81	1.96	1.39
Culture and rec	2.78	2.54	2.18	1.81
Education	7.86	5.02	3.72	3.51
Electricity, gas and water	3.09	1.63	1.27	4.07
Finance	6.94	5.55	4.94	2.98
Government	5.20	4.03	3.14	2.86
Health	3.20	2.86	2.54	2.11
Manufacturing	2.50	1.76	1.68	1.30
Mining	9.70	11.64	9.23	6.00
Personal services	1.83	1.44	1.34	1.37
Professional & business services	4.81	4.01	3.98	2.31
Transport and storage	2.98	3.11	2.61	2.32
Wholesale trade	2.32	2.17	2.24	1.53

Note All coefficients are significant at the 1 per cent level unless otherwise indicated. [a] Not significant at the 5 per cent level.

Source: Commission estimates based on unpublished Census data.

It is important to understand why immigrants, all else equal, are estimated in table 5.1 to have lower hourly incomes than Australian-born workers. Table 5.2 presents the results of a second regression model, in which the migration dummy variable is replaced by a set of explanatory variables for English language ability (only speaks English, speaks it well or very well, or speaks English not well or not at all) and the period of time the immigrant has been in Australia (less than five years, five to 15 years, or 15 years and over).

Table 5.2 **Estimated income per hour worked, immigrants and Australian-born workers — regression 2**

1986, 1991, 1996 and 2001.

	2001	*1996*	*1991*	*1986*
Adj. R-square	0.82	0.80	0.80	0.74
Intercept	11.31	9.76	8.37	5.89
Age				
25 to 44	4.64	4.16	3.58	2.4
45 to 64	4.94	4.94	4.29	2.76
65 and over	8.02	8.09	7.53	3.91
Education				
Postgraduate level	8.92	8.92	9.35	5.53
Bachelor level	5.53	5.32	5.89	4.47
Certificate Level	0.63	0.65	0.76	0.94
Other demographics				
Live in a regional area	-1.78	-1.30	-1.25	-0.61
Female	-1.33	-2.03	-2.09	-1.36
English ability of migrants				
Not well or not at all	-3.67	-3.27	-2.50	-1.51
Very well or well	-1.47	-1.63	-1.26	-0.76
Native Speaker	0.55	0.43	0.28	0.16
Years since migrant's arrival in Australia				
Recent (<5)	-0.24[a]	-0.29	-0.49	-0.19[a]
Medium (5 to 15)	-0.44	-0.28	-0.10[b]	-0.10[a]
Industry				
Accommodation, cafes & rest.	0.04[b]	0.45	0.70	0.55
Agriculture, forest. & fish.	-2.70	-2.35	-2.56	-2.09
Communications	5.74	4.56	3.22	2.85
Construction	2.77	1.80	1.96	1.41
Culture and rec	2.68	2.44	2.1	1.76
Education	7.81	4.98	3.71	3.51
Electricity, gas and water	3.00	1.54	1.21	4.04
Finance	6.88	5.48	4.89	2.95
Government	5.12	3.95	3.08	2.83
Health	3.13	2.79	2.50	2.09
Manufacturing	2.59	1.88	1.77	1.36
Mining	9.61	11.57	9.18	5.98
Personal services	1.78	1.39	1.30	1.35
Prof. & business services	4.76	3.94	3.93	2.28
Transport and storage	2.97	3.09	2.59	2.31
Wholesale trade	2.30	2.12	2.21	1.51

Note all coefficients are significant at the 1 per cent level unless otherwise indicated. [a] Significant at the 5 per cent level. [b] Not significant at the 5 per cent level.

Source: Commission estimates based on unpublished Census data.

The results in table 5.2 reveal that English language ability is an important determinant of immigrants' income. Other things being equal, immigrants from English-speaking backgrounds (those who only speak English at home) have higher

incomes, whereas immigrants from non-English-speaking backgrounds who speak English well or very well have lower hourly incomes. Speaking English poorly (or not at all) is strongly negatively correlated with hourly income. The sign and magnitude of the estimated coefficients are consistent with previous studies.

The relatively small (and less statistically significant) effect of time in Australia on immigrant earnings is consistent with previous Australian results (McDonald and Worswick 1999; Tran-Nam and Nevile 1988; Chiswick and Miller 1985), as well as with overseas research (Borjas 1985).

To help clarify the relative importance of composition and innate differences, the regression results were decomposed using the Blinder-Oaxaca method (appendix G). The decomposition analysis revealed that the higher median income of immigrants is due to the composition of their education, experience (age), gender, region of residence and industry of employment factors. However, if we control for these differences in composition, immigrants would earn less (table 5.3). In 2001, for example, if immigrants had earned the same hourly income as Australian-born workers for their age structure, educational attainment, gender, region of location and industry of employment, their hourly income would have been 10.8 per cent higher than Australian-born workers. However, because immigrants received lower earnings than comparable Australian-born workers then, overall, their average earnings were only 7.7 per cent higher.

The results show that the main differences in composition relate to immigrants (as a group) being more educated, older and being more likely to live in capital cities. Taken together, the differences in the composition of the age and location of residence results in an earnings premium for immigrants of between 5.2 per cent and 6.8 per cent over the review period. Australia's immigrant workers are also more likely to work in higher paying industries and (slightly) more likely to be male than Australian-born workers — both of which also contribute to the overall composition difference and their higher earnings. These differences, however, are not as significant (in terms of explaining differences in hourly income) as education, age and location of residence.

Table 5.3 **Percentage difference in the hourly income of Australian-born and immigrant workers**

1986, 1991, 1996, 2001

Differences in the hourly earnings of…		*Australian-born and migrants in 2001*	*Australian-born and migrants in 1996*	*Australian-born and migrants in 1991*	*Australian-born and migrants in 1986*
		%	%	%	%
Difference due to composition	Age	-3.5	-4.5	-4.6	-3.7
	Education	-3.4	-2.7	-2.0	-0.4
	Industry	-1.4	-1.1	-1.4	-0.7
	Location	-2.2	-2.0	-2.2	-1.5
	Gender	-0.2	-0.4	-0.5	-0.5
	Total	-10.8	-10.7	-10.7	-6.8
Difference not explained by composition		3.1	3.9	4.1	3.4
	Total difference	-7.7	-6.8	-6.6	-3.4

Source: Commission estimates based on unpublished Census data.

Recently arrived immigrants

Although comparing the performance of Australia's immigrant stock to that of Australian-born workers is informative, of greater policy relevance is the performance, over time, of recently arrived immigrants to Australia. Recently arrived immigrants (immigrants who had been in Australia less than five years at the time of the Census) do better now, relative to Australian-born workers, than in the past (table 5.4). In 1986, recently arrived immigrants earned 0.5 per cent less than the average Australian-born worker. By 2001, recently arrived migrants earned 7.6 per cent more.

Recently arrived immigrants' higher earnings are mainly due to their educational attainment and location of residence. Unlike the total population of immigrants in the labour force, recently arrived immigrants are younger than the average Australian-born worker and therefore do not receive a significant earnings premium due to their age.

From this decomposition analysis, there is evidence that the increased skills focus and other changes to Australia's Migration Program have yielded dividends.

Another way to consider the impact of the change in the composition of Australia's migration intake is to assume recently arrived immigrants in 2001 had the same composition of human capital and other factors as recently arrived immigrants in

1986. If this were the case, instead of recently arrived immigrants earning 7.6 per cent more than Australian-born workers in 2001, they would instead have earned 0.4 per cent less.

Table 5.4 **Percentage difference in the hourly income of Australian-born and recently arrived migrant workers**
1986, 1991, 1996, 2001

Differences in the hourly earnings of…		*Australian born and recently arrived migrants in 2001*	*Australian born and recently arrived migrants in 1996*	*Australian born and recently arrived migrants in 1991*	*Australian born and recently arrived migrants in 1986*
		%	%	%	%
Difference due to composition	Age	-0.1	-0.6	-0.8	0.3
	Education	-8.1	-9.2	-7.4	-3.5
	Industry	-1.3	-1.1	-1.7	-0.2
	Location	-2.6	-2.3	-2.8	-1.9
	Gender	-0.2	-0.3	-0.2	-0.1
	Total	-12.3	-13.5	-12.9	-5.3
Difference not explained by composition		4.7	7.5	8.8	5.8
	Total difference	-7.6	-6.0	-4.1	0.5

Source: Commission estimates based on unpublished Census data.

Immigrants in regional areas

As part of its terms of reference, the Commission has been asked to examine the impact of migration on productivity with particular reference to regional areas.

In regional areas (classified here as locations other than capital cities) the hourly income of immigrants is around 10 per cent higher than that of their Australian-born counterparts (table 5.5). In terms of composition differences, the main determinants of the earnings premium for immigrants are education, age and, to a lesser extent, industry of employment.

Interestingly, and unlike the case for immigrants as a whole, immigrants in regional areas receive greater hourly income even after controlling, or netting out, composition effects.

Table 5.5 **Percentage difference in the hourly income of Australian-born and migrant workers living in regional Australia**

1986, 1991, 1996, 2001

Differences in the hourly earnings of…		*Australian born and migrants in 2001*	*Australian born and migrants in 1996*	*Australian born and migrants in 1991*	*Australian born and migrants in 1986*
		%	%	%	%
Difference due to composition	Age	-2.7	-3.2	-2.9	-2.5
	Education	-3.6	-3.2	-3.0	-2.2
	Industry	-1.9	-2.2	-3.0	-3.9
	Gender	0.0	-0.2	-0.3	-0.6
	Total	-8.2	-8.7	-9.3	-9.2
Difference not explained by composition		-2.3	-2.8	-2.9	-1.9
	Total difference	-10.5	-11.5	-12.2	-11.1

Source: Commission estimates based on unpublished Census data.

In summary

There a number of important messages that can be drawn from the hourly income analysis. First, immigrants have higher hourly incomes than Australian-born workers. This is mainly due to immigrants being different to Australian-born workers in terms of their levels of education, their age, where they live and the industries they work in. After adjusting for these differences, the average immigrant earns less than a comparable Australian-born worker. In particular, immigrants who speak English poorly (or not at all) have significantly lower incomes than do other workers.

We can also observe that the relative earnings of recently arrived immigrants are improving relative to Australian-born workers over time. In large part, this has been driven by the immigrants' changing composition.

In terms of productivity, the distinction between composition and 'like with like' earnings differences is important. To the extent that wages reflect productivity, we can infer that, although the *average* immigrant is more productive than the *average* Australian-born worker, immigrants are generally less productive than *comparable* Australian-born workers. Differences in composition give the illusion that, all else equal, immigrants are more productive than Australian-born workers.

5.3 The contribution of migration to overall labour productivity growth

The comparison of hourly incomes in section 5.2 provides a useful indication of the relative productivity of immigrants and Australian-born workers.

However, from that alone, we cannot determine the contribution that migrants make to economywide labour productivity. In this section, we measure economywide labour productivity as the ratio of real GDP to total hours worked.

As discussed earlier in this chapter (and elsewhere in this report), economywide labour productivity reflects, and is the outcome of, numerous, interacting, factors. Further, migration will affect economywide labour productivity in many ways in addition to the direct effect of changing the composition of the labour force.

Although migration might lead to an improvement in some factors (for instance, aggregate skill levels and scale), it might also have a negative impact on others, such as urban congestion, capital dilution or environmental externalities. These effects and interactions are discussed at length elsewhere in this report. For instance, the effect of migration on investment and capital availability is discussed in chapters 3 and 7, labour composition effects in chapter 4, and scale, congestion and other size effects in chapter 6.

In order to holistically examine the ways in which migration affects labour productivity, the Commission undertook general equilibrium modelling analysis. General-equilibrium modelling can provide estimates of the changes in labour market productivity that are likely from a given change in migration policy. Importantly, general-equilibrium modelling can provide insights into the many factors that might lead to these estimated productivity changes.

Before proceeding, it is worth considering the plausible magnitude of the effect that migration could have on aggregate productivity, whether positive or negative. Although we might expect migration to affect productivity growth in Australia to some extent, the magnitude of any effect is not likely to be large. This is principally because the annual movement of migrants is only a small percentage of the overall workforce and population.

Of course, at an economywide level even small changes in average productivity growth can have major implications for the living standards of Australians. The impact of migration on productivity might also be relatively more significant for certain industries and particular regions.

Estimated effects on labour productivity

In order to test the effect that migration might have on Australia's overall productivity, the Commission (in conjunction with the Centre for Policy Studies at Monash University) estimated the impact on productivity, economic growth, and a host of other economic variables, of an increase in Australia's skilled migrant intake. Some key assumptions of the modelling exercise are introduced in box 5.3.

Specifically, the increased-migration simulation is based on increasing skilled migration by an amount equal to 50 per cent of the skilled migrant intake in 2003-04. In this simulation, therefore, an extra 39 000 (approximately) skilled immigrants arrive in Australia each year, from 2004-05 to 2024-25 (appendix F). Using this simulation, it is possible to estimate the effect of this increase as a deviation from a 'business as usual' base-case simulation. The effect of increasing the level of skilled migration is evaluated by comparing the changes in the level of productivity in the increased-migration and base-case scenario.

Box 5.3 Assumptions underpinning the general-equilibrium model

There are several underlying assumptions and simplifications that, necessarily, are built into any modelling exercise. The assumptions made by the Commission (that could influence the productivity results) are discussed in detail in appendices F and G. These include:

- both newly arrived immigrants and incumbent workers 'up skill', with new arrivals maintaining their skill premium observed in 2004-05 (appendix F)
- the increase in immigration does not lead to economies of scale or scope being exploited, nor does it result in congestion or other negative effects (chapter 6)
- a slightly downward sloping demand curve for our exported goods and services. Thus, an increase in export volumes leads to a decrease in the price received for those products (appendix G))
- investors do not behave with perfect foresight, but rather adapt their expectations over time based in part on past experience (appendix G).

The results of the modelling exercise show that labour productivity — as measured by real GDP (adjusted to reflect changes in the terms of trade) per hour worked — would be 0.46 per cent lower in 2024-25 under the increased-migration simulation as compared to the base-case simulation.

Why does economywide labour productivity fall?

The change in labour productivity, brought about by the increase in skilled migration, is driven by the resulting compositional changes in the labour force and the changes in the size of the population, labour force and economy.

To understand the underlying drivers of the labour productivity changes, we can decompose the change into that which is due to changes in technical or multifactor productivity (MFP) change and that which is due to changes in the capital to labour ratio (*K/L*), weighted by capital's share of total factor income (s_k):

$$\frac{GDP_R}{Hours} = MFP + s_k(K/L)$$

In terms of the modelling results, the projected deviation in labour productivity from an increased in skilled migration can be decomposed into these contributing factors (figure 5.2).

Figure 5.2 **Projected deviation in labour productivity, the capital to labour ratio and multifactor productivity, from an increase in skilled migration**

2004–05 to 2024–25

Source: Commission estimates based on simulations using the MONASH Model.

From figure 5.2, it becomes clear that the major determining factor for changes in labour productivity is the decrease in the capital to labour ratio. Although MFP is projected to decrease over 20 years (relative to the base-case simulation) it is of a far smaller magnitude, and consequently has less of an impact on the projected changes to labour productivity.

Changes in the capital to labour ratio

Labour productivity depends, in part, on what happens to the availability of capital to each worker. A decline in the capital to labour ratio (also referred to as capital dilution) will decrease labour productivity as each worker now has less capital to work with in order to produce goods and services.

From figure 5.2, we can observe that under the increased migration simulation, the capital to labour ratio is around 1.1 per cent lower by 2024-25 than in the base case simulation. The relative decrease in the capital to labour ratio under the increased-migration simulation is significantly larger than for MFP. As such, it is this decrease in the level of capital available to workers that appears to be the primary driver of the decrease in labour productivity.

Under the assumptions of the MONASH Model, two relationships contribute to the decrease in the capital to labour ratio.

The first (and empirically most influential) driver is the decrease in the terms of trade caused by the lower prices received for exported goods and services. As immigration increases, the economy expands — more people leads to an increase in demand for goods and services, which in turn leads to a rise in import volumes. To 'pay' for these additional imports, more exports must be sold — crucially, at marginally lower prices, as Australia faces a downward sloping demand curve for its exports. This lowers the real value of output relative to the internationally determined rate of return on capital and, consequently, results in a decrease in the capital to labour ratio.

The second, less influential, driver of the decline in the capital to labour ratio is the lagged adjustment of investment to the expansion in the supply of labour. Simply put, capital does not automatically, nor instantaneously, adjust to the increase in labour supply brought on by increased migration. Even though investors do adjust their expectations to increasingly anticipate the greater need for capital due to ongoing migration, their investment decision is never fully forward-looking and, in part, continues to rely on their experience. Consequently, even by 2024-05, the rate of investment has not yet reached a 'steady state' in which the increasing supply of

labour is fully anticipated and accommodated by a commensurate increase in capital.

Changes in multifactor productivity

MFP is 0.1 per cent lower after 20 years under the increased migration simulation than it would have been the case under the base-case simulation (figure 5.2).

MFP is lower under the increased-immigration simulation for a number of reasons. Primarily, as the economy expands (from the increase in migration) some industries will expand by more than other, resulting in a restructuring of the economy compared to the base case. At any time, some sectors of the economy experience higher rates of MFP growth than others. To the extent that migration restructures economic activity, it is likely to therefore alter the rate of growth in aggregate MFP.

Under the increased-migration simulation, the industries that experience the greatest expansion — construction and health — have relatively low levels of underlying productivity growth (based on their historical trends) (table 5.6). Overall however, the rebalancing does not affect MFP in any significant way.

Table 5.6 **Cumulative changes in output by industry, base case and increased migration simulation**

2004-05 to 2024-25

Industry	*Base case simulation*	*Increased migration simulation*	*Deviation*
	Index	Index	%
Agriculture, forestry and fisheries	171.3	175.7	2.55
Mining	202.1	204.3	1.11
Manufacturing	172.7	179.4	3.93
Electricity, gas and water	165.5	171.0	3.34
Construction	140.1	149.8	6.90
Wholesale trade	177.2	184.0	3.81
Retail trade	156.5	161.6	3.21
Accommodation	164.9	170.3	3.31
Transport and storage	176.4	182.5	3.46
Communications	168.8	174.7	3.51
Finance	196.6	203.7	3.66
Property and business services	177.8	185.1	4.12
Government, Admin. & defence	167.7	173.4	3.41
Education	179.9	186.9	3.88
Health	161.4	168.5	4.42
Recreational services	165.5	171.3	3.54
Personal services	163.4	169.0	3.41

Source: Commission estimates based on simulations using the MONASH Model.

5.4 Overall assessment

Measuring the impact that migration makes to productivity is a difficult task. In this chapter, the Commission has attempted to assess whether there are differences in the productivity of immigrant and Australian-born workers, as well as estimate the likely size and direction of the impact that migration makes to economywide productivity. From these analyses we can take a number of important messages.

The average immigrant earns more than the average Australian-born worker. This is because immigrant workers are (on average) older, more educated, more likely to live in capital cities, and are different, in many other respects, to Australian-born workers.

However, it does not necessarily translate that a typical immigrant worker would earn more and be more productive than a comparable Australian-born worker. Once differences in composition are taken into account, and we compare 'like with like', immigrants will generally earn less per hour worked than a comparable Australian-born worker.

For immigrants, their relative earnings when compared with those of an equivalent Australian-born worker will depend largely on their English speaking ability. For instance, immigrants with poor English skills are not as productive as other workers with equivalent education and labour force experience.

The hourly earnings of recently arrived immigrants relative to Australian-born workers has improved over time. This can be largely attributed to the changing composition and improving education levels of recently arrived immigrants. This reflects the emphasis of Australia's Migration Program, in recent years, on skilled immigration.

The results of the Commission's policy simulation suggest that immigration (and the consequent population increase) will, all other things being equal, lead to a decrease in economywide labour productivity. The increase in immigration and the resulting expansion of the labour force (and the economy) leads a decrease in the capital to labour ratio and, to a lesser extent, MFP. Taken together, these two factors result in labour productivity being just under half a per cent lower by 2024-25, than would have been the case if migration were not increased.

6 Scale and environmental effects of migration

Key points

- Migration contributes to the size of the population and domestic economy. To the extent that economies of scale exist, migration could contribute to productivity and per capita income growth.
- There are practical difficulties in estimating the effects of scale economies.
- Migration contributes to the demand for natural resources and the environment, and therefore to the drag on productivity and per capita income growth caused by environmental constraints.
- Migration's impact on the environment is likely to be more significant in Australia's large cities (Sydney, Melbourne and Perth). These cities face challenges in planning and environmental management.

As outlined in chapter 3, the effects of population size on productivity and living standards are various and difficult to measure. Some participants to this study emphasised the potential benefits of economies of scale and scope, and of agglomeration. For example, the Business Council of Australia argued that:

> … population growth, by producing larger domestic markets, can produce production economies for firms (particularly domestic producers of non-traded goods), as well as spillovers associated with knowledge externalities and thick market benefits. These benefits may be particularly beneficial to an economy such as Australia which has a relatively small population, is a long distance from major global markets, and has fragmented domestic markets. (sub. 24, p. 2)

Other participants emphasised the impact on natural resources and the environment of a larger population and economy. Sustainable Population Australia (Tasmania), for example, argued that population growth in Tasmania led to:

> … widespread forest destruction caused by logging operations and the reduction in visual and environmental value in coastal areas caused by expanding residential developments. (sub. 9, p. 6)

The issues associated with economies of scale and thick markets are covered in section 6.1. The impact of migration on natural resources and the environment is considered in section 6.2.

6.1 Migration and economies of scale

Migration, through its impact on the size of the population and domestic economy, might contribute to growth in productivity and living standards if economies of scale exist (Foster 1996; Garnaut, Ganguly and Kang 2003; Withers 2004).[1] A larger economy, for example, might allow for:

> … utilisation of economies of scale in goods and services that are not traded internationally. This includes transport and communication services, and public administration. Furthermore, it allows for more variety of products and hence greater available choice. In addition, by allowing for more producers who produce at reasonable scale levels it makes possible a more competitive environment. It also allows for more network economies… The experience of Japan, and indeed many other countries, also suggests that a large home market can provide a platform for a take-off into quality exporting. (Corden 2003, p. 13)

An important issue for this study is the extent to which the increase in the size of the population and economy arising from migration translates into growth in productivity and living standards.

Economies of scale, productivity and economic growth

Scale effects in their broadest sense include all the mechanisms that might lead to lower unit costs of production, marketing and distribution because of larger output or pecuniary benefits from network economies. Scale effects can originate at the level of the firm or plant, the level of the industry, or the regional or national level.[2]

Economies of scale at the level of the firm and industry

At the level of the firm, economies of scale can exist in production and distribution and marketing. Larger production runs might allow firms to lower unit production costs. Potential sources of economies of scale include spreading fixed costs over more output, employing more volume-efficient equipment, and/or employing work

1 Scale economies exist for a firm producing a single output if, when output doubles, the total cost of production less than doubles. Economies of scope exist where one firm can supply two products at a lower cost than can two firms individually producing each product. For example, the costs of the joint provision of cable television and telephony services are much lower than their separate provision.

2 There is a significant body of research which explores the linkage between economic growth and the existence of scale and agglomeration effects. Useful surveys of the key topics and recent literature are provided in Arrow, Ng and Yang (1998), Hansen (2002), SGS (2002), and Rosenthal and Strange (2003).

organisation techniques that are more efficient with larger scale (specialisation of labour). Larger markets could also lower the unit cost of marketing and distribution.

Economies of scale at the level of the industry arise from the benefits of agglomeration or 'thick markets'. These advantages are a widely accepted explanation for the concentration of population and industry in larger cities (Henriksen, Knarvik and Steen 2001). The benefits of agglomeration can arise from a number of sources including local skilled labour pooling, sharing of local inputs, network economies and information spillovers.

Local skilled labour pool

A large local pool of workers with the relevant skills can lower the costs to firms of expanding their workforce in two ways. First, larger ('thicker') labour markets have many vacancies and applicants, and can increase the ease with which vacancies are filled and applicants are employed. This might lower the cost to firms of hiring labour to respond to market conditions. Second, a larger pool of labour might allow firms to more easily employ staff with the appropriate skills. This can reduce labour costs associated with training and skill acquisition.

Sharing of local inputs

Geographic clustering of firms allows specialist inputs to be provided to firms at a lower cost than would be possible if the firms were dispersed (Ciconne and Hall 1996; Quigley 1998). These inputs include specialist support services (legal services, research and development, design and testing, and so on), which might have high setup costs. Agglomeration allows the setup costs of these services to be spread over a large number of local customer firms. Agglomeration allows all market participants to access the benefits of shared infrastructure while sharing the costs.

Network economies

Larger populations might also provide more opportunity for direct and indirect network economies (also referred to as 'network externalities').[3] Products that

[3] Direct network externalities exist where the value of a service or good to an existing user increases when additional users subscribe to the service or purchase a good. For example, the value to a user of telecommunications increases when an additional user subscribes to the service. Indirect network effects arise when the value of a product increases as the number of, or the variety of, complementary goods or services increases. For example, complementary products for motor vehicles include spare parts and repair services. A larger penetration of a

exhibit network externalities include telecommunications, transportation systems, electricity distribution, credit card networks, and computer hardware and software. Where network externalities exist, a larger population might lower costs for firms that use the network good or service as an input to production. The Commission's report on international benchmarking of Australian telecommunications services found that:

> Network externalities are likely to be significant when a network has low penetration. For mature networks, the additional benefit to each existing subscriber, from one more subscriber, might be small. (PC 1999b, p. 219)

Information spillovers

Idea generation and sharing can improve productivity by ensuring firms use best practice techniques and have a coherent picture of the overall market environment (Morrison-Paul and Siegel 1999). Larger concentrations of firms and people promote information spillovers in a number of ways. For example:

> … while much knowledge is usefully codified and accessible by books, the internet and education and training, much other knowledge is tacit and transmitted by informal physical interaction between people. The synergies are great as workers move between firms, formal and informal interactions take place between people with productive knowledge and people capable of identifying and using that knowledge. Formal and informal interactions occur among investors, researchers, board members, managers, workers, consumers et cetera. (Withers 2004, p. 15)

The benefits of firm-level effects are fully captured by the firm and are thus 'private' (Hansen 2002). However, the industry-level effects are essentially externalities, or spillovers, and cannot be fully captured by any single firm (that is, they are 'public', or 'social' in nature). This distinction suggests that:

> … private increasing returns to scale cannot be a feature of most plant-level production because it implies that each good would be produced by a single firm using a single production plant, which is not an observed feature of the real world for most goods and services. By this reasoning, economic growth must come mostly from social, rather than private, increasing returns, with the divergence implying the presence of technical externalities, such as knowledge spillovers. (Hansen 2002, p. 14)

Competition regulation might limit the scope of some firms to achieve economies of scale where this could lead to a reduction in competition. Aspects of competition regulation that might limit firms' scope to realise economies of scale might include oversight of mergers, access to essential infrastructure and pricing practices of public utilities.

particular make or model will lead to a wider availability of spare parts and repair services, raising the value of ownership to all purchasers.

Economies of scale in regions

Economies of 'agglomeration' might be important for explaining some of the challenges faced by regional centres. In its submission, the Northern Territory Government (sub. 25) identified population size as particularly important for the Northern Territory economy because of economies of scale in industry, the labour market and the provision of public infrastructure (box 6.1).

Box 6.1 **Regional impacts of scale: Northern Territory**

The Northern Territory Government suggested that the relatively small population of the Northern Territory affects the structure of its economy and the efficiency of its labour market.

Structure of economy

The distance of the Northern Territory from the eastern seaboard of Australia means that local population size is an important determinant of the structure of the Northern Territory economy:

> Import substitution is not possible for a number of industries as there is not the local demand to sustain significant manufacturing and service industries. [As a result the] … economy relies primarily on mining, tourism, government administration and defence, and fiscal transfers from the Commonwealth.

Labour market efficiency

Thin labour markets affect economic growth by adding to employee hiring costs and shortages of skilled workers:

> One of the major impediments to business and economic growth in regional Australia is a chronic shortage of skilled labour. This might be due to increasing returns to scale in the matching efficiency of the labour market: the larger the labour market, the greater the ability of the labour supply to meet the specific demands of employers. This is demonstrated by vacancy rates in the Northern Territory which are up to twice as high as the national rates, while unemployment is around the national average. Inter-regional labour market imbalances such as these are only partially corrected by wage adjustment and labour mobility mechanisms.

Source: Northern Territory Government (sub. 25, p. 5).

The Western Australian Minister for State Development; Energy provided an example of how agglomeration can lower costs:

> It is thought that a city needs to have a population of around 100 000 to be a self sustaining service centre with a university, sophisticated health services, high cultural amenity and providing a range of economic opportunities … The Regional Prices Index, completed through the Western Australian Department of Local Government and Regional Development surveyed a basket of 500 goods for 21 regional communities and compared them to Perth. Costs were higher in the smaller communities particularly those further away from Perth. (sub. 27, p. 3–4)

Economies of scale at the national level

Scale effects at the national level can include lower costs of providing government services and lower transport costs associated with Australia's geographical size and location. The cost of providing the minimum level of some government services includes a large fixed cost component, which is not affected by the size of the population (Foster 1996). Examples include the cost of defence and public administration. The Commonwealth Grants Commission, for example, noted that:

> … each State operates basic administrative structures to provide machinery of government, provide policy advice across the full range of services, and to administer and implement those policies. The administrative scale factor reflects the needs of some States to spend more per capita than other States to provide the basic structure of government. The concept of basic structure of government refers, in this context, to part of the function of head offices of departments. (CGC 2001, p. 1)

The provision of government services such as health and education will also involve a fixed cost component.

Australia's transport costs are high due to the so called 'tyranny of distance', that is, Australia's distance from its export markets. Withers (2004), for example, notes that:

> Finland, Ireland, Netherlands, Switzerland and the like are small successful countries. Yet Helsinki is 1500 kms from Bonn, 6900 kms from Washington and 7800 kms from Tokyo, while the distance from Canberra to these is 16 500 kms, 16 000 kms and 8000 kms respectively. The other small countries are close to large affluent markets. (p. 21)

Corden (2003) argues that what is internationally tradable in countries with low transport costs is not so readily tradable in Australia. Although developments in transport and communications have diminished the disadvantages of distance, they have not overcome it (Corden 2003; Withers 2004). A larger domestic market might therefore contribute to lower transport costs. For example:

> An economy which can support only one production unit of a particular good must pay for it to be transported to the rest of the country. However if two production units operating at minimum efficient scale can be supported and they are located in different regions, such as Melbourne and Sydney, then transport costs may be decreased substantially. (Meikle 1985, p. 4)

Lower transport costs might reduce the costs of domestically produced goods and services. Where these are used as intermediate inputs, they might influence the cost structure of the traded goods and services sectors and provide a stimulus for export.

Evidence on the impact of migration on economies of scale

Assessing the effects of migration on productivity and economic growth arising from economies of scale is problematic. First, economies of scale are difficult to measure. Second, economies of scale are difficult to attribute to migration.

Economies of scale are difficult to measure

There are major measurement difficulties in assessing the existence and importance of economies of scale (Corden 2003; Foster 1996; OECD 2004a; Perkins et al. 1990). Foster and Baker (1991), for example, note that:

> Empirically, however, it is difficult to separate the effects of possible contributing factors to productivity growth, such as skills, scale change and technology. Observed changes in unit costs of production as input levels increase through time cannot be easily split into components reflecting 'pure' scale effects, or the effects of technological change or enhanced skills, as 'embodied' in the respective increments to capital and labour. The issue is complicated further by interactions between such sources of productivity growth — any contribution of scale economies, for example, might vary according to prevailing technology. (p. 81)

Although robust evidence is not available to indicate reliably the importance of economies of scale in Australia at the aggregate level, previous research by the Commission has identified a number of industries where economies of scale might exist. These include agricultural products such as pigmeat (PC 2005a) and egg farming (PC 2005c); manufacturing products such as motor vehicle manufacturing (IC 1997); and services and infrastructure such as telecommunications (PC 2001), electricity generation (Sayers and Shields 2001), rail transport (PC 1999a) and air passenger transport (Doove et al. 2001).

In many of these studies, however, the Commission has had difficulty identifying quantitative evidence on the importance of economies of scale in the Australian context. The Commission's research report on electricity prices and cost factors, for example, was able to identify anecdotal evidence of network economies in electricity distribution in Australia. In particular, output density and customer density were identified as key drivers of distribution costs (Sayers and Shields 2001). However, no reliable empirical evidence for Australia was available.

Although a number of international studies have found evidence of economies of scale,[4] it is difficult to extrapolate the importance of these effects to the Australian

[4] These studies include evidence of firm level ('private') economies of scale in capital-intensive industries such as manufacturing (Kaskarelis 1997; Morrison-Paul and Siegel 1999; Hwang 2003), and electrical power generation (Hisnanick and Kymn 1999).

economy. Sayers and Shields (2001), for example, provided empirical estimates of the importance of these factors based on US studies.[5] Extrapolating these estimates to Australian circumstances, however, was not recommended for a number of reasons.

> First, … the data in [the report] provide only an estimate of output densities [in Australia]. Second, the econometric estimates relate to overseas utilities that are mainly located in urban areas. Third, elasticities are point estimates that cannot be used to infer the extent of economies over a large range of output densities. Further, the utilities that form the basis of the estimates may have different cost structures to the utilities included in this study. (Sayers and Shields 2001, pp. 170–1)

Overall, the empirical evidence on the aggregate impact of scale economies is uncertain. There might be scale economies in some industries and agglomeration effects might benefit specific locations, but it is difficult to assess the extent to which these effects contribute to aggregate productivity and economic growth.

Economies of scale are difficult to attribute to migration

The gains from economies of scale can be achieved in a number of ways other than through migration: including the following.

- *International trade*. Economies of scale in the domestic traded goods and services sectors can be achieved by expanding exports. The Australian agricultural, mining and manufacturing sectors, for example, could expand output through exports as well as through domestic markets. The domestic economy can also benefit from economies of scale in imported goods. For example, agglomeration effects of information spillovers in 'silicon valley' are included in the price and productivity of imported information technology hardware and software.[6] However, not all goods and services are traded and

5 The estimates on economies of output density were in the range of a -1.2 to -4.6 per cent change in costs for a 1.0 per cent change in density. The estimates on economies of customer density were in the range of a -1.0 to -1.6 per cent change in costs for a 1.0 per cent change in density (Sayers and Shields 2001, pp. 170–2).

6 A recent report by the OECD on economic globalisation suggests that an emerging trend is for economies of scale to be achieved via the international division of the production process:

> With technological progress and market globalisation, it is now possible to break up the production process of a given good into an increasing number of successive, upstream-downstream stages, and to increase in this way the number of intermediate goods that enter into the manufacturing process. Upstream goods (often highly standardised) are produced on a large scale by highly specialised plants (which might be located in different countries) and these are then combined or assembled in various ways, downstream, to create a broad range of widely differentiated varieties, closely adapted to specific markets. (OECD 2005a, p. 197)

transportation costs might limit the scope for expanding the market of those that are.

- *Rationalisation of industry.* Economies of scale can also be achieved by industry rationalisation and consolidation for an existing level of output. The recent Commission report on national competition policy reforms (PC 2005c), for example, found that rationalisation and vertical integration in grain production had allowed the industry to realise the benefits of scale and scope. This report also suggested that amalgamations and shared service provision arrangements might allow economies of scale to be achieved in local government.

Migration might contribute to aggregate productivity and economic growth to the extent that economies of scale exist. This is likely to be more important in industries and locations more closely related to migration settlement and consumption than at the aggregate level. It is difficult to gauge the overall contribution; however, given the magnitude of migration scenarios, it is not likely to be large.

The contribution of migration to the size of the economy

One way of assessing whether migration is likely to have a large or small impact on productivity and economic growth because of economies of scale is to consider the contribution that migration might have on the size of the economy. That is, if the contribution of migration to the level of economic activity is small, the effect of migration on productivity and economic growth if economies of scale exist is also likely to be small.

Some insight into the likely contribution of migration to economic growth is provided by the Commission's modelling. The base case simulation, for example, projects real GDP to expand by approximately 75 per cent over the 20-year simulation period, or about 2.7 per cent per year. Migration under current policy settings, would account for approximately 22 percentage points of real GDP growth over the same period, or about 0.8 percentage points of growth per year (box 6.2).

Overall assessment is difficult

Migration could contribute to aggregate productivity and economic growth to the extent that scale economies exist, and are directly attributable to the size of the domestic population. However, the evidence is inconclusive on the contribution of migration to productivity and economic growth because of scale economies for three main reasons.

- It is difficult to estimate reliably the contribution of scale to productivity and economic growth.

Box 6.2 Estimates of the impact of total migration on industry output, 2003-04–2024-25[a]

The Commission has used general equilibrium modelling to examine the impact on the economy of an increase in the level of skilled migration (appendix G). The results of this analysis can be used to provide some insight into the effect of migration on the size of the various sectors in the economy. The Commission modelled the impact on the economy of an expansion in the skilled migration program which increased the population by 3.4 per cent between 2003-04 and 2024-25. By year 20 of the simulation, this additional migration is projected to expand real GDP by 6.3 per cent compared with the base year (2003-04).

The results of the increased-migration simulation can be extrapolated to provide insight into the likely contribution to population and output of total migration over the simulation period. In the base case, total population increases by 24.3 per cent by 2024-25, of which migration accounts for 11.9 percentage points. If a 3.4 percentage point population increase leads to a 6.3 percentage point increase in real GDP, then an 11.9 percentage point increase is likely to increase real GDP by approximately 22 percentage points.

		Contribution to base case growth				*Increased migration simulation*[f]
	Unit	*Migration*[b]	*Other*[c]	***Total***[d]	*CAGR*[e]	
Population growth	%	11.9	12.4	**24.3**	1.0	3.4
Industry output growth						
Other manufacturing	%	30.7	42.4	**73.1**	2.6	8.8
Fabricated metal products	%	27.8	38.7	**66.5**	2.5	8.0
Chemical, petroleum, coal	%	23.5	54.3	**77.8**	2.8	6.8
Transport, storage, comm.	%	21.0	52.3	**73.3**	2.7	6.0
Electricity, gas, water	%	19.2	46.3	**65.5**	2.4	5.5
Food processing	%	15.9	50.6	**66.6**	2.5	4.6
Basic metal products	%	16.6	65.5	**82.2**	2.9	4.8
Agriculture, forestry & fishing	%	15.2	56.1	**71.3**	2.6	4.4
Mining	%	7.8	94.3	**102.1**	3.4	2.2
Real GDP growth	%	22.0	53.3	**75.2**	2.7	6.3

a These extrapolations are provided for illustrative purposes. It is possible that the estimated effect of total migration overstates the total contribution to industry output because of the different population base used in the calculations. **b** The growth projections for migration in the base case are extrapolated from the increased-migration simulation (note f). **c** Other effects include expansion in population and output due to natural population increase, export expansion and productivity growth. **d** These results represent the total growth that is projected under the base-case simulation. **e** CAGR: compound annual rate of growth under the base-case simulation. **f** These results represent the difference between an increased-migration simulation and a base-case simulation in 2024-25 as a proportion of the level in the year of the simulation. The increased-migration simulation assumes a 50 per cent increase in the annual skilled migration program. The base-case simulation assumes current migration policy settings.

Source: Commission estimates; appendix G.

- While economies of scale might have been present in the past, it is difficult to estimate the extent to which scale economies currently exist, or are likely to exist in the future.
- It is difficult to isolate the contribution of migration and population to economies of scale because there are many ways that these benefits can be realised.

In the absence of useful data about the existence and importance of economies of scale, these effects were not included in the modelling.

6.2 Migration, natural resources, and environment externalities

A larger population and domestic economy can increase the demand for natural resources and urban land, which might be in limited supply. It might also increase negative environmental spillovers such as pollution, environmental degradation and congestion.

An important question is: does the increase in demand for limited resources and the generation of environmental externalities have implications for growth in productivity and living standards? These concerns were raised in a number of submissions to this study.

Participants generally agreed that a larger population, whether from migration or natural increase, increases the demands on the environment. Some participants, like Sustainable Population Australia (Tasmania), suggested that population growth in the past had resulted in significant impacts on the natural environment:

> The huge level of population growth over the last two centuries has resulted in a massive loss of biodiversity and a widespread degradation of the landscape. The latter is manifested in salinity of the soil and topsoil erosion. (sub. 9, p. 6)

Other participants identified the potential impacts of population growth in urban areas. Claus Environmental Engineering (sub. 12), for example, suggested that larger urban populations would mean more air pollutants, sewage and wastewater, polluted runoff, solid waste and greenhouse gases.

Participants varied, however, in their assessment of the extent to which these impacts affect productivity and can be managed. Sustainable Population Australia, for example, argued that:

> … a bigger population is a hindrance to productivity, not an aid. The only kind of skilled immigration that can be justified — apart from that needed to fill short-term shortages while our training institutions catch up — are the scientists and technicians

who will help Australia develop new technologies that will help us move to a new society, one not based on cheap oil as it is today. (sub. 14, p. 10)

Dr Patnaikuni, on the other hand, argued that there are options for minimising environmental demands by influencing people's behaviour:

> In Australia a good percentage of water is used for gardens but this can be considerably reduced by encouraging people to plant native gardens which do not require much water … Energy problems can be reduced by encouraging people to install solar hot water systems. … People may be encouraged to use public transport instead of a single person driving a V6 car to go to work. (sub. 2, p. 3)

Natural resources, productivity and economic growth

Australia's environmental resources include the naturally occurring air, water and land resources. These are inputs to production and recreation activities, and provide life-supporting systems and amenity services for the population (Beltratti 1996; Kennedy 1990).[7] Some natural resources, such as reserves of minerals and fossil fuels are finite. Supplies of these resources can be supplemented via discovery of new reserves and imports in the short term, but stocks ultimately diminish with use. Other natural resources (such as forests and fisheries) and the waste assimilation capacity of the environment (for example, the pollution absorption capacity of city airsheds and waterways) can be exploited on an ongoing basis provided this exploitation does not exceed sustainable levels.[8]

There are a number of reasons why growth in productivity and living standards in the past has been possible despite the environment's constraints. For example, the output of resource sectors (such as agriculture and energy) have declined as a share of GDP around the world. This might be explained by the growth in less resource-intensive goods and services as a share of economic activity. It might also be evidence that economies have, in the past, been able to respond to the increasing scarcity of natural resources, by substitution and technological advances (Romer 2001).

In some cases, markets for environmental resources have provided the incentive for people and organisations to reduce their reliance on scarce natural resources. In

7 Kennedy (1990) notes that social problems can arise when conflict between multiple uses of the environment and over-use of the environment (for example, degradation, pollution and the depletion of resource stocks) cannot be resolved under existing institutional arrangements.

8 Sustainable exploitation levels of these types of environmental assets and services are fixed in the short term but can be increased over time with investment and innovation. For example, the stock of renewable timber can be expanded through plantations, or the absorption capacity of waterways might be increased by abatement technology (filtration systems, for instance).

other cases, even in the absence of markets, the demands on environmental resources might not have reached a level that would prevent growth. Nonetheless, natural resource and environmental constraints are likely to have limited growth compared with what would be the case had environmental resources been unlimited. Environmental policy can help reduce, but not eliminate, these costs.

An increase in the size of the economy increases the demand for natural resources to the extent that natural resources are used as a factor of production. If the supply of natural resources cannot keep pace with increased demand, then the price of these resources rises to reflect current and expected future scarcity (Pearce and Turner 1990). Over time, the higher price of scarce resources relative to other inputs provides an incentive for producers and consumers to reduce their use. This can be achieved in a number of ways:

- *Technological developments*. Technological developments can expand long-term substitution possibilities, facilitate more efficient use of resources and might reduce waste and pollution (Beltratti 1996). For example, water desalination plants can, at a cost, alleviate water scarcity. Similarly, more efficient water use technologies might lower the amount of water used to grow an irrigated crop.
- *Substitution between final goods and services*. The high price of scarce resources is reflected in the price of final goods and services. Consumers are induced to switch consumption to other products which are relatively less expensive. For example, the high cost of hardwood flooring provides an incentive for consumers to switch consumption to alternative forms of flooring.
- *Substitution between factors of production*. Resource intensity can also be reduced by substitution between capital and resources. Substituting irrigation pipes for open channels in the Murrumbidgee and Coleambally irrigation areas, for example, would be expected to reduce water loss through seepage and evaporation by 190GL per year (CSIRO 2005). Similarly, investment in building insulation could lower emissions from fossil fuel power generation.
- *Substitution between resources*. Resources that provide similar benefits can also be substituted, for example, the substitution of synthetic fuels for fossil fuels. Although this might relieve the intensity of petroleum use, it might also raise the intensity of resources used to produce the synthetic fuels and the importance of managing the pollution effects associated with these processes (Lowe 1988).

Productivity and economic growth is likely to be less than would be the case if the supply of natural resources were unlimited (Weil 2005). Reducing the use of natural resources per unit of labour and capital lowers the productivity of these factors. Similarly, exploration of technological alternatives redirects investment capital, which could have been employed elsewhere. These effects might be accentuated by delays in finding suitable substitutes and technology.

Substitution and the development of new technologies can reduce the drag on productivity and economic growth arising from environmental constraints, but a drag still exists. The size of this drag depends on the availability and cost of suitable substitutes, and the cost and effectiveness of technological development.

Migration and natural resources

Migration can influence the demand for natural resources in both the non-urban and urban areas. For example, migration might increase demand for the output of industries that use natural resources (such as agriculture), which are mainly located in non-urban areas. In urban areas, migration might increase the demands on natural resources that physically support the population.

The mining and agriculture, forestry and fishing industries are the major users of Australia's natural resources in the non-urban environment. However, as Foran and Poldy (2002) note, domestic population size is unlikely to be a key driver of demand in these industries because they are highly export-oriented:

> Production characteristics of the minerals and agriculture industries, and to a lesser extent forestry and fisheries, are driven not by domestic population levels, but by demand from global export markets. Those export markets are, in turn, driven by populations in the globalised marketplace, and their requirements for subsistence, lifestyle and affluence … Domestic population levels have relatively minor primary or direct effects on resource and environmental issues related to mining and agriculture but more pronounced effects on forestry and fisheries. (p. 115)

Migration will increase the demand for natural resources to the extent that it increases demand for goods and services that use these resources and to the extent that exports expand to pay for increased imports.

The most direct impact of migration on the demand for natural resources is likely to occur in urban areas because migrants tend to live in the major urban locations. In 2001, 83 per cent of overseas-born Australians (89 per cent of recent arrivals), lived in a major city (ABS 2004b). It is therefore likely that the direct influence of migrants on the environment is most significant in the large cities. Arguably, this will be particularly the case for Sydney, where one-third of the population was born overseas (ABS 2004b). The relative scarcities of land and potable water are often cited as examples of natural resource challenges for large urban areas (for example, Burley, Murphy and Fagan 1997; Chisholm and Kennedy 1990; Washer 2005).

Urban land that is suitable for development is limited in the short term. In Sydney, this constraint is typically argued to be physical, while in other cities, it is related to development policy and to the cost of providing infrastructure and services to outer suburbs (Burley, Murphy and Fagan 1997). However, in the longer run, there is

scope to increase land availability through development, reclaiming of land and high density developments.

Some commentators argue that because migration is an important driver of population growth, it is a key driver of demand for land in major cities (Foran and Poldy 2002; Garnaut 2002). However, many factors other than population growth drive the demand for land and housing. The recent Australian Government House of Representatives Standing Committee on Environment and Heritage report on sustainable cities, for example, identified trends in housing preferences as key drivers of demand for urban land and housing:

> … the increase in city inhabitants is accompanied by a diversification of lifestyle preferences, ranging from high density inner city apartment dwellers to the small acreage on city outskirts to self-contained village type suburban lifestyles.
>
> In growing urban and suburban areas, a dichotomy of development is emerging that features both larger dwellings on smaller allotments and 'rural residential living' — both claiming lifestyle appeal. 'Empty nesters' and ageing communities continue to occupy large family homes and are reluctant to leave familiar neighbourhoods and valued services. (Washer 2005, p. 11)

The recent Commission report on first home ownership found that permanent and short-term migration had been an important contributor to housing demand since the mid-1990s, particularly in Sydney and Melbourne. However, the impact of migration has been offset by low natural population growth, and movement of people away from the large cities. The overall assessment was that population growth had not been a key driver of rising house prices (PC 2004a).

A larger population is also likely to increase the pressure on urban water supplies. Many of Australia's large cities are facing potential water shortages in the short term. Migration will contribute to the pressure on urban water supplies. In the longer term, technological solutions exist that could alleviate that shortage, but at a cost. Sydney and Perth, for example, are exploring the option of water desalination.

Correctly pricing water might provide the incentive for users to modify their consumption (for example, by adopting water efficient garden design and/or investment in water efficient technology). Some progress has been made towards consumption-based charges, with the introduction of volumetric-based tariffs for urban water in some jurisdictions (PC 2002). However, integration of urban and rural markets could ensure that water is allocated to where it is most valued (PC 2005c). Even with these policies, there remains a drag on growth from water supply constraints.

Environmental externalities, productivity and economic growth

The relationship between environmental externalities, productivity and economic growth is similar to that of the natural resources presented above. The main difference is that the effects of externalities might not necessarily be fully reflected in market prices (box 6.3).

Box 6.3 **Externalities**

It is important to distinguish between environmental goods for which there are well-defined property rights (such as land, forests and mineral reserves), and those for which there are not (including pollution-free air and water) (Romer 2001).

Where well-defined property rights exist and are enforceable, the owner of the right can internalise the benefits and costs associated with exploiting the environmental good. Efficient markets allow price to signal scarcity or environmental costs, and encourage efficient use of scarce environmental goods (both currently and inter-temporally).

However, where property rights are not well-defined or enforceable, not all the costs or benefits associated with using the environmental good are internalised, and the use of the good might generate externalities. In these circumstances, the price faced by decision makers might not encourage efficient use of the environment. For example, pollution causes costs to society as a whole; similarly, overuse of fisheries affects the sustainability of the fishery for all users. If the cost of additional pollution or fishing faced by the individual does not take into account the costs to other users, the individual has an incentive to pollute or fish at a higher level than is socially optimal.

The Australian Government Treasury (2002) notes that many of the environmental challenges faced by Australia are related to externalities:

> These include land and inland water quality degradation, loss of biodiversity, air quality, climate change and pressure on coastal, marine and wetland ecosystems. These environmental problems often occur when people do not face the full costs of or receive the full benefits from their actions. (p. 66)

The preferred approach is to deal with externalities (that is, market failure) directly through pollution taxes, subsidies, sale of property rights, and so on (IC 1997). In some situations, high monitoring and enforcement costs might preclude such approaches (for example, monitoring emissions from individual motor vehicles would be costly). However, in such cases, various regulatory processes or incentive systems that have both pricing and regulatory components can be used (Clarke et al. 1990).

If prices do not provide an incentive for producers and consumers to adjust their behaviour to take into account the costs that their actions impose on others, then the environment might be exploited at 'socially inefficient' levels. For example, if the full costs of harvesting a fishery are not internalised, the fishery might be harvested at a rate which is beyond the sustainable level. This behaviour might result in

complete loss of the resource, resulting in the need for more extreme substitution and technological responses than would otherwise have been necessary.

The size of the drag on productivity and economic growth associated with environmental externalities will depend upon the extent to with costs are internalised and the availability of suitable substitutes and technological alternatives.

Migration and environmental externalities

Migration might increase the costs associated with environmental externalities through its contribution to the size of the population and economy. These costs might be reduced by policies that internalise the cost of people's decisions to use the environment, but are not eliminated. Chisholm and Kennedy (1990) differentiate between environmental impacts in non-urban and urban locations.

One of the key externalities that is often cited for non-urban locations is land degradation resulting from agriculture, forestry and mining activity (ABS 2002b). However, the demand for the agriculture, forestry and mining activity that causes land degradation is not significantly affected by migration or population size. Chisholm (1999), for example, observes:

> More significantly, Australia's agricultural sector is highly export oriented. Thus, what happens on Australia's farms (and in its mines) is largely determined by overseas markets. (p. 24)

In addition, most of the problems are associated with environmental conditions, and past poor farming practices (AATSE 2001; Withers 2004). Inappropriate government policies can also lead to perverse environmental outcomes:

> These outcomes may stem from: a lack of clarity in the specification of regulations; a failure to apply the regulations flexibly on a case-by-case basis in a way that focuses on environmental outcomes; a lack of recognition of the economic incentives underlying the problem at hand; and/or a lack of resources to ensure effective environmental management. (PC 2004b, p. 106)

The conclusion follows that non-urban environmental externalities are not closely linked to migration. To the extent that non-urban environmental externalities exist, they represent costs in terms of productivity and living standards which would be minimised by implementing good regulatory practices, even with the current population.

Externalities in urban areas can be associated with either the natural or man-made environment. Externalities that relate to the natural environment, for example, include the use of the environment as a 'sink' for the by-products of production and

consumption activities. A study by the Australian Academy of Technological Sciences and Engineering (AATSE 2001) examined 21 environmental issues likely to arise from increased population size, and identified four for which they considered the relationship to be strong:

- pollution of land (and groundwater basins) where the waste generated by a larger population is beyond the absorptive capacity of the environment or infrastructure
- pollution of coastal waters, rivers and lakes near major urban areas from increased stormwater runoff and sewage discharge
- pollution of urban air sheds principally from increased vehicle emissions and, to a lesser extent, energy generation
- depletion of urban fresh water stocks from greater demand on renewable water reserves for domestic activities such as drinking, washing and gardening.

Externalities that relate to the man-made (or 'built') environment include congestion. As noted in the recent New South Wales Government sustainable transport inquiry:

> Congestion imposes costs on other road users in the form of increased travel time and running costs, and on society through increased pollution. Typically, road users are not charged for these costs, and in the absence of a price mechanism to allocate a road to those motorists who most value it, many roads are overused (congested) at particular times. The result is inefficiencies in road use, in vehicle use, and in the use of motorists' time. (Parry 2003b, p. 183)

A larger population raises the cost of using shared facilities such as roads and public transport. Traffic congestion raises the costs of transport and freight operations, as well as prices to customers (BCA 2005). The Bureau of Transport Economics (1999) estimated that, by 2015, the combined congestion costs for Australia's capital cities could approach $30 billion, or $2159 per person (table 6.1).

It is widely accepted that environmental management problems should be dealt with directly even within the context of the present population (Australian Government Treasury 2002; Clarke et al. 1990; Corden 2003). For example, AATSE (2001) suggests that the major population related urban environment and infrastructure challenges faced by Australia can be managed in several ways:

- Technological innovations can contain or potentially reverse environmental impacts through improved efficiency, containment or 'ways of doing things';
- Behavioural shifts caused by education programs and regulatory measures can be applied to minimise the impact people have on the environment;
- Pricing policies can be applied to change behaviours by rendering the true cost of supplying a service or impacting on the environment more transparent to consumers; and

- Planning and settlement pattern policies, which seek to lessen environmental impacts through alternative land use and transport arrangements, can be applied to deliver superior environmental outcomes. (p. iii)

Table 6.1 **Estimated costs of urban road traffic delays[a]**

	Unit	*Sydney*	*Melbourne*	*Brisbane*	*Adelaide*	*Perth*	*Canberra*	*Total*
Total cost								
1995	$b	6.0	2.7	2.6	0.8	0.6	0.1	12.8
2015	$b	8.8	8.0	9.3	1.5	1.9	0.2	29.6
Cost per person								
1995	$/person	1 609	856	1 784	741	441	178	1 158
2015	$/person	1 971	2 079	4 585	1 212	1 062	500	2 159

a Cost estimates are based on a comparison with notional free-flow traffic conditions. Estimates in 1996 prices.

Source: BTE (1999).

The contribution of migration to the size of resource-using industries

One way of assessing the likely impact of migration on the demand for natural resources is to assess the impact of migration on the size of resource-using industries. Extrapolating the results from the Commission's simulation projections suggests that, if the existing levels of migration continue until 2024-25, the population will be 11.9 percentage points larger due to migration (box 6.2). This will expand real GDP, and output in the resource-using industries will also expand.

Under the base-case simulation, the mining and agriculture, forestry and fishing industries will have expanded total output by approximately 102 per cent and 71 per cent respectively by 2024-25. Only a small proportion of this expanded output is attributable to migration (7.8 and 15.2 percentage points respectively). The estimated impacts in box 6.2 also represent the cumulative effect after 20 years. The annual growth in the mining and agriculture, forestry and fishing industries that is attributable to migration is likely to be in the order of only 0.26 and 0.55 percentage points for mining and agriculture, forestry and fishing respectively. These relatively small annual changes might allow the industries to adjust more easily to shortages and constraints.

Although this suggests that migration is not likely to be the major driver of growth in natural resource using industries, it will increase demand on natural resources and the environment. This increase will be proportional to migration's contribution to the population. This will add to the drag on productivity and living standards that is associated with constraints on these resources.

Overall assessment on migration and environmental constraints

Natural resource constraints and environmental externalities are likely to impose a drag on productivity and living standards. That is, productivity and economic growth are likely to be lower than they would be had there been no such constraints. Growth in Australia's productivity and living standards has been possible in the past because the economy has been able to adjust, at least in part, to these constraints. However, the drag on growth still exists.

Migration could contribute to a larger drag on productivity and economic growth to the extent that it increases the demands on Australia's natural resources and environment. However, information necessary to quantify the impact of environmental limitations on productivity and economic growth, as well as to isolate the impacts of migration from other factors, was not available. For this reason, environmental impacts were not included in the economic modelling.

Migration will contribute to the costs associated with externalities; however, non-urban externalities are not closely linked to migration. To the extent that non-urban environmental externalities exist, they represent costs in terms of productivity and living standards, which would be minimised by implementing good regulatory practices, even with the current population.

7 Other economic effects of migration

Key messages

- Migration can have effects on sectoral and regional economic activity, on international trade and investment opportunities, on competition, on real wages and the distribution of income, and on government budgets.
  - These may influence productivity and economic growth.
  - Most of the effects are difficult to gauge, but are likely to be small.
- An increase in foreign investment and a decline in the terms of trade make negative contributions to income per capita.
- A fall in the price of consumption contributes positively to income per capita.
- Skilled immigrants, are less reliant on transfer payments, and are more likely to earn higher incomes and pay more in taxes.
- The growth in wages of resident workers who are in direct competition with immigrants tends to be dampened by migration, while those who complement immigrant workers tend to have enhanced wage growth. Consistent with past studies, these effects are small.
- The modelling conducted for this study suggests that the main mechanism dampening the growth in average real wages is the decline in the terms of trade. An increase in immigration (weighted towards skilled migrants) is likely to reduce slightly the average domestic real wage in 2024-25 by about 1.2 per cent.
- There is potential for domestic owners of capital to gain as rates of return on capital increase in the short- to medium-term. Part of these gains, however, will accrue to foreign owners of capital.

In this chapter, we examine some of the effects of migration and population growth on productivity and income per capita that are not covered in the preceding chapters (section 7.1). Some income redistribution effects are also considered (section 7.2).

7.1 Some other effects on productivity and economic growth

The effects of migration and population growth on productivity and income per capita discussed in this section relate to:

- foreign investment
- terms of trade
- consumption price effect
- competition.

Each of these issues is discussed below.

Foreign investment

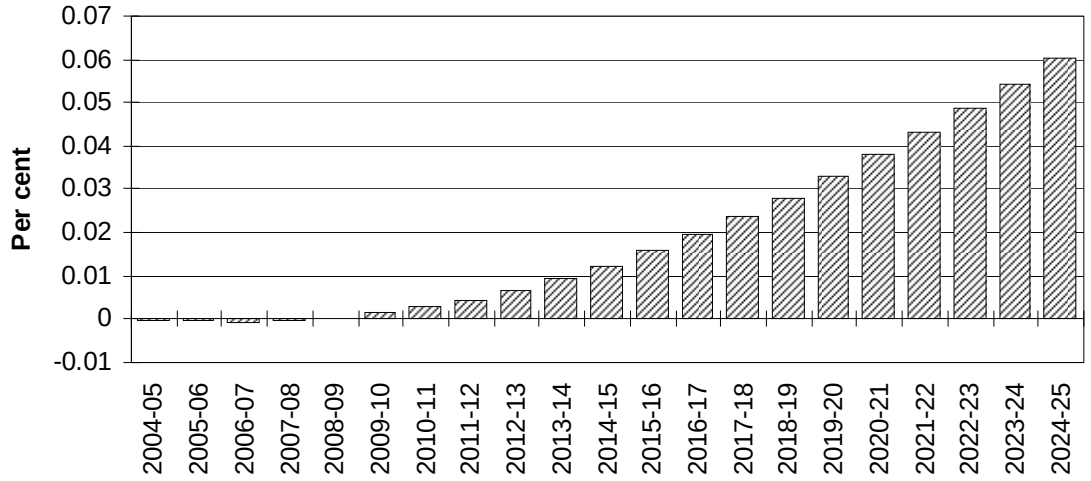
Migration increases the rate of growth in the labour supply. For the economy to grow and absorb the increase in labour supply, the size of the nation's stock of capital also needs to increase. This occurs through an increase in the rate of investment. However, Australia's savings rate is insufficient to finance fully the higher rate of investment. Consequently, we rely on foreign investment and debt to fund some of the extra investment.

The ratio of Net Foreign Liabilities (NFL) to GDP is an indicator that can be used to gain insights into the economic significance of the level of NFL. As the ratio rises, more and more of the value of Australia's output (GDP) needs to be used to pay returns to foreign investors.

In the increased-migration simulation, the ratio of NFL to GDP increases very slightly over time (figure 7.1). By 2024-25, the ratio of NFL to GDP is about 0.06 per cent higher than in the base-case simulation.

Consequently, an increasing proportion of GDP would be owed to, and distributed to, foreign investors. Thus, the most relevant measure of income accruing to Australian residents is Gross National Product (GNP) rather than GDP. GNP is equal to GDP plus Net Foreign Income (NFI). Returns paid on foreign investment make a negative contribution to NFI. The contribution of increasing foreign investment to income per capita is presented in chapter 8.

Figure 7.1 **Projected ratio of net foreign liabilities to GDP[a]**



a Per cent deviation between the base-case and increased-migration simulation.

Source: Commission estimates based on simulations using the MONASH Model.

Terms of trade

The expansion of the economy induced by migration increases the volume of imports. Increasing imports, together with increasing payments to foreign investors, exert negative pressure on the current account. To stabilise the current account, Australia would need to increase the volume of its exports. The increase in the volume of exports could lead to a fall in the terms of trade.

The terms of trade is the ratio of export prices to import prices. Australia has some, but limited, influence over the prices it receives for exports of goods and services. Australia has less influence, almost none, over the prices it pays for imports. To the extent that the price of exports is dependent on the export volume, the increase in the volume of exports is achieved at the expense of Australian exporters accepting slightly lower prices. But the prices of imports (set by international markets) are largely unaffected by the increase in import volumes. With falling export prices and unchanged import prices, the economy would experience falling terms of trade.

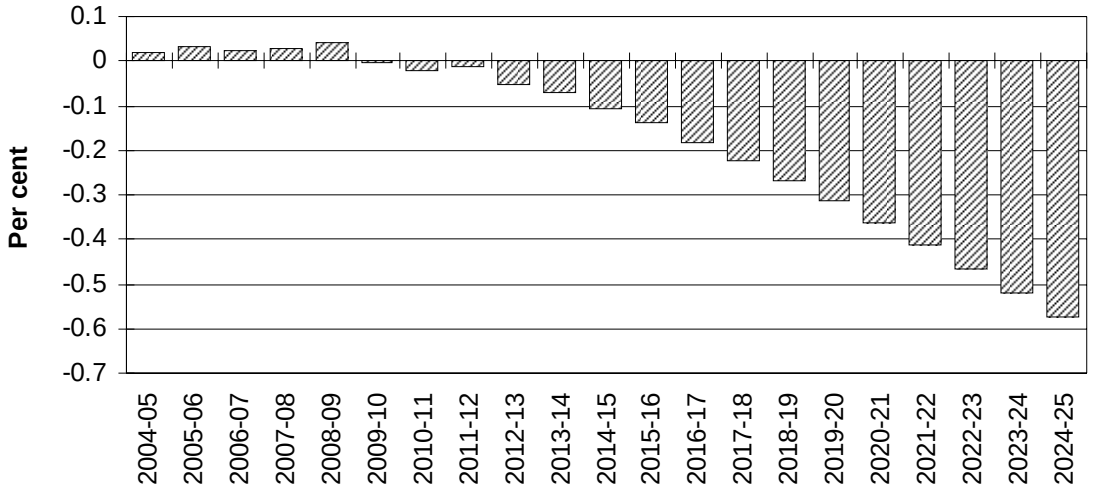
The fall in the terms of trade means that Australia must export more goods and services if it is to pay for its imports without increasing its foreign debt through borrowing.

Some insights into the effect of migration on the terms of trade can be seen from the general equilibrium modelling analysis undertaken as part of this study. Under the increased-migration simulation, Australia needs to increase its volume of exports as

the level of imports increase. Consequently, the terms of trade fall in the long run. By 2024-25, the terms of trade is about 0.6 per cent lower than in the base-case simulation (figure 7.2).

The fall in terms of trade contributes to a decrease in income (real GNP) per capita, which is discussed in chapter 8.

Figure 7.2 **Projected change in the terms of trade[a]**



a Per cent deviation between the base-case and increased-migration simulation.

Source: Commission estimates based on simulations using the MONASH Model.

Consumption price effect

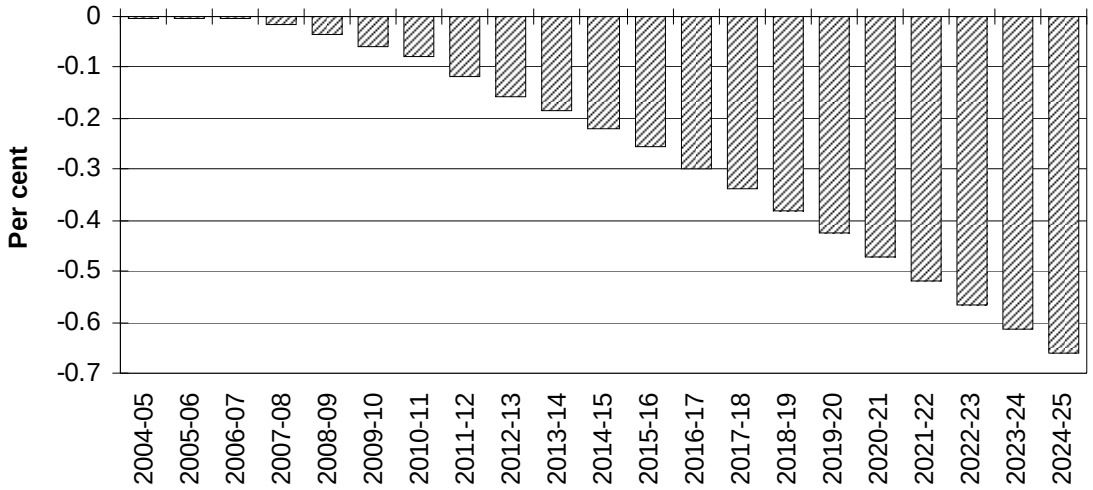
To estimate real GNP per capita, the nominal value of GNP needs to be deflated. In this study, the Commission has chosen to use the aggregate price index of private and public consumption as the deflator. Private and public consumption can be used as a surrogate measure of economic welfare. Thus, deflating income (GNP) by the price of consumption provides an indication of the purchasing power of that income.

In the increased-migration simulation, the price of private and public consumption decreases over time (figure 7.3). The principal reason is that increased skilled immigration lowers the real wages of occupations using highly educated workers. The provision of government services tends to use people in highly skilled occupations. Thus, the real cost of producing government goods and services decreases. On the other hand, migration stimulates the demand for investment. Domestic investment tends to use the output of the construction sector which is more intensive in the use of relatively less skilled labour. As indicated below, the

relative wages of less skilled occupations rise. Consequently, the price of investment rises relative to the price of public and private consumption. The overall effect is that the income to deflated by the construction price increases.

The fall in the price of private and public consumption contributes to increase in real income per capita, which is discussed in chapter 8.

Figure 7.3 **Projected price of private and public consumption[a]**



a Per cent deviation between the base-case and increased-migration simulation.

Source: Commission estimates based on simulations using the MONASH Model.

Technological progress embodied in capital

In chapter 3, it was noted that positive net migration is likely to result in a faster growing population and economy in absolute terms. Faster rates of population and economic growth require a more rapid rate of net investment than would otherwise be the case. It is possible that the additional investment could increase the rate at which the new technology is adopted. If technological progress is embodied in the newly acquired capital, the capital stock would become more productive (Foster 1996).

As noted by Weil (2005), when discussing technological progress:

> New software represents a new and better technology. The physical capital and human capital inputs (the computer and the worker) do not change, but with the new software, they are more productive. … New technology is often built into capital goods. The linking of technology to specific pieces of capital is called embodied technological progress. … If technological change is embodied in capital, the technology is not upgraded until the capital good is replaced. … A country with a high investment rate will have, on average, capital goods that are younger (more recently produced). As a

> result, these capital goods will embody more recently developed technologies and the country with high investment will be technologically more advanced than one with low investment. (p. 230)

In considering the impact of migration on productivity growth arising from the increase in investment, a number of factors are relevant, including:

- changes in the growth rates of sectors
- the capital intensity of sectors
- the change in the rate of investment
- rate of technological progress embodied in new capital
- the extent to which the adoption of the new capital is dependent on the skill of the labour force.

Some insights into the potential for increased productivity growth from additional investment can be seen from the Commission's general equilibrium modelling. For the increased-migration simulation, the rate of investment across industries increases (figure 7.4).

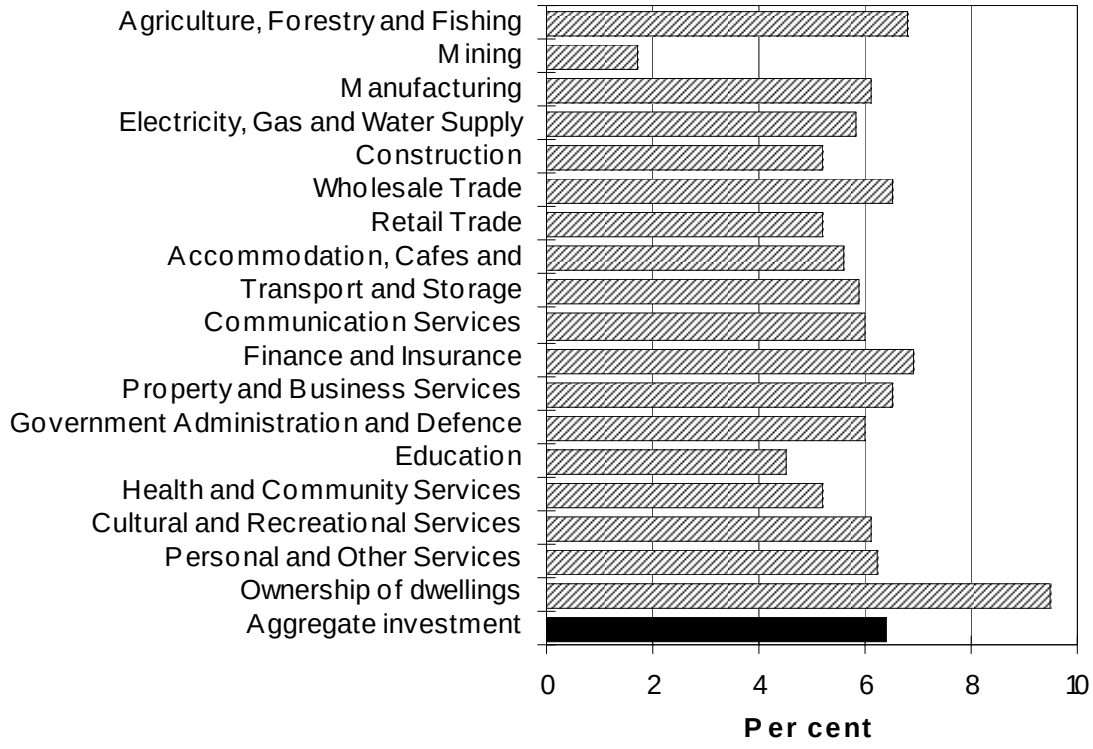
By 2024-25, the annual rate of real investment is projected to be about 6.5 per cent higher in the increased-migration simulation.

The change in the rate of investment is projected to vary across sectors. For the mining industry, the increase is about 2 per cent higher. Investment in dwellings has the highest increase, about 9.5 per cent.

Even if technological progress is embodied in new investment, such increases in investment over a 20-year period are unlikely to result in significant changes to the rate of technological progress in Australia.

In the general equilibrium model, there are projected rates of primary factor technical change, which differ across industries. The model does not adjust these, if migration increases. As discussed in chapter 5, the sectoral reallocation of economic activity induced by migration could alter overall productivity growth. To the extent that this happens, it is captured in the analysis, as discussed in chapter 5.

Figure 7.4 **Projected change in investment across sectors, 2024-25[a]**



a Per cent deviation between the base-case and increased-migration simulation.

Source: Commission estimates based on simulations using the MONASH Model.

Trade could be stimulated

There are two ways in which migrants might affect trade. First, emigrants might utilise their expatriate networks to provide specialist advice about overseas market access and business opportunities. Second, immigrants might have links to overseas markets that could result in an increase in aggregate demand for Australian exports. Increasing access to new export markets may lead to a reallocation of the nation's resources to outputs that have a higher marginal value, resulting in an improvement in aggregate productivity.

According to Foster (1996), immigrants might contribute to Australia's export performance through their understanding of foreign cultures, business environments and markets. The Lowy Institute, in examining the Australian diaspora, noted that:

> … immigrants' ties to their home countries can play a key role in fostering bilateral trade linkages, since those ties include knowledge of home country markets, language, preferences, and business contacts, all of which have the potential to reduce transaction costs and facilitate trade. (Fullilove et al. 2004, p. 35)

There might be potential for migrants to raise awareness of, and facilitate trade opportunities for Australian exporters. However, Australia already has a high degree of 'international openness'. Australian businesses have opportunities to purchase marketing and trade services from overseas businesses providing advice and links into new markets. Australian businesses can also send marketing people overseas to acquire this information, or they could arrange for overseas people to visit Australia to provide advice.

This raises the possibility that it is short to medium-term migration that could make the largest contribution to trade. Immigrants entering Australia on a temporary basis could be increasingly used as a vehicle for transferring specialised human capital. For example, overseas business consultants and managers travel across countries (including Australia), transferring knowledge and skills to various businesses and agencies. These migrants provide Australian businesses with the opportunities to access skills and facilitate contact with key businesses in the international markets, as required, without the need to increase permanent migration. However, we have not tried to gauge the size of such impacts on reallocating resources to higher valued export markets.

Competition could be enhanced

In some sectors of the economy — specifically in the non-traded goods and services sectors — there might be less competitive pressure if there are relatively few firms competing in the domestic market. In these situations, a larger domestic population and market size arising from migration could encourage more firms to enter the market and thus increase competition and efficiency. For example, positive net migration might increase the demand for the services of utilities or transport. If there are no barriers to entry, this increase in demand might be met by new businesses (for example, a new domestic airline), thus increasing competition. Competing businesses could price more efficiently and adopt more efficient methods of production, resulting in higher productivity.

The Commission, in its review of the national competition policy reforms, identified priority sectors where substantial benefits would be generated from further reform (PC 2005c). These sectors included energy, water, freight transport, passenger transport, and communications. Some of the benefits identified would arise through enhanced competition. However, the enhanced competition arises from structural and regulatory reforms. The extent to which growth in the size of these sectors would play an important part in enhancing competition is unclear.

The effect of variations in the migration program on the competitiveness of the economy is likely to be small. Net migration as a proportion of Australia's

population is about 0.6 per cent each year. Even in the long-run, the cumulative effect of increased migration on competition is likely to be small. Consider the transport sector as an example. In the increased-migration simulation, by 2024-25, the output of the transport sector is projected to be about 3.5 per cent higher than in the base-case simulation. This increase is likely to have little influence on the degree of competition in this market.

Government expenditure, public transfer payments and taxation

Immigration can affect the government sector in a number of ways. It might affect the composition of and/or the per capita government expenditure on goods and services. It might also affect the per capita transfer payments and government revenue collected from taxation. This section focuses on how immigration, through its impact on the government expenditure and revenue, has the potential to influence efficiency and thus aggregate productivity and growth.

Government expenditure

There are two components to government expenditure — final consumption expenditure (for example, on education and health services) and fixed capital expenditure (for example, government investment in infrastructure, such as roads and buildings). As highlighted in chapter 3, government expenditure can affect productivity and economic growth in a number of ways. Some researchers (Zagler and Durnecker 2004; Weil 2005; Madden et al. 1998) have identified increased expenditure on education, health, research and development, and public infrastructure as means whereby government might facilitate productivity and economic growth.

Migration might impact on government expenditure directly or indirectly. Direct expenditure includes the provision of settlement services for immigrants, translation and interpreting services, and the Adult Migrant English Program. However, migrants do make a contribution to the costs of providing the last two services (Access Economics 2004).

Indirect expenditure includes the provision of health, education, public order and safety, and wider infrastructure expenditure, such as on roads. Expenditure increases on these services depend on a range of factors, including the:

- degree of underutilised capacity in service provision
- degree to which overcrowding (and hence, reduced quality of service) is tolerated

- demographic composition of the immigrant intake (Wooden et al. 1994).

According to Matthews (1992), the principal reasons for expenditure differences include:

- differing demands for services due mainly to differences in age composition
- differing unit costs of services arising mainly from the high costs of Indigenous services (affecting Australian-born expenditures) and
- high costs of English teaching and interpreter services required for the non-English speaking immigrants.

In estimating State and Territory governments' expenditure differences between immigrants and the Australian-born population, Matthews (1992) found the following.

- The overseas-born population incurred higher per capita expenses on public hospital services, including outpatient services, and lower expenses on mental health, and family and children's health services.
- Differing age composition meant that the overseas-born population incurred lower expenditures per capita than the Australian-born population in most education categories.
- Expenditures on law, order and public safety were higher for the Australian-born population, reflecting the proportion of offenders to total population.
- The expense per capita on welfare services was lower for the overseas-born population, driven largely by lower child welfare expenditures in this group due to the relatively smaller proportion of overseas-born children.
- Expenditures on housing and community and economic services (for example, expenditure on industrial development, road maintenance and sewerage) reflect the relative contribution of birthplace groups to population growth, with overseas-born groups incurring much higher per capita expenditures.

In analysing the long-term effects of a continuing immigration program, Matthews (1992) found that immigrants become progressively indistinguishable from the rest of the population, generally taking on many of the demographic and socioeconomic characteristics of the Australian-born population.

Some researchers state that as most immigrants arrive in Australia as young adults, their lifetime profile of public sector demands necessarily differs from the Australian-born population. The expenditure on, for example, education and training and health prior to the arrival of adult immigrants has been incurred elsewhere, resulting in savings for the Australian taxpayer (Withers 2003). This is supported by Alvarado et al. (1998):

> Since the majority of immigrants arrive in Australia as adults, having completed schooling in their birthplace, education expenditure on immigrants is expected to be lower than on Australia-born people. (p. 13)

More recent studies (Access 2002, 2004b) provide estimates of the expected government expenditure outlays across visa categories. However, they do not include comparisons with the Australian-born population. Based on the available information, it is difficult to conclude, with high degree of confidence, that immigrants significantly change overall per capita government consumption and investment. Past studies (such as Matthews 1992) have attempted to examine per capita government expenditure on certain services by overseas-born and Australia-born population groups. However, limitations generally exist regarding the data quality and the assumptions made in these analyses. For example, Matthews (1992) argued that:

> Because of the severe data deficiencies and limiting assumptions which have had to be made, all estimates must be regarded as being subject to wide margins of error. (p.xix)

Further, the assessment of the overall impact on government expenditure arising from immigration depends partly on the expenditure items included in the assessment. Data deficiencies, for example, make it difficult to include in the analysis all government expenditure items that will be affected (either directly or indirectly) by immigration. Many studies only include expenditure items that are directly affected by immigrants, as noted by Access Economics (2004):

> Examining only those revenue and expenses which can be directly attributed to a particular population or client group leaves out a significant proportion of the Australian Government Budget, such as expenditure on public goods or infrastructure. (p. 2)

In general, it is likely that an increase in population arising from migration leads to an increase in the provision of government services. However, it does not necessarily mean that per capita changes in aggregate government consumption and investment have also occurred. Certain expenditure items, in per capita terms, are likely to be higher for immigrants. Equally, some expenditure items are likely to be lower in per capita terms for immigrants (for example, education).

It is difficult to assess whether the overall per capita government spending differs between immigrants and the Australian-born population because of the lack of reliable information on the propensities to consume government goods and services across the two population groups. Where reliable data are not available, past studies have applied the same take-up rates for immigrants as those for the Australian-born population. Moreover, if immigrants eventually take on many of the demographic and socioeconomic characteristics of the general population, changes in aggregate

per capita government expenditure arising from migration are likely to be transitory and small in the long term.

Public transfer payments

Transfer payments are transactions that do not involve the production of goods and services. They reflect, instead, the redistribution of tax revenues back to certain households and businesses. As highlighted in chapter 3, efficiency issues might arise from transfer payments that affect productivity and growth. There is, for example, potential for inefficiencies to occur through increased compliance and administrative costs, and disincentives to increase labour supply. In the context of allocative efficiency, if higher per capita cash outlays on transfer payments is addressed through increased taxes, this can worsen allocative efficiency. Higher per capita transfer payments might also be addressed at the expense of decreased government expenditure in certain areas. This also can affect productivity and growth, especially if expenditure reductions occur in areas considered to promote productivity and growth (see earlier discussion).

The extent to which migration impacts on transfer payments depends on a variety of factors, including:

- whether immigrants are entitled to access social security payments
- the likelihood of immigrants gaining employment, improving their incomes and thus, becoming less reliant on social security.

An increase in skilled migration could reduce per capita transfer payments. The Migration Program in Australia has become increasingly focussed on skilled migration, with immigrants under the Skill Stream generally being under 45 years of age. Skilled immigrants are likely to have a higher probability of gaining employment and be less reliant on transfer payments. According to IOM (2005):

> Experience in countries like Australia and Canada have shown that skilled immigrants have a lower propensity to depend on public welfare … (p. 171)

Focussing on migrants under the age of 45 years, Birrell et al. (2000) found that the welfare-recipient rates were noticeably lower for the overseas-born population aged under 45 years compared with the Australian-born population (table 7). Within the migrant group, immigrants from English speaking countries or from countries where more than 80 per cent indicated they spoke English well, had lower welfare recipient rates compared with the Australia-born population across all age groups. However, compared with the Australia-born population, welfare-recipient rates were higher for immigrants from countries where 80 per cent or less indicated that they spoke English well.

Table 7.1 **Australian-born and overseas-born welfare-recipients rates by age group and time of arrival for overseas-born people, 1996[a]**

	Overseas-born by age group				*Australian-born by age group*			
Arrival date in Australia	15–24	25–44	45–64	65+	15–24	25–44	45–64	65+
	%	%	%	%	%	%	%	%
Pre July 1986	8.5	11.1	26.4	80.9	..	..	..	..
July 1986-1990	8.3	10.8	24.6	84.5	..	..	..	..
1991-1996	10.9	16.9	36.4	56.0	..	..	..	..
All arrival periods[b]	9.2	12.0	26.5	65.8	16.0	16.1	27.7	66.4

a Does not include Department of Veteran's Affairs recipients. There were 503 996 such recipients in 1996. Therefore, comparisons between overseas and Australian born aged 65 years or more cannot be made accurately as the proportion of Australia-born on the pension in this age category understates the position significantly because it does not include pensions paid by the Department of Veteran's Affairs. **b** Includes arrival date not stated. .. Not applicable.

Source: Birrell et al. (2000).

The data in table 7.1 do not reflect the changes made in 1997 to the *Social Security Act*. The changes include:

- a two-year waiting period for newly arrived immigrants (outside the Humanitarian category) before being eligible to receive most social security benefits
- age pension and disability support pension (unless the disability has been incurred post-arrival) benefits are generally subject to a ten-year exclusion period for new immigrants.

These changes, coupled with the more recent emphasis on skilled immigrants, are likely to reduce further the reliance of new immigrants on transfer payments.

More recent studies, such as Access Economics (2004), have incorporated the changes in social security eligibility when estimating the impact of immigrants on social security payments. They provided estimates of social security expenditure per 1000 new immigrants, by visa categories. Comparative estimates for Australian-born, however, were not provided. Further, although the take-up rates of immigrants for some transfer payments were based on the Longitudinal Survey of Immigrants (LSIA) data, limitations of these data meant that Access Economics often applied Australian average take-up rates for a number of transfer payments.

Access Economics found that the impact of immigrants on transfer payments varies across visa categories and over time. In the first ten years after arrival, Humanitarian migrants have the highest dependency on social security (table 7.2). Their dependency level, however, falls thereafter as they find employment.

Table 7.2 **Social security expenses per 1000 migrants by year of residence, constant 2004-05 prices ($'000)**

	Year 1	*Year 2*	*Year 4*	*Year 10*	*Year 15*	*Year 20*
	$'000	$'000	$'000	$'000	$'000	$'000
Humanitarian	2 118	2 419	2 610	2 863	2 648	2 317
Family Stream						
Family – parents	572	611	1 001	660	4 642	3 247
Family – parents contributory	340	391	827	678	5 114	4 420
Family- parents and other	579	933	1 189	929	1 580	1 742
Skill Stream						
Skilled Australian Sponsored	617	873	785	1 270	1 661	1 620
Business skills	177	256	315	1 091	1 881	2 503
2-yr Provisional business skills	9	13	188	1 091	1 881	2 503
Employer Nominated Scheme	403	462	300	1 196	1 669	1 749
Independent	630	754	873	1 015	1 429	1 327
2-yr Provisional independent	0.0	0	695	885	1 314	1 264
All streams	708	931	1 057	1 206	1 679	1 703

Source: Access Economic (2004).

Immigrants under the Skill Stream have a lower dependency on social security compared with most visa categories. This is especially true for immigrants in the provisional categories. These immigrants have a waiting period for many benefits and do not become eligible for these benefits until they have gained permanent residence (table 7.2).

Immigrants under the Family steam, with relatively higher unemployment rates and lower incomes, generally have a higher reliance on social security than immigrants under the Skill stream. Social security payments rise again after ten years of residence as the age pension and disability support pension become available for these immigrants (table 7.2). Social security expenses fall over time on family-type benefits (family payment and parenting payment), as children from the original migrant group age and become adults and are no longer eligible for such family-type payments.

Past studies examining welfare expenditure have generally found small differences, particularly in the longer term, between the proportion of immigrants and Australia-born receiving social security payments. In assessing a range of studies, Foster (1996) concluded that:

> Overall, the evidence indicates that the overseas-born have not been disproportionate users of Australia's social security system. (p. 69)

In the short- to medium-term (under four years), however, it is likely that per capita social security payments to immigrants are less than to the Australian-born

population, mainly driven by the non-eligibility of social security payments to immigrants for at least two years in most visa categories. Further, with increasingly larger proportions of skilled migrants entering Australia (some sponsored by employers), it is likely that reliance of immigrants on transfer payments is reduced further.

Taxation and revenue

Taxes are relevant for economic growth because they have a direct impact on the efficiency with which outputs are produced (Weil 2005). Taxes can distort the market price. It places a wedge between the price that a supplier receives and the price that a consumer pays, which might affect economic behaviour and can involve 'deadweight costs' to national productivity. As noted by Weil (2005):

> When taxes are high, some of the potential transactions between buyers and sellers will not take place, and these transactions would have made both groups better off. No tax will be collected on these forgone transitions, but by discouraging transactions, the tax made the potential buyers and sellers worse off. The size of this inefficiency grows with the size of the tax. (p. 344)

Immigration might have an impact on per capita receipts from tax revenue. The estimated tax revenue collected from immigrants tends to vary according to their visa category. Generally, skilled migrants make the highest per capita contribution to tax revenue compared with migrants entering under other visa categories (for example, visas in the Family Stream or Humanitarian category) (Access Economics 2002, 2004).

The analysis in chapter 5 indicated that the income per hour worked of immigrants was slightly higher than that for Australian-born workers. This could indicate that immigrants might contribute more to government revenues. The Migration Program in Australia is becoming increasingly focussed on skilled migration. Most immigrants entering under the Skill Stream have skills and are under the age of 45 years, factors which generally result in favourable labour market outcomes. Such immigrants are likely to contribute to government revenue through personal income tax and be less reliant on government provided services and cash outlays (social security payments).

Matthews (1992) found that the overseas-born population groups made higher per capita contributions to state revenues than the Australian-born group in nearly all tax categories — revenues per capita were especially high for immigrants from the English-speaking group. Access Economics (2002, 2004) found that immigrants arriving under the Skill Stream of the Migration Program generally made strong positive revenue contributions to the government budget fairly soon after arrival.

Overall assessment

Changes to government expenditures and revenues might arise from migration. Their impact on budgetary outcomes differs compared with the Australian-born population. Immigrants (especially recently arrived immigrants) are generally younger and a high proportion are highly skilled. This is especially the case for immigrants arriving under the Skill stream.

Many studies suggest that increasing the skilled mix of immigrants is likely to have a positive impact on government budgets. Per capita social security expenses, especially in the short to medium term (less than four years), are likely to be less for immigrants than for the Australian-born population. Offsetting this would be an increase in the provision of public goods and services.

Although migration might have a positive impact on budgetary outcomes, the most relevant consideration in the context of productivity and growth is the 'efficiency effects', as outlined in chapter 3. These efficiency effects would be conditional on how governments respond to the initial changes in expenditures and revenues arising from migration, and the extent of any externalities and distortionary costs. If increasing skilled migration results in an overall positive budgetary outcome, government has choices about reducing taxes, increasing the provision of services, increasing savings or retiring debt. Governments might, for example, increase the provision of goods and services, which might assist in productivity growth. On the other hand, government might reduce tax rates, which can also improve productivity. It is difficult to predict how governments might respond. Thus, the efficiency outcomes from the effects of migration on the government sector are difficult to determine, and have not been quantified in this study. The MONASH Model has a public budget sector (but it does not capture the issues discussed above).

7.2 Distributional effects

So far in this study, the focus has been on the average income per capita of all groups in the population. The economic impact of migration, however, might be assessed from the points of view of various groups in the population. These groups could be the Australian-born population, the existing immigrants, the existing residents (Australian-born and existing immigrants), recently-arrived immigrants, or all the of the above.

Existing residents could be concerned about the impacts on their income of current and future immigration. For example, workers with skills that are highly substitutable with immigrant workers might be concerned with the impact of

immigration on their wages and incomes. Their concern could relate to the level of their income or its relativity to that of new immigrants.

Estimating the income redistribution consequences of immigration for existing residents and new immigrants is complex. Income redistribution can occur through many pathways, including through:

- transfers payments
- provision of public services
- labour market outcomes
- changes in wealth.

Some of the income redistribution effects of migration and population growth are discussed in this section. Specific areas of focus are the effects of migration on wages and returns on capital. The section concludes with an assessment of the effects of increasing migration on domestic real wages. The assessment draws on comparisons of income between immigrants and Australian-born (chapter 5) and the results of general equilibrium analysis.

Labour force composition

The skill composition of immigrants and the resident population differ. The extent to which immigration affects domestic wages can vary across occupational groups and industries. Past studies have generally found that, all else being equal, the higher the substitutability of foreign for domestic labour, the more likely it is that increased immigration will lower the wages of existing resident workers.

The impact of immigration on the wages of various groups has been examined in a number of studies, and most find it small. Gaston et al. (2001) reviewed past studies of the effect on domestic wages of differing population groups — such as those conducted by Borjas (1983 1986a, 1986b, 1987), Gang et al. (1994), Greenwood et al. (1995) Grossman (1982) and Rivera-Batiz et al. (1991) — and concluded that:

> Overall, econometric research, which explicitly exploits production theoretic structure, tends to find strong substitutability between immigrants and other immigrants of the same vintage and national origin and, otherwise, widely varying patterns of complementarity and substitutability between immigrants and natives. More importantly, the elasticities between immigrant and native labour are consistently small, and are smaller yet when other channels of adjustment than the wage are explicitly permitted. (p. 13)

Any impact of immigration on domestic labour market opportunities is likely to be small, according to Card (2005):

> The evidence that immigrants harm native opportunities is slight … (p. 2)

Although it is widely accepted by researchers that immigrant flows generally have small overall labour market effects, not all agree that immigration has little impact on particular groups of workers. However, wage inequalities are likely mostly to reflect factors other than immigration, as noted by Gaston et al. (2001):

> In the case of the United States, such conclusion seems an overly confident one to reach. Given the sheer size of the US labour market and the quantity of unskilled labour, more broadly defined, it is unlikely that immigration (or trade) would have contributed to the overall increase in wage inequality observed in the United States during that particular period. … there might have been fundamental change in the underlying demand for unskilled labour that is attributable to the increased availability of unskilled, migrant labour. … it might be the case that trade and immigration engender institutional responses that do leave some types of unskilled labour more vulnerable to economic shocks than others. (pp. 26–7)

In Australia, the Migration Program has a greater emphasis on skilled migration. Therefore, unlike the United States, there is a potential for wages to fall for skilled resident workers and increase for less-skilled resident workers, as noted by Corden (2003):

> Skilled immigration is likely to raise the relative real wages of the unskilled, through increased demand for labour services of various kinds. … This is a redistributive effect, … it is likely both to make the income distribution less unequal and to reduce unemployment of the unskilled, this being where most unemployment can be found. (p. 15)

Capital return and ownership

In the short to medium term, immigration could lead to some capital dilution in the economy and so the rate of return on physical capital will increase. In turn, this might result in gains to the owners of domestic capital — depending on the extent to which capital is domestically owned. In Australia, physical capital is funded from domestic savings and the overseas market. As at 30 June 2004, for example, 69 per cent of total equity on issue was held by residents and 31 per cent by non-residents. In the short- to medium-term, therefore, the gains from the increase in the rate of return on capital are partly captured by foreign owners of capital. Peter et al. (1995) found in their analysis, for example, that in the short-term, immigrants entering Australia in 1991-92 resulted in a reduction in income accruing to Australian residents when part of the income was redistributed to foreign owners of capital.

The funds brought in with immigrants also impact on the gains to domestic residents. Some immigrants entering Australia might bring with them substantial sums of money (which they claim to own, not owe) to establish new business enterprises — for example, in 2000 migrant transfers for the Business Skills stream were around $236 000 per person (Econtech 2004b). However, most immigrants arriving in Australia are young and have not accumulated substantial financial wealth. Thus, the net migrant transfers across all immigrant groups entering Australia were likely to be small. In 2004-05, net migrant transfers to Australia was 0.2 per cent of GDP (about $1736 million). With net overseas migration estimated at 105 304 in 2004, this accounts for about $16 500 per arrival (ABS unpublished data). The capital being provided by new arrivals is therefore likely to be marginal.

Apart from physical capital, immigration could affect incomes generated from natural capital and resources for particular population groups. Urban land owners, for example, might benefit from increased land values or rents. This would depend however, on the geographical distribution of the population increase associated with immigration. According to OECD (2003b):

> … although highly educated Australians might lose out from competition due to increased emphasis on skilled immigration, such groups also own a disproportionate amount of Australian wealth and therefore benefit from rising asset prices. Australians with low levels of education and skills might lose out, especially in times of high unemployment and in areas where there are regional concentrations of refugees; the changes in property prices and rents that benefit the better-off might also act against those, mainly low income, people who do not own property. (p. 139)

However, particular population groups that are affected by population growth and rising asset prices might be partly compensated if there is a fiscal dividend from immigration-related economic growth exists, and it is redistributed (Garnaut 2002). Distributional effects arising from immigration might also apply to government-owned resources, as noted by Peter et al. (1995):

> Usher (1977) highlighted that newly arrived immigrants, on becoming citizens of the country of destination, enjoy the right to a share in the goods and services provided for the population by the government. The newly-arrived immigrants also share in the burden of debt held by the government. However, if the government's equity is positive, meaning that the value of government-owned resources is greater than the government's debt, the additional immigrants will capture a share of that equity and the returns associated with it at the expense of the residents. (p. 6)

In assessing the impact of immigrants on the dilution of existing residents 'equity' in public sector capital stock (that is, the residents having to share the returns to government-owned capital with the newly arrived immigrants), Peter et al. (1995) found that:

> In the calculation with the [capital to labour] ratio fixed [long run], only the second mechanism operates (that is, the transfer of some government rentals to newly-arrived immigrants) and residents' income loss is $191 million, which has a present value of $2661 million and is 0.78 per cent of 1991-92 GDP. (pp. 13–4)

The income loss estimated by Peter et al. (1995) does not seem to take into account, for example, the potential for immigrants to be net contributors to the budget (OECD 2003b).

Estimates of the effects on wages and returns on capital

In chapter 5, comparisons are made of the hourly income of immigrants and Australian-born workers (figure 5.1). The analysis indicates that the average hourly income of immigrants is higher than that of the average Australian-born worker. The difference is attributable to a range of factors, including differences in education, age, language ability, place of residence and industry of employment. The analysis, however, does not provide insights into the effects of migration on wage outcomes.

Some insights into the effect on relative wages of increasing skilled migration can be gained from the general equilibrium modelling undertaken for this study. The projected real wages need to be assessed in the context of the theory underpinning the model. Increased labour supply arising from migration, for example, is assumed to be absorbed by the market through flexible wage adjustments. Wages are not assumed to be inflexible or 'sticky'. It should also be noted that the participation rates, unemployment rates and hours worked for immigrants have been estimated outside of the MONASH Model (appendix F).

Wage effects

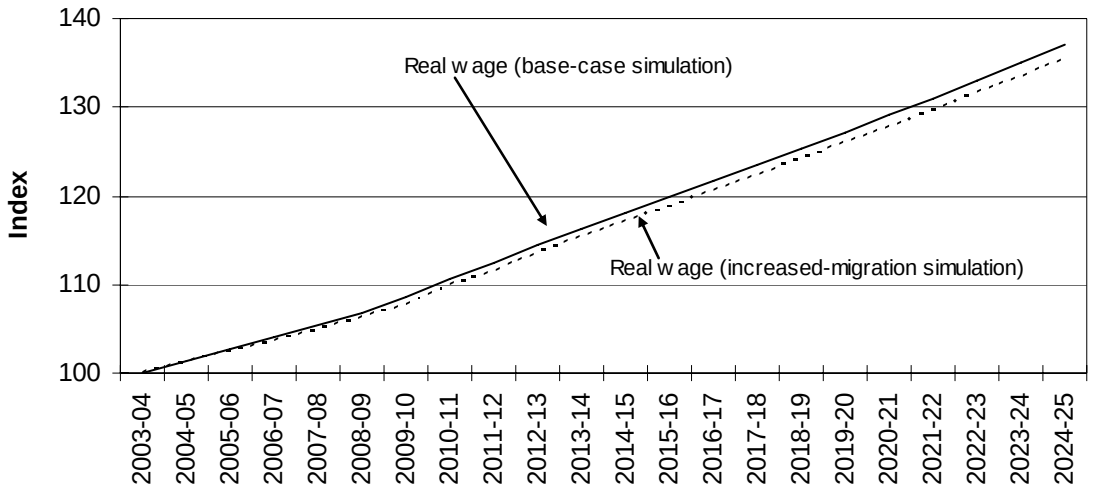
Domestic real wages might be affected by immigration through a number of mechanisms, including:

- the skill composition of immigrants relative to the resident population
- changes to the capital to labour ratio arising from an immigration-induced labour supply increase

- economywide effects such as the effect on the terms of trade, changes in export demand, changes in consumption patterns, and sectoral shifts in activity.

Between 2004-05 and 2024-25, the aggregate real wage is projected to increase in the base-case simulation by about 37 per cent. The growth in the real wage mostly reflects the underlying trend in productivity growth. In the increased-migration simulation, the aggregate real wage is projected to increase at a slightly slower rate over the same period. By 2024-25, the aggregate real wage is projected to be about 1–2 per cent lower than in the base-case simulation (figure 7.5).

Figure 7.5 **Projected growth in aggregate real wage[a]**



a Per cent deviation between the base-case and increased-migration simulation.

Source: Commission estimates based on simulations using the MONASH Model.

The projected decrease in the rate of growth in real wages arising from an increase in skilled migration is largely due to the fall in the terms of trade discussed above. As outlined in chapter 5, the fall in the terms of trade leads to a lower capital to labour ratio. This in turn leads to lower real wages.

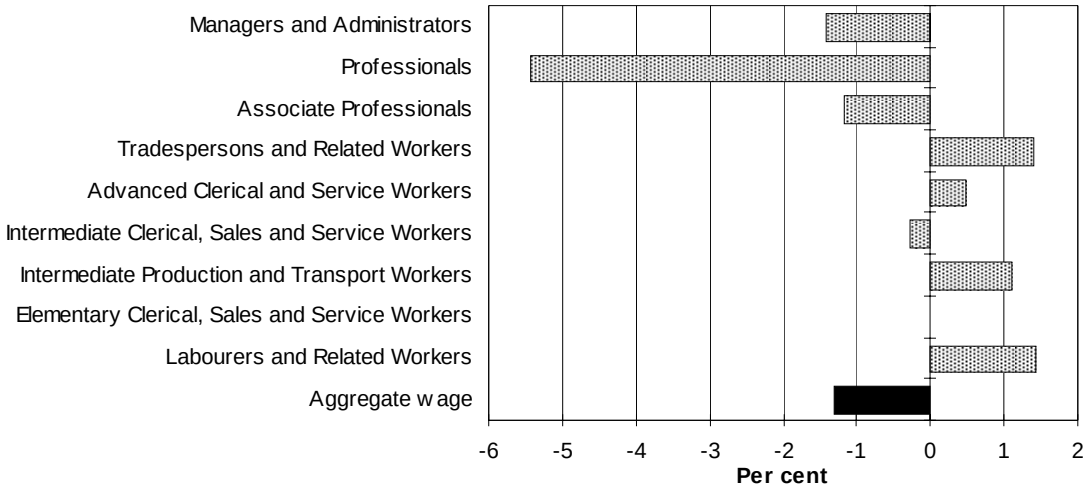
Changes in the supply of skilled and unskilled labour also have the potential to affect the relative wages of different occupations. The skilled migration program increases the supply of skilled labour relative to unskilled labour.

For the economy to adjust to a permanently higher ratio of skilled to unskilled labour supply, the relative real wages adjust, all else equal. As noted in chapter 5, the growth in output arising from increased skilled migration differs among sectors. Some of the sectors that expand the most are relatively intensive in the use of occupations that require lower levels of skill. For example, by 2024-25, the construction sector (which has a workforce which is predominantly lower skilled)

are projected to be about 6.9 per cent larger than in the base-case simulation (table 5.6). Other sectors, such as finance, government, communication, education and health, (which have workforce which is predominantly higher skilled) are projected to be about 3–4 per cent larger.

The project impact of the increased-migration simulation on real wages for different occupation categories is represented in figure 7.6. By 2024-25, the real wage of professionals is about 5.4 per cent lower than in the base-case simulation. The real wages of other higher skilled occupations, such as managers and administrators and associate professionals are about 1–2 per cent lowere. In contrast, the real wages of tradespersons, clerical workers and labourers are about 1–2 per cent higher than in the base-case simulation.

Figure 7.6 **Projected changes in real wage by occupations, 2024-25[a]**



a Per cent deviation between the base-case and increased-migration simulation.

Source: Commission estimates based on simulations using the MONASH Model.

Returns to capital

Another way in which income can be redistributed is through changes to the returns from capital. As discussed above, the increase in the level of foreign investment contributes to an increase in the ratio of NFL to GDP. The increase in foreign investment makes a negative contribution to income per capita, as discussed in chapter 8.

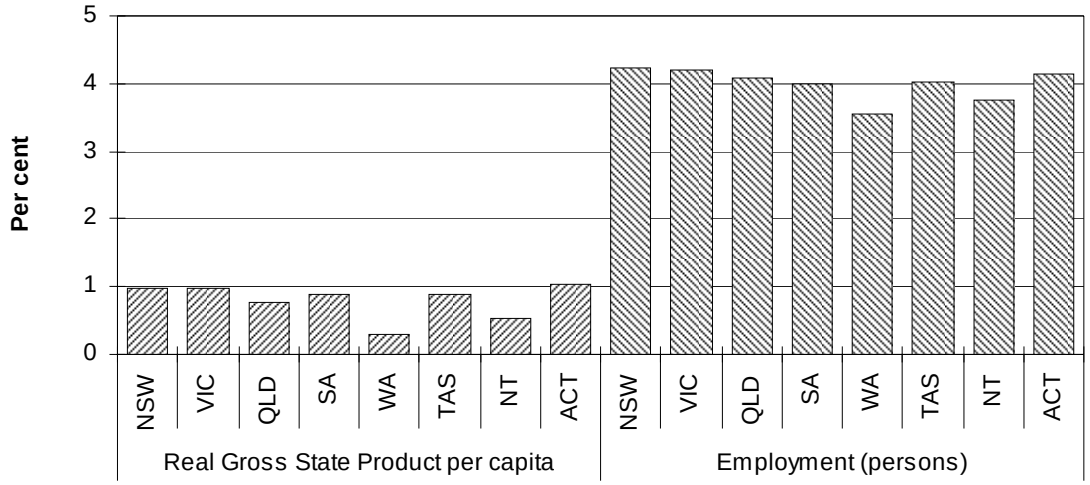
Regional effects of economic activity

The effects of increased skilled migration differ across States and Territories. The differences reflect two factors. First, skilled migration differentially affects the output of sectors of the economy. Second, the industrial composition of States and Territories differ. For example, mining and agriculture are relatively more important to the Western Australian economy. These two sectors are also more export oriented than many of the other sectors of the economy. The decline in the terms of trade will affect these sectors more than other sectors.

By 2024-25, real Gross State Product (GSP) per capita in NSW and Victoria is project to be about 1 per cent higher under the increased-migration simulation (figure 7.7). For Western Australia, the projected increase in GSP per capita is about 0.3 per cent.

The effect on employment in the States and Territories follow a similar, but less marked pattern, to GSP per capita. Employment in NSW and Victoria is projected to be about 4 per cent higher in the increased-migration simulation. For Western Australia, the projected increase is slightly lower, about 3.6 per cent.

Figure 7.7 **Projected changes to output and employment by States and Territories in 2024-25[a]**



a Per cent deviation between the base-case and increased-migration simulation.

Source: Commission estimates based on simulations using the MONASH Model.

Overall assessment

The analysis of increased skilled migration suggests that existing Australian resident working in skilled occupations could experience slightly slower growth in

their real wages. However, consistent with earlier research in Australia and overseas, this effect is likely to be small. Workers in some occupations competing less intensively with skilled immigrants could experience slightly faster growth in reals wages. This situation is assisted by the faster growth in output of sectors which use their labour more intensively.

Australian residents are also likely to be affected by other effects, such as the increases in net foreign liabilities.

In addition, the effects on people across regions, such as States and Territories also differ, reflecting the differences in industrial structure across regions.

However, it is important to remember that there are many other ways in which the income of Australian residents might be affected. These include changes that governments could make in taxation, the provision of public goods and services or transfer payments. It has not been possible to model all of these effects. So only limited conclusions can be drawn about the overall effects on income redistribution from the analysis in this study.

8 Overall impact on living standards

Key points

- The economic effects of migration arise from both compositional differences and higher population growth.
  - The demographic and economic factors involved are wide-ranging and interactions complex, with both positive and negative economic effects.
- An overall assessment of the impact of migration and population growth on living standards needs to consider all possible channels through which the economy is transformed, and the balance of such effects.
  - An overarching framework is necessary to bring all the elements together.
- In this study, the Commission has used a general equilibrium model (MONASH Model) as part of its evaluation.
  - Some of the economic effects of migration and population growth are more amenable to measurement and estimation than others.
  - Modelling provides only a guide to some of these effects.
- The effect of a 50 per cent increase in the level of skilled migration on productivity and living standards has been simulated. Compared with the base case:
  - average hours worked per capita is higher by 1.3 per cent by 2024-25
  - income per capita is higher by about 0.6 per cent or $335 by 2024-25
  - the size of the economy (GDP) expands 3.5 per cent by 2024-25.
- These results are consistent with research both here and overseas.
  - That migration has a neutral to mildly positive effect on overall living standards.
- Positive contributions arise from the increase in labour supply and consumption price effect
- Offsetting negative effects arise from decreased labour productivity, a decline in the terms of trade and an increase in interest paid to foreigners.
- Factors other than migration and population growth are more important to growth in productivity and living standards
  - Growth in income per capita from technological progress and other sources of productivity growth could be expected to be between 1.2 and 1.75 per cent per year, or between $12 145 and $18 753, by 2024-25.

The preceding chapters have reported how migration and population growth affect a diverse set of demographic and economic factors that can cause adjustment throughout the economy. The economic factors involved are far-reaching and the interactions are complex, with both positive and negative economic effects.

Migration flows influence the rate of growth of population, age of population, fertility rates, labour supply (by region, occupation, industry and skill level), consumption, savings, new investment, exports and imports, the current account balance, the terms of trade, government revenue and expenditure, economies of scale, use of natural resources and land, and a number of other factors. Together, these factors influence productivity and income per capita — the primary focus of this research study.

An examination of each of these factors provides insights as to their individual impact on the growth in productivity and income per capita. However, such partial analysis may be inappropriate for drawing inferences about the overall economic effects. A complete assessment needs to consider all possible channels through which migration and population growth transform the economy, and the balance of such effects. An overarching framework is necessary to bring all the elements together.

The Commission has therefore used a general equilibrium model (the Centre of Policy Studies (CoPS) MONASH Model) as part of its evaluation. A modelling exercise of this type is able to provide insights into the overall impact of increasing the intake of migrants, while keeping all other factors constant. A key challenge in examining the economic impacts of migration is to separate out the effects of migration from the many other unrelated factors and influences at work in the economy.

It should be noted, however, that the results of the modelling exercise are driven by the underlying assumptions and simplification that, necessarily, are built into such an exercise. At the same time, some of the effects of migration and population growth are more amenable to measurement and estimation than others. In this way, the modelling results reported here only provide a guide to some of the economic effects.

8.1 Overall effect of migration on living standards

To help understand the economywide economic impact of migration and population growth, particularly skilled migration, the Commission has modelled the effects of increasing the skilled migrant intake by 50 per cent (about 39 000 extra immigrants each year), over a 20-year timeframe. The MONASH Model is used to estimate the economic impact of this policy simulation. The effect of migration is estimated in the model as the difference between the outcomes of the economy of a base-case simulation and the increased-migration simulation.

It should be noted that these estimates are projections rather than forecasts. They project what would happen if the assumptions underpinning the simulation were to hold, rather than forecasting what will actually happen.

Projected overall effect of an increase in skilled migration

Economywide impact of migration small

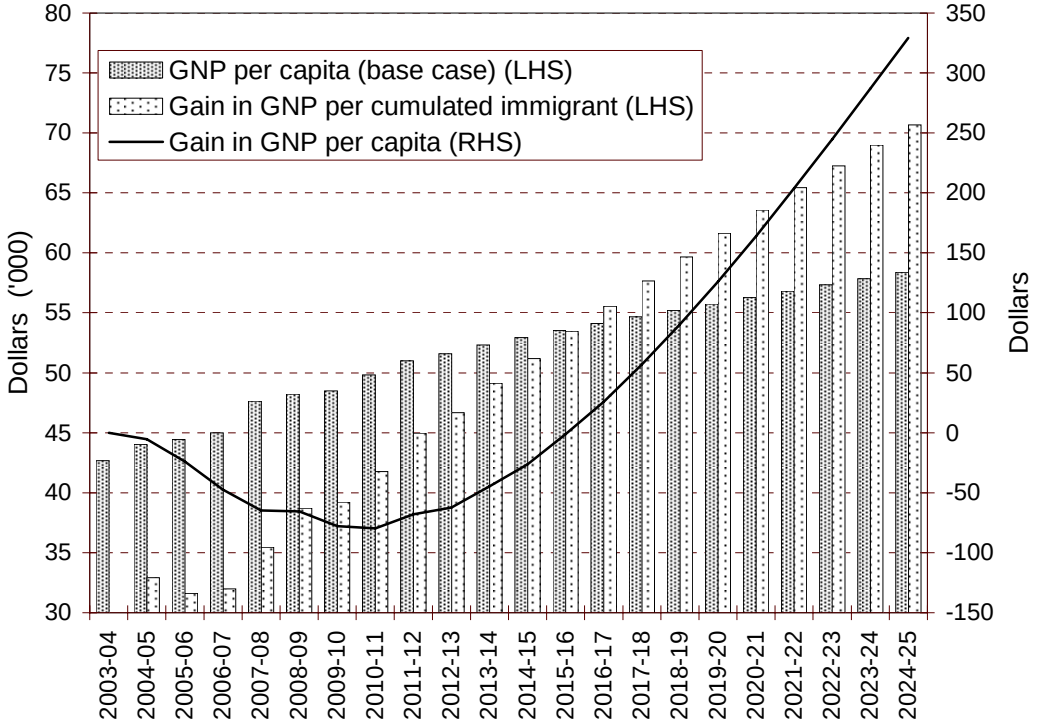
The Commission's modelling suggests that, at the economywide level, the effect of increasing the skilled migration intake on Australia's per capita living standards is broadly neutral to mildly positive. The increased-migration simulation reveals that, by 2024-25, annual income per capita is about $335 (or about 0.6 of a per cent) higher than it would otherwise have been under current migration settings (or base case). Although the absolute size of the economy also grows, the increase is similarly small — GDP is projected to be about 3.5 per cent larger by 2024-25.

This result is to be expected. Other Australian studies have similarly found that the overall economic effects of immigration are modest (for example, Econtech 2004a; Williams 1995; Foster 1992, 1994). Likewise, other country studies have also found the net effect of immigration on per capita income to be small (see, for example, Smith and Edmonston (1998), for the United States).

Contribution per migrant relatively large

Although the average impact of the simulated increase in skilled migration on per capita income is very small, each migrant does make a relatively large contribution in the long run (figure 8.1). However, the individual migrant contribution to per capita income is diminished given that the simulated increase of skilled migrants is small relative to Australia's workforce and population.

Figure 8.1 **Contribution of skilled migration to real GNP per capita**
Constant 2003-04 dollars



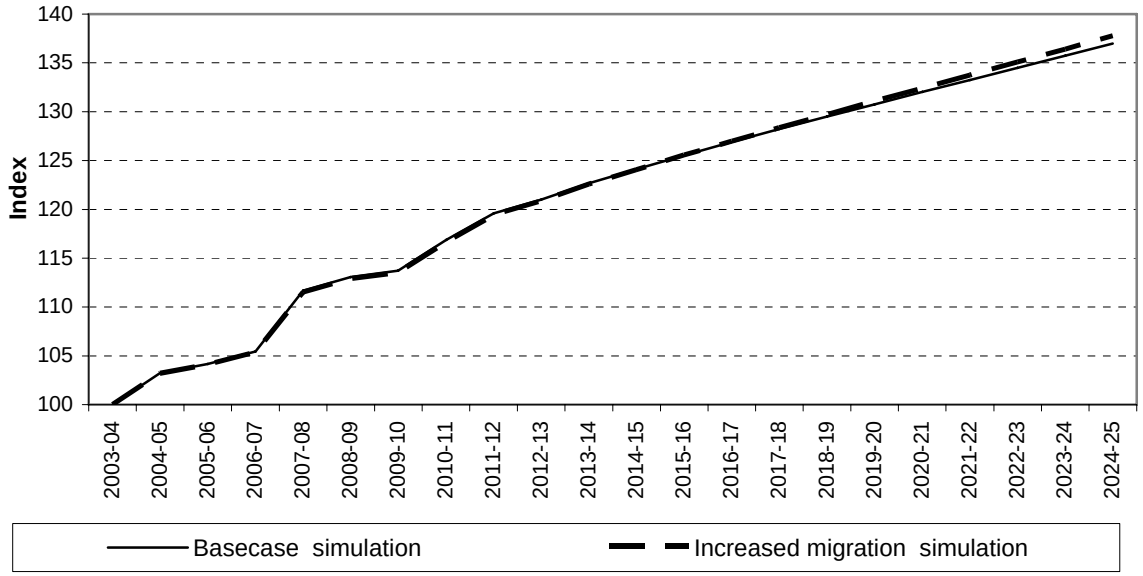
Data source: PC estimates based on simulations using the MONASH Model.

Other factors more important to productivity and living standards

The economic impact of skilled migration is small when compared with other drivers of productivity and income per capita. For example, over the same period, growth in income per capita from technological progress and other sources of productivity growth could be expected to be between 1.2 and 1.75 per cent per year, or between $12 145 and $18 753, by 2024-25.

The relative significance of an increase in skilled migration to overall per capita income growth is illustrated in figure 8.2. This compares projected per capita income over the next 20 years with that arising from the increased migration simulation. It can be seen that the impact of migration is very small compared with other drivers of per capita income growth.

Figure 8.2 **Real GNP per capita index**



Data source: PC estimates based on simulations using the MONASH Model.

8.2 Why a small impact?

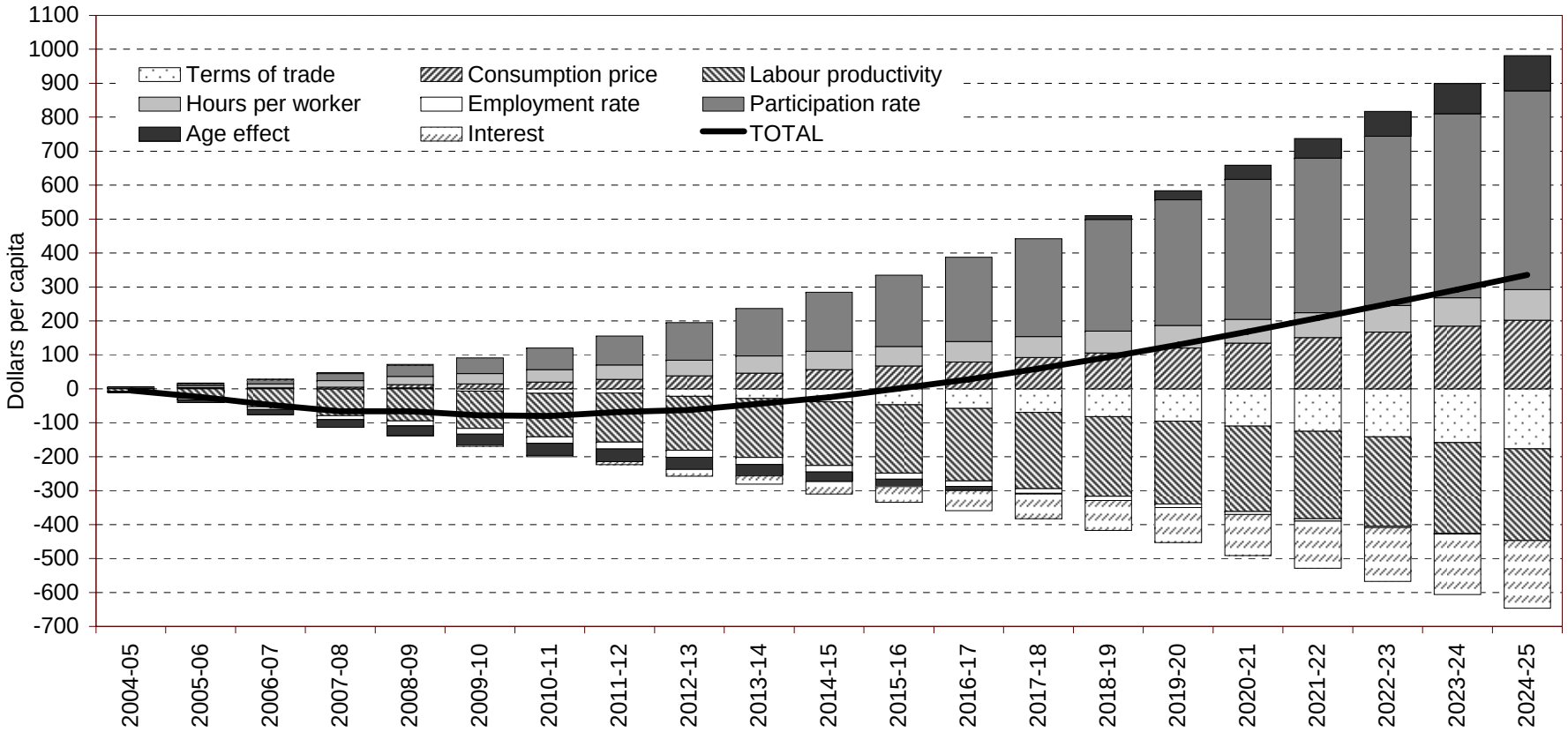
To assist in better understanding the simulated effects of an increase in migration on per capita income, the Commission has examined the key drivers (both positive and negative) that contribute to the overall effect reported above. Five influences stand out:

- the supply and composition of labour (positive)
- a consumption price effect (positive)
- labour productivity (negative)
- the returns to foreign investment (negative)
- the terms of trade (negative).

The contributions arising from each of these effects is illustrated in figure 8.3 and discussed in more detail below. The increased migration effects are presented in terms of the deviation from a 'business as usual' base-case simulation. It should be emphasised that the overall economic impact is very small and the individual contributions of each of these factors are also very small. Nevertheless, such an exercise provides insights into the mechanisms at work from an increase in skilled migration and the relative influence of particular factors, all else being equal.

Figure 8.3 **Contribution to deviations in real GNP per capita, 2004-05 to 2024-25**

Constant 2003-04 dollars



Data source: PC estimates based on simulations using the Monash Model.

Supply and composition of labour

As noted in chapter 4, immigration has the effect of increasing the amount of labour supplied to the economy, and a compositional effect due to the differences in the skills and other characteristics of immigrants relative to the Australian-born population. Immigrants may therefore affect the overall proportion of the population in work, the time spent at work and the skill level of the Australian workforce (chapter 4).

In simulating an increase in the immigration intake, the Commission has examined the overall impact on labour supply per capita. This is best expressed as hours worked per capita and is the product of the following ratios (chapter 4):

- total hours worked / number of people in employment
- number of people in employment / number of people in the labour force (employment rate)
- number of people in the labour force / number of working-age people (participation rate)
- number of working-age people / total population.

The increased-migration simulation shows a small, albeit positive, effect on labour supply per capita in the economy. Figure 8.3 shows the positive contribution from an increase in the proportion of working age population, participation rate and the hours worked by each worker. In total, these changes effect a 1.3 per cent increase in labour supply per capita in Australia by 2024-25.

On its own, an increase in hours worked per capita produces a modest boost to economic output per capita. That is, by 2024-25, it contributes about $660 (1.3 per cent) to the change in GNP per capita. Most of the increase (about 1 per cent) is the result of the higher participation rate of skilled immigrants. The increased proportion of people in the working age population and the increase in hours per worker make relatively small contributions (about 0.15 and 0.18 per cent, respectively).

Consumption price effect

Economic welfare increases if more can be consumed with a given level of income or income rises to allow more to be consumed. Another positive contribution to per capita income revealed by the increased-migration simulation is a consumption price effect (figure 8.3). This is where the relative prices of private and public

consumption decrease over time, thereby expanding consumption possibilities (chapter 7). Put another way, the purchasing power of a given level of income increases relative to the base case. The fall in the relative price of private and public consumption contributes to an increase in real income per capita.

Labour productivity

Immigrants are more productive than the Australian workforce

The Commission has found that, on average, immigrants earn more per hour than Australia-born workers (chapter 5). To the extent that hourly earnings reflect productivity, immigrants as a group are more productive than the Australian-born population. This difference in productivity is because immigrants are, on average, more educated, older, more likely to live in capital cities and work in different industries compared with Australian-born workers. The increased skills focus of Australia's migration program has resulted in recent immigrants earning higher incomes than in the past, due mainly to their higher levels of education. However, when compared 'like with like', immigrants generally earn less than comparable Australian-born workers.

But overall labour productivity is projected to fall

Under the assumptions of the MONASH Model (appendix G) two drivers are observed to contribute to a fall in economywide labour productivity following an increase in skilled migration.

First, there is a projected decrease in the capital to labour ratio (also referred to as capital dilution). The productivity of the workforce depends in part on what happens to the availability of capital. As reported in chapter 5, under the increased-migration simulation, the capital to labour ratio is about 1 per cent lower than for the base-case simulation by 2024-25.

Second, to the extent that migration restructures economic activity, it could alter the rate of growth in aggregate multifactor productivity (MFP). Therefore, an expansion of the economy leads to a rebalancing of economic activity that can favour industries with relatively low underlying productivity growth (chapter 5). However, this effect is very small. MFP is projected to be lower by 0.1 per cent after 20 years, than would otherwise have been the case.

Together, these two factors lead to a decline in economywide labour productivity (figure 8.3). By 2024-25, the decline in aggregate labour productivity is

contributing to income per capita being about $231 (0.5 per cent) lower than would have been the case if skilled migration had not increased.

Returns to foreign investment

As the economy grows and absorbs the increased labour supply, the nation's stock of capital increases via an increase in investment. Under the assumptions of the MONASH Model, Australia's savings rate is insufficient to finance fully the higher rate of investment required. Foreign investment rises, increasing the level of net foreign liabilities. This, in turn, increases the annual income, or interest, to be paid to foreign investors, which contributes to a decrease in income per capita accruing to Australians.

By 2024-25, the increased level of foreign-owned capital is contributing to a decrease in GNP per capita of about $162 (0.33 per cent). This effect is essentially attributable to a larger population and economy. The effect would also occur if the size of the population and economy had grown through natural increase.

Declining terms of trade

The faster growing economy also causes growth in Australia's level of imports. Increasing imports, together with increasing payments to foreign investors, puts pressure on the current account. To stabilise the current account, Australia needs to increase its exports.

The increase in exports is achieved by Australian exporters accepting slightly lower prices for their exported goods and services. But the prices of imports (set by international markets) are unaffected by the increase in import volumes. With declining export prices and unchanged import prices, the economy experiences declining terms of trade.

Under the assumptions of the MONASH Model the decline in the terms of trade also contributes to a decrease in income per capita, as projected in figure 8.3. By 2024-25, the decline in the terms of trade is contributing to a reduction in annual GNP per capita of about $177 (0.36 per cent).

An open economy tempers the economic impact of migration

Beyond explanations revealed by the increased migration simulation, an important factor influencing the modest economic impact of migration relates to the dynamic effects of trade. Australia has an open trading economy with imports around

20 per cent of GDP. This tempers the potential impact of immigration since imports effectively embody the human capital of overseas workers who stay put. Indeed, the majority of imports to Australia are finished manufactured goods such as IT equipment, which embody significant amounts of overseas knowledge and human capital.

Standard economic models suggest that trade and immigration alter the national output of an economy and income distribution through the same mechanism — by increasing the economy's supply of scarce factors of production (Borjas 2005). In this way, it has been suggested that trade and migration are substitutes, particularly between countries with similar levels of technological endowment (OECD 2000). Imports also capture the productivity gains achieved by the exporting country, through scale economies, lower costs, etc (OECD 2005a).

Overall assessment

Migration and population growth affect a diverse set of demographic and economic factors that can cause adjustment throughout the economy. An assessment of the overall impact of migration and population growth on living standards needs to consider all possible channels through which the economy is transformed, and the balance of such effects.

As part of its evaluation, the Commission has used a general equilibrium model to help understand the diversity of effects and overall impact of migration and population growth. Although modelling cannot replicate reality, insights can be provided into the mechanisms at work, the relative importance of particular factors and indicative orders of magnitude of the economywide effects.

That said, there are limitations in undertaking quantitative analysis of the impact of migration and population growth. Such an exercise focuses only on those effects that are amenable to measurement. Other effects on productivity and living standards not modelled are discussed in chapters 6 and 7. The modelling exercise is also restricted to the underlying assumptions and simplifications that are necessarily imposed.

The Commission has found that the overall impact on productivity and living standards of a simulated (50 per cent) increase in skilled migration is very small. Compared with the base case:

- average hours worked per capita is higher by 1.3 per cent by 2024-25
- income per capita is higher by 0.6 per cent or $335 by 2024-25
- the size of the economy (GDP) expands 3.5 per cent by 2024-25.

A number of factors drive this result. A boost in per capita income derives largely from an increase in labour supply and a consumption price effect. Offsetting impacts arise from decreased labour productivity, a decline in the terms of trade and an increase in interest paid to foreigners.

Moreover, although migrants are more skilled and more productive than the Australian workforce, the differences are not dramatic. Coupled with the fact that the simulated flow of immigrants to Australia is small relative to the stock of workers and population, the overall economic impact is projected to be modest.

These results are consistent with research both here and overseas, which find that migration has relatively small but generally benign economic effects.

9 Impediments to productivity and economic growth from migration

Key points

- In Australia, there are no fundamental legislative or other impediments to realising the potential economic gains from migration and population growth.
- Australia's migration selection policy has been successful in raising the general skill level of immigrants and improving both their labour market outcomes and productivity.
- Poor English language skills are a significant impediment to the successful integration of migrants into Australia's labour market.
  - Changes to the migration selection criteria have improved the English language skills of immigrants.
- Australia's regime for the assessment and recognition of overseas skills is well-developed and generally achieves its objectives. However, a number of improvements could be progressed:
  - a more uniform approach to occupational licensing and registration across States and Territories
  - greater dissemination of information to prospective migrants on Australia's skill assessment and recognition processes and requirements
  - better alignment of skills assessment and recognition processes for migration purposes with occupation requirements to work in Australia, where practicable
  - incorporation of corrective steps into Trade Recognition Australia's assessment and recognition processes and procedures
  - review and update key skills assessment criteria.
- Skilled migrants working in Australia should not be unintentionally disadvantaged nor face excessive obstacles from Australia's tax system.
  - There are potential economic gains from tax reform aimed at removing unnecessary barriers and complexity for both temporary and permanent immigrants working in Australia.
- There is limited scope for government policy to influence emigration flows from Australia and encourage return migration to Australia.
  - However, there are potential economic gains for Australia from increasing its engagement with Australia's overseas diaspora, particularly those generated by diaspora business and knowledge networks.

In this chapter, the Commission examines whether there are any legislative and other policy impediments to Australia realising the full economic gains from migration and population growth.

Migration policies are typically considered from two perspectives. The first consists of those measures that regulate and control the intake of immigrants and include the numbers, composition and selection rules affecting immigrants. The second perspective relates to those measures that aim to integrate migrants into the Australian labour force, economy and society. These include, for example, policies and processes relating to the assessment and recognition of migrants' skills and qualifications, English language training and various settlement measures.

9.1 Efficacy of Australia's migration program

Migration selection policy

There has been an important shift in Australian migration policy in recent years toward a policy that places a greater focus on skilled and business migrants (chapter 2 and appendix C). This has resulted in a rising proportion of migrants entering Australia under the skilled and business categories compared with other visa classes (chapter 2).

A key tool in administering Australia's skill-based migration policy is the 'points test' for migrant selection. The points test promotes the selection of migrant applicants who have attributes typically associated with successful migrant settlement and an ability to add to the productive capacity of the Australian economy. Points are awarded for skill (education and occupational work experience), English language proficiency, age, an occupation in demand, a job offer, Australian qualifications, intention to reside in regional Australia, spouse skills, and (for Skilled Australian Sponsored only) a relationship with a permanent resident of Australia. Bonus points are also awarded for meeting one or more of three attributes: skilled work experience obtained in Australia, capital investment in Australia, or fluency in one of Australia's major non-English community languages.

The number of points assigned to each factor reflects an assessment of their relative importance in terms an applicant's potential contribution to Australia. An applicant is successful when their total points reach a threshold 'pass mark'.

Box 9.1 identifies the main changes to Australia's migration policy settings which have occurred in recent years and are likely to have impacted on the labour market performance of migrants.

Box 9.1 **Recent changes in Australia's migration policy**

- A shift in favour of skilled migration categories (for example, Independent, Business Skills and Employer Nomination Scheme) compared with humanitarian/family immigrant categories.
- Changes to the eligibility criteria have resulted in more migrants with greater English language proficiency and a higher level of qualifications.
- The introduction of new temporary work migration categories and the expansion of other temporary work migration classes have increased the numbers of temporary migrants (chapter 2). Temporary migrants tend to be highly skilled, employed and have high levels of education.
- Preference is given to immigrants with Australian qualifications, and those immigrants on an Australian student visa are now able to apply onshore and be fast-tracked.
- With the exception of humanitarian immigrants, immigrants are excluded from most social welfare payments for the first two years in Australia.

Source: Hugo (2004a).

Attributes of migrants

Australia's migration policy has been successful in targeting migrants with settlement attributes and productive skills that generally improve labour market and economic outcomes. As noted by Cobb-Clark:

> The increased emphasis on productive skills in the procedures Australia used to select new immigrants in the late 1990s led to striking differences in the human capital endowments of new arrivals. Though the demographic composition … of immigrants remained much the same, individuals entering Australia in 1999-2000 had more education, better English language skills and more pre-migration labour market experience skills than did their predecessors. (2006, pp. 20–21)

These conclusions are consistent with the Commission's initial findings reported in chapter 5. Migrants have consistently had higher average skill levels than the Australian-born population. In particular, since the late 1990s, migrants have increasingly been more highly educated, with a greater proportion of recent migrants having qualifications at the postgraduate, bachelor degree or diploma level.

Labour market outcomes of migrants

While it can be concluded that Australia's migration policy settings have delivered immigrants with the targeted attributes, the question arises as to whether the current settings have translated into successful labour market outcomes. The answer is broadly affirmative.

Empirical analysis of the Longitudinal Survey of Immigrants in Australia (LSIA) and Australian Bureau of Statistics data indicates that the changes made to Australia's immigration selection policy have had a significant impact on the extent of migrant integration and engagement in the Australian labour force (for example, Hugo 2004b; Cobb-Clark 1999; Cobb-Clark 2006; Richardson, Robertson and Ilsley 2001; Birrell, et al. 2001; Richardson and Lester 2004).

> The labour market performance of recent migrants in recent years has been substantially higher than their counterparts of the early 1990s. (Hugo 2004b, p. 167)
>
> Recent migrants to Australia appear to have performed well in the labour market compared to migrants in the early 1990s [… and to those in other OECD countries]. (Richardson and Lester 2004, p. 1)
>
> [These] … improvements in human capital endowments [education, English language skills and pre-migration labour market experience] completely explain the higher participation rates amongst immigrants arriving in Australia at the end of the 1990s. Moreover, approximately half of the fall in men's unemployment rates also stems from increases in productive skills. (Cobb-Clark 2006)

Many of these researchers have concluded from the research evidence that the improved labour market performance of recent migrants is directly attributable to Australia's immigration selection policy:

> There is no doubt that changes in Australia's policies have been instrumental in improving the labour market success of migrants. (Richardson and Lester 2004, p. 40)
>
> [These] … results indicate that there is a large potential for immigrant selection policy to influence immigrant outcomes not just immediately after migration but in the medium term. (Cobb-Clark 2006, p. 21)

However, it is also acknowledged that changes in labour market conditions in Australia and income-support policy also appear to have been important.

The results of the Commission's own empirical research (chapters 4 and 5) concur with other Australian research reported above. Immigrants possessing the abovementioned productive attributes are much more likely to integrate successfully into the Australian labour market than those immigrants without such characteristics. Skilled immigrants display superior labour market performance in terms of, for example, unemployment rates, participation rates, hourly earnings, and working hours compared with unskilled immigrants.

Overall assessment

Australia's migration selection program has been successful in raising the skill level of immigrants. Migrants are now better educated, have greater English language proficiency and have more pre-migration labour market experience than their predecessors. This has translated into superior labour market outcomes for those migrants.

9.2 English language proficiency

A key finding from chapters 5 and 6 is that English language proficiency is an important factor influencing the labour market success and economic wellbeing of migrants. Poor English language skills are a significant impediment to the successful integration of migrants into Australia's labour market and society. This finding is supported by other research evidence (see, for example, Cobb-Clark 2006; Chiswick and Miller 2006; McDonald and Worswick 1999).

The importance of English language proficiency for immigrants is increasing over time, as the skill level of immigrants has increased. The returns to English language proficiency are therefore higher now than once was the case. The greater premium on English language skills is also important as an increasing number of immigrants to Australia originate from non-English speaking countries.

The role of English language proficiency in migrant selection has been progressively strengthened by the Australian Government during the 1990s (box 9.2). For example, the Occupations Requiring English (ORE) list was expanded to cover the majority of skilled occupations for entry to Australia. The threshold English proficiency levels were also raised for various skilled migration categories.

Changes to the migrant selection policy aimed at targeting immigrants with English language skills have had a marked impact on the English language ability of recent migrants to Australia. Analysis of ABS Labour Force Survey data by the Commission reveals that the overall English language skills of immigrants have improved (chapter 5). Other empirical research supports this finding.

Chiswick and Miller (2006) observe clear differences across visa classes in the English language skills at the time of arrival. Specifically:

- the English language skills of immigrants who entered Australia under points-tested visa categories have English language skills superior to the skills of immigrants in the non-pointed tested categories

Box 9.2 **Changes to English language entry requirements**

English language requirements have increased for entry under the Skilled Migration stream. Key changes to the points test for English ability include:

- In 1994, the points available for various levels of English ability were altered, and awarded as follows:
  - Able to communicate effectively in English in a range of situations (20 points).
  - At the level described for 20 points for three of the four skills of reading, speaking, understanding and writing, but at a lower level for the remaining skill (15 points).
  - Able to communicate effectively in English on familiar, everyday topics (10 points).
  - Able to handle basic communication in English on familiar everyday topics or fluent in at least two other languages other than English (5 points).
- In 1996, change in the language requirement for Occupations Requiring English (ORE) to 'vocational English', defined as the ability to communicate effectively in English in at least three of the four skills: reading, speaking, understanding and writing (that is, the 15 point threshold)
- In 1997, points were introduced for English language ability for immigrants in the Skilled Australian Sponsored category
- From 1997, where skilled primary applicants (or their family members aged 18 years and over) lacked functional English, they were required to pay for appropriate English language training
- By 1998, the ORE list was expanded to cover almost all skilled occupations (85 per cent of points-tested applicants now have to meet this requirement)
- A major review of the points test in 1999 resulted in changes to English language proficiency required — now 15 points for 'vocational English' and 20 points for 'competent English'.

Sources: Chiswick and Miller (2006); DIMIA (1999b).

- recent migrants to Australia have superior English language skills than their predecessors, with the difference being greater for immigrants in the points-tested categories (the categories for which there was an increase in the English language requirements).

Notwithstanding improvements to the English language skills of recent migrants to Australia, concerns have been raised in regard to the integrity of aspects of the English language testing processes. For example, some consider that the vocational English test does not give an accurate representation of an applicant's ability to communicate in English. English language ability could still be a barrier to work for

some migrants even though they successfully completed the English language test. Others note that, while migrants pay upfront and commit to English language courses upon arrival in Australia, some migrants do not undertake or complete those courses.

Overall assessment

English language proficiency is significantly related to migrant labour market success and performance. The progressive strengthening of the English language component of Australia's selection program has resulted in recent immigrants to Australia possessing superior English language skills than their predecessors and more successful labour market outcomes.

In light of the increasing numbers of skilled immigrants from non-English speaking backgrounds, and the increasing importance of English proficiency to labour market outcomes, it is important that the efficacy of the English language component of the migration program be monitored to ensure it continues to meet its objectives.

9.3 Distortions arising from the skilled migration program

Participants identified a number of areas where the Australian skilled migration program could be creating unintended distortions and outcomes. These arise from the various incentives facing different agents (immigrants, migration agents, educational institutions, State and Federal government agencies) involved in the migration process.

Some educational institutions could have a commercial incentive to design courses that meet regulated entry criteria for skilled migration, with maximum points and least cost to potential migrants. Migration agents could advocate particular education courses or regions where successful applications are most likely to occur. And immigrants could pursue prospects that provide the greatest likelihood of successful application. These could result in immigrants obtaining qualifications that do not readily lead to good employment opportunities. Alternatively, it could result in immigrants obtaining qualifications for which they have no commitment to a profession or career. That is, the course is simply used as a means to migrate to Australia.

An often cited example relates to the immigration outcomes observed from the Skilled Independent Overseas Student (SIOS) visa subclasses. This visa category is designed to encourage onshore overseas students to apply for permanent residence

once they have completed their training in Australia. Incentives to take up permanent residence include extra points for training in Australia and the waiving of the occupational experience requirement that other SIOS applicants are required to meet.

There has been a significant uptake of the SIOS option. Birrell, Rapson and Smith (2005b) note that the number of such students who have become permanent residents under the onshore student program has grown rapidly in recent years, from 5480 principal applicants in 2001-02 to 11 460 in 2003-04. Notably, they show that the overseas students who gained a permanent residence visa in the onshore program did so primarily in just two occupations, computing and accounting, occupations that attract the maximum occupational points.

Engineers Australia pointed to the way educational institutions have responded to the SIOS policy:

> Australian migration policies have been changed to enable overseas students, on temporary visas, graduating from Australian Universities to apply, on shore, for permanent residency. In this way the distortions created by University funding policies are being managed to benefit the skilled migration intake. (sub. 4, p. 16)

The Migration Institute of Australia, in its submission to the Joint Standing Committee on Migration (JSCM), raised concerns regarding the waiving of occupational experience for onshore computing student graduates compared with overseas computing professions wishing to apply under the Skilled Independent scheme:

> Members have expressed concerns that the skills assessment criteria for recent [Australian] graduates are too easily met, whereas the work experience requirements for holders of overseas qualifications are excessive … [The …] result of this is that a large number of international students have obtained skilled visas but who do not have the required skills to work in IT in Australia. At the same time, highly skilled and employable applicants with overseas qualifications can be excluded because they are unable to satisfy work experience requirements. (sub. 34 to JSCM, pp. 18–19)

With reference to the accounting profession, Birrell and Rapson (2005) express similar concerns:

> Under this reformed system, overseas students who apply in Australia for permanent residence within six months of completing an Australian course do not have to possess any job experience in their field. By contrast, other applicants, who apply from outside Australia, must have some relevant occupational experience. The new selection system has, in effect, traded off work experience and overseas training against youth, familiarity with English and Australian training. (p.i)

As is the case with all regulation, specific rules aimed at achieving a particular migration outcome can create distortions and result in unintended effects. The mix

of incentives facing different agents in the migration market means that responses by various parties can be difficult to predict. This uncertainty, and the possibility of unintended effects, underlines the importance of effective ongoing monitoring and review processes to ensure migration policy settings are achieving their objective.

9.4 Efficacy of skills assessment and recognition processes

Legislative and other barriers arising from Australia's skills assessment and recognition regime could impede the selection of skilled migrants and their integration into the Australian workforce. The efficiency and effectiveness with which migrants' skills are assessed and recognised in Australia by employers, professional associations or governments are examined in this section. For the purposes of this section, the reference to 'skills' refers broadly to the qualifications, training and work experience of immigrants.

Migrants who quickly find work that makes use of their skills are likely to be more productive in employment, better paid for the work they do and happier about their degree of integration into Australian society (Richardson and Lester 2004). Therefore, the extent to which immigrants are able to use their qualifications and skills is important. Indeed, the labour market represents an essential step in the overall process of integrating immigrants into host-country society (OECD 2004c).

Policy objectives

Skills assessment and recognition is required for:

- skills stream immigrants (temporary and permanent) who obtain assessment prior to immigrating
- families of skill stream immigrants who seek assessment, registration and upgrading after arrival
- family stream immigrants and humanitarian entrants who seek assessment, registration and upgrading after arrival
- Australian citizens returning with qualifications obtained overseas.

The overarching policy objective of the skills recognition arrangements in Australia is to ensure that those selected to migrate on the basis of their skills are able to integrate readily and rapidly into the Australian workforce. Additionally, others who migrate to Australia, who possess skills obtained overseas, should have

effective pathways for assessment and recognition (Department of Immigration and Multicultural and Indigenous Affairs (DIMIA), sub. 80 to JSCM).

The skills assessment and recognition regime also performs a secondary function for migrants who are sponsored by Australian employers. First, it ensures that the sponsored immigrant does genuinely have the skills to fill a specific job position. Second, it ensures that a position has not been created for the sole purpose of obtaining a permanent visa.

In Australia, responsibility for assessment and recognition of qualifications and skills obtained overseas is currently shared between a number of government and non-government organisations. Box 9.3 provides an overview of the current institutional arrangements.

Box 9.3 **Institutional framework for recognition of overseas skills**

In Australia, powers and responsibility to make assessment and recognition decisions about overseas skills and qualifications are delegated to the following bodies:

- for skilled stream migration — the relevant peak professional bodies assess professional and managerial occupations, Trade Recognition Australia (TRA) in Department of Employment and Workplace Relations (DEWR) assesses trade occupations and Vocational Education Training and Assessment Services (VETASSESS) assesses the general educational level of qualifications for unregulated occupations, under contract to DIMIA
- in relation to decisions for employment purposes — the professional bodies or employers
- in the case of regulated occupations — the State and Territory regulatory authorities
- for academic purposes — the educational institutions.

Key legislation facilitating recognition for all immigrants whose qualifications have been recognised for licensing or registration in any one state or territory is the *Mutual Recognition Act 1992.*

The National Office of Overseas Skills Recognition, now known as AEI-NOOR, has authority under the *Migration Act 1958* to approve assessing bodies, for subsequent gazettal by the Minister for Immigration, to undertake skills assessment for the General Skilled Migration program. This is confined to professional occupations that require registration or are self-regulating.

Sources: DIMIA (2003)

Key issues

Compared with other countries, the Australian regime for assessing and recognising overseas skills is generally regarded as well-developed and successfully achieves its objectives (see, for example, Cully and Skladzien, 2001). That said, a number of issues have been raised by interested parties to this study. The Commission has also examined relevant evidence submitted by interested parties to the JSCM's (2005) inquiry into skills recognition, upgrading and licensing, being undertaken concurrently with this research study. The following issues have been raised.

The skills assessment and recognition scheme is complex

The Australian skills assessment and recognition arrangements for migrants are complex and may present potential obstacles for some migrants wishing to migrate and work in Australia. For example, the Queensland Government stated it:

> … has identified the complexity of [Australia's…] overseas skills recognition and licensing arrangements as an impediment to the effective use of migrants' skills in the Australian economy and a possible impediment to skilled migration. (sub. 26, p. 3)

Likewise, the Northern Territory Government concluded:

> The skills recognition process for many occupations can be confusing, time consuming and overly bureaucratic. It is imperative for any barriers that exist for potential independent migrants with trade/professional qualifications to gain permanent residency to be removed to increase the skills pool upon which employers can draw. (sub. 25, p. 11)

The responsibility for assessment and recognition of skills obtained overseas, for both skill stream applicants and employment purposes, is currently shared between state and territory regulatory bodies, Registered Training Organisations, TAFEs, professional bodies, and approved migration assessing bodies that cover a range of trades and professions (box 9.3). Multiple organisations at both the state and national levels, each with its own assessment and recognition processes, creates a level of complexity. The Queensland Government stated:

> It has been suggested that complications exist at state and national levels because of the great variation in recognition processes across occupations. This variation in processes in general, and the complexity of processes in some specific occupations, generates the perception that several impediments exist in the registration and/or licensing of skilled migrants under several visa categories. (sub. 83 to JSCM, p. 11)

And can lead to inconsistencies

Some participants to the JSCM inquiry raised concerns about inconsistencies in the assessment criteria, standards and processes that underpin the skills assessment and recognition regime in Australia (for example, Engineers Australia, sub. 76 to JSCM; Tasmanian Government sub. 77 to JSCM; Queensland Government, sub. 83 to JSCM; Western Australian Department of Education and Training, sub. 20 to JSCM; Migrant Resource Centre of South Australia, sub. 32 to JSCM; Australian Divisions of General Practice Ltd, sub. 25 to JSCM). Inconsistencies can arise from the broad powers given to multiple assessment bodies (government and non-government), across different occupations, States and Territories.

In response to such inconsistencies, there are calls for more strategic and simplified arrangements for the assessment and recognition of skills in Australia. Some participants advocated the need for greater mutual recognition of skills between Australian States and Territories. Mutual recognition means that if a person is registered to carry out an occupation in one jurisdiction, they can be registered to carry out the equivalent occupation in any other jurisdiction without the need for further assessment of qualifications and experience. Likewise, some interested parties support establishing a more uniform national approach to occupational/professional registration and licensing (for example, Queensland Government, sub. 83 to JSCM; Tasmanian Government, sub. 77 to JSCM; CPA Australia sub. 39 to JSCM).

Poor access to information on the skills recognition process

There has been criticism at the lack of basic information available to prospective migrants about the specific requirements and processes for having their skills recognised in Australia. For example:

> Among the difficulties reported by commentators to the review, the major issues included … [a] … lack of understanding or information about skills recognition processes at the point of visa application. (DIMIA 2003, pp. 125–126)

> Lack of information about State-based registration and licensing requirements have impacted adversely on the employment outcomes of some migrants who have obtained assessment prior to migration. (Western Australian Department of Education and Training, sub. 20 to JSCM, p. 4)

> There are considerable barriers that hinder effective and streamlined pathways to skills recognition, upgrading and licensing for both skilled stream migrants and refugees with overseas qualifications. These include barriers related to information and communication about how to access these pathways … (Migrant Resources Centre of South Australia, sub. 32 to JSCM, pp. 2–3)

In its recent review of Australia's skilled migration program, the JSCM examined the information provided by 33 accredited assessing authorities on their assessment and recognition processes and procedures (these are the assessing authorities for occupations on the Skilled Occupation List, and documented on *form 1121i*). Although 19 assessing agencies provided outlines of their skills assessment and recognition processes, the Committee found that, in the case of 14 assessing authorities, information was 'non existent' (JSCM 2004, p. 146).

Strategies to better streamline and coordinate the provision of information on skill assessment and recognition requirements in Australia have been suggested (see, for example, DIMIA 2003; CPA Australia, sub. 39 to JSCM; DIMIA, sub. 80 to JSCM). For example, the Australian Government recently announced the proposed establishment of a national skills web portal (Vanstone 2005c). This aims to provide a gateway for new arrivals and potential skilled migrants to access information about skills recognition, licensing and registration processes in Australia.

Gap between migration assessment and employment assessment

Another issue often raised is the apparent contradiction arising from the skilled migration process. On the one hand, prospective immigrants may receive a positive skills assessment for migration purposes. Their skills, for migration purposes, are recognised as equivalent to Australian skills. On the other, upon arrival in Australia, these immigrants are faced with additional assessment and accreditation obligations in order to practise their occupation, notwithstanding the assessment of the skills as part of the migration process.

> [An] … area of concern is the gap between a positive migration skills assessment and unrestricted work rights in Australia for many occupations. (Tasmanian Government sub. 77 to JSCM, p. 5)
>
> One area for possible improvement is the way in which skills recognition and statutory licensing arrangements interact. For example, TRA's assessments of trade skills in the international stream are made for migration purposes only … [potential] … migrants often face a number of hurdles, involving various authorities, before they can put their skills to work. (Department of Employment and Workplace Relations, sub. 63 to JSCM, p. 11)
>
> Among difficulties reported by commentators to the review, the major issues included … [the] perception of a 'gap' between DIMIA's skills assessment at visa application and later skills or trade recognition practices undergone in Australia. (DIMIA 2003, pp.125–126)

Also noted have been shortcomings in communicating to prospective immigrants any additional requirements after arriving in Australia:

> Overseas assessment processes for immigration purposes fail to inform applicants that further recognition of their trade skills may be required onshore and fail to provide information about the length or cost of this process. (Western Australian Government, sub. 16 to JSCM, p. 2)

The Commission understands that further skills assessment may or may not be required after arrival in Australia. The situation differs across occupations, professions and jurisdictions. There may be legitimate reasons for additional assessment requirements for migrants after arrival in order to satisfy equivalency with Australian skills. For example, practical examinations may need to be completed onshore, additional training or practical experience in Australia may also be necessary, or specific State and Territory based requirements may need to be satisfied.

Importantly, however, any additional post-arrival skills assessment and registration/licensing obligations, whether State/Territory or occupation specific, need to be clearly communicated to potential immigrants as part of the skilled migration application process and general dissemination of information. The JSCM (2004), for example, sees merit in providing such information as part of the General Skilled Migration and Skilled Occupations List publications.

Where practicable, it makes sense to link the two processes, so that a positive skills assessment for migration purposes satisfies all occupational skill requirements to practise. This would mean that any registration or licensing requirements would be satisfied pre-arrival. As the Tasmanian Government noted:

> Any efforts to establish a more uniform, nationwide and streamlined assessment process that confers full licensing upon successful [migrant] applicants and eliminates further hurdles at State level, would make skilled migration easier for potential arrivals. (sub. 77 to JSCM, p. 5)

Some professional occupations have established international agreements that mutually recognise overseas skills and qualifications. For example, the Australian Nursing Council has developed consistent international standards and polices that allow nurses registered in an overseas jurisdiction to gain immediate registration in Australia. Similarly, Engineers Australia, the designated assessing authority for most engineering occupations, has formal mutual recognition agreements — the Washington Accord 1989 and the Sydney Accord 2001 — with engineering accreditation bodies in a number of countries (Engineers Australia, sub. 76 to JSCM).

Trade Recognition Australia (TRA) — some process issues

A number of participants to the JSCM inquiry raised issues regarding the skills assessment processes carried out by TRA. Concerns were expressed that there is no formal avenue for remedial action before rejection of an application. Specifically, there are no opportunities to discuss content of application, supply further information where an application is defective or incomplete, or to clarify information provided. Furthermore, detailed grounds for any rejection of an application by TRA are not given.

> [If the] … information provided on the application forms and the associated information relating to the assessment is not considered to be adequate, the application is refused. (Immigration Lawyers Association of Australia, sub. 82 to JSCM, p.19)

> Our members have expressed concern over the TRA assessment process and the difficulty in communication with TRA … (Migration Institute of Australia, sub. 34 to JSCM, p. 3)

> The policy of assessing organisations such as TRA to simply approve or reject applications, rather than afford applicants an opportunity to supply further or better information, may also be hindering or reducing the flow of skilled tradespeople to Australia. (Tasmanian Government, sub. 77 to JSCM, pp. 5–6)

> The process can take several months and there is no opportunity to comment or provide further information in the interim prior to TRA making a decision to reject an application. (Chamber of Commerce and Industry Western Australia, sub. 50 to JSCM, p. 1)

Some participants to the JSCM inquiry were also critical of the review and appeal procedures administered by TRA.

> Review applications are assessed in consultation with the primary decision maker … [TRA] advised us that it would be rare for a primary decision to be varied at review. There is a perception that the review processes may not be as independent as it should be. (Migration Institute of Australia, sub. 34 to JSCM, p. 22)

> Although there is the right to seek an Internal Review at a fee of $300, this process does not permit the submission of additional documentation in support of the review application. (Immigration Lawyers Association of Australia, sub. 82 to JSCM, p. 19)

> The performance of TRA has received widespread criticism for their inflexible approach to skills assessments and appeals processes. …[The] … performance of TRA, in both assessments and appeals, should be specifically assessed. (Western Australian Government, sub. 16 to JSCM, p. 2)

Skills assessment criteria too narrow

VETASSESS is responsible for assessing a range of management, administrative, professional and associate professional occupations for the DIMIA Skilled Migration program. Participants to the JSCM inquiry suggested that the assessment processes administered by VETASSESS be expanded (for example, Immigration Lawyers Association of Australia, sub. 82 to JSCM; Migration Institute of Australia, sub. 34 to JSCM; Western Australian Department of Education and Training, sub. 20 to JSCM; VETASSESS sub. 86 to JSCM; Master Builders Australia, sub. 17; Adult Multicultural Educations Services, sub. 9 to JSCM)

Currently, VETASSESS only considers formal qualifications from overseas, with no 'competency' or 'work experience' component to its assessment. However, VETASSESS can include competency and work experience in assessing onshore applicants. Participants to the JCSM inquiry have suggested that this approach artificially excludes highly skilled and experienced overseas workers and that the VETASSESS skills assessment process should be widened.

> We would recommend that skills assessment processes be widened to allow a range of methodologies such as competency. The Australian Standard Classification of Occupations is equally consistent with competency as well as education pathways, and VETASSESS have the capacity to assess competencies. (Immigration Lawyers Association of Australia, sub. 82 to JSCM, p. 26)
>
> Unlike some of the other assessing authorities VETASSESS is not required to assess the work experience of applicants ... [Procedures] … could be modified to assess work experience at the same time as the qualification assessment to eliminate another step in the overall process. (VETASSESS, sub. 86 to JSCM, p. 5)
>
> It is Master Builders position that consideration needs to be given to the overall skills of individuals rather than the formal certificate and qualifications they may hold. (Master Builders Australia, sub. 17, p. 7)

Outdated assessment criteria/profiles

Some participants to the JSCM inquiry raised concerns that the Australian Standard Classification of Occupations (ASCO) dictionary used for the classification of occupations for the General Skill Migration and Employer Nominations schemes is outdated, and that this adversely impacts on the potential success of skilled migrants and the goals of the program.

For example, the Queensland Government noted that the ASCO descriptors do not align with Australian trade qualifications — which are based on the national training framework. This inconsistency can negatively impact on an overseas tradesperson's prospects for recognition and licensing in Australia as the content of

trade work overseas may be different, or the trade title given to the skilled immigrant too broad, to match Australian trade classifications or licensing requirements (see Queensland Government, sub. 83 to JSCM, pp. 23–24).

Others expressed similar concerns:

> ASCO was devised by the Australian Bureau of Statistics for an unrelated purpose. It was then adopted by the DIMIA as a basis upon which General Skilled Migration and Employer Nominations Scheme occupations were to be classified … [While] … it is recognised that the ASCO is out of date and is currently under review, DIMIA has advised that its replacement is not expected to be available until late 2007. (Immigration Lawyers Association of Australia, sub. 82 to JSCM, p. 10)

> [Skill shortages are] … aggravated by the time consuming and outdated pre-migration and post migration assessment processes and the misfit of occupational categories. (Western Australian Department of Education and Training, sub. 20 to JSCM, p. 4)

Yet others commented that *Country Education Profiles*, published by AEI-NOOSR, were also outdated (last updated in the early 1990s) and required immediate review. These *Country Education Profiles* review overseas education systems in order to determine comparability and equivalency with Australian qualifications (Immigration Lawyers Association of Australia, sub. 82 to JSCM; Migration Institute of Australia, sub. 34 to JSCM)

Overseas skills and qualifications undervalued

Another issue raised by some participants to the JSCM inquiry is that Australian employers are failing to recognise or value overseas qualifications and employment experience (box 9.4). Although skills are recognised by assessing bodies as equivalent to Australian skills, immigrants can experience difficulties in gaining employment commensurate with their skills. Exclusionary behaviour may arise from poor information or lack of awareness by industry or employers of the occupational skills available from immigrants. Implicit cultural attitudes and prejudices can also influence behaviour in the labour market.

Box 9.4 **Overseas skills undervalued**

There is evidence that some employers are undervaluing immigrants' skills even though they have been assessed and recognised as equivalent to Australian occupational skills:

> The skill-sets of some permanent migrants are being under-utilised in the Australian labour market, and it is clear that in some cases they are not valued as equivalent to Australian qualifications. (Engineers Australia, sub. 76 to JSCM, p. 6)
>
> MDA's experience suggests that … [the current skills shortage] may be exacerbated by a lack of awareness amongst employers of a range of skills, experience and qualifications held by migrants already in Australia, and an apparent preference for employing those whose first language is English. (Multicultural Development Association, sub. 13 to JSCM, p. 5)
>
> There is significant evidence, both anecdotal and documented, that asserts that skills, knowledge and expertise of migrants are not being maximised resulting in high unemployment and wasted resources (Western Australian Government, sub. 16 to JSCM, p. 4)

And even active discrimination:

> The experience of MDA clients suggest that employer prejudices do still exist (whether overtly or covertly) and that something needs to be done to bring a change of employer attitudes in order to assist the skilled jobseekers that are already in Australia into work. (Multicultural Development Association, sub. 13 to JSCM, p. 5)
>
> In some occupations and professions, there is a perceived culture of 'exclusion' and 'limitation' of access. While migrants satisfy the DIMIA requirements and are allowed to migrate, they find it very difficult to be accepted by their industry bodies and to get employment in their occupations. (Queensland Government, sub. 83 to JSCM, p. 12)
>
> Barriers to employment and training for families of skill stream migrants, family stream migrants and humanitarian entrants include attitudes of potential employers, particularly for migrants who are visibly or religiously different and/or who come from countries where English is not the main language. (Western Australian Skills Advisory Board, sub. 17 to JSCM, pp. 3–4)

Overall assessment

Given that Australia's migration policy is primarily focused on selecting immigrants who have specific skills, it is important that there are efficient and effective arrangements for the assessment and recognition of those skills. This would help ensure immigrants' timely integration into the Australian labour force — an essential step in the overall process of integration into the Australian economy and society.

Compared with other countries, the Australian regime for assessing and recognising overseas skills and qualifications is well-developed and generally achieves its goals. However, there is evidence that, in some instances, the skills assessment and

recognition arrangements for Australia could be improved to better meet their objectives. Improvements are suggested in a number of areas.

First, multiple agencies and jurisdictions mean that the skills assessment and recognition arrangements in Australia are complex. This can create barriers and costs for prospective skilled immigrants wishing to live and work in Australia. There is scope for a more uniform approach to occupational/professional licensing and registration between Australian States and Territories. Assessing bodies should continue to seek national registration and licensing systems, where the benefits justify the cost. This is consistent with other Commission research into the mutual recognition arrangements in Australia (see PC 2003).

Second, poor information on skills assessment and recognition processes and requirements in Australia can present obstacles for prospective immigrants. Although done well in many cases, skills assessing bodies could look to improve the dissemination of information to prospective immigrants about specific recognition, licensing and registration processes in Australia. The Commission supports measures and strategies to better coordinate and streamline such information at a national level.

Third, a perceived gap between skills assessment at visa application and, upon arrival, specific occupational requirements to work in Australia, adds a level of complexity, cost and uncertainty for prospective migrants. Where benefits can be identified, and practicalities allow, the Commission supports efforts to align both these processes, thereby eliminating additional requirements for skilled immigrants after arrival in Australia. This would mean a positive skills assessment for immigration purposes satisfies occupational skill, licensing and registration requirements to practise in Australia. That said, where skills recognition practicalities require additional, onshore, assessment then effective communication strategies should be developed to make such obligations more transparent to prospective immigrants.

Fourth, restrictive and incomplete skills assessment procedures can unnecessarily exclude highly suitable migrants to Australia. A number of interested parties to the JSCM inquiry have identified shortcomings in TRA's assessment and review procedures that may create impediments for prospective immigrants wishing to live and work in Australia. Scope appears to exist to build remedial steps into TRA processes and for TRA to engage more fully with those immigrants seeking recognition and Australian equivalency of their trade skills.

Finally, outdated or overly narrow skills assessment criteria or standards can also risk adversely affecting the success of prospective migrants and artificially exclude in-demand skills. There appears to be scope to broaden the VETASSESS's

assessment criteria to encompass a wider range of methodologies in its assessment of migrants' skills — such as work experience and competency (as is the case for onshore applicants). Likewise, the occupation descriptors in the ASCO dictionary should be updated to better align with Australian trade qualifications and the national training framework. It is also timely to review and update the Country Education Profiles published by AEI-NOOSR (last updated in the early 1990s) to ensure comparability and equivalency with Australian qualifications.

9.5 Impediments arising from Australia's tax system

Migration and Australia's tax rates

The Business Council of Australia (BCA) considered that key aspects of the Australian taxation regime created barriers to attracting and retaining skilled immigrants.

> Australia can not afford to continue to maintain barriers to attracting and retaining skilled employees. Unfortunately one of Australia's largest existing policy barriers is the current structure, burden and administration of its taxation system. (sub. 24, p. 4)

And, according to the BCA, a reduction in tax rates is necessary to make Australia a more competitive destination for attracting and retaining immigrants.

> High marginal tax rates undermine Australia's competitiveness as a location for high-value occupations and activities …
>
> Lowering the top two highest marginal tax rates in the personal tax structure will help make Australia a more competitive destination for attracting and retaining skilled migrants. (sub. 24, pp. 3–4)

Competing internationally for skilled labour on the basis of low domestic tax rates can be considered a form of regulatory competition. Regulatory competition is the alteration of national regulation, in this case tax rates, in response to the actual or expected impact of internationally mobile factors (such as skilled labour) on national economic activity. As the empirical literature is still developing on the effects of jurisdictional competition on the basis of regulatory settings, the evidence of overall impacts is not clear. Regulatory competition is difficult to observe and assess, can result in a 'race to the bottom' and may be slow to occur or may not occur at all (see, for example, Sun and Pelkmans 1998).

Moreover, mobile skilled workers pursue opportunities to migrate for many reasons, such as career, monetary, lifestyle or family. Effective tax rates might be a consideration for some migrants. Factors influencing migration decisions may also

change over time depending on individual circumstances. Indeed, survey evidence of emigrants reported by Hugo, Rudd and Harris (2003) show that work-related factors dominate the reasons for emigration. In contrast, lifestyle and family are overwhelming reasons for returning to Australia. The researchers also reveal that 50 per cent of emigrants intend to return to Australia with another 15 per cent being undecided. This finding is supported by other survey work of Australian emigrants. The Victorian Endowment for Science, Knowledge and Innovation (VESKI) survey of emigrants reported more than 80 per cent of respondents indicated that they would return to Australia at some stage.

Taxation impediments for skilled migrants

Potential impediments arising from the taxation system can be a factor working against Australia's migration goals and the increased policy emphasis on attracting skilled immigrants. This could be particularly important for temporary business immigrants who may have no intention of settling permanently in Australia and face taxation obligations in both Australia and their home countries.

Such issues may affect a growing number of potential immigrants. As reported in chapter 2, the new temporary business visa category has been an important area of growth — between 1995-96 and 2003-04, the number of temporary business entrants increased from 182 000 to about 339 000.

The Commission notes that recent reform to the Australian taxation system has sought to simplify the tax arrangements applying to both permanent and temporary migrants and to remove potential impediments. The recent *Review of International Taxation Arrangements*, carried out by the Board of Taxation, led to the Government legislating a number of simplifications and improvements to the tax arrangements applying to foreign source income (Costello 2003). To date, four Acts have been passed by Parliament, legislating sixteen Board of Taxation recommendations. Moreover, the Australian Government has recently introduced further international tax reforms to address a number of taxation issues that disadvantage temporary residents in Australia (Costello 2005).

While positively acknowledging recent reforms, the BCA (sub. 24) recommended further reforms to reduce barriers to Australia's attractiveness for overseas skilled workers. In particular, it highlighted the Australian tax treatment of superannuation for temporary residents and the tax treatment of employee share schemes as priority areas for reform.

Overall assessment

Skilled immigrants wishing to live and work in Australia, either on a temporary or permanent basis, should not be unintentionally disadvantaged nor face excessive obstacles from Australia's taxation system compared with Australian citizens.

It is difficult to gauge the extent to which current tax rules and administration are creating difficulties for skilled immigrants to Australia. Certainly, there appears to be no slowdown in the increasing flow of skilled immigrants to Australia, across all skilled visa categories. Nevertheless, the Commission supports incremental taxation reform aimed at removing unnecessary barriers and complexity for skilled immigrants (both permanent and temporary) wishing to live and work in Australia. Potential remedial tax reform issues should therefore be identified and progressed by the relevant policy agencies.

However, issues regarding tax rates and the scope of the Australian tax system extend beyond the potential effects on attracting and retaining skilled immigrants. Tax policy settings form an integral part of the wider economic and social policy goals of government. It is a function of many factors, such as the type and level of the Government services to be provided to the community and particular distributional goals of the Government.

The optimal settings for Australian tax rates are therefore appropriately considered within a much broader policy context, rather than just the possible isolated impacts on skilled workers' incentives to live and work in Australia.

9.6 Australian emigration

The emigration debate is often polarised on the potential cost to the Australian economy arising from skilled Australians emigrating, thereby taking with them valuable human capital, and the potential policy settings available to stem such outflows.

It is not clear that there are any practical or attractive policy levers or institutions that could influence either the emigration of Australians overseas, or encourage their return home. As noted above, mobile Australians leave and return to Australia to pursue opportunities, be they career, monetary, lifestyle or family. Moreover, as noted in chapter 2, there are important exogenous international trends that stimulate the increased movement of Australians — such as the information and transport revolutions, proliferation of new social networks and diasporas around the world, increasing economic integration and global labour markets for highly skilled people.

This means that the most fruitful policy focus shifts to the opportunities for mobilising or leveraging Australia's diaspora, or expatriate, population to the economic benefit of Australia. This explicitly recognises that, in a global economy, Australia's human resources are not confined to its borders. There is ample economic evidence that points to the positive feedback effects (or externalities) to an economy from emigration; particularly those generated by diaspora business and knowledge networks (see, for example, Meyer 2001).

In their comprehensive research study into Australia's diaspora, Fullilove and Flutter (2004) conclude that expatriates can contribute to Australia by influencing trade, investment and philanthropic flows, connecting Australian people, business and other organisations to international developments and opportunities, and projecting a contemporary national image.

> The Australian diaspora represents a market, constituency, a sales force and an ambassadorial corps. In recent years Australian's have become more alive to the reality of our diaspora. We should now build on these early steps and work to engage the diaspora in our national life and create a global community of Australians. (p. x)

In its recent inquiry into Australian expatriates, the Senate Legal and Constitutional Reference Committee stated:

> The Committee found during its inquiry that Australian expatriates present many potential benefits, opportunities and new considerations for Australian policymakers. Most importantly, the Australian Government needs to make greater efforts to connect with and engage our expatriate community. (2005b, p. v)

Similarly, a recent report by The Global Commission on International Migration also point to the potential economic gains to be derived from diaspora communities:

> Countries of origin can gain considerable advantage by harnessing the talents and resources of diaspora populations, which have grown significantly in size and scope as a result of the recent expansion of international migration ….

And support measures to mobilise diaspora networks:

> The Commission endorses the efforts being made to mobilize diaspora knowledge networks. (2005, pp. 29–30)

The economic possibilities arising from leveraging diaspora networks are also acknowledged by the expatriate communities themselves. Survey research of Australian expatriates by Hugo, Rudd and Harris (2003) reveals that nearly 80 per cent of respondents believed that their overseas residency had benefits for Australia by creating goodwill towards Australia, and through developing skills transferable back to Australia. Further, over 50 per cent of respondents thought that contacts they had made would be useful for other Australians. Others saw benefits

arising from linkages between Australia and the countries in which they were currently living.

There have been calls for the formulation of a diaspora policy aimed at maximising the potential gains from emigration by engaging more comprehensively with Australia's expatriates (for example, Hugo, Rudd and Harris 2003; OECD 2003a; Fullilove and Flutter 2004; Legal and Constitutional Reference Committee 2005). Key elements of a diaspora policy have been suggested (box 9.5), and include: establishing a policy function to coordinate diaspora policies across the whole-of-government; undertaking a stocktake of the diaspora skills base; formulating programs that strengthen the linkages between the diaspora and Australia, especially business and research linkages; and promote ways to improve Australia's expatriate community's access to government information.

Box 9.5 **A diaspora policy — key elements**

Key elements of a diaspora policy aimed at harnessing the talents and resources of Australia's diaspora population could include:

- *Institutional* — establishment of a policy function to facilitate the coordination of policies relating to Australian expatriates and further develop out-reach programs to expatriate communities
- *Stocktake of diaspora skills* — establish an inventory of the skills-base within the diaspora
- *Strategic linkages* — increasing the strength of linkages between the diaspora and Australia, especially business and research linkages (such as creating short-term return fellowships, secondments, or sabbatical visits), thereby helping to mobilise diaspora knowledge networks
- *Communication* — promoting greater access for expatriates to government information and greater communication between Australian expatriates (for example, more tailored websites for expatriates and extending Department of Foreign Affairs and Trade's Online Registration Services)
- *Information on diaspora* — improving knowledge about the nature of Australia's diaspora, such as government agencies collecting more and better information on the demography of the Australian diaspora
- *Diaspora philanthropy* — encouraging nonprofit organisations to pursue fundraising opportunities offered by the diaspora
- *Democracy* — engaging the diaspora in Australian democracy (through, for example, reforming overseas voting procedures to better accommodate expatriates).

Sources: Hugo, Rudd and Harris (2003); Fullilove and Flutter (2004); Legal and Constitutional Reference Committee (2005); Global Commission on International Migration (2005).

Compared with other countries, Australia is well-positioned to realise economic gains from its diaspora community. Australia's diaspora is large (currently around one million Australians); it is strategically situated, both professionally and geographically; there is a high level of goodwill within the diaspora towards Australia and vice versa; and although the economic consequences are mixed, there are tangible benefits that can accrue to Australia from its diaspora (Fullilove and Flutter 2004).

Overall assessment

There is limited scope for government policy to influence both emigration flows from Australia and encourage return migration to Australia. There are, however, potential economic gains for Australia from engaging more comprehensively with the diaspora population, particularly those generated by diaspora business and knowledge networks.

A Submissions, visits and roundtable attendees

Table 1 **List of submissions**

Individual or organisation [a]	*Submission number*
Australian Manufacturing Workers Union	20
Australian Nursing & Midwifery Council	16
Australian Pharmacy Examining Council Inc	8
Buergelt, Petra	1
Business Council of Australia	24
Claus Environmental Engineering	12
Construction Forestry Mining and Energy Union	13
Crook, Brian	18
Curnow, Jill	23
Department of Immigration - Multicultural & Indigenous Affairs	22
Department of Premier and Cabinet	29
Dickinson, Geoff	6, 15
Engineers Australia	4
Federation of Ethnic Communities' Councils of Australia (FECCA)	11
Master Builders Australia	17
National Farmers Federation	21
Northern Territory Government	25
Patnaikuni, Indubhushan	2
Professions Australia	19
Queensland Government	26
Small Business Development Corporation	7
Sorensen, Tony	5
South Australian Government	28
Sustainable Population Australia (ACT)	10
Sustainable Population Australia (TAS)	9
Sustainable Population Australia Inc	14
Western Australian Minister for State Development	27
Warrnambool City Council	3

[a] An asterisk (*****) indicates that the submission contains confidential material not available to the public.

Table 2 List of visits

Location/Interested parties

Adelaide

Department of the Premier and Cabinet
Flannery, Tim
University of Adelaide

Canberra

Cobb-Clark, Deborah
Department of Education Science and Training
Department of Immigration Multicultural and Indigenous Affairs
Jupp, James

Melbourne

Australian Council of Trade Unions
Birrell, Bob
Business Council of Australia
Wooden, Mark

Table 3 Attendees at the roundtables

Canberra

Australian Chamber of Commerce and Industry
Birrell, Bob
Chapman, Bruce
Department of Education Science and Training
Department of Employment and Workforce Relations
Department of Immigration and Multicultural and Indigenous Affairs
Dowrick, Steve
McDonald, Peter
Mills, Paul
Neville, Ivan
Richardson, Sue
The Treasury
Tyers, Rod
Withers, Glenn

A.1 Consultations

The Commission hosted a workshop in Canberra on 31 August 2005 attended by representatives from certain Australian Government departments, industry bodies and academics with experience in migration and labour markets. The purpose of the workshop was to discuss approaches to estimating the economic impacts of migration and population growth.

The Commission also held two meetings with members of an independent reference panel established to review the modelling undertaken for this study. The first meeting, held in Melbourne on 11 November 2005, was attended by Peter Robinson (University of New South Wales) and Paul Miller (University of Western Australia) with John Ryan (Department of Immigration and Multicultural and Indigenous Affairs) attending as an observer. A second meeting, also held in Melbourne, on 17 November was attended by Rod Tyers (Australian National University).

B Trends in international migration

Each year, millions of people cross borders from one country to another. A subset of these people are migrants. Migrants, unlike temporary visitors, such as holiday makers and people en route to a third country, are people who intend to live and make a home in a different country. Who is considered a migrant can vary across countries, but the United Nations has recommended a standard definition to aid in compiling statistics (box B.1).

The characteristics of migrants can be quite varied. They might be permanent settlers or temporary residents, they could have working rights, for example as guest workers or students, and they might have access to government benefits and also to programs that facilitate integration into society and the economy.

In this appendix, the international context in which migration to and from Australia takes place is considered. The nature and characteristics of worldwide migration flows and the policies that influence them are considered, with a focus on member countries of the Organisation of Economic Cooperation and Development (OECD).

In the first section of this appendix, the reasons for international migration decisions are reviewed. Transformations in the global drivers of international migration in the last decade are also examined.

The remainder of the appendix is organised by considering the following key themes:

- The reasons for international migration (section B.1)
- the scale of global population movements (section B.2)
- the diversification of countries of origin of migrants (section B.3)
- the trends in temporary migration (section B.4)
- the trends in skilled migration (section B.5).

Box B.1 **Defining a migrant**

An international migrant is defined by the United Nations as 'any person who changes his or her country of usual residence'. A person's country of usual residence is defined as 'the country in which he or she has a place to live where he or she normally spends the daily period of rest'. Long-term migrants are those who move for at least 12 months, while short-term migrants move for at least 3 months but less than 12 months. Short-term visitors to a country are not considered to be migrants if the visit is for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment or religious pilgrimage.

Source: UN (1998).

B.1 Reasons for international migration

There are many reasons for migratory movements, including the traditional push–pull factors (box B.2). Economic theory suggests an individual will migrate when the benefits of the push–pull factors outweigh the costs.

As well as the benefits accruing to migrants from international movement, there are also benefits to the world economy as a whole. As summarised by Winters (2002): 'the very heart of international trade, be it in goods, services or factors, lies in exploiting differences. The larger the differences, the larger the potential gains from opening up to international trade.' The potential benefits from even limited movement of people have been estimated at hundreds of billions of dollars (Winters et al. 2003). This provides an economic incentive for countries to allow international migration. However, the distribution of these benefits between the destination and source countries is also important.

Although push–pull factors are useful for understanding international migration, they do not explain all movements. 'Network factors' are also important (box B.2), as are geographical factors and, for some countries, poverty constraints. Poverty constrains migration when the very poor find it difficult to finance a long distance move, despite push–pull incentives to do so (Hatton and Williamson 2002). In such cases, increases in income will reduce the push–pull motivation for migration, but also relax the poverty constraint. Since the latter effect dominates in very poor countries, increases in income actually lead to larger migratory flows.

Geographical factors tend to make cross-country comparisons problematic. Immigration to the United States is dominated by unskilled flows from Mexico, both legal and illegal. In Europe, because of the ease of movement between countries, short-term temporary migration is more prevalent than in isolated

countries such as Australia and New Zealand. An extreme version of temporary migration occurs in several European countries, where a significant part of the labour force is made up of people who commute across national borders to work in a different country. In Luxembourg, almost 40 per cent of employment is held by these 'cross-border' workers.

Box B.2 **Traditional push–pull factors for international migration**

The causes of migration are often discussed in terms of 'push–pull' factors. Push factors are the characteristics of the source country that influence the decision to emigrate. They include:

- economic and demographic factors — such as labour market factors, limited health and education services, poverty, high fertility and overpopulation;
- political factors — such as poor governance, corruption, human rights abuses, conflict, insecurity and violence;
- social and cultural factors — such as discrimination based on ethnicity, religion, gender or caste; and
- environmental factors — such as climate, resource depletion and natural or man-made disaster.

Pull factors are the characteristics of the destination country that influence the decision to immigrate to that country. They also include economic and demographic, political, social and cultural, and environmental factors.

Push–pull explanations for international migration do not fully explain international migration movements. More ambiguous 'network factors', which include communications, transport, language and cultural differences, are also important. Some of these network factors have changed rapidly over the last few decades, facilitating greater migration flows. These changes are discussed in the following section.

Changing drivers of migration

In addition to the historical push–pull factors, recent changes in network factors have been influencing global population movements. The contributing factors are complex and often interrelated, but some of the major factors include increasing economic integration, the information and transport revolutions, globalisation of labour markets, the development of a commercialised immigration industry and the proliferation of new social networks and diasporas around the world (Hugo 2004a).

Increasing economic integration has been characterised by a globalisation of the production process, increased international trade in goods, services, capital and labour, and economic specialisation. Increases in regional integration agreements

and the rise of multinational enterprises associated with increased economic integration have contributed to higher migration. On the other hand, trade in goods and services (and job offshoring) might substitute for migration by reducing the differences in wages across countries.

Improvements in the cost and accessibility of international transport and communications have allowed for greater migratory movement. The globalisation of labour markets has meant that many people now have knowledge of, and compete for, jobs in many countries.

There is a growing involvement of firms and individuals in organising the transnational movement of workers in the global labour market. Some have suggested that this has been the main factor in increasing the speed of migration and determining the direction of movement (Abella 2004).

It has been suggested that new diasporas and social networks have been emerging in recent decades, even for traditional immigration countries like Australia (Hugo, Rudd and Harris 2003). Social networks facilitate migration by easing the settlement process and thus creating strong dynamic forces in the continuing flow of migrants.

Role of government policy

In addition to the historical push–pull factors and changing global drivers identified above, government policy plays a key role in influencing the nature of global population movements. Especially in developed countries, there is strong demand from potential immigrants and government policy tends to regulate flows. This is evident from long migration queues and the extent of illegal immigration. For example, the waiting list for entry to the United States totalled 3.6 million in the mid to late 1990s (Kramer 1997). In Australia, the intake of skilled immigrants has continued to reach its quota despite increases in both the points requirements and the quota itself.

Illegal migration occurs throughout the world. This illustrates the role that government policy has in regulating flows — if migrant flows were not limited by government control, there would be no need for people to migrate illegally. However, it also means that there are limitations to the extent to which governments can control immigration.

Government policy can also place restrictions on emigration of their own residents. For example, this was the case in China, the Soviet Union and East Germany several decades ago. However, this practice is rare today.

An important trend in government policy worldwide is that many countries, for example the United Kingdom and Germany, have recently sought to manage immigration for the first time (DIMIA, sub. 22). This is in contrast to countries that have traditionally been more reliant on immigration, such as the United States, Canada and Australia, which have long histories of managed immigration.

Government polices are discussed throughout this appendix when they have been important in shaping the trends in international migration flows.

B.2 Increasing global population movements

The scale of migratory movements is considered in this section. Overall, migratory movements have been increasing over recent decades, with the number of international migrants more than doubling between 1980 and 2005 (GCIM 2005).

However, increases in migrant numbers have not been uniform across countries. The difference is particularly stark between developing countries — where international migrants dropped from 1.6 per cent to 1.3 per cent of the population between 1980 and 2000 — and developed countries, where immigrants made up 4.2 per cent of the population in 1980 and 8.7 per cent in 2000 (Martin 2005). Even between otherwise similar countries, immigrant numbers can vary significantly.

Despite increasing migrant numbers, global migration flows have not again reached the levels of the early twentieth century, when liberal migration policies and falling transport costs led to huge flows of people. For example, the annual immigration rate to the United States fell from about 12 per 1000 Americans in 1910 to 0.4 per 1000 in 1940 before rising to 4 per 1000 in the 1990s (Fischer 2003).

In this appendix, the focus will be on migration flows in and out of member countries of the OECD. This enables the investigation of migration trends to concentrate on those countries that are directly comparable to Australia. It also reflects the difficulties in obtaining consistent migration data across a broader range of countries. Even among OECD countries, there are significant difficulties measuring international migration (box B.3).

Box B.3 **Measuring international migration: a difficult task**

There is little international standardisation of migration statistics. Consequently, there are varying degrees of comparability between countries. Partly this reflects a great variety of migratory channels and migrant categories, which are not necessarily common across countries. Because of the many different types of migrants, who is considered a migrant can vary across countries. For example, Germany records a number of short-term movements that would not be considered migration in most OECD countries. Measuring flows of migrants who enter illegally is particularly difficult, since such flows are, by their very nature, not recorded in official data.

There is also little standardisation of migration statistics because of the different methods used to gather data. Some countries rely on population registers, which are designed to collect data for a variety of other administrative and statistical purposes. Others (including Australia) base migration statistics on residence or work permits and data on movements in and out of the country.

Source: OECD (2004c).

Immigration to OECD countries

At an aggregate level, immigration to OECD countries has been trending up since the 1980s. During the 1980s and early 1990s, nearly all OECD countries experienced increasing immigration. Between 1993 and 1997, immigration levels stabilised or fell. There were further increases to record levels in 2001 before immigration intakes again stabilised after 2001 (OECD 2005b and previous editions).

Increasing immigration rates in the 1980s were driven by an acceleration of permanent flows as global mobility increased, in conjunction with increases in flows of asylum seekers. The two periods of levelling off since then can be traced to governments tightening entry procedures — in 1993, mainly for asylum seekers (in response to unprecedented high levels in the late 1980s); in 2001, as a response to security and health concerns.

Notwithstanding these broad trends, immigration flows have varied by country. Table B.1 gives immigration trends in selected OECD countries between 1987 and 2002. Trends in permanent immigration were broadly similar across the traditional 'settlement countries' of Australia, Canada, New Zealand and the United States, peaking in the early 1990s. However, they were more variable among other OECD countries, which include long-term (and sometimes short-term) temporary movements in immigration statistics. Immigration grew strongly in France, the United Kingdom and Japan. Immigration peaked in the early 1990s before falling

considerably in Germany, largely due to decreases in inflows of asylum seekers and ethnic Germans from principal sending countries (central and eastern European Countries, former Yugoslavia, former Soviet Union and Turkey).

Table B.1 **Immigration flows to selected OECD countries[a]**

Percentage of total population

	1987	*1992*	*1997*	*2002*
	%	%	%	%
Permanent additions:				
Australia	0.7	0.7	0.6	0.6
Canada	0.6	0.9	0.7	0.7
New Zealand	**na**	**na**	0.9	1.2
United States	0.2	0.4	0.3	0.4
Durations greater than one year:				
France	0.1	0.2	0.2	0.3
Switzerland	1.1	1.6	1.0	1.3
United Kingdom	**na**	0.3	0.4	0.7
Both short and long durations:				
Germany	0.7	1.5	0.7	0.8
Japan	0.1	0.2	0.2	0.3
Luxembourg	1.9	2.5	2.2	2.5

a Data comparability limited by differences in data collection and who is considered to be a migrant (box B.3).
na Not available.

Source: OECD (2005b and earlier editions).

The magnitude of immigration intakes can also be compared across countries. In terms of sheer numbers, the United States continues to take more immigrants each year than any other OECD country. However, to evaluate the relative importance of immigration, inflows expressed as a percentage of the country's total population are more useful. Luxembourg, New Zealand and Switzerland all have very high immigration intakes, with over 1 per cent of their population typically made up of new immigrants.

Given its traditional reliance on immigration, it is surprising that Australia's immigration is not high (relative to total population size) compared to other OECD countries. This is partly because of fundamental differences across countries in who is considered an immigrant. Data published by the OECD for Australia and the other settlement countries only includes permanent immigrants, in contrast to many other countries, which include temporary immigrants (OECD 2005b).

The importance of immigration to Australia's population is borne out when comparing numbers of immigrants across OECD countries.

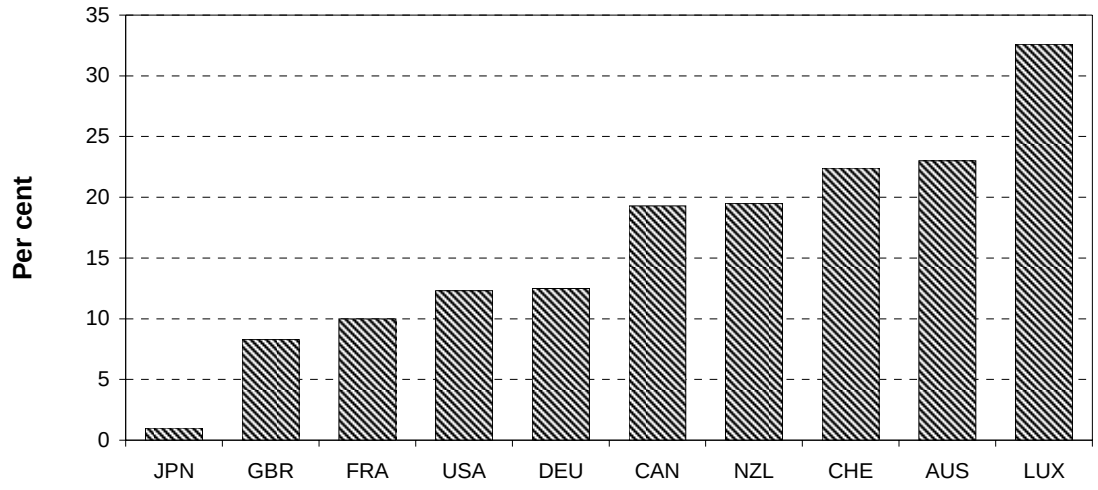
Numbers of immigrants in OECD countries

Given the difficulties in comparing immigration flows across countries, it is useful to compare numbers of immigrants. Measures of foreign-born resident numbers are more consistent across countries and give some indication of the cumulative importance of immigrants in destination countries. The OECD has compiled a database of foreign-born population for almost all member countries of the OECD. Unlike migration flow statistics, numbers of immigrants are directly comparable across countries.

Generally, the countries with high immigration flows tend to have large immigrant populations. For example, as a proportion of population, Luxembourg has both the highest annual immigration intake and the highest number of immigrants. New Zealand and Switzerland also have relatively large immigrant populations (figure B.1).

Australia is somewhat unusual. Relative to population, Australia has not had an especially large immigrant intake over the past 15 years. However, among OECD countries, Australia has the second highest proportion of immigrants in the population. This might be in part because of high immigration historically — Australian immigration was high in the late 1950s and 1960s (Withers and Pope 1993) — and also because of the nature of the immigration flows recorded. Some countries (for example, Germany) include large numbers of short-term immigrants in their immigration statistics, inflating annual flow data with immigrants who do not have an ongoing impact on the immigrant population.

Figure B.1 **Immigrant populations in selected OECD countries, 1999–2002[a]**
Proportion of destination country population



a Years vary by country, depending on the latest data available.

Source: OECD database on immigrants and expatriates (database), OECD, OLISnet.

Illegal immigration

Illegal immigration occurs when people would like to migrate but are restricted in their capacity to do so legally. In Europe, this is often because permanent immigration is heavily restricted. In countries that allow permanent settlement, such as the United States, Canada and Australia, this is because people do not meet the required criteria, would have to wait longer than they would like to obtain an immigrant visa, or because unauthorised immigration is cheaper or easier.

Estimating illegal immigration is a difficult task and estimates are bound to be imprecise. By their very nature, illegal immigration flows are not captured in migration flow data. Illegal residents might be captured in stocks of overseas-born citizens, but this is dependent on their responses to censuses and other surveys, and distinguishing them from legal immigrants remains problematic. Despite these problems, a number of countries have developed methods of estimation that shed some light on the magnitude of illegal immigration flows.

Despite measurement difficulties, illegal immigration flows are clearly significant in many countries. In the United States, where illegal immigrants are particularly prevalent because of the proximity of Mexico, it is estimated that 10 million persons are present without authorisation (GCIM 2005), accounting for almost one third of the aggregate foreign-born population. In Spain, Italy and Greece, around 30 to 40 per cent of the foreign population received their residence permits in legalisation programmes run between 2000 and 2002. This suggests that a similar proportion of illegal immigrants were present prior to these programmes.

Illegal immigrants are not nearly so prevalent in more isolated countries. Australia and New Zealand estimate illegal immigrant numbers using entry and exit data, yielding estimates of around 2.5 per cent and 5.0 per cent of the immigrant population respectively. This method precludes counting those who enter illegally, but given the geographic insularity of these countries, numbers of illegal entries are unlikely to be significant.

Several OECD countries have taken steps to counter illegal immigration in recent years. Japan has intensified police controls in areas with high foreign populations. Many countries, including Australia, Canada, Germany, Italy, Spain and the United States, have taken steps to dissuade illegal immigrants by increasing border controls since 2000.

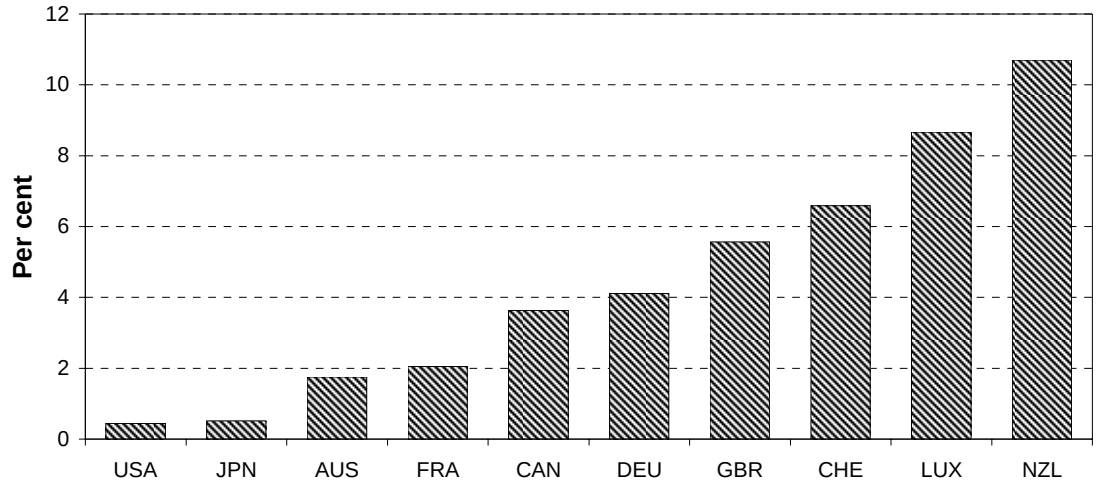
Emigration from OECD countries

It has been noted that a developing trend over the last decade has been 'an increasing tendency for most countries to be countries of both immigration and emigration' (DIMIA, sub. 22, p. 5). Figure B.2 demonstrates the proportion of people born in various OECD countries who are living in other OECD countries. This is a lower bound for the total number of emigrants from each of these countries, because it does not include emigrants living in non-OECD countries. However, it gives an indication of the relative significance of emigration.

Many of the countries with large immigrant populations have large expatriate populations as well. This is especially true for Switzerland, Luxembourg and New Zealand. Labour mobility between neighbouring countries explains this pattern among the European countries, while the majority of New Zealand's expatriates live in Australia. The United States and Australia stand out as countries with much larger immigrant than expatriate populations.

Figure B.2 **Emigrants from selected OECD countries living in other OECD countries, 1999–2002[a]**

Percentage of source country population



a Years vary by country, depending on the latest data available.

Source: OECD database on immigrants and expatriates (database), OECD, OLISnet.

B.3 Diversification of country of origin

Historically, the majority of immigrants to OECD countries have come from a small number of key source countries. These include neighbouring countries as well as traditional flows, for example from the United Kingdom to Australia.

This concentration of sources has begun to ease and, since the early 1980s, there has been some diversification of migration movements and an increase in the range of nationalities involved. Migrants have come from India and China in growing numbers. There are also several new source countries such as Thailand, Indonesia, Malaysia, Hong Kong, Bangladesh, Pakistan and Sri Lanka.

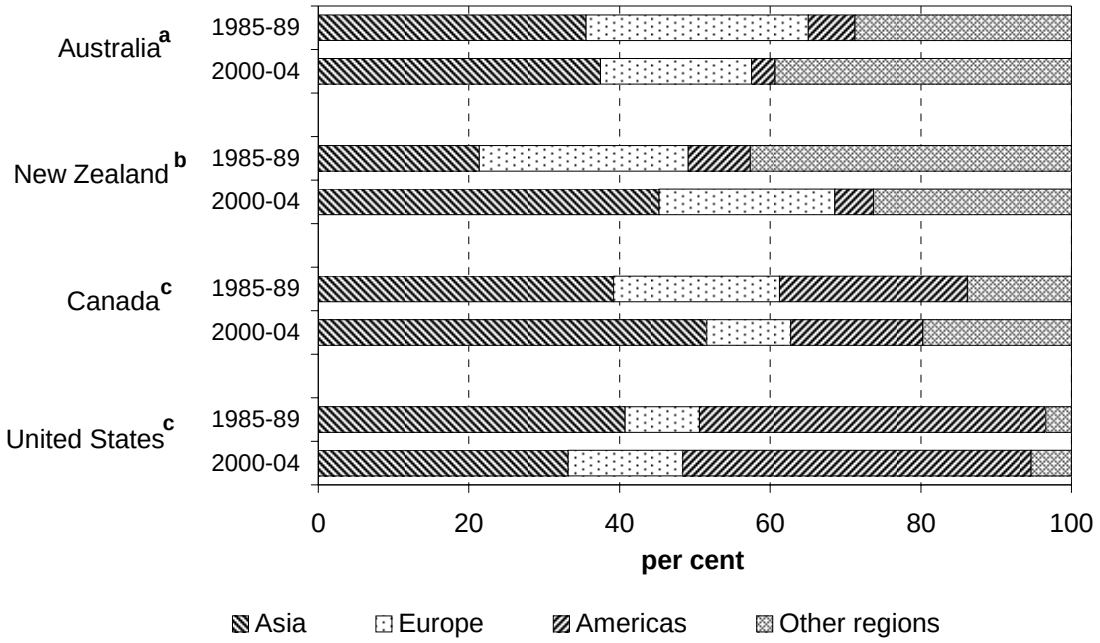
Many of the changing migration drivers discussed previously — including increased economic integration, the transport and communications revolutions and the globalisation of labour markets — have driven the diversification of countries of origin. For many of the new source countries, rapid income growth has been important in easing poverty constraints on migration. Migration from these new source countries is enhanced because of a feedback mechanism, whereby the presence of existing migrant networks in the destination country partially mutes both economic and non-economic costs of migration, encouraging further migration (Coppel, Dumont and Visco 2001).

Historically, some diversification of countries of origin was also driven by changes in government policy. This was particularly the case after the 1960s and 1970s, when the United States, Canada and Australia eliminated their selection systems based on national origins. This triggered a diversification of immigration flows for all three countries (IOM 2005).

The changing sources of migrants are captured by changes in the number of immigrants to the traditional settlement countries coming from various regions. Europe, traditionally a key source for immigrants to the United States and Canada, contributed only a small part of the US immigration intake and a lessening part of Canada's between 1985 and 2004 (figure B.3). A growing proportion of Canada and New Zealand's immigrant intakes came from Asia during the 1990s. The diversification of Australia's immigrant intake appears to have occurred earlier — between 1970–74 and 1990–04, the proportion of Australia's immigrants coming from developing countries increased from 20 per cent to 60 per cent (IOM 2005).

Recent changes notwithstanding, in some cases the traditional source countries continue to be important. For example, the United Kingdom remains one of the major source countries for immigrants settling in Australia. Neighbouring countries are still a key source of migrants for many OECD countries, particularly in Europe. Migration between neighbouring countries in Europe is facilitated by European Union (EU) law, which guarantees free movement of persons between EU countries. An important development on this front was the accession of ten central and southern European countries to the EU on 1 May 2004, which might contribute to continued diversification of migration flows in the future.

Figure B.3 **Flows of immigrants to settlement countries by country of birth**
As percentage of total inflows



a Inflows of permanent settlers. Does not include visas granted onshore before 1996-97. **b** Inflows of permanent and long-term arrivals. **c** Inflows of permanent settlers.

Sources: OECD (2005b and earlier editions); Statistics New Zealand (2005); DIMIA (2004a) and unpublished data.

B.4 Temporary migration

Temporary migration has increased dramatically since 1980. Most countries have a favourable attitude to this form of migration. Australia has one of the clearest policy statements about the benefits of temporary migration, stating that: 'temporary residents bring new ideas, contacts, understanding, skills and technology and enable Australia to remain competitive — the key to further economic prosperity' (DIMIA 2005j). A further benefit is that the costs involved in the education and retirement of temporary immigrants are generally covered by their home country.

However, the benefits of temporary migration need to be offset against potential drawbacks. For example, there is the risk of temporary immigrants not becoming a part of the community and thus not making the same contribution as if they were staying permanently. They might create a marginalised group within the community who are unable to obtain permanent residency.

In this section, flows of temporary workers and students are examined. Flows of temporary workers are based on OECD definitions, which classify flows of

temporary workers so they are comparable across countries. These flows do not include short-term inflows, for example people entering under business short stay visas in Australia.

Flows of temporary workers into selected OECD countries

Since the early 1990s, flows of temporary immigrants to most OECD countries have grown more rapidly than flows of permanent immigrants. Australia is typical of this trend: permanent migrant inflows to Australia were almost unchanged between 1992 and 2002, while entries of temporary workers tripled.

Although data are not readily available for all OECD countries, the data that are available suggest that the trend towards greater temporary inflows in the 1990s was widespread (table B.2). Greater temporary inflows can be partly explained by the trends in globalisation discussed previously, but have also been driven by government policies.

Table B.2 **Entries of temporary workers into selected OECD countries[a]**
Percentage of total population

	1992	*1997*	*2002*
	%	%	%
Australia	0.23	0.44	0.65
Canada	0.25	0.25	0.28
New Zealand	**na**	0.67	1.61
United States	0.07	0.13	0.23
France	0.03	0.02	0.04
United Kingdom	0.11	0.15	0.25
Germany	0.41	0.33	0.42
Japan	**na**	0.11	0.16

a Data comparability limited by differences in data collection and who is considered to be a migrant (box B.3.).
na Not available.

Source: OECD (2005b and earlier editions); OECD database on immigrants and expatriates (database), OECD, OLISnet.

Temporary immigration policies in selected OECD countries

As mentioned previously, most OECD countries have a favourable attitude to temporary immigration. Generally, the objectives of temporary immigration are (OECD 1998):

- tor specific skills in particular sectors of the economy
- to promote the movement of managerial staff and highly skilled workers

- to meet a variety of other objectives, which tend to vary by country. These include reducing the employment of foreigners illegally and providing an opportunity for nationals to travel and work overseas through reciprocal working holiday maker programs.

Reflecting these different objectives, most countries typically allow the entry of several different categories of temporary immigrants. Australia favours the admission of skilled workers, although working holiday makers are an exception. In many other countries, including France, Germany, the United States and (particularly since the introduction of a new 'Sector Based Scheme' in 2003) the United Kingdom, low skilled immigrants are often employed temporarily in specific activities such as agriculture, hospitality and construction.

To target the different categories of temporary workers allowed, OECD countries typically operate several different visa programs. For example, foreign nationals may work in the United States under the highly skilled program (H 1B and H 2B visas), under the provisions of the North American Free Trade Agreement (TN visa), as a worker of distinguished ability (visa O), as a seasonal agricultural worker (H 2A visa), as a trainee (H 3 visa) or as an exchange visitor (J 1 visa). They may also work under a myriad of other, more specific visa programs.

Flows are regulated through visa requirements and quotas. Many countries (including Australia, the United Kingdom and France) have no quotas on the entry of highly skilled workers. During the 1990s, most OECD countries encouraged flows of foreign workers by relaxing the entry requirements, particularly those for highly skilled workers (OECD 2005b).

Students: a growing form of temporary migrant

An important trend in international migratory movements during the 1990s was the increase in international student movements. The number of higher education students in the OECD increased by over 50 per cent between 1990 and 2001 (OECD 2004b). Australia is the fourth largest receiving country, and the growth in student numbers in Australia has also been among the fastest in the OECD. Between 1990 and 2001, the stock of foreign students in Australia increased by almost 300 per cent (OECD 2004b).

The rapid growth in foreign student numbers over the past decade can be explained in part by the determination of many OECD countries (in particular Australia, New Zealand, the United Kingdom and Canada) to attract more foreign students. The reasons for this determination are varied, but two major motives are to generate revenue from fee paying students and to recruit skilled migrants after graduation.

Australia and New Zealand are seen to be most concerned with revenue raising. Canada and the United Kingdom (at least for EU citizens) are more focused on recruiting skilled graduates (OECD 2004b).

B.5 Skilled migration

At an aggregate level, there is evidence that flows of skilled migrants — both to and between OECD countries — rose substantially during the 1990s (OECD 2002). However, this trend was by no means universal, with flows of skilled migrants dependent on the policy settings in various countries.

Measuring highly skilled migration flows is notoriously difficult, with the capacity to analyse these flows across countries limited by a lack of internationally comparable data (Auriol and Sexton 2002). The first problem relates to defining a skilled worker. In most of the existing literature, someone with a university degree or work experience in an occupation that generally requires a degree is considered highly skilled.

A second problem is that countries systematically measure inflows by visa type, but do not necessarily delineate inflows by skills of immigrants. Although people entering under skilled visas are likely to be highly skilled, this is not necessarily the case, particularly where primary applicants bring dependents. Likewise, entrants under other visa categories, such as family reunion, can still be highly skilled.

Despite these difficulties, it is still useful to compare numbers of people admitted under skilled immigration programs. This gives an indication of how inflows and policies vary across countries. Of particular relevance to Australia are trends in other settlement countries (the United States, Canada and New Zealand) since they remain among the few countries in the world admitting immigrants for permanent settlement (IOM 2005).

Of the settlement countries, the United States stands out as an exception. Entries under skilled categories fell as a proportion of overall immigration between 1991 and 2001. The United States is the only settlement country that does not rely on a points system to select permanent immigrants.

In the other settlement countries, skilled immigration became an increasingly important part of inflows through the 1990s. This was largely because of policy settings. Canada introduced points testing of skilled immigrants in the 1960s. However, it was not until immigration policy was reviewed in the mid-1980s that a belief emerged that the economic component of the inflow should be increased (Green and Green 1999). Between 1991 and 2001, the share of immigrants entering

Canada under skilled categories tripled (IOM 2005). Skilled immigration also became an increasing share of inflows to Australia and New Zealand over this time, with both countries placing an increased emphasis on skilled immigration (Bedford, Ho and Lidgard 2001; Khoo 2002).

It is important to note that a large component of temporary flows (which have been increasing rapidly, as discussed in the previous section) are of highly skilled persons. In the United States, for example, around 65 per cent of temporary workers entering the country in the 1990s entered under a skilled visa, compared to less than 20 per cent of permanent immigrants (OECD 1998).

Main drivers behind the international mobility of skilled personnel

Drivers of skilled migration are similar to those for other types of migration, but certain factors are particularly important. These include push–pull factors, as well as changes in the structure of economies worldwide.

Of the push–pull factors, wages play a particularly important role in skilled migration. This is especially true for migration from developing to developed countries. For example, wages for Information Technology specialists working in the United States are ten times those in India.

Changes in the structure of economies worldwide have affected the demand for skilled workers in developed countries through several trends. The increasing importance of service industries and a rapidly growing information economy in developed countries have increased the demand for skilled workers. Also, with increasing globalisation, multinational firms have been able to locate manufacturing processes that use unskilled labour intensively in developing countries, while centralising skilled tasks in developed countries. This has increased the demand for skilled workers relative to unskilled workers in developed countries.

The increases in demand for skilled workers have meant that several OECD countries are facing skill shortages in specific industries, including information technology, health and education. These developments have led many commentators to suggest that developed countries are competing against each other to attract skilled migrants from around the world (Cobb-Clark and Connolly 1997; Salt 2002).

As for other types of migration, government policy is also important in shaping trends in skilled migration.

Role of government policy

Worldwide barriers to skilled immigration have tended to decrease in recent decades, while barriers to unskilled immigration have increased (Hugo 2004a). Most OECD countries introduced measures to facilitate recruitment of skilled foreign workers during the 1990s. This is in addition to policies that aim to recruit foreign graduates studying abroad. At the same time, many countries are placing increasingly stringent controls on family reunification flows, in some cases reducing family entries by as much as 25 per cent (OECD 2005b).

Governments take both facilitating and direct roles in encouraging skilled immigration. They facilitate skilled immigration by responding to demands of businesses, offering visas to employees sponsored by business and to people in professions where there are considered to be shortages. Governments directly encourage skilled immigration to increase the stock of human capital in order to achieve sustained economic and productivity growth. This is done by providing skilled people in a broad range of occupations with access to immigration visas.

Reflecting these different roles, the policies used to attract skilled migrants vary by country. Canada, Australia, New Zealand and (since 2002) the United Kingdom take a directly encouraging role by using a points system as a means of selecting highly skilled immigrants for permanent residency. The Czech Republic also introduced a points system in 2004. These points schemes typically emphasise general skills rather than precise skill requirements.

Other countries target more specific skills, listing areas of labour shortages and allowing immigration of people with skills in these areas. For example, the United Kingdom maintains a 'Shortage Occupation List', whereas the United States uses skill-based immigration to rectify labour market shortages and mismatches. Some countries permit permanent entry of these workers, whereas other countries prefer to admit such workers temporarily during periods of skill shortages.

In addition to facilitating immigration, many countries offer fiscal incentives to highly skilled immigrants. Countries offering large tax breaks for skilled workers include Sweden (25 per cent tax deduction), the Netherlands (30 per cent), Austria (35 per cent) and Korea (40 per cent) (OECD 2005b).

On the other hand, most OECD countries also have legislation in place to protect domestic labour. In many countries, including the United States, employers are required to prove that positions cannot be filled by an existing resident.

Issues associated with skilled migration

Important issues associated with skilled migration include the international recognition of qualifications and the potential for problems for source countries from losing skilled people. The problem of skill recognition is pervasive throughout OECD countries (OECD 2005b). The loss of skilled people has been dubbed ‘brain drain’, and has been discussed widely, particularly with regard to flows out of developing countries.

C Australia's migration policy and flows

Migration has played a key role in shaping Australia's society and economy.

Migration has contributed significantly to Australia's population: almost one quarter of the current Australian population was born outside Australia; and in terms of population growth, since the early 1970s, approximately 41 per cent of population increase has been due to net overseas migration.

In this appendix, Australia's migration policies and flows since the early 1990s are outlined. Detail on Australia's immigration policy over time is provided in section C.1 with a focus on recent decades. Sections C.2 and C.3 present details on immigration and emigration flows. In section C.4, the implications of Australia's net migration for population growth and size are examined.

C.1 Immigration policy

From federation until the latter part of the 20th century, Australia's immigration policy was reflected by the 'White Australia' policy — favouring applicants from certain countries. It involved active encouragement and assisted passage of migrants from Britain and other European countries.

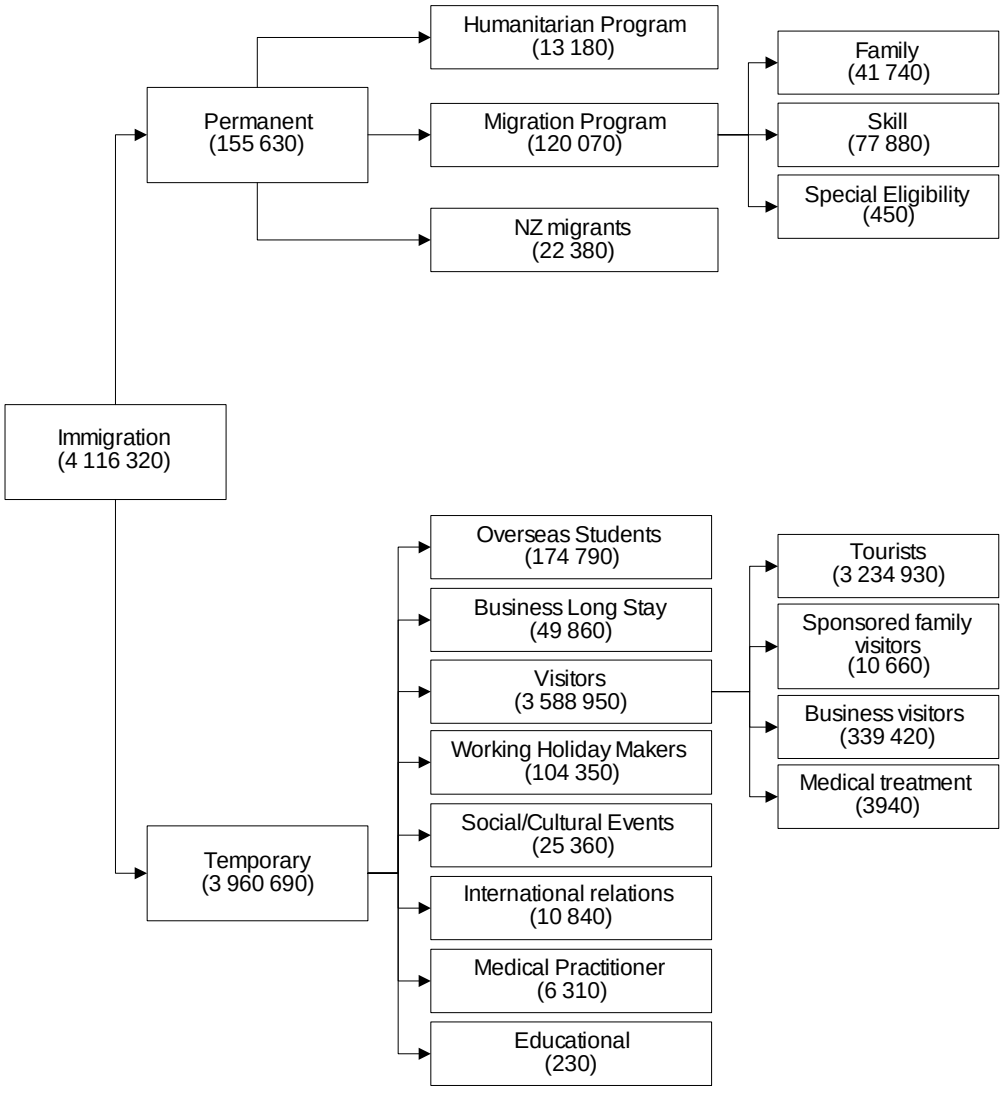
From 1966–1973, Australia's immigration policy moved away from the 'White Australia' policy, with the Government easing restrictions on immigration of non-Europeans. The migration program, instead, focussed on well-qualified people, based on their suitability as settlers, their ability to integrate readily and their possession of qualifications positively useful to Australia (DIMIA 2005f). Since then the migration policy has undergone considerable changes.

Following the 1988 FitzGerald Report (FitzGerald 1988), more effective and clearer selection procedures were developed. The current policy recognises several dimensions including economic development and labour market needs, as well as social, humanitarian and international obligation objectives. In recent times, there has been a growing emphasis on skilled migration. The nature of Australia's permanent migration policy has changed, with an annual immigration target and

different eligibility categories being the key policy parameters of the selection system. The current policy also allows for greater temporary migration options and facilitates more onshore processing arrangements (for moving from temporary to permanent residency).

The remainder of this section considers Australia's permanent and temporary migration programs in greater detail. These programs are divided into a number of streams, which are further disaggregated into visa classes and subclasses. Box C.1 displays the permanent and temporary migration programs at the broad level.

Box C.1 **Immigration visa categories and visas granted in 2004-05**



Source: DIMIA unpublished data.

Permanent immigration

Immigrants seeking permanent residence in Australia are regulated through the Migration and Humanitarian programs (box C.1). New Zealand citizens entering Australia permanently do not enter as part of Australia's annual Migration Program, but are included in settler arrival and net overseas migration figures.[1]

Humanitarian Program

Australia's Humanitarian Program aims to provide protection to refugees and others in need of humanitarian assistance. In 2004-05, Humanitarian visas accounted for around 10 per cent of the permanent residence visas granted (excluding NZ settler arrivals) (box C.1). The program comprises an offshore and onshore component:

- The *Offshore* component, under which the majority of visas are granted, has two main categories:
  - The Refugee category assists people who are subject to persecution in their home country and have been identified in conjunction with the United Nations High Commissioner for Refugees as in need of resettlement.
  - The Special Humanitarian Program assists people who have suffered substantial discrimination amounting to a gross violation of human rights in their home country. The program enables the resettlement of persons in Australia, who, while not refugees, are in humanitarian need. People applying under the program must demonstrate some connection with Australia. Their applications must be supported by a formal proposal from a permanent resident or citizen of Australia or body operating in Australia.
- The *Onshore* component comprises Temporary Protection Visas (for people who arrive in Australia without a visa) and Permanent Protection Visas (for people who arrive in Australia on a temporary visa and fulfil other criteria).

Migration Program

The Migration Program has two main streams and a minor stream.

- *Skill stream*: migrants are selected on the basis of their ability to contribute to the Australian economy. Migrants must satisfy a points test that includes skills,

[1] The Trans-Tasman Travel Arrangement, introduced in 1973, allows Australian and NZ citizens to enter each other's country freely to visit, live, work and remain indefinitely without the need to apply formally for authority to enter the other country. At 30 June 2004, an estimated 445 000 NZ citizens were present in Australia — 254 000 (or 57 per cent) had been in Australia for 12 months or more (DIMIA 2005).

age, work experience and English language ability (box C.2). In 2004-05, the Skill stream accounted for around 65 per cent of visas granted under the Migration Program (box C.1).

Box C.2 **Skill stream — points test**

Under the Skill stream of the Migration Program, applicants are assessed using a points test that covers core criteria relating to skill, work experience, age and English language ability. Applicants must meet Australian standards for an occupation nominated from the Skilled Occupations List.[2]

Applicants gain points according to a number of characteristics. The Government sets the minimum points requirement, out of a maximum 145 points. There are different pass marks for different sub-classes of Skill stream visas. In 2005-06, the pass marks are set between 110 and 120 points (DIMIA 2005b).

The main characteristics are:

- Skills: points are awarded for occupations which require qualifications or specific training (maximum points available — 60)
- experience: years of employment in a particular occupation (maximum points available — 10)
- age: decreasing points are awarded as people move up the categories 18–29, 30–34, 35–39 and 40–44 (maximum points available — 30)
- English language skills — points are awarded on the basis on achievement in language tests (maximum points available — 20)
- Australian qualifications: points are awarded based on the nature of the qualification (maximum points available — 15)
- regional Australia: points are awarded for living and studying at least two years in certain regional areas of Australia (maximum points available — 5)
- occupation in demand: points are awarded where the nominated occupation is on the Migration Occupations in Demand List (MODL), with additional points for a job offer (maximum points available — 20)
- spouse skills: additional points are awarded if the applicant's spouse satisfies the minimum work experience, age and English language ability criteria (maximum points available — 5).

Source: DIMIA (2005b).

[2] The Skilled Occupations List is not the same as the Migration Occupations in Demand List (MODL). The Skill Occupations List (introduced in November 1996) 'lists' the occupational, educational and work experience details of skilled applicants from overseas. The number of people on the list has more than quadrupled in recent years with over 7000 people registered at the end of June 2004, in over 300 occupations (DIMIA 2005a).

- *Family stream*: accounting for around 35 per cent of visas granted under the Migration Program, recognises the value and importance of family migration to Australia's social and economic goals (box C.1). Migrants are selected on the basis of their family relationship to a sponsor (who is an Australian citizen, permanent resident or eligible NZ citizen) in Australia.
- *Special Eligibility (minor stream)*: former Australian residents who have maintained ties with Australia.

Some components of the Migration Program are demand driven, while others are subject to capping (table C.1). Components of the Migration Program that are demand driven and not subject to capping include:

- State-Specific and Regional Migration
- Business Skills
- Employer Nominated categories
- Distinguished Talent
- Spouses
- Dependent Children.

Increases in demand for the above mentioned visa categories beyond planned levels are offset by reductions in other components of the Migration Program — such as Skilled Independent, Skilled Australian Sponsored, Fiances, Interdependents, Preferential/Other Family and Special Eligibility.

Table C.1 **Management structure — Migration Program**

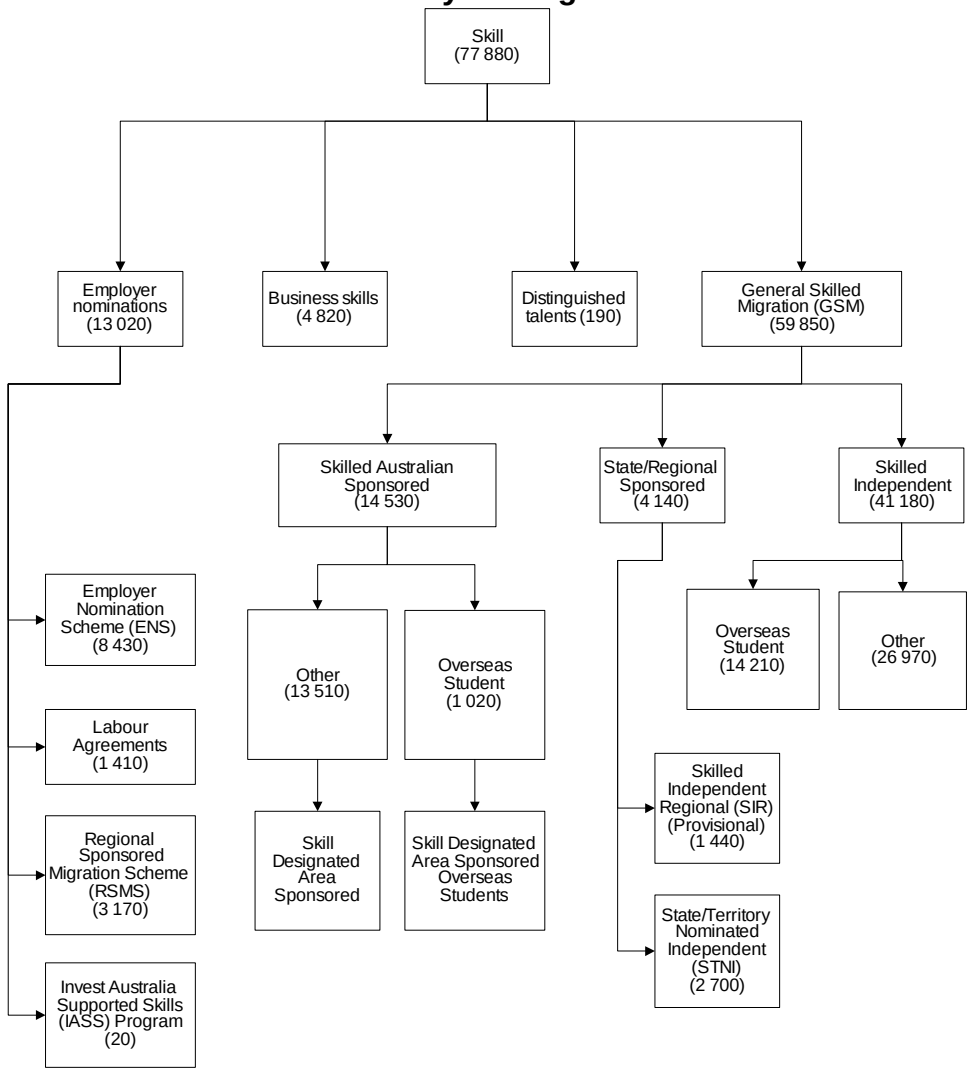
Skill	*Family*	*Special eligibility*
1. Business Skills, Employer Nominated Scheme, Distinguished Talent, and State-Specific and Regional Migration • Demand driven and not subject to capping. 2. Skilled Independent and Skilled Australian Sponsored • Planning level adjusted subject to demand in Business Skills, Employer Nominated Scheme, and State-Specific and Regional Migration categories.	1. Spouses and Dependent Children • Demand driven and not subject to capping. 2. Fiances and Interdependents • May be capped subject to demand for Spouse and Dependent child visas issued. 3. Parents and other Preferential/Other Family • May be capped subject to demand for Spouse and Dependent Child visas issued.	1. May be capped subject to demand for other demand driven visas that are not capped.

Source: Adapted from DIMIA (2005g).

Skill stream

The Skill stream of the Migration Program targets migrants who have skills or outstanding abilities that will contribute to the Australian economy. Visas for most components of the Skill stream can be granted to offshore or onshore applicants. The Skill stream share of the total Migration Program has generally been increasing since around the late 1990s — and more so since 2002-03.

Box C.3 **Skill stream visas by visas granted in 2004-05**



Source: DIMIA (2005b) and DIMIA unpublished.

This stream consists of a number of categories for prospective migrants where there is demand in Australia for their particular occupational skills, outstanding talents or business skills. Some of the visa classes and sub-classes within the Skill stream are capped. In 2004-05, around 77 per cent of the visas granted under the Skill stream

were for the General Skilled Migration (GSM) category — driven mainly by the Skilled Independent visa category (which accounts for 69 per cent of the visas granted under the GSM) (box C.3).[3]

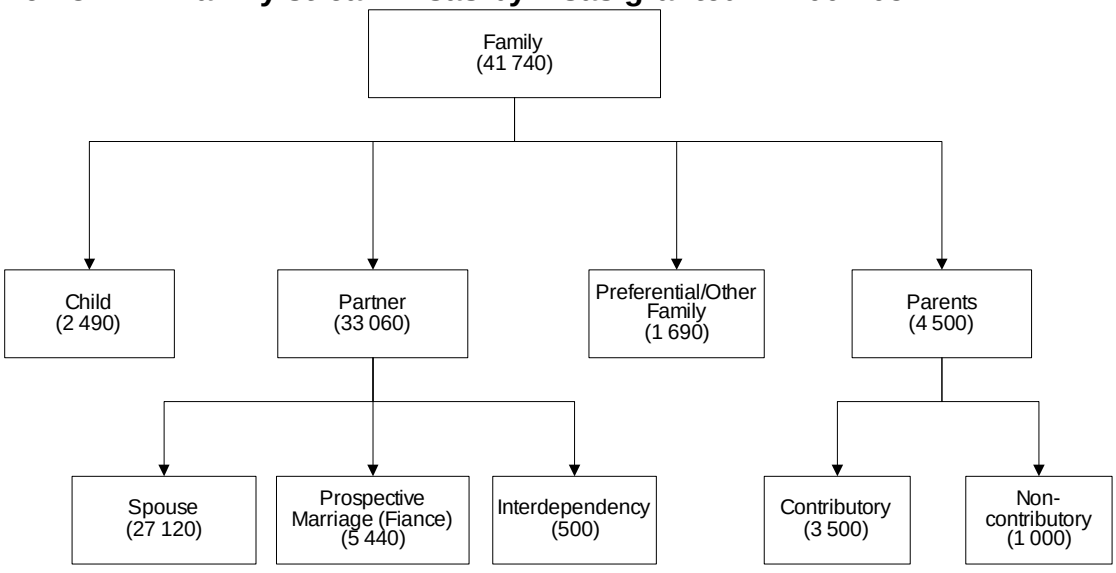
The main visa categories of the Skill stream are listed in box C.3 and the definitions of these categories are included in table C.5.

Family stream

The Family stream of the Migration Program enables the migration of immediate family members such as spouses, fiances, dependent children, parents and certain other members of extended families.

Unlike the Skill stream, there is no test for skills or language ability in the Family stream. Limited places are available for parents and certain other family members. The number of Family stream visa grants has increased since 1996-97, but its share of the total Migration Program has decreased. The main visa categories of the Family stream are listed in box C.4 and the definitions of these categories are included in table C.5.

Box C.4 **Family stream visas by visas granted in 2004-05**



Source: DIMIA (2005b) and DIMIA unpublished.

[3] The description of these visa class and subclasses are provided in Section C.5, table C.6.

Key changes to the Migration Program

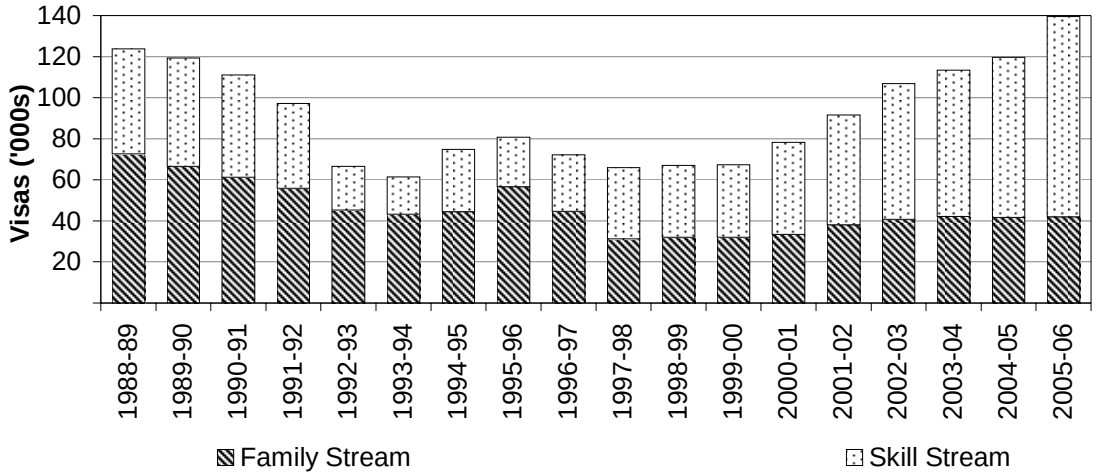
In recent years, there has been greater government intervention to shape the content of the Migration Program intake and to ensure enhanced labour market performance of Australia's immigrants.

The first major change has been the shifting of the balance of the Migration Program towards skilled migration. In 1998-99 the Skill stream accounted for around 40 per cent and the Family stream accounted for around 60 per cent of the visas granted under the Migration Program. In 2005-06, the planned number of visas is around 70 per cent and 30 per cent for the Skill and Family streams respectively (figure C.1) This shift has had a number of elements.

- In 1997, the composition of the Family and Skill streams changed when the points-tested concessional family category shifted from the Family Stream to the Skill stream and was renamed Skilled-Australian Linked (and later Skilled-Australian Sponsored). This shift represented a change in emphasis from the family reunion aspect to the labour market aspect of this migration flow (DIMIA 1999).
- Over time, the total intake of skilled immigrants has increased, with annual intake targets specifically allocating additional places for Skill stream applicants (see, for example, Vanstone 2005).
- In July 1999, the points test for the Skill stream (for GSM visas in particular) was strengthened to ensure the selection of highly skilled migrants. Applicants must meet core criteria for skill, work experience, age (under 45 at time of application), English language ability and pass a points test. The points-test recognises a range of skill-related factors (box C.2).
- Onshore applications, introduced on 1 July 2001, enable students who have recently completed their studies in Australia to be granted a GSM visa without the need to leave Australia at the end of their studies. Applicants with Australian qualifications who apply within six months of course completion are exempt from the recent work experience requirement.
- In July 2003, the study-qualifying period (at an education provider in Australia) for the purposes of the work experience exemption was increased from one to two years. On the basis of at least two years of Australian study, applicants with an Australian qualification (degree, diploma, trade certificate) are awarded five points. Applicants with an Australian Masters or honours degree completed following an Australian undergraduate degree are awarded 10 points. Applicants with an Australian PhD obtained after at least two consecutive study years in Australia are awarded 15 points. A further five points is available if the two

years study was at a campus in regional Australia or a low population growth metropolitan centre.

Figure C.1 **Permanent visas granted for the Migration Program: 1988-89 to 2005-06 (planned upper limit)[a, b]**



a The 2005-06 data reflect the 'upper limit' planned levels. The total visas planned for the Migration Program in 2005-06 range from 130 000 to 140 000, but in this chart the percentages are calculated against 140 000. **b** Migration Program numbers do not include NZ citizens or holders of Secondary Movement Offshore Entry (Temporary), Secondary Movement Relocation (Temporary) and Temporary Protection Visas. Numbers have been rounded and totals may not be the exact sum of components.

Source: DIMIA (2005g) and DIMIA unpublished

A second major change has been the imposition on Family and Skilled stream immigrants of a two-year waiting period for a range of social security payments (DPL 1996). This implicitly favours unsponsored immigrants who have a greater chance of labour market success.

Finally, there has been an increase in the regional focus of Australia's immigration policy in recent years with a number of state specific and regional migration initiatives introduced (Ruddock 2003a). One type of initiative enables employers, State and Territory governments or relatives to sponsor prospective skilled migrants and/or prospective business owners to regional areas. In April 2005, additional points were made available for state/regional sponsorship (Vanstone 2005a). Further, an increased use of labour agreements is being encouraged to enable peak industries to fill regional labour shortages (Ruddock 2003a, Attachment 3). Another initiative of note is the skill matching database designed to link skilled applicants — who meet threshold criteria for English language, age and skills, and who are willing to settle in areas where their occupational skills are in demand — with certain regions (DIMIA 2005a).

In summary, the emphasis of the Migration Program has moved very much towards attracting skilled migrants to Australia. It has also been focused on improving the labour market outcomes for new migrants and on addressing labour market shortages in specific occupations and regions of Australia. A high degree of flexibility within the Migration Program policy parameters (such as the sub-categories and points test) has enabled the policy to adapt to the changing needs of the Australian labour market.

Temporary immigration

Australia's temporary entry program allows people from overseas to come to Australia on a temporary basis for specific purposes that result in some benefit to Australia. Temporary entrants:

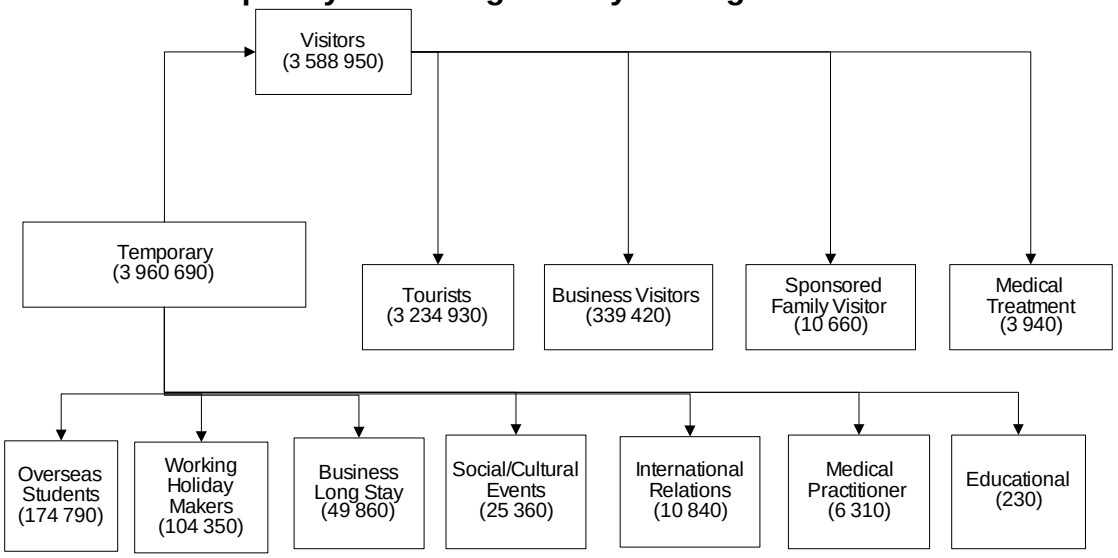
- are required to pay taxes on any income earned in Australia
- do not generally have access to social welfare or health care benefits
- must meet Australia's health and character requirements.

There are several different categories of temporary entry, which have evolved over time, although there is no overall ceiling on Australia's temporary inflow. The duration of stay in Australia allowed under the different temporary entry categories varies, depending on the category subclass. It can range from as short as three months (tourist and short-stay business visas) to four years (some student and long-stay business visas). At the broad level, the temporary visa classes and subclasses are listed in box C.5.

Currently, there are five main groups of temporary entrants.

1. *Visitors*: visas are granted mostly to tourists and some short-term business entrants (generally allowed to be in Australia for a three-month period) (over 3.5 million visas are currently granted annually in this category).
2. *Overseas students*: visas are granted to non-Australian citizens or Australian permanent residents to study in Australia (generally as full-fee paying students) in full-time accredited and registered courses. A visa is generally granted for the duration of the study. The visas granted have increased from 39 500 visa grants in 1991-92 to 174 800 grants in 2004-05, partly due to the Government's decision in the late 1990s to allow successful overseas students to apply for GSM from within Australia and from offshore.
3. *Working holiday makers*: visas are granted to people between the ages of 18 and 30 from the 18 countries with which Australia has a reciprocal arrangement (working rights are limited and there is a maximum stay of 12 months).

Box C.5 **Temporary visa categories by visas granted in 2004-05**



Source: DIMIA (2005b) and DIMIA unpublished

4. *Business entrants*: there are two types of temporary business entrants issued with different visa types:
    a. *Business visitor visa (short stay)*: People whose primary purpose for making a short trip to Australia is business related.
    b. *Business visitor visa (long stay, subclass 457)*: People recruited by Australian or overseas companies as skilled personnel enter as temporary business residents for periods of up to four years. This form of temporary entry enables businesses to sponsor skilled people to fill positions that cannot readily be filled locally and to introduce new technology.
5. Others: various visa types are granted to people who to come to Australia for a variety of social, cultural, economic and international relations purposes.

Recent policy changes

There are three significant groups of recent policy changes that impact on the nature of Australia's temporary immigration and are relevant for this study:

- an expansion of working rights under the temporary migration scheme
- an increased regional focus in the allocation of temporary visas
- increased flexibility to move from temporary to permanent residency.

Each of these policy changes is discussed below.

Working rights

A key change to Australia's migration policy in recent years is the expansion of categories of temporary immigration with working rights. Hugo (2004) recently noted that historically Australia has had a strongly expressed opposition to attracting temporary and contract workers. However, this has changed in recent times, owing to the changing nature of international population movements (appendix B). Australia has a clear policy statement about the benefits of temporary immigration:

> Temporary residents bring new ideas, contacts, understanding, skills and technology and enable Australia to remain competitive — the key to further economic prosperity. Australia benefits from the energy, skills, commitment and diversity which temporary residents have brought to Australia and the contribution they make to the economy through spending and investment. (DIMIA 2005a)

There are several components of the changing policy attitude to temporary immigrant working rights, including:

- The introduction of the temporary business entry category of immigration in 1996 — following an inquiry into Business Temporary Entry. The inquiry was in response to concerns expressed by various groups that existing immigration procedures were too complex for bringing skilled people to Australia for temporary periods (Roach 1995, p. 1). It noted the need to change the temporary skilled and business policy in line with the changing economic environment, including worldwide globalisation of economies and internationalisation of the Australian economy (Roach 1995). There are both short-term and long-term visas available under the temporary business category. The latter allows businesses, unable to meet their skill needs from within the Australian labour force, to sponsor skilled workers from overseas on a temporary basis to work in Australia for up to four years (DIMIA 2005a).
- Allowing international students to apply for working visas. The policy provides that applications can be made after international students arrive in Australia and have begun their course of study. Work rights are limited to 20 hours work per week while their Australian education provider is in session; but they may work full-time during holiday periods (Patterson 2000).
- Places under the working holiday maker scheme have increased (Abbott and Ruddock 2002). The Working Holiday Maker program is designed to fill labour shortages in specific areas where seasonal workers are needed (such as agriculture and hospitality). Working holiday makers are permitted to do any kind of work, but it must be of a temporary or casual nature, and employment for longer than three months with any one employer is not allowed (DIMIA 2005e).

Recent statements indicate the high value the Government places on this part of migration policy:

> Latest figures show that Australia's Working Holiday Maker program continues to be a huge success … [It] … has economic benefits because it provides labour for Australian industries needing short-term casual workers, particularly in regional Australia. (Vanstone 2005b)

Regional initiatives

Another area of Australia's temporary entry policy is recent initiatives to influence where temporary immigrants reside and work, especially to address labour shortages in particular regions:

- From 1 July 2004, the Government introduced a new temporary category for those who apply for permanent residency and fall just short of the points needed under the Skill stream. The new two-stage category — called Skilled Independent Regional — allows people to have a three-year visa provided they commit to live and work in regional Australia (DIMIA 2005a). State and Territory governments and families can sponsor skilled migrants under these concessional arrangements (Vanstone 2005a).
- Under the temporary business entrant program, special arrangements were introduced in 2002 for employers in regional Australia (DIMIA 2005a). They include departmental officials working closely with state, regional and local bodies to address needs of local labour markets and conditions in rural and regional areas (Ruddock 2002) and a potential waiver of the skill and salary threshold requirements of this category (Ruddock 2003a).
- Overseas students are encouraged to study in regional areas through initiatives that make it easier for students to gain permanent residency if they have lived and studied in a regional area. (This is discussed in more detail in the next section.)
- A pilot program was introduced in 2005 to allow overseas students to undertake traditional trade apprenticeships in regional Australia on a full fee paying basis, and, on completion, to apply for migration under one of the regional visas (Vanstone 2005a).
- Working holiday makers who do a minimum of three months seasonal harvest work in regional Australia are eligible to apply for another working holiday visa (DIMIA 2005a).

Moving from temporary to permanent residency

Often Australia's temporary migrants make good candidates for permanent migration. They build up Australian work experience and people from non-English speaking countries will improve their English language comprehension. To this end, the Government has introduced mechanisms to encourage temporary migrants to apply for permanent residency under the Migration Program.

- On 1 July 2001, successful Australian-educated overseas students with qualifications in high demand became eligible to apply for, and be granted, permanent residency under the Skilled-Independent and Skilled-Australian Sponsored categories without leaving Australia. This initiative built upon previous measures designed to retain successful overseas students, including waiving work experience requirements for those who have obtained Australian qualifications in the six months prior to lodging their visa applications and giving bonus points to applicants with Australian qualifications (Ruddock and Alston 2001, Attachment).
- There is also a regional element to the overseas student concessions. Under the Skill stream, additional points are awarded where overseas students have lived and studied in regional areas for at least two years (Ruddock 2003a; Attachment 3).
- More recently, policy changes enable working holiday makers to obtain a Skilled Independent Regional visa without leaving Australia (Vanstone 2005a). The Skilled Independent Regional visa, whilst still temporary in nature, is the first of a two-stage process to obtain permanent residency.
- In 2003, a two-stage process for the Business Skills categories was also introduced. A temporary business visa is initially granted, followed by a permanent residence visa once a business is fully established. Immediate permanent residence is only available for high calibre business migrants who have State/Territory Government support (Ruddock 2003a; Attachment 3).
- Finally, onshore asylum seekers are granted temporary protection visas on arrival and after three years might be eligible to apply for permanent residency (DIMIA 2004).

C.2 Migrant flows to Australia

There are two sources of data for migrant flows to Australia:

- DIMIA has comprehensive information on visas granted and visaed entries to Australia

- DIMIA maintains Overseas Arrivals and Departures data, which describes the arrival and departure of Australian residents or overseas visitors, through Australian airports and sea ports, as recorded on incoming or outgoing passenger cards.

In section C.2, DIMIA information on issued visas and visaed entries was considered. In the second part of section C.2, ABS data on Overseas Arrivals and Departures is used to provide insight into migrant flows to Australia.

Immigration data

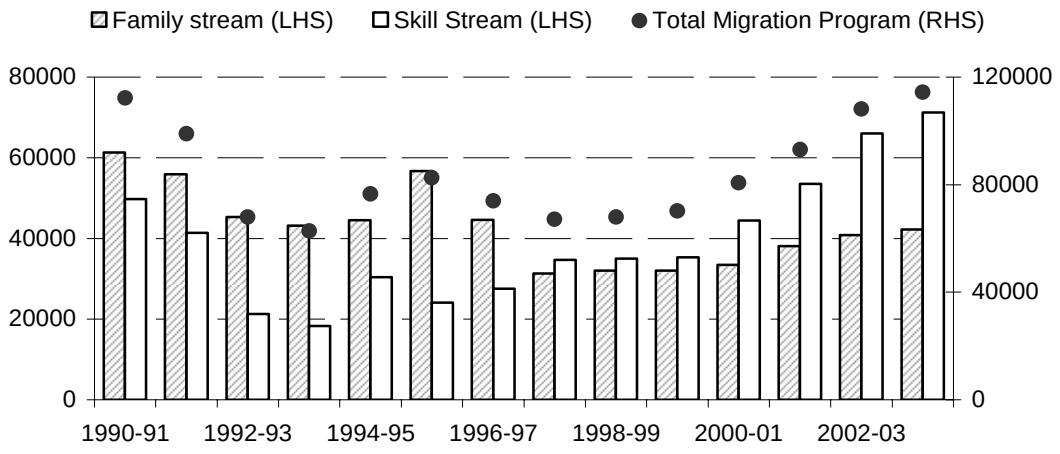
Snapshot of current intake

A summary of Australia's migration flows for 2003-04 was presented in figure C.1. Each of the permanent and temporary categories of migration are discussed in further detail in the sections that follow.

Permanent immigration over time

Over time, the flows of immigrants to Australia, in terms of permanent residency visa categories, reflect the policy elements and changes discussed in section C.1. Figure C.2 shows the increase in the number of migrants under the Skill stream and the stabilisation of Family stream immigrants in recent years. The fluctuation in the annual intake target is also evident in figure C.2.

Figure C.2 **Australia's Migration Program intake, 1990–2004[a]**



a There is no column for Special Eligibility places (less than 1000 per annum). Total intake figures (on RHS axis) include Special Eligibility places.

Source: DIMIA, *Population flows: Immigration Aspects*, various years.

Table C.2 **Skill stream category outcomes**

Category	*1995-96*	*1996-97*	*1997-98*	*1998-99*	*1999-00*	*2000-01*[a]	*2001-02*[a]	*2002-03*[a]	*2003-04*[a]	*2004-05*[a]	*2005-06*[a]
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
Employer Sponsored[b]	4 640	5 560	5 960	5 750	5 400	7 510	9 560	10 540	10 400	13 020	15 000
Skilled Independent[c]	10 600	15 000	13 250	13 470	15 600	22 380	29 880	38 120	38 720	41 180	49 200
State/Regional Sponsored[d]	—	—	—	—	—	—	—	—	1 630	4 140	10 000
Skilled Australian Sponsored[e]		—	9 540	9 310	7 900	7 200	6 250	10 470	14 590	14 530	17 700
Distinguished Talent	200	190	180	210	110	230	210	180	230	190	200
Business Skills[f]	4 900	5 820	5 360	6 080	6 260	7 360	7 590	6 740	5 670	4 820	5 400
1 November Onshore	3 800	980	370	180	60	60	20	20	10	—	—
Total Skill	24 100	27 550	34 670	35 000	35 330	44 730	53 520	66 050	71 240	77 880	97 500
Proportion of total Migration Program	29.2	37.3	51.7	51.5	50.3	55.5	57.5	61.1	62.3	64.9	69.6

[a] Migration Program numbers do not include New Zealand citizens or holders of Secondary Movement Offshore Entry (Temporary), Secondary Movement Relocation (Temporary) and Temporary Protection Visas. Numbers have been rounded and totals may not be the exact sum of components. [b] Includes Employer Nomination Scheme, Labour Agreement, Regional Sponsored Migration Scheme. [c] Pre-1 July 1999, this category was known as Independent. [d] Includes State/Territory Nominated Independent Scheme and Skilled Independent Regional. [e] Includes brothers, sisters, nieces, nephews, non-dependent children, working age parents, grandchildren and first cousins who have been skill tested. [f] Net outcome as cancelled visas are returned to the Migration Program in that year.

Source: DIMIA unpublished.

Table C.2 provides greater detail on the Skill stream component of the Migration Program.

Temporary entry

The changes in the temporary immigration policy are clearly reflected in table C.3, which shows that the scale of temporary migration to Australia has increased dramatically in the last ten years. The biggest increase occurred in 1995-96, when over 300 000 temporary visas (excluding visitor visas) were granted, an increase of around 233 per cent from the previous year. This was largely attributable to the introduction of the temporary business entrant category, however, working holiday makers and students have also grown considerably.

Table C.3 **Temporary visas granted**

	Overseas students	*Working Holiday Makers*	*Temporary Business Entrants*	***Total***
1986-87	20 100	20 000		**40 100**
1987-88	38 000	32 000		**70 000**
1988-89	48 500	45 136		**93 636**
1989-90	64 500	41 538		**106 038**
1990-91	36 000	39 923		**75 923**
1991-92	35 000	25 873		**60 873**
1992-93	35 000	25 557		**60 557**
1993-94	41 500	29 595		**71 095**
1994-95	52 506	38 861		**91 367**
1995-96	63 073	42 685	197 941	**303 699**
1996-97	68 611	52 748	314 074	**435 433**
1997-98	63 574	57 004	249 373	**369 951**
1998-99	110 894	64 973	243 225	**419 092**
1999-00	120 564	74 467	271 091	**466 122**
2000-01	146 565	76 576	300 000	**523 141**
2001-02	151 885	85 207	300 000	**537 092**
2002-03	162 575	88 758	292 184	**543 517**
2003-04	171 616	93 760	338 963	**604 339**
2004-05	174 790	104 353	389 280	**668 423**

Source: DIMIA (unpublished).

At the end of June 2004, there were an estimated 590 566 temporary visa holders in Australia (DIMIA 2005a, p. 51). This is approximately 3 per cent of the Australian estimated resident population.

In terms of working rights, table C.3 shows that nearly 70 per cent of the stock of Australia's temporary immigration population has working rights of some kind or another. This is higher than that recorded in 1998, when important policy changes were new or yet to take place.

Table C.4 **Estimated stock of temporary entrants in Australia by main visa category**

Visa category/class	*30 June 1998*		*30 June 2002*	
With work rights	No (000s)	Per cent	No (000s)	Per cent
Student	100.6	23.9	154.0	27.5
Working Holiday Maker	35.2	8.4	48.2	8.6
Business (long stay)	31.6	7.5	55.0	9.8
Business (short stay)	7.6	1.8	12.4	2.2
All others	28.4	6.7	105.4	18.8
Subtotal — work rights	203.4	48.3	375.0	66.9
No work rights	217.6	51.7	184.9	33.0
Total	**421.0**	**100.0**	**560.2**	**100.0**

a 1998 figures based on Kinnaird (1999), 2002 figures based on Hugo et al. (2001).

Source: Kinnaird (1999); Hugo et al. (2001).

Moving from temporary to permanent residency

In section C.1, a recent policy change identified was the increased flexibility for immigrants to change their status from temporary to permanent residency. The data on the number of 'onshore' applications for permanent residency allow us to gauge the extent to which this policy change is having an impact.

In 2003-04, under the Migration Program over 36 000 visas were granted for permanent residence to people already in Australia (DIMIA 2005a, p. 29). This means that three out of every ten 'settlers' to Australia are 'onshore' immigrants already in Australia under a temporary residence visa at the time they obtain permanent residency. The breakdown of people in the onshore category shows that overseas students account for more than one third of people successfully changing from temporary to permanent residency (DIMIA 2005a).

Movements database

In addition to information on visa entry to Australia, the Australian Government collects information on overseas arrivals and departures, which records all movements into Australia based on a passenger arrival card system. Information is

collected from all arrivals, who are categorised as either short-term, long-term or permanent based on their stated intention (box C.6).

Box C.6 **Overseas Arrivals and Departures data**

Overseas Arrivals and Departures data is a compilation of data derived from the arrival and departure cards filled out by all people entering and leaving Australia. It describes the *number of movements of travellers* rather than the *number of travellers*.

The Overseas Arrivals and Departures system collects information on the following variables: citizenship, birthplace, birthdate, gender, occupation, marital status, type of movement, origin/destination, reason, address in Australia.

The movements data base categorises arrivals and departures into three types of international population movement:

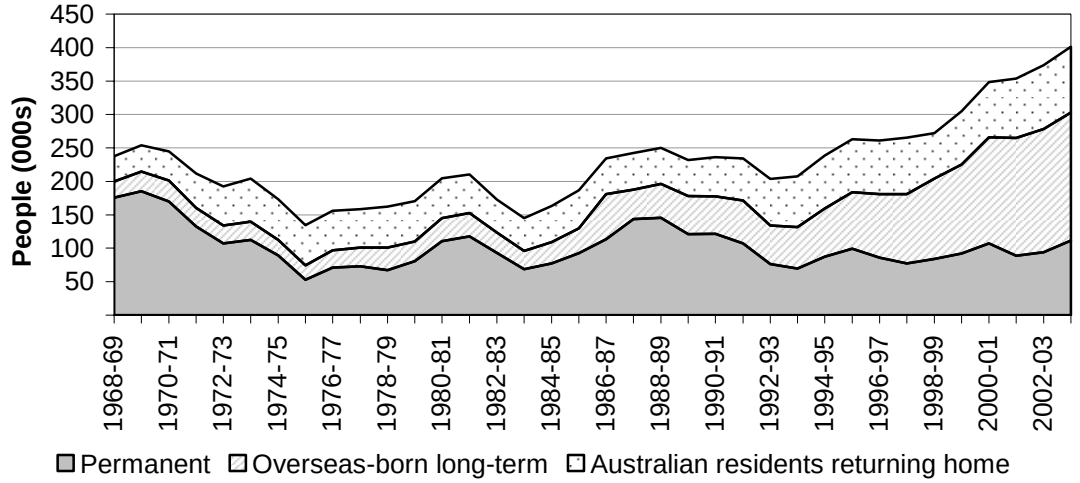
- *Permanent movement*: Persons migrating to Australia and residents departing permanently.
- *Long-term movement*: Visitors arriving and residents departing temporarily with the intention to stay in Australia or abroad for 12 months or more, and the departure of visitors and the return of residents who had stayed in Australia or abroad for 12 months or more.
- *Short-term movement*: Travellers whose intended or actually stay in Australia or abroad for less than 12 months.

Source: DIMIA (2005d).

Overseas Arrivals data do not reconcile exactly with visa arrivals for several reasons. First, Overseas Arrivals and Departures data records the number of movements of travellers rather than the number of travellers. Therefore, multiple entries by one person will be recorded in the data. Second, NZ citizens and certain other people do not need a visa to enter Australia, but still fill in passenger arrival cards, and some people apply onshore for renewal of temporary visas or for permanent residency.

Nevertheless, the immigrant arrival data in the Overseas Arrivals and Departures data reveal trends similar to those evident in the visa information (figure C.3). Permanent arrivals traditionally constituted the larger share of permanent and long-term arrivals, however long-term arrivals have increased significantly in the last 10 years. As a result, although permanent arrivals remain the dominant share of arrivals, they are now the smaller share. Information on the characteristics of immigrants within the different categories is discussed in appendix D.

Figure C.3 **Permanent and long-term arrivals[a]**
1969–2004



a Long-term arrivals are sub-divided into overseas-born people who intend to stay in Australia for more than 12 months and Australian residents returning home who have been abroad for more than 12 months.

Source: Hugo (2004); ABS, *Overseas Arrivals and Departures*, Cat. no. 3401.0 unpublished.

C.3 Migrant flows from Australia

In addition to large migration flows to Australia each year, there is a significant flow of people migrating from Australia (emigration). Australia has comprehensive data on emigration flows as a result of the Overseas Arrivals and Departures data (box C.6). All departures are recorded as short-term, long-term or permanent depending on the traveller's stated intention (box C.6).

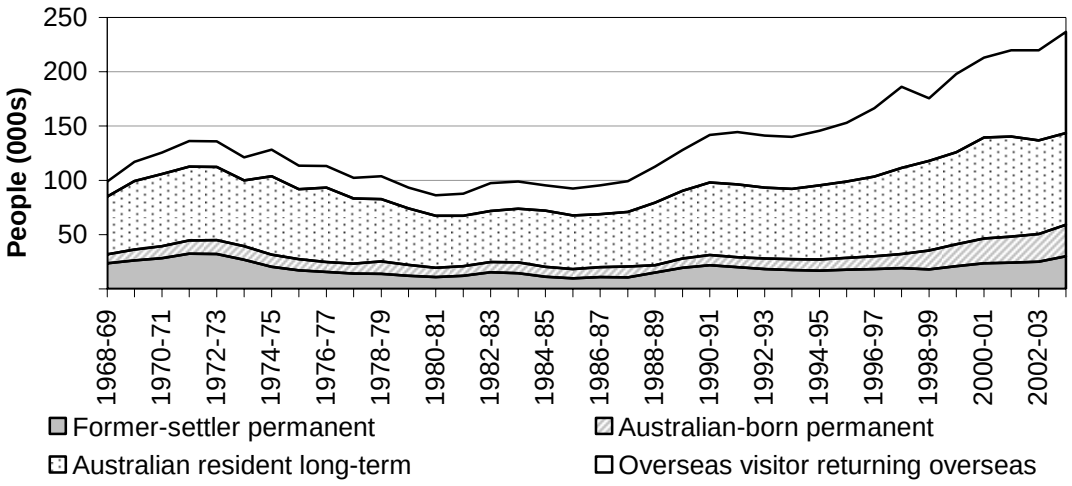
Overall, movement from Australia on a permanent or long-term basis has been trending up in recent decades. Permanent and long-term departures both reached their highest levels in 2003-04 (figure C.4).

A key distinction in permanent emigration from Australia is between former settlers leaving Australia to return to their home country, or moving to a third country, and Australian-born persons. Similarly, long-term emigration from Australia is Australian residents going overseas and temporary immigrants returning to their home country or a third country.

In the 1990s, there were significant increases in both the Australian components of permanent and long-term emigration. Permanent departures increased by 146 per cent and long-term departures by 41 per cent (Hugo et al 2003, pp. 10–11). As a percentage of the Australian population, this represented a change from

0.4 per cent to 0.6 per cent of the population. It has been suggested that these figures underestimate the outflow to the extent that some Australians are effectively living and working overseas, but return to Australia at least once a year, and are therefore recorded in the movements data base as 'short-term' departures (Hugo et al 2003).

Figure C.4 **Permanent and long-term departures**
1969–2004



Source: Hugo (2004a).

Possible policy drivers

While emigration is not, at least directly, regulated by government policy, some recent policy changes can be connected to the emerging emigration trends:

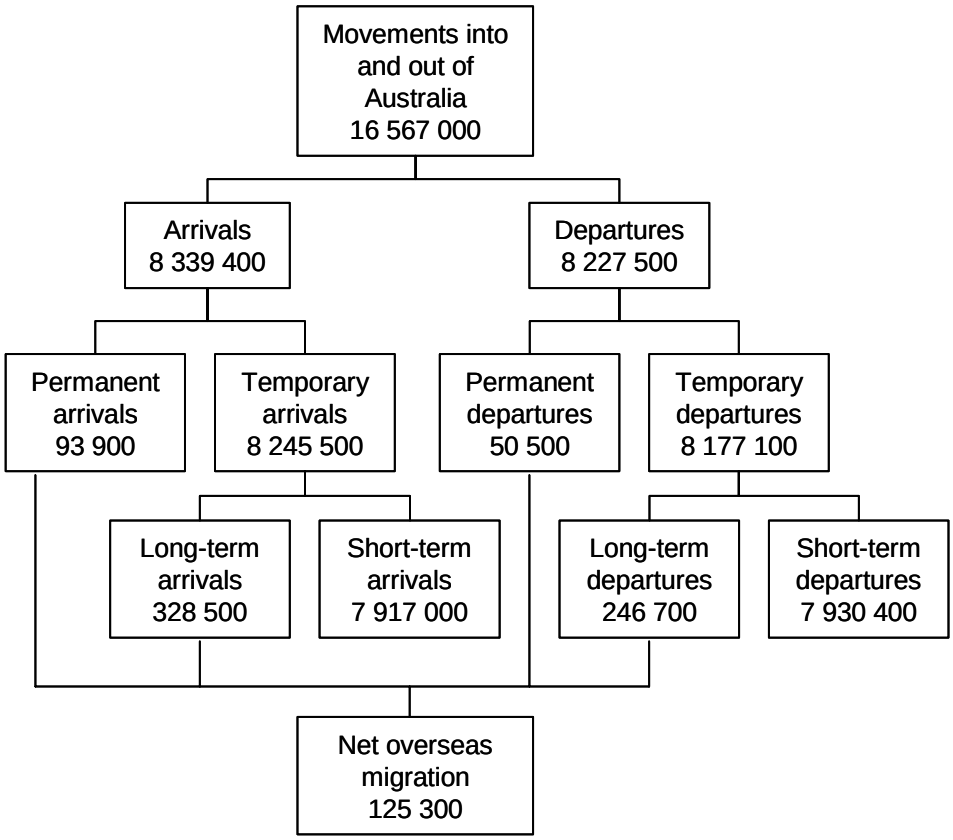
- It is possible that the recent change in Australia's immigration policy of attracting more highly skilled immigrants might impact on Australia's emigration flows. The issue here is that previous research has identified that settlers are more likely to emigrate where they entered Australia under an 'economic' category (Hugo 1994). Hugo et al (2003) make the point that with the increasing focus on economic criteria for selection in the Australian immigration program, it is likely that the extent of settler loss will increase.
- In terms of temporary flows, migration policy changes in Australia are similar to those happening on a global scale (appendix B) and might support the temporary emigration of Australian residents. Australia's reciprocal working holiday maker program with 18 countries, for example, facilitates young Australians emigrating to work overseas on a temporary basis. Increasing flexibility to attract temporary

workers to Australia is matched by other countries migration policies, giving more scope to Australians to obtain working rights overseas.

C.4 Net migration and population size

For Australia, net inflows of migrants have always been an important contributor to Australia's population growth. In turn, net inflows have strongly influenced population *numbers* in Australia. Almost one quarter of the Australian population was born overseas. This section of appendix C considers net overseas migration in detail and then looks at its contribution to population growth and size.

Figure C.5 **Components of net overseas migration, 2002-03**



a This has been adjusted for category jumping according to the ABS's new 'adjustment' methodology.

Source: ABS (2004b).

Net overseas migration

Net overseas migration, at the simplest level, is the excess of permanent and long-term immigration over permanent and long-term emigration. The classification of

migrants as permanent or long-term depends on their stated intention on passenger arrival and departure cards (box C.6). Figure C.5 demonstrates how the different arrivals and departures contribute to net overseas migration calculations.

The measurement of net overseas migration is made more complex, however, because the intentions of movers may change over time so that there is significant 'category jumping' and because individual travellers might be counted multiple times. Attempts have been made to adjust net overseas migration figures, however, there is some debate in the literature about the best methodology (box C.7).

Box C.7 **Difficulties in measuring net overseas migration**

Net overseas migration, as currently defined in the ABS statistics, consists of: (1) net permanent migration — new permanent settler arrivals in Australia, minus permanent departures of Australian permanent residents; (2) net long-term migration — arrivals minus departures of Australian permanent residents who were absent for more than one year, plus arrivals minus departures of visitors staying in Australia for one year or more; and (3) 'migration adjustment' accounting for changes to travel intentions from short term to permanent or long term and vice versa (termed 'category jumping') and for double counting of certain movements.

Measurement of net overseas migration is controversial, with different 'adjustment' methodologies employed at various times. The ABS suspended adjustments to net overseas migration from September 1997, but has re-introduced them recently. Apart from the adjustment for differences between intended and actual duration of stay (category jumping), the new ABS net overseas migration adjustment also includes an element of adjustment for people being added to or taken out of the estimated resident population many times in the same quarter. The revised net overseas migration estimate is approximately 111 000 for 2001-02, down from the previously published net overseas migration of 134 000 (ABS 2004b, p. 63)

Some of Australia's leading demographers consider that even this large downward adjustment made by the ABS for 2001-02 may be too small (McDonald, Khoo and Kippen 2003). An alternative approach — the 'stock' method[1] — yields an estimate of net overseas migration of 96 000 for 2001-02, about 14 000 below the ABS's revised estimate and about 38 000 below the previously published ABS figure. While the stock method also has limitations, these results highlight some of the difficulties in measuring present levels of net overseas migration. The ABS acknowledges the need to continue developing new approaches (ABS 2004 Technical Note).

[1] The stock method defines Net Overseas Migration as follows: NOM = (net permanent and long-term movement of Australian residents) + (the change in the stock of persons on long-term temporary visas) + (conversions onshore to permanent residence) + (newly issued temporary protection visas) + (the change in the stock of New Zealanders staying in Australia on a long-term basis).

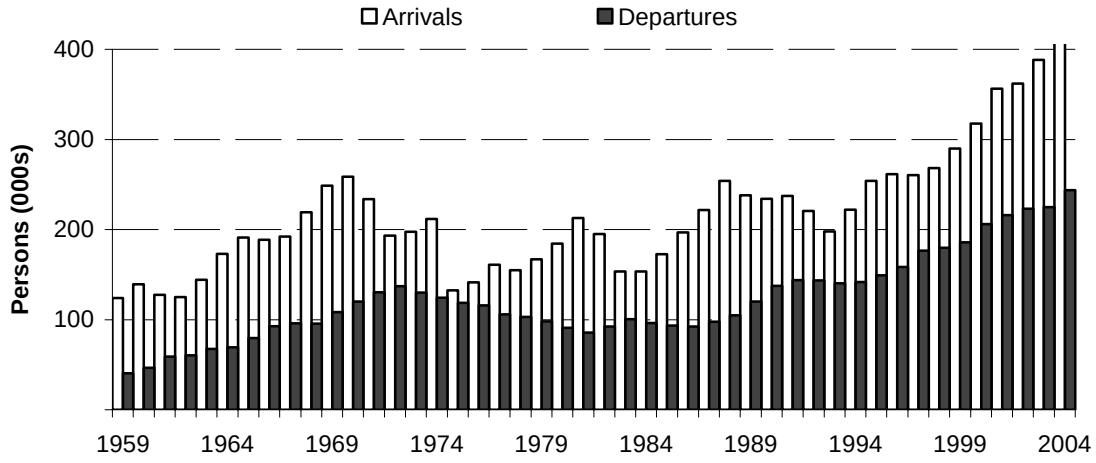
Source: ABS (2004a); ABS (2004b); Chapter 5.

Over time, net overseas migration has varied considerably (figure C.6). The net overseas migration peak of 168 890 people was recorded in 2004 (although this

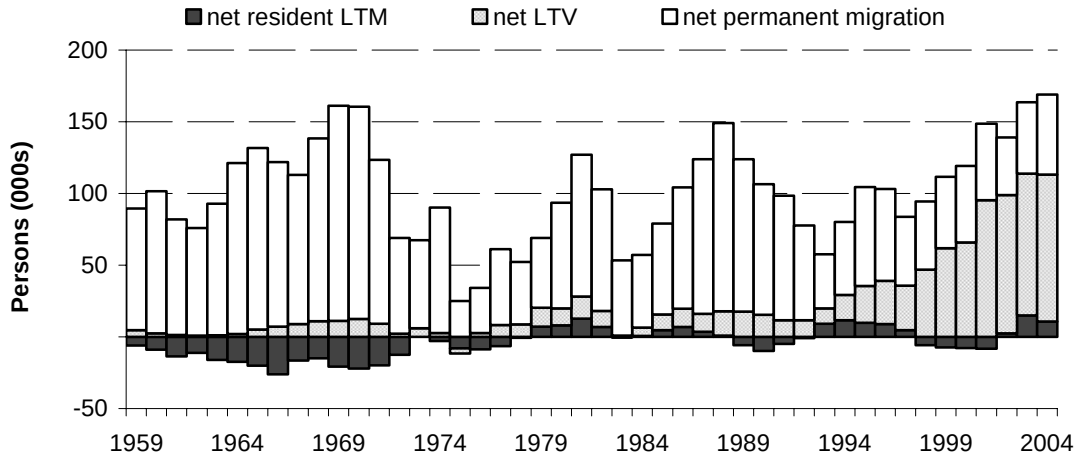
figure does not include any adjustment for category jumping or multiple movement), and a low of 13 515 people for the year ending 1975 (once again, with no adjustment for category jumping or multiple movement). The average annual level of net overseas migration 1959–2003 was approximately 93 000 people.

Figure C.6 **Immigration, emigration and net overseas migration**
1959–2004 (calendar years)

(a) Australia's immigration and emigration



(b) Australia's net overseas migration[a, b]



a These net overseas migration figures have been calculated as the excess of permanent and long-term immigration over permanent and long-term emigration. No adjustment has been made for category jumping. **b** LTV denotes long-term visitors and LTM denotes long-term migration.

Source: ABS *Australian Historical Population Statistics*, Cat. No. 3105.0.65.001 unpublished ; ABS, *Overseas Arrivals and Departures*, Cat. no. 3401.0 unpublished.

There are some interesting observations about the nature of net overseas migration over time:

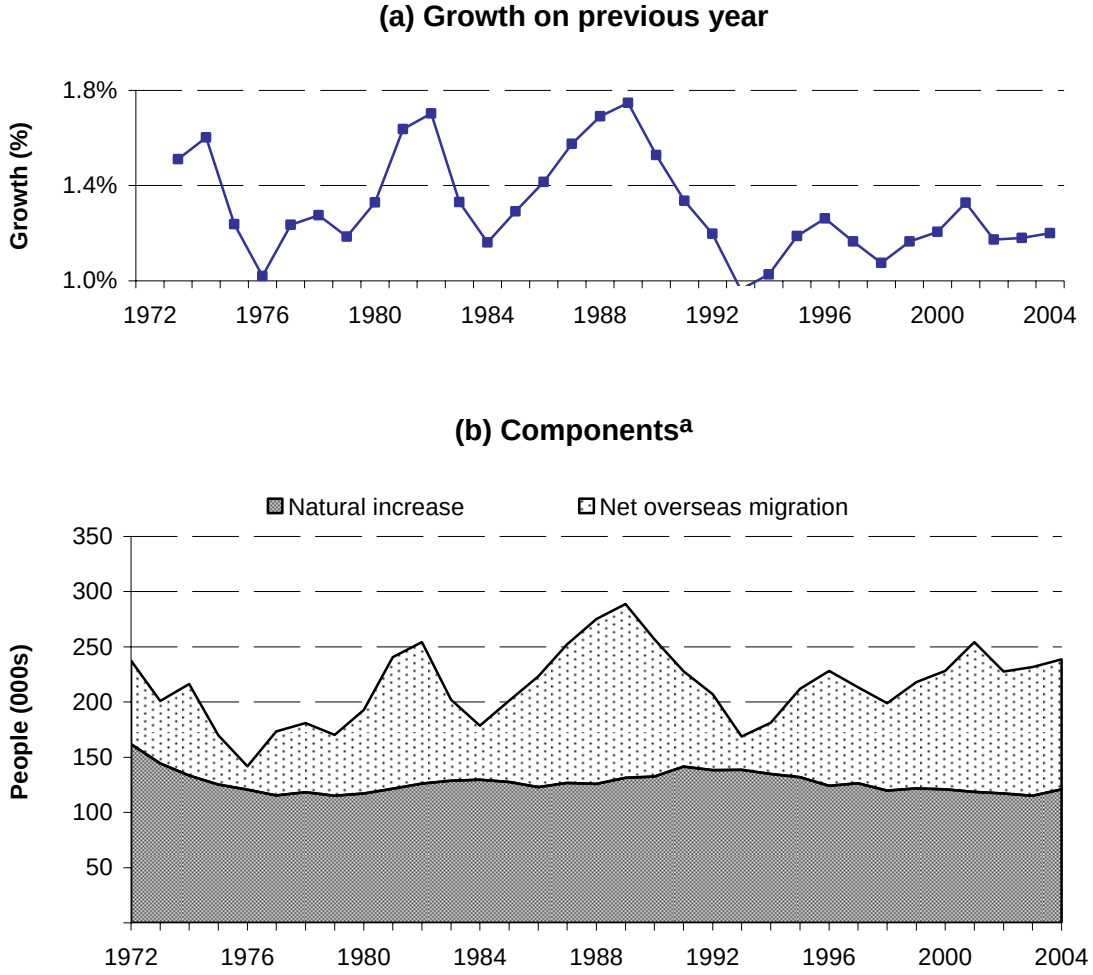
- There is a growing importance of the net long-term migration component (figure C.6(b)). According to ABS figures, in 2003-04, net inflows of permanent migrants were around 50 000 but net inflows of long-term temporary migrants were higher at 114 000.
- Net resident long-term movement only accounts for a small share of overall movement. This suggests that Australian residents are leaving long-term and returning in roughly the same proportions.
- Net permanent migration is now lower on average than before, due in part to increasing numbers of Australians emigrating permanently. This is reflective of Australia's change from a predominantly immigration nation to both an immigration and emigration nation.

Population growth and size

Australia's population grew by 34 per cent (or 1.3 per cent per year) from 13.3 million to 20.2 million between 1971 and 2004 (ABS 2004b) (figure C.7a). In total, net overseas migration was a significant contributor to this growth, although the yearly contribution fluctuated considerably (figure C.7b). The net overseas migration peak of 157 436 people in 1988-89 contributed 55 per cent to Australia's population growth in that year, while the trough of 21 239 people in 1975-76 contributed only 15 per cent to population growth in that year (ABS 2004). Since 1972, 41 per cent of population increase was due to net migration.

In terms of the contribution of net overseas migration to Australia's population size, annual migration flows have had a considerable cumulative effect. This is reflected in the figures for the percentage of Australia's estimated resident population born overseas, which has increased almost continually over the past 50 years (figure C.8). In 1947, 10 per cent of the population was born overseas, while in 2001, 23 per cent of the population was born overseas. It is interesting to note, however, that the 2001 proportion of overseas-born in the population was about the same as a century earlier, having reached a low at the end of the Second World War (OECD 2004a, pp. 123–4).

Figure C.7 **Australia's population growth**
1971–2004

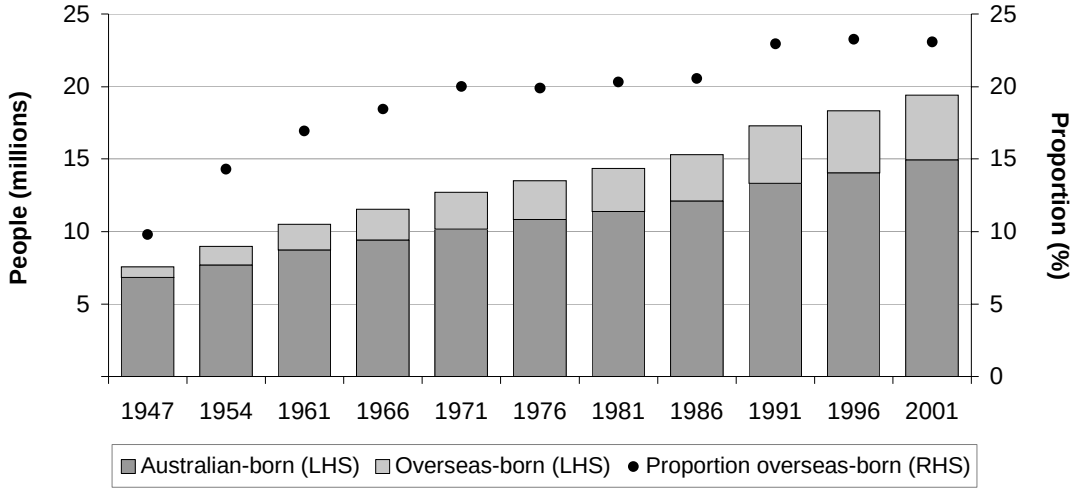


[a] Natural increase is the number of births minus he number of deaths. Net overseas migration is taken from ABS calculations. It is the excess of permanent and long-term immigration over permanent and long-term emigration adjusted for category jumping and multiple movements.

Source: ABS (2004b).

There is also a second-generational effect of net immigration, as the children of migrant women represent a contribution to population growth that would not otherwise have taken place. Kippen and McDonald (2000, p. 14) estimated that between the Second World War and 2000, immigration was responsible for adding 7 million to the population and that if post-war immigration was zero, the national population would be 12 million instead of over 19 million.

Figure C.8 **Australia's population by country of birth**
1947–2001



Source: ABS (2004b).

C.5 Definitions

Table C.5 **Definitions of the visa categories and subcategories**

Visa	*Definition*
Skill stream	
General Skilled Migration (GSM) — includes visas issued under the Skilled Independent and Skilled Australian Sponsored (see below).	Depending on their circumstances, applicants can apply offshore or onshore in the GSM categories. Applicants must meet core criteria for skill, work experience, age (under 45 at time of application), English language ability and, on the whole, pass a points test. Applicants with Australian qualifications who apply within six months of course completion are exempt from the recent work experience requirement. Onshore points tested visa subclasses introduced on 1 July 2001 enable recently completed students to be granted a GSM visa without the need to leave Australia at the end of their studies.
Skilled Independent — (component of GSM)	Applicants (includes overseas students who recently completed their studies in Australia) are not sponsored by an employer or a relative in Australia. Applicants must pass a points test that includes skills, age, work experience and English language ability.
State/Regional Sponsored — (component of GSM)	Includes State/Territory Nominated Independent (STNI) and Skilled Independent Regional (SIR) (provisional) visa categories.
• STNI	STNI allows State/Territory governments to nominate candidates whose skills are in demand in their jurisdiction, and who want to migrate to and settle in their State/Territory. Nominations do not guarantee work and applicants are responsible find employment.
• SIR	SIR provisional visa, introduced on 1 July 2004, provides potential GSM applicants who fall just short of the pass mark with a three year stay in Australia on the condition that they live and work in regional Australia. The visa is designed to attract skilled migrants who can obtain 110 points in the GSM category and are sponsored by a State/Territory Government or Regional Certifying Body, to regional Australia or low population growth areas where a need has been identified for skilled workers.
Skilled Australian Sponsored — (component of GSM)	Applicants (includes overseas students who recently completed their studies in Australia) must pass a points test that includes skills, age, work experience and English language ability, and receive additional points for sponsorship by an Australian relative. There is a visa subclass, Skilled Designated Area Sponsored, under this visa type that allows Australian citizens and permanent residents to sponsor skilled relatives (including first cousins, nieces and nephews) to join them in designated areas identified by State and Territory governments. Currently all of Australia apart from Sydney, Newcastle, Wollongong, Perth and Brisbane are designated areas.

Continued over page

Table C.5 **(Continued)**

Visa	*Definition*
Employer nominations has four main visa subclasses (see below).	Employer driven schemes enables Australian employers to nominate overseas personnel (non-Australian citizens or residents) to fill skilled permanent vacancies if suitably qualified workers cannot be found in Australia. Positions must be 'highly skilled', full-time and available for a period of at least three years. The highly skilled nominee has to have completed at least three years of formal training (or has an equivalent amount of on the job training – usually 5 years), and has also completed three years of relevant post-training work experience. In most cases, the nominee must have a 'vocational' level of English or, if applying under regional arrangements, a 'functional' level of English.
• Employer Nomination Scheme (ENS)	Employers may nominate a person for a full time position (position has to be for at least a three year period). Streamlined arrangements are in place where an Australian employer is using the ENS to nominate a person who has already been working for the employer in Australia on a temporary residence visa. Nominees are generally expected to be under 45 years of age.
• Regional Sponsored Migration Scheme (RSMS)	Allows employers in regional or low population growth areas of Australia (that is, all areas except Brisbane, the Gold Coast, Newcastle, Sydney, Wollongong, Melbourne and Perth) to fill skilled positions that they are unable to fill from the local labour market. The position must be full time and for a two year period. Nominees are generally expected to be under 45 years and have 'functional' English at the time of visa application.
• Labour Agreements	Includes both permanent and temporary entry visa subclasses, with a formal arrangement negotiated between DIMIA, DEWR and an employer or industrial association for the former visa subclasses. This visa category enables Australian employers to recruit a specified number of workers from overseas in response to identified or emerging skill shortages in the Australian labour market, with agreements covering a 2–3 year period.
• Invest Australia Supported Skills	Enables employers to transfer 'key' managerial and specialist employees of their company to Australia. Agreements are for 3 years, although individual visas, once granted, may extend beyond the period of agreement.
Business Skills	Encourages successful business people to settle permanently in Australia and develop new business opportunities. The majority of entrants are initially on a provisional (temporary) visa for four years, and are required to establish and actively manage a business in Australia before obtaining the benefits of permanent residence. After satisfactory evidence of a specified level of business or investment activity, Business Skills entrants may apply for permanent residence. High calibre business migrants may apply for a Business Talent visa to obtain direct permanent residence if they have high level business attributes and are sponsored by a State or Territory government agency.

Continued over page

Table C.5 **(Continued)**

Visa	*Definition*
Distinguished Talent	For distinguished individuals with special or unique talents of benefit to Australia.
Family stream	
Partner	Includes Spouse (the majority of visas granted), Fiancés and Interdependency visa subclasses.
Child	Includes visas for dependent children, orphaned relatives and adopted children.
Preferential/Other Family	Includes visas for aged dependent relatives, remaining relatives and carers.
Parents	Since 1999-2000, the number of places available to parents each program year has been limited. A new 'contributory' parent category (introduced around mid 2003 for offshore and onshore applicants), however, has substantially increased the number of places available for parents to migrate each year on the basis that they or their sponsor make a contribution to their health and welfare costs. In the contributory category in 2003-04, parents were required to pay a second visa application charge of $25 000 per adult, and a ten-year $10 000 'Assurance of Support' bond for the main applicant and $4000 for adult secondary applicants.

Source: DIMIA various publications.

D Characteristics of Australia's Migrants

D.1 Country of origin

Until the 1970s, the 'White Australia' policy restricted immigration from non-European countries. In the early postwar decades, immigrants predominantly arrived from the United Kingdom and Ireland, and from other European countries (particularly from Yugoslavia, Greece and Italy). The cultural mix of immigrants to Australia, however, has diversified, particularly over the past five decades. According to DIMIA (2005a), the 90 000 odd permanent arrivals in 2001-02 originated from more than 150 countries, including New Zealand (17.6 per cent), the United Kingdom (9.8 per cent), China (7.5 per cent), South Africa (6.4 per cent), India (5.7 per cent) and Indonesia (4.7 per cent).

The top ten source countries for permanent and long-term arrivals are listed in table D.1. Permanent arrivals from the United Kingdom accounted for 14.3 per cent of permanent arrivals in 2004, while those from New Zealand accounted for 13.2 per cent of permanent arrivals. Permanent arrivals from China and India accounted for 17.3 per cent of permanent arrivals to Australia in 2004 (table D.1). Long-term temporary arrivals predominantly originated from China (11.5 per cent of long-term temporary arrivals in 2004), followed by the United Kingdom (10.5 per cent) and India (5.2 per cent) (table D.1).

D.2 Demographic characteristics of immigrants

Net migration has a large impact on the size of Australia's population, but marginal impact on the ageing of the Australian population (ABS 2005a). The impact of immigration on Australia's age structure is dependent on the difference between the mean age of the population and the mean age of the immigrants and their children. When fertility is around the replacement level, migrants will have little impact on the age structure of the population, as the mean age of the standard age distribution of net migration to Australia and their subsequent children would only be

Table D.1 **Permanent and long-term arrivals by top ten source countries, 1981 and 2004[a]**

	Permanent arrivals	*Long-term temporary arrivals*	*Top ten country of origin*	*Proportion of total arrivals*
	no.	no.	no.	%
2004				
GBR	16 821	30 063	46 884	11.4
CHN	11 375	33 952	45 327	11.0
NZL	15 495	9 573	25 068	6. 1
IND	8 906	15 429	24 335	5. 9
MYS	3 150	12 687	15 837	3. 8
HKG	na	13 411	13 411	3. 3
IDN	2 367	10 445	12 812	3. 1
JPN	na	11 447	11 447	2. 8
KOR	na	9 856	9 856	2. 4
USA	na	8 033	8 033	1. 9
Top Ten	**58 114**	**154 896**	**213 010**	**51. 6**
1981				
GBR	36 279	12 083	48 362	22. 7
NZL	15 328	12 949	28 277	13. 3
VNM	12 285	na	12 285	5. 8
MYS	2 156	3 959	6 115	2. 9
USA	na	4 478	4 478	2. 1
POL	3 721	na	3 721	1. 7
SA	3 347	na	3 347	1. 6
DEU	2 535	1 391	3 926	1. 8
PHL	2 969	na	2 969	1. 4
NLD	2 188	na	2 188	1.0
Top Ten	**80 808**	**na**	**115 668**	**54. 4**

na Not applicable.

Source: ABS unpublished data.

marginally younger than the mean age of the existing population. When fertility falls to very low levels, however, the mean age of the existing population rises, and migrants and their children will have relatively more impact on the population's age structure.

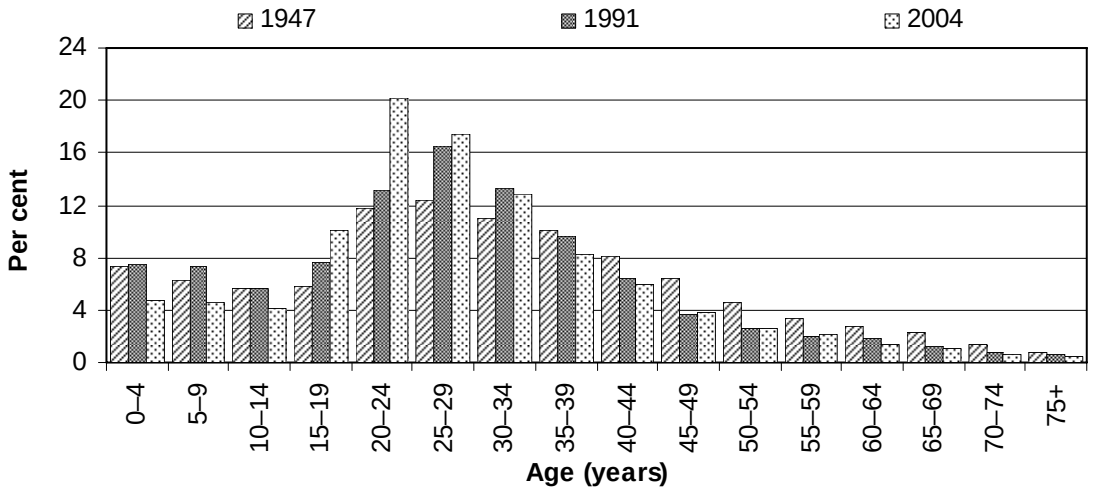
Age structure of immigrants

Immigrants are over represented by those aged 15–34 years. The proportion of net overseas migrants in this age group was 72 per cent compared with 28 per cent of the Australian resident population in 2003-04 (ABS 2005a).

The age of immigrants arriving to Australia was more widely distributed in 1947 compared with recent years. Immigrants arriving to Australia in recent years are

predominantly in the 20–24 year age group, while those arriving in 1947 were predominantly in the 25–29 age group (figure D.1). Around 53 per cent of immigrants arriving to Australia in 1947 were aged between 20 and 44 years compared with 59 per cent in 1991 and just under 65 per cent in 2004 (figure D.1). Immigrants aged 45 and over accounted for 22 per cent of arrivals in 1947 compared with only 12 per cent in 2004. Around 10 per cent of immigrants arriving in 2004 were in the 5–19 age group compared with 8 per cent in 1991 and 6 per cent in 1947 (figure D.1).

Figure D.1 **Age of immigrants as a proportion of total arrivals, selected years[a]**



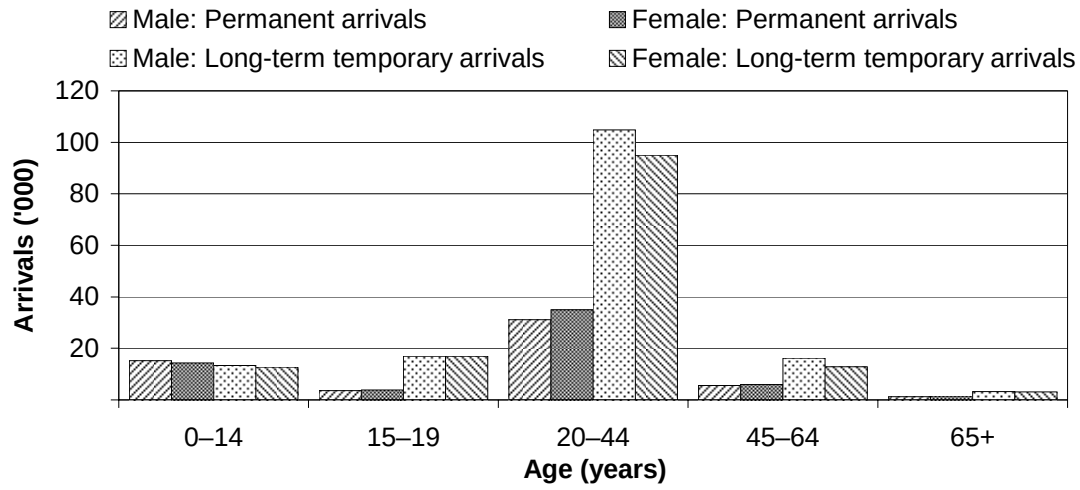
a Except for 1947 (which includes only permanent arrivals), the data includes long-term temporary and permanent arrivals.

Source: ABS unpublished data.

Gender balance of immigrants

In 2004, there were 211 336 male permanent and long-term arrivals compared with 201 228 female arrivals. Males outnumbered female immigrants particularly in the 20–44 and 45–64 age groups (figure D.2). By arrivals categories, males outnumbered female immigrants in the long-term temporary arrivals category (154 469 male compared with 140 622 female). However, female permanent arrivals (60 606) outnumbered male permanent arrivals (56 867).

Figure D.2 **Permanent and long-term temporary arrivals by age and sex, 2004**



Source: ABS unpublished data.

D.3 Geographic location

The settlement patterns of immigrants differ depending on the context which they arrive to Australia — for example, whether they migrate on a family or skilled visa, their employment opportunities and their social contacts. The established networks of earlier generations of immigrants — offering support such as assistance in obtaining housing and jobs — to some extent attract recent arrivals to settle close to longer standing immigrants.

Settlement patterns by State and Territory

As a proportion of the total overseas-born population, immigrants have a higher propensity to settle in New South Wales, followed by Victoria, Queensland and Western Australia (table D.2). In recent years, Queensland has experienced an increase in recent arrivals (immigrants arriving in the last five years). In 1996, the proportion of recent arrivals settling in Queensland was 15.3 per cent, increasing to 17.5 per cent in 2001. In 2001, all other jurisdictions experienced slight decreases in the proportion of immigrants arriving in the last five years (table D.2).

Table D.2 **Percentage distribution of the population by birthplace and overseas-born arriving in the last five years, 1996 and 2001**

	Australian-born		*Overseas-born*		*Overseas-born arriving in last five years*	
State/territory	*1996*	*2001*	*1996*	*2001*	*1996*	*2001*
	%	%	%	%	%	%
NSW	33.2	32.7	35.5	35.9	41.1	40.7
Victoria	24.0	24.0	26.6	26.3	24.2	23.6
Queensland	20.0	20.4	14.3	15.0	15.3	17.5
WA	8.9	9.1	12.2	12.1	11.6	11.3
SA	8.2	8.1	7.7	7.2	4.5	4.1
Tasmania	3.0	2.8	1.2	1.1	0.8	0.7
ACT	1.7	1.7	1.7	1.6	1.7	1.5
NT	1.1	1.2	0.8	0.7	0.8	0.7
Total[a]	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

a Includes 'Other Territories' which range from 0.01 to 0.03.

Source: Hugo 2004b.

Immigrants with Language Other than English (LOTE) origin tend to settle in New South Wales and Victoria, while immigrants from Mainly English Speaking (MES) countries generally settle in New South Wales, Queensland, Victoria and Western Australia (table D.4).

Table D.3 **Distribution of LOTE and MES overseas-born population by States and Territories, 2001**

	Unit	*LOTE* [a]	*MES*[b]
Proportion			
NSW	%	40.7	28.4
Vic	%	31.0	19.0
Qld	%	10.7	21.8
WA	%	8.6	17.5
SA	%	6.0	9.1
Tasmania	%	0.7	1.7
ACT	%	1.7	1.6
NT	%	0.6	0.9
Total	**%**	**100.0**	**100.0**
Total number	m	2.5	1.6

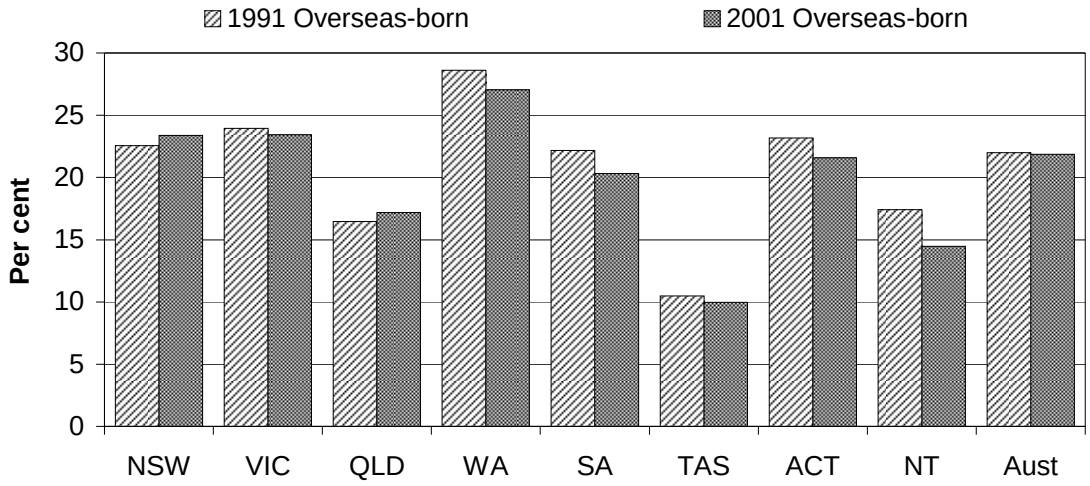
a Language other than English (LOTE). **b** Mainly English speaking (MES).

Source: Hugo 2004b.

As a proportion of each jurisdiction's population, Western Australia had the highest proportion of overseas-born people in 2001 — at 27.0 per cent (1 241 775)

(figure D.3). Tasmania had the lowest proportion of immigrants, with 10 per cent of its population being overseas-born in 2001. Between 1991 and 2001, New South Wales and Queensland were the only two jurisdictions that experienced increases in the proportions of overseas-born populations. In 1991, 22.5 per cent of New South Wales' population was overseas-born increasing to 23.4 per cent in 2001. The overseas-born population in Queensland increased from 16.5 per cent in 1991 to 17.2 per cent in 2001 (figure D.3).

Figure D.3 **Overseas-born as a proportion of jurisdictional population, 1991 and 2001**



Source: ABS unpublished data.

Regional settlement patterns

Over time, the proportions of immigrants and Australia-born residing in rural areas have decreased. However, the proportional decrease in the immigrant population has been much larger. In 1947, just under one-third of Australian-born and around a quarter of overseas-born resided in rural areas. By 2001, around 15 per cent of Australian-born and only 7 per cent of overseas-born people were residing in rural areas.

While the proportion of overseas-born residing in regional centres has also decreased over time, the opposite effect has occurred in the Australian-born population. The proportion of Australian-born living in 'other urban' areas, increased from 18.5 to 25.3 per cent between 1947 and 2001. Conversely, the proportion of overseas-born residents residing in 'other urban' areas declined from 13.5 to 11.4 per cent during the same period (table D.4).

Table D.4 **Australian- and overseas-born by regional areas, 1947–2001[a]**

	1947	*1991*	*1996*	*2001*
	%	%	%	%
Australian-born				
Major urban	49.7	57.7	57.7	59.9
Other urban	18.5	25.4	26.4	25.3
Rural	31.8	16.9	15.9	14.8
Total[b]	**100.0**	**100.0**	**100.0**	**100.0**
Overseas-born				
Major urban	61.8	79.5	80.0	82.0
Other urban	13.5	12.4	12.5	11.4
Rural	24.7	8.1	7.5	6.6
Total[b]	**100.0**	**100.0**	**100.0**	**100.0**

a In accordance with the Australian Standard Geographical Classification (ASGC), 'major urban' is defined as urban areas with populations of 100,000 and over, 'other urban' is defined as urban areas with populations of 1000 to 99 999, and 'rural' is defined as 'Bounded Rural Locality' (that is, rural areas with populations of 200 to 999) and 'Rural Balance' (that is, the remainder of the State or Territory). **b** Excludes persons for whom birthplace was not stated and overseas visitors.

Source: Hugo 2004b.

Table D.5 examines the proportion of overseas- and Australia-born residing in major cities, regional and rural areas by State and Territory. In 2001, around 66 per cent of Australia's total population resided in major cities, 32 per cent lived in inner or outer regional centres and 3 per cent lived in remote or very remote areas (table D.5). Within the two population groups, immigrants tend to have a greater propensity to settle in Australia's major cities compared with the Australian-born population. In 2001, around 83 per cent of overseas-born people in Australia resided in major cities compared with around 61 per cent of the Australia-born population (table D.5). In 2001, around 36 per cent of the Australian-born population lived in inner or outer regional areas compared with 16 per cent of overseas-born population (table D.5). Around 3 per cent of the Australia-born population lived in remote and very remote areas compared with 1 per cent of overseas-born.

Table D.5 **Australian- and overseas-born by regional areas, 2001**

	Born in Australia	*Born Overseas[a]*	*Birthplace not stated*	*Overseas visitor*	***Total***
NSW					
Major cities	2 890 789	1 312 165	285 834	51 657	**4 540 445**
Inner regional	1 104 836	125 359	69 043	6 717	**1 305 955**
Outer regional	413 429	34 710	26 908	1 888	**476 935**
Remote/very remote	40 624	2 633	3 381	168	**46 806**
Total[b]	**4 450 680**	**1 475 079**	**385 409**	**60 577**	**6 371 745**

Continued next page.

Table D.5 **(Continued)**

	Born in Australia	*Born Overseas*[a]	*Birthplace not stated*	*Overseas visitor*	***Total***
Victoria					
Major cities	2 234 684	965 276	190 433	28 175	**3 418 568**
Inner regional	821 123	94 631	50 798	3 109	**969 661**
Outer regional	215 635	19 862	13 216	1 460	**250 173**
Remote/very remote	5 083	428	233	56	**5 800**
Total[b]	**3 277 042**	**1 080 356**	**254 699**	**32 853**	**4 644 950**
Queensland					
Major cities	1 362 082	411 489	90 805	32 521	**1 896 897**
Inner regional	760 831	114 845	44 196	10 774	**930 646**
Outer regional	530 092	77 765	37 145	21 653	**666 655**
Remote/very remote	132 330	11 889	10 785	4 048	**159 052**
Total[b]	**2 786 286**	**616 241**	**183 112**	**69 500**	**3 655 139**
WA					
Major cities	809 036	406 145	61 831	14 284	**1 291 296**
Inner regional	165 392	40 474	11 137	929	**217 932**
Outer regional	141 268	25 611	9 572	1 090	**177 541**
Remote/very remote	125 277	22 622	11 838	2 830	**162 567**
Total[b]	**1 241 775**	**495 251**	**94 982**	**19 244**	**1 851 252**
SA					
Major cities	753 305	247 282	43 720	6 371	**1 050 678**
Inner regional	146 544	25 018	8 064	642	**180 268**
Outer regional	147 299	17 795	7 909	610	**173 613**
Remote/very remote	52 007	6 269	3 130	532	**61 938**
Total[b]	**1 099 585**	**296 465**	**62 862**	**8 349**	**1 467 261**
Tasmania					
Inner regional	243 563	31 234	14 273	1 440	**290 510**
Outer regional	132 450	13 018	8 335	290	**154 093**
Remote/very remote	9 430	1 014	607	72	**11 123**
Total[b]	**386 034**	**45 377**	**23 430**	**1 811**	**456 652**
ACT					
Major cities	227 740	66 652	14 064	2 748	**311 204**
Inner regional	615	88	25	15	**743**
Total[b]	**228 355**	**66 740**	**14 089**	**2 763**	**311 947**
NT					
Outer regional	77 377	20 150	8 949	2 943	**109 419**
Remote/very remote	79 169	8 851	6 136	4 797	**98 953**
Total[b]	**157 959**	**29 354**	**15 416**	**7 935**	**210 664**
Australia					
Major cities	8 277 636	3 409 009	686 687	135 756	**12 509 088**
Inner regional	3 243 451	431 684	197 558	23 633	**3 896 326**
Outer regional	1 657 550	208 911	112 034	29 934	**2 008 429**
Remote/very remote	445 138	54 456	36 209	12 565	**548 368**
Total[b, c]	**13 629 481**	**4 105 648**	**1 034 120**	**203 101**	**18 972 350**

[a] Includes 'inadequately described', 'at sea' and 'not elsewhere classified' [b] Includes 'Migratory' region. [c] Includes 'Other Territories'.

Source: ABS (unpublished data).

The limitation of using the census data in examining the settlement of recent arrivals is that it asks for a person's place of residence five years before the census. Recent arrivals may initially settle in one area, but subsequently move to another area within or even outside the State/Territory. Such movements made within the five years of arrival are not recorded in the census data.

The Longitudinal Survey of Immigrants to Australia (LSIA1) indicated that recent arrivals who settled initially in non-metropolitan areas, moved toward the capitals in the early years after arrival in Australia (Hugo 2004b). In metropolitan New South Wales, Victoria and Western Australia, the proportion of immigrants remaining in their initial region of settlement was much higher than was the case in their equivalent non-metropolitan areas. In Victoria for example, only 18.3 per cent immigrants who initially settled in non-metropolitan areas were still living in these non-metropolitan regions. Thus, many of those settling in non-metropolitan regions at the first interview had moved to metropolitan areas by the third interview. Although there were movements away from non-metropolitan areas in Queensland as well, there were some non-metropolitan areas of Queensland that were more successful in retaining recent arrivals, especially in south-east Queensland (Hugo 2004b).

Settlement patterns by recency of arrival

Over time, there might be some convergence in the internal migration patterns of the overseas-born toward those of the Australian-born. According to Hugo (2004b) there appears to be a pattern whereby after a period of longer residence in Australia, the overseas-born move more to non-metropolitan areas like the Australian-born population.

In 2001, the majority of overseas-born people in most States and Territories resided in the capital city Statistical Division (SD) (table D.6). In New South Wales, 83.6 per cent of the overseas-born population resided in Sydney, followed by Illawarra (4.9 per cent) and Hunter (3.5 per cent). Of the immigrants arriving in 1985 or earlier, a smaller proportion resided in Sydney (77.3 per cent) compared with those arriving after 1985 (table D.6).

The overseas-born population were more dispersed in Queensland, with only 54.9 per cent residing in Brisbane (table D.9). Moreton accounted for 24.0 per cent of immigrants residing in Queensland. Far North, Wide Bay-Burnet and Northern together accounted for around 13 per cent of immigrants residing in Queensland (table D.6).

Table D.6 **Overseas born by period of arrival and place of residence, 2001 (number)**

	Period of arrival in Australia				
Statistical division	*1985 or earlier*	*1986-1990*	*1991-1995*	*1996-2001*	***Total*[a]**
NSW					
Central West	7 822	823	645	1 140	**11 136**
Far West	803	65	55	92	**1 074**
Hunter	36 921	3 909	2 809	4 781	**51 388**
Illawarra	54 700	4 217	3 259	6 026	**71 663**
Mid-North Coast	18 743	1 604	1 120	1 611	**24 273**
Murray	5 772	538	371	715	**7 808**
Murrumbidgee	6 948	863	842	1 902	**11 184**
North Western	4 703	504	308	616	**6 469**
Northern	6 469	793	550	1 238	**9 526**
Off-Shore Areas & Migratory	127	23	18	20	**212**
Richmond-Tweed	16 681	2 084	1 375	2 104	**23 399**
South Eastern	17 844	1 726	1 140	1 598	**23 409**
Sydney	606 183	187 046	147 511	234 514	**1 233 538**
Total	**783 716**	**204 195**	**160 003**	**256 357**	**1 475 079**
VIC					
Barwon	27 034	2 310	1 587	2 557	**35 194**
Central Highlands	8 755	706	463	854	**11 476**
East Gippsland	5 818	371	294	404	**7 466**
Gippsland	15 546	941	544	1 032	**18 915**
Goulburn	11 818	940	847	2 086	**16 589**
Loddon	9 422	811	513	952	**12 368**
Mallee	4 703	527	423	930	**7 029**
Melbourne	560 565	121 008	91 146	137 580	**954 048**
Off-Shore Areas & Migratory	118	17	12	10	**160**
Ovens-Murray	7 177	579	410	671	**9 247**
Western District	3 938	368	255	728	**5 582**
Wimmera	1 763	115	102	197	**2 283**
Total	**656 657**	**128 693**	**96 596**	**148 001**	**1 080 357**
QLD					
Brisbane	175 685	47 198	34 870	63 916	**338 128**
Central West	463	88	50	149	**802**
Darling Downs	9 841	1 305	946	2 371	**15 244**
Far North	21 759	3 802	3 100	4 928	**35 772**
Fitzroy	9 669	1 299	957	2 043	**14 728**
Mackay	9 212	1 226	959	1 728	**13 886**
Moreton	82 661	17 871	12 465	27 091	**147 898**
North West	2 331	368	248	501	**3 614**
Northern	13 037	2 092	1 470	2 681	**20 406**

Continued next page

Table D.6 **(Continued)**

Statistical division	Period of arrival in Australia				
	1985 or earlier	*1986-1990*	*1991-1995*	*1996-2001*	***Total*[a]**
Off-Shore Areas & Migratory	167	17	15	36	**254**
South West	774	109	64	165	**1 175**
Wide Bay-Burnett	17 826	1 950	1 264	2 034	**24 335**
Total	**343 425**	**77 325**	**56 408**	**107 643**	**616 242**
WA					
Central	6 340	755	507	930	**9 005**
Kimberley	2 664	342	207	469	**4 664**
Lower Great Southern	6 125	576	344	657	**8 106**
Midlands	4 929	547	344	698	**6 862**
Off-Shore Areas & Migratory	275	40	28	38	**399**
Perth	238 981	59 346	39 124	62 848	**418 333**
Pilbara	4 311	945	634	1 009	**7 669**
South Eastern	4 364	1 071	868	1 546	**8 226**
South West	22 183	2 482	1 644	2 375	**30 154**
Upper Great Southern	1 314	173	87	170	**1 833**
Total	**291 486**	**66 277**	**43 787**	**70 740**	**495 251**
SA					
Adelaide	182 462	20 024	15 538	23 124	**251 953**
Eyre	1 837	87	79	133	**2 262**
Murray Lands	5 120	343	289	601	**6 692**
Northern	8 387	392	278	445	**10 954**
Off-Shore Areas & Migratory	65	7	5	17	**99**
Outer Adelaide	13 006	792	532	738	**15 697**
South East	3 831	266	185	520	**5 031**
Yorke and Lower North	3 324	99	86	94	**3 773**
Total	**218 032**	**22 010**	**16 992**	**25 672**	**296 461**
Tasmania					
Greater Hobart	15 896	1 712	1 252	2 265	**22 172**
Mersey-Lyell	5 994	475	384	658	**7 856**
Northern	9 042	816	580	1 167	**12 144**
Off-Shore Areas & Migratory	98	4		4	**109**
Southern	2 422	220	126	174	**3 094**
Total	**33 452**	**3 227**	**2 342**	**4 268**	**45 375**
ACT					
Australian Capital Territory - Bal	24		3	22	**52**
Canberra	41 893	7 517	5 683	9 064	**66 690**
Total	**41 917**	**7 517**	**5 686**	**9 086**	**66 742**
NT					
Darwin	12 459	2 286	1 647	2 660	**20 150**
Northern Territory - Bal	5 035	830	580	1 742	**8 851**
Off-Shore Areas & Migratory	200	36	21	57	**353**
Total	**17 694**	**3 152**	**2 248**	**4 459**	**29 354**

a Includes year of arrival 'not stated'.

Source: ABS (unpublished data).

Focussing on the five jurisdictions with the highest number of overseas-born people, a greater proportion of immigrants from Non-English Speaking (NES) countries reside in capital cities compared with immigrants from Mainly English Speaking (MES) countries (table D.7).

Table D.7 **Overseas-born by MES and NES countries by place of residence, 2001 (per cent)**

Statistical division	*Born in MES Country*[a]	*Born in NES Speaking Country*[b]
NSW		
Sydney	71.9	88.9
Hunter	6.1	2.3
Illawarra	7.1	3.9
Richmond-Tweed	3.4	0.8
Mid-North Coast	3.5	0.8
Northern	1.2	0.4
North Western	0.8	0.3
Central West	1.4	0.5
South Eastern	2.7	1.1
Murrumbidgee	1.0	0.7
Murray	0.9	0.4
Far West	0.1	0.1
Off-Shore Areas & Migratory	0.0	0.0
Total	**100.0**	**100.0**
VIC		
Melbourne	79.3	91.9
Barwon	5.2	2.5
Western District	1.2	0.2
Central Highlands	2.1	0.7
Wimmera	0.4	0.1
Mallee	0.8	0.6
Loddon	2.4	0.6
Goulburn	2.5	1.1
Ovens-Murray	1.4	0.7
East Gippsland	1.4	0.4
Gippsland	3.2	1.2
Off-Shore Areas & Migratory	0.0	0.0
Total	**100.0**	**100.0**
QLD		
Brisbane	51.1	59.8
Moreton	27.4	19.6
Wide Bay-Burnett	4.5	3.2
Darling Downs	2.5	2.4
South West	0.2	0.1
Fitzroy	2.8	1.9
Central West	0.2	0.1
Mackay	2.5	2.0

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Table D.7 **(Continued)**

Statistical division	*Born in MES Country*[a]	*Born in NES Speaking Country*[b]
Northern	3.2	3.5
Far North	5.1	6.8
North West	0.6	0.6
Off-Shore Areas & Migratory	0.0	0.0
Total	**100.0**	**100.0**
WA		
Perth	80.7	89.4
South West	7.9	3.7
Lower Great Southern	2.1	1.1
Upper Great Southern	0.5	0.2
Midlands	1.8	0.9
South Eastern	2.1	1.0
Central	2.2	1.4
Pilbara	1.7	1.3
Kimberley	1.0	0.9
Off-Shore Areas & Migratory	0.1	0.1
Total	**100.0**	**100.0**
SA		
Adelaide	80.8	89.0
Outer Adelaide	7.9	2.7
Yorke and Lower North	1.9	0.7
Murray Lands	2.2	2.3
South East	2.0	1.4
Eyre	0.9	0.6
Northern	4.2	3.2
Off-Shore Areas & Migratory	0.0	0.0
Total	**100.0**	**100.0**

[a] Includes United Kingdom, Ireland, New Zealand, United States, Canada and South Africa. [b] Includes born at sea, not elsewhere classified and inadequately described. Excludes Birthplace not stated.

Source: ABS (unpublished data).

Recent Government policies encouraging settlement patterns

Since 1996-97, the Australian, State and Territory governments have encouraged immigrants to settle in regional Australia, through a number of State-Specific and Regional Migration (SSRM) initiatives. These initiatives encourage newly arrived migrants to settle in areas other than: the Sydney, Newcastle, Wollongong conurbation; South Eastern Queensland; Perth; and Melbourne. Generally, special considerations are given to people applying to settle in Australia through the standard mechanisms if they agreed to settle outside the designated areas. An initiative is also implemented to discourage immigrants, who gain entry under the Regional Scheme, moving to Sydney or Melbourne as soon as they receive

Table D.8 **Distribution of migrants granted visas under state specific migration mechanisms, 1998–1999 to 2000–2001**

	South Australia	*Victoria*	*Other States*	***Total***
1998–99				
Regional Skilled Migrants Scheme	436	43	286	**765**
State/Territory Nominated Independent	169	0	0	**169**
Regional-Linked	29	9	29	**67**
Skilled-Australian Linked[a]	396	801	547	**1 744**
State/Territory Sponsored Business Skills[b]	4	23	32	**59**
Regional Established Business in Australia	0	0	0	**0**
Total	**1034**	**876**	**894**	**2 804**
1999–2000				
Regional Skilled Migrants Scheme	373	30	261	**664**
State/Territory Nominated Independent	9	0	0	**9**
Regional-Linked	16	131	48	**195**
Skilled-Australian Linked[a]	297	1 485	602	**2 384**
State/Territory Sponsored Business Skills[b]	4	13	27	**44**
Regional Established Business in Australia	3	0	10	**13**
Total	**702**	**1 659**	**948**	**3 309**
2000–01				
Regional Skilled Migrants Scheme	437	75	509	**1021**
State/Territory Nominated Independent	36	47	2	**85**
Regional-Linked	67	712	223	**1 002**
Skilled-Australian Linked[a]	184	968	423	**1 575**
State/Territory Sponsored Business Skills[b]	16	25	81	**122**
Regional Established Business in Australia	10	0	31	**41**
Total	**750**	**1 827**	**1 269**	**3 846**
2001–02				
Regional Skilled Migrants Scheme	384	96	612	**1 092**
State/Territory Nominated Independent	51	200	6	**257**
Regional-Linked	137	1 122	338	**1 597**
Skilled-Australian Linked[a]	94	689	191	**974**
State/Territory Sponsored Business Skills[b]	25	19	132	**176**
Regional Established Business in Australia	12	10	18	**40**
Total	**703**	**2 126**	**1 307**	**4 136**

a Refers to applicants under this category who obtained bonus points because their sponsor lived in a designated area. **b** Includes applicants processed under offshore subclass 129 (state/territory sponsored business owner), offshore subclass 130 (state/territory sponsored senior executive), onshore subclass 842 (state/territory sponsored business owner) and onshore subclass 843 (state/territory sponsored senior executive).

Source: DIMIA 2005, Population Flows: Immigration Aspects 2003-04, accessed on 9 August, http://www.immi.gov.au/statistics/publications/popflows2003_4/pf_ch3.pdf; Hugo 2001, p. 57.

permanent residency. This initiative delays immigrants receiving their permanent residencies in the hope that it will encourage them to settle in a regional area. Under this initiative, migrants initially receive a four-year temporary visa, but would have to run a business successfully for at least two years before qualifying for permanent residence (Hugo 2004b).

Over 37 600 visas have been granted since the introduction of SSRM initiatives in 1996-97, and continuing strong growth is expected particularly with the introduction of the Skilled Independent Regional (SIR) visa from 1 July 2004. For the 2003–04 program year, 12 725 visas were granted under SSRM initiatives — representing approximately 18 per cent of the total Skill stream of the Migration Program (table D.8). This is an increase of 60 per cent on the 2002–03 grant level and is the highest since the introduction of the initiatives in 1996–97. Most of the visas granted have been for immigrants settling in Victoria and South Australia. Since 1999-2000 around half of the SSRM visas granted have been to immigrants deciding to reside in Victoria (table D.8).

D.4 Emigration

In 2003-04, 59 078 Australia- and overseas-born people emigrated from Australia permanently (table D.9). Just over half of the emigrants departing Australia permanently were born overseas — the highest in absolute terms since the early 1970s. A record 29 100 Australian-born people departed permanently in 2003-04 (table D.9).

In 2003-04, most Australian-born emigrants moved to the United Kingdom, New Zealand and the United States. In 2003-04, about 55 per cent of Australian-born emigrants departed permanently for these three countries (table D.10).

The highest proportion of overseas-born emigrants tend to be those born in New Zealand (about 7000 in 2003-04) (table D.11). The United Kingdom-born emigrants were the second largest group, with about 4600 people departing permanently in 2003-04. Emigrants born in the North East Asian region also account for a large proportion of permanent departures, mainly those born in China and Hong Kong.

Table D.9 **Permanent and long-term emigration of Australians[a, b]**

Year	*Australian-born permanent departures*	*Aust residents: long –term departure*	***Total***	*Share of Australian population*	*Overseas-born permanent departures*	*Overseas visitors: long-term departure*	***Total***	*Share of Australian population*
	no.	no.	**no.**	%	no.	no.	**no.**	%
1988-89	6 560	57 733	**64 293**	0.4	15 087	3 258	**48 345**	0.3
1989-90	8 399	62 300	**70 699**	0.4	19 458	37 899	**57 357**	0.3
1990-91	9 490	66 883	**76 373**	0.4	21 640	43 629	**65 269**	0.4
1991-92	9 178	67 191	**76 369**	0.4	19 944	47 971	**67 915**	0.4
1992-93	9 803	65 446	**75 249**	0.4	18 102	47 744	**65 846**	0.4
1993-94	9 927	64 786	**74 713**	0.4	17 353	47 921	**65 274**	0.4
1994-95	10 092	68 377	**78 469**	0.4	16 856	50 156	**67 012**	0.4
1995-96	11 005	70 253	**81 258**	0.4	17 665	54 133	**71 798**	0.4
1996-97	11 698	73 777	**85 475**	0.5	18 159	62 971	**81 130**	0.4
1997-98	12 771	79 422	**92 193**	0.5	19 214	74 872	**94 086**	0.5
1998-99	17 250	82 861	**100 111**	0.5	17 931	57 420	**75 351**	0.4
1999-2000	20 234	84 918	**105 152**	0.5	20 844	71 850	**92 694**	0.5
2000-01	23 081	92 945	**116 026**	0.6	23 440	73 440	**96 880**	0.5
2001-02	24 146	92 071	**116 217**	0.6	24 095	79 375	**103 470**	0.5
2002-03	25 612	86 211	**111 823**	0.6	24 885	82 900	**107 785**	0.5
2003-04	29 140	84 336	**113 476**	0.6	29 938	93 282	**123 220**	0.6

a Long-term departures are defined as those departing temporarily with the intention to stay abroad for 12 months or more. ‘Australian residents’ includes Australian citizens, New Zealand citizens indicating permanent residence and non-citizens on permanent residence visas. **b** Caution is needed when examining the data. The data are based on the ‘intentions’ of people moving into or out of Australia and these intentions may change over time so that there is significant ‘category jumping’. Further, there are visa categories for entry into Australia that overlap short- and long-term categories. For example, holders of Temporary Business Entrants visas may stay in Australia for periods of up to four years and, hence, overlap the short-term and long-term movement categories.

Source: Hugo 2004b.

Table D.10 **Permanent departures by Australian-born by intended country of residence, 2003-04**

	Emigrants	*Share of total Australian-born departures*
	no.	%
NZ	5 711	19.6
United Kingdom	5 961	20.5
US	4 390	15.1
China (excl. HK and Taiwan)	723	2.5
HK	1 538	5.3
Singapore	1 680	5.8
Total countries	**29 140**	**100.0**

Source: DIMIA update, July to Dec 2004, p. 28

Table D.11 **Overseas-born permanent departures by birthplace**

	2000-01		*2001-02*		*2002-03*		*2003-04*	
	no.	%	no.	%	no.	%	no.	%
Oceania[a]	5 871	25.1	6 374	26.5	6 965	28.0	7 926	26.5
UK & Ireland	4 155	17.8	4 106	17.1	4 215	17.0	4 979	16.6
W Europe	854	3.6	813	3.4	917	3.7	932	3.1
N Europe	150	0.6	164	0.7	206	0.8	189	0.6
S Europe	508	2.2	478	2.0	448	1.8	457	1.5
SE Europe	762	3.3	697	2.9	767	3.1	871	2.9
E Europe	6 687	28.6	6 500	27.0	6 806	27.4	7 713	25.8
N Africa & ME	831	3.6	752	3.1	831	3.3	1 149	3.8
SE Asia	2 459	10.5	2 641	11.0	2 593	10.4	3 515	11.7
NE Asia	5 358	22.9	5 548	23.0	5 189	20.9	6 835	22.8
China (excl SARs & Taiwan)	2 430	10.4	2 424	10.1	2 129	8.6	3 126	10.4
HK (SAR of China)	1 725	7.4	1 743	7.2	1 735	7.0	2 025	6.8
S Asia	408	1.7	409	1.7	419	1.7	554	1.9
Central Asia	22	0.1	17	0.1	27	0.1	25	0.1
N America	1 074	4.6	1 051	4.4	1 153	4.6	1 147	3.8
S & Central America & the Caribbean	220	0.9	263	1.1	281	1.1	367	1.2
Sub-Saharan Africa	445	1.9	482	2.0	558	2.2	678	2.3
Total	**23 404**	**100.0**	**24 071**	**100.0**	**24 851**	**100.0**	**29 938**	**100.0**

a Oceania excludes Australia.

Source: DIMIA 2005b.

E Labour market analysis

In chapters 4 and 5, the Commission compared the skills and labour market outcomes (labour force participation rate, unemployment rate, hours worked and income per hour worked) of immigrants and Australian-born workers. Data was also presented on the skills and labour market outcomes for subgroups of immigrants — such as those who had recently arrived in Australia, those with poor English skills and immigrants living in regional areas. Further, the Commission presented estimates of the contribution different factors (such as education level, age and English ability) made to observed differences in the labour market outcomes of immigrant and Australian-born workers.

In the first part of this appendix, we discuss the nature of the data and variables used in the analysis. In section E.2, we outline aspects of the methodology used in the labour market analysis. Finally, additional results, not reported in chapter 4, are presented.

E.1 Data and variables

For the labour market analyses undertaken in chapters 4 and 5, data were collected from the 1986, 1991, 1996 and 2001 Australian Censuses of Population and Housing.

The ABS provided the Commission with unpublished, highly disaggregated group data based on the working-age population (aged 15 years and over). The data provided information on the weighted average of hours worked, weekly income and the number of people for around 66 000 'groups' in each Census. The groups were the result of disaggregating the working age population by sex, state or territory of residence, region (capital city or other), industry of employment, age group, level of post-school education, occupation, country of birth, years since arrival in Australia, and English language ability.

These data were used to derive the dependent and explanatory variables used for the labour market analysis.

Dependent variables

Four labour market statistics were used as dependent variables in the regression and decomposition analysis: the participation rate, unemployment rate, hours worked (per week) and hourly income. The participation and unemployment rates were calculated in the usual manner. Hours worked was reported in the data. Income per hour worked was derived by dividing data on weekly income by hours worked per week.

Explanatory variables

A large set of explanatory variables was used to estimate the participation rate, unemployment rate, hours worked and hourly income models. Each variable was a binary dummy, for which the value was '1' when that group of people had the described feature, an '0' otherwise (Greene 2003, p. 116–7).

The means and standard deviations for these variables are presented in table E.1.

Age variables

Four age category variables were used: 15 to 24 years, 25 to 44 years, 45 to 64 years and 65 years and over. These variables were included in each reported regression model.

Education variables

Four post-school education category variables were used. Each category corresponded to one or more ASCED categories. The variables were:

- no post-school education qualifications
- certificate level qualifications
- bachelor level qualifications — includes bachelor degree, advanced diploma and diploma
- postgraduate level qualifications — includes postgraduate degree, graduate diploma and graduate certificate.

These education variables were used in each regression model, other than for hours worked, where they were replaced by variables describing occupation.

Table E.1 **Summary statistics, means and standard deviations**[a]

	2001	*1996*	*1991*	*1986*
Hourly Earnings	18.52 (10.94)	15.8 (9.97)	13.44 (9.19)	9.62 (5.79)
Age				
15 to 24	0.17 (0.40)	0.18 (0.40)	0.20 (0.41)	0.21 (0.42)
25 to 44	0.50 (0.48)	0.52 (0.48)	0.54 (0.49)	0.53 (0.49)
45 to 64	0.32 (0.47)	0.28 (0.46)	0.25 (0.46)	0.24 (0.45)
65 and over	0.02 (0.33)	0.01 (0.31)	0.01 (0.29)	0.01 (0.29)
Education				
No post-school qualifications	0.50 (0.47)	0.55 (0.47)	0.59 (0.48)	0.59 (0.48)
Certificate Level	0.22 (0.43)	0.19 (0.43)	0.21 (0.44)	0.27 (0.45)
Bachelor level	0.23 (0.45)	0.21 (0.44)	0.17 (0.43)	0.12 (0.42)
Postgraduate level	0.05 (0.37)	0.05 (0.36)	0.03 (0.35)	0.02 (0.32)
Other demographics				
Live in a regional area	0.34 (0.49)	0.35 (0.49)	0.35 (0.49)	0.35 (0.49)
Female	0.45 (0.50)	0.43 (0.50)	0.42 (0.50)	0.39 (0.50)
Migrant	0.24 (0.41)	0.24 (0.41)	0.24 (0.41)	0.25 (0.41)
English ability of migrants				
Not well or not at all	0.01 (0.29)	0.01 (0.29)	0.01 (0.29)	0.02 (0.30)
Very well or well	0.09 (0.46)	0.08 (0.46)	0.08 (0.46)	0.08 (0.45)
Native Speaker	0.14 (0.49)	0.15 (0.49)	0.15 (0.49)	0.15 (0.49)
Years since migrant's arrival in Australia				
Recent (<5)	0.03 (0.41)	0.02 (0.40)	0.04 (0.41)	0.02 (0.40)
Medium (5 to 15)	0.06 (0.44)	0.06 (0.44)	0.05 (0.43)	0.06 (0.43)
Long term (15+)	0.15 (0.47)	0.15 (0.47)	0.15 (0.47)	0.16 (0.47)
Industry				
Accommodation, cafes & rest.	0.05 (0.26)	0.05 (0.26)	0.04 (0.25)	0.03 (0.25)
Agriculture, forest. & fish.	0.04 (0.23)	0.04 (0.23)	0.05 (0.23)	0.06 (0.23)
Communications	0.02 (0.20)	0.02 (0.20)	0.02 (0.19)	0.02 (0.19)
Construction	0.07 (0.23)	0.07 (0.23)	0.06 (0.23)	0.07 (0.24)
Culture and rec	0.02 (0.22)	0.02 (0.23)	0.02 (0.22)	0.02 (0.22)
Electricity, gas and water	0.08 (0.25)	0.08 (0.25)	0.07 (0.25)	0.07 (0.26)
Education	0.01 (0.18)	0.01 (0.17)	0.01 (0.18)	0.02 (0.19)
Finance	0.04 (0.22)	0.04 (0.22)	0.05 (0.22)	0.05 (0.22)
Government	0.05 (0.24)	0.05 (0.24)	0.06 (0.25)	0.06 (0.25)
Health	0.10 (0.26)	0.10 (0.26)	0.09 (0.26)	0.09 (0.27)
Manufacturing	0.12 (0.26)	0.13 (0.26)	0.14 (0.26)	0.15 (0.26)
Mining	0.01 (0.18)	0.01 (0.19)	0.01 (0.19)	0.01 (0.20)
Personal services	0.04 (0.24)	0.04 (0.24)	0.03 (0.24)	0.03 (0.23)
Prof. & business services	0.11 (0.27)	0.10 (0.27)	0.08 (0.26)	0.07 (0.26)
Retail trade	0.15 (0.26)	0.14 (0.26)	0.14 (0.26)	0.14 (0.26)
Transport and storage	0.04 (0.23)	0.04 (0.23)	0.05 (0.22)	0.05 (0.22)
Wholesale trade	0.05 (0.24)	0.06 (0.23)	0.06 (0.24)	0.06 (0.23)

a Standard deviations presented in brackets.

Source: Commission estimates based on unpublished ABS data.

Demographic variables

Two demographic variables were included:

- Lives in a regional area — all persons who lived outside capital cities
- Female.

Both of these variables were included in each model.

Migrant specific variables

A collection of immigrant specific variables was included. The variables indicated the length of time an immigrant had been in Australia and their English language ability. These variables were included in most of the regression models. However, because these variables related only to migrants, they were not included in the decomposition analysis.

Time since arrival in Australia

Three variables were used to measure the length of time that immigrants had been in Australia:

- Recently arrived — in Australia less than five years
- Medium term — in Australia for between five and fifteen years
- Long term — in Australia for more than 15 years.

English language ability

Three variables were used to measure the English language proficiency of immigrants:

- English only — immigrant's who reported that they only speak English at home
- Speak English 'very well' or 'well'
- Speak English 'not well' or 'not at all'.

Industry of employment

Seventeen industry groups were used as variables. The groups were based on the one-digit industry codes from the Australian and New Zealand Industry Classification. The industry variables are:

- Accommodation, cafes and restaurants

- Agriculture, forestry and fisheries
- Communications
- Construction
- Culture and recreational services
- Electricity, gas and water
- Education
- Finance
- Government, administration and defence
- Health
- Manufacturing
- Mining
- Personal services
- Professional and business services
- Retail trade
- Transport and storage
- Wholesale trade.

Occupations

Six occupation groups were used. The groups were based on the Australian Standard Classification for Occupations (ASCO) second edition. The nine one-digit groups were combined, where appropriate according to the ASCO occupational skill index;

- Managers and administrators, and professionals
- Associate professionals
- Tradespersons and related workers, and advanced clerical and sales and service workers
- Intermediate clerical, sales, service, production and transport workers
- Other employed.

Data issues

There are pitfalls to using the Census to obtain labour force statistics. These relate to both the nature of the data and the way in which it is collected. The problems include:

- All data collected from the Census is self-reported (unlike data collected for the ABS's labour force surveys) and may suffer from bias or human error.
- Income data collected from the Census is given in bands, which is asymmetrically compressed at the upper end of the income distribution. Further, the income which is reported includes earnings from all sources, including rental properties and other investments.
- Hours worked data is not an average over the year, but taken from the week prior to the census. This might have significant implications in certain industries and for shift or part-time workers.

The impact of these issues on the validity of the results is tempered by the comparative nature of the analysis. Because chapters 4 and 5 are concerned with the relative labour market outcomes of immigrants and Australian-born workers, the possibility of bias or systematic error in the Census income or hours worked data would only present a problem if it affected immigrants and Australian-born workers differently.

Further, even given these underlying concerns, the Census remains the most appropriate data set for comparing, at a highly detailed level, the labour market outcomes of immigrants and Australian-born workers over time. In comparison, other potentially suitable data sets have more fundamental problems, such as not reporting information on both hours worked and income (such as the ABS *Labour Force Survey*), having too small a sample (ABS *Survey of Income and Housing*), or only collecting labour market data on immigrants (the Department of Immigration and Multicultural Affairs, *Longitudinal Survey of Immigrants to Australia*).

E.2 Method

In chapters 5 and 6, the labour market performances of immigrants and Australian-born workers were compared through weighted, ordinary least square regressions. The labour market variable of interest (participation rate, unemployment rate, hours worked and hourly income) was regressed on a set of explanatory variables drawn from the broader human capital literature, previous empirical studies and model specification tests.

To test whether the regression models were correctly specified (and more specifically, test whether significant interaction effects had been omitted), a stepwise regression procedure (Greene 2003, p. 152) was used to test all possible combinations of interactive variables.

Decomposition analysis

In order to help better clarify the sources of difference in the earnings of immigrants and Australian-born workers (or between other groups of interest), a Blinder-Oaxaca decomposition technique was used (Greene 2002, p. 71).

The Blinder-Oaxaca technique divides the difference in the estimated labour market outcome between immigrants and Australian-born workers into two parts: a part reflecting differences in characteristics (composition) between immigrants and Australian-born workers, and a part reflecting differences in parameters (or differences after controlling for composition) between immigrants and Australian-born workers.

Simplified regression equations are estimated for immigrants and Australian-born workers and used in conjunction with these groups' mean values for each variable, to decompose the sources of difference. For example, using the Blinder-Oaxaca technique, we estimate the hourly income of Australian-born workers ($E[HI_{AB,i}]$) for Census period i and subtract the estimated hourly income of immigrant workers for the same period ($E[HI_{I,,i}]$):

$$E[HI_{AB,i}] - E[HI_{I,i}] = x'_{AB,i}\beta_{AB} - x'_{I,i}\beta_I$$

$x'_{AB,i}$ and $\beta'_{I,i}$ where are the sets of mean values for each explanatory variable, and are the estimated coefficients on each explanatory variable for Australian-born and immigrant workers respectively.

The difference in estimated hourly income can be decomposed as follows:

$$\begin{aligned} E[HI_{AB,i}] - E[HI_{I,i}] &= x'_{AB,i}\beta_{AB} - x'_{AB,i}\beta_I + x'_{AB,i}\beta_I - x'_{I,i}\beta_I \\ &= x'_{AB,i}(\beta_{AB} - \beta_I) + (x'_{AB,i} - x'_{I,i})\beta_I \end{aligned}$$

The first term on the right-hand side above can be described as the unexplained, non-compositional component of the hourly income difference while the second term is that due to differences in endowments of human capital and other explanatory factors (differences in composition).

This procedure is identical for decomposition involving participation rates, unemployment, and working hours.

E.3 Additional results

The following tables present regression results for participation rates (table E.2), unemployment rates (table E.3) and working hours (table E.4).

Table E.2 **Participation rate regression results**

	2001	*1996*	*1991*	*1986*
Adj. R-square	0.95	0.95	0.93	0.92
Participation rate for 25-44 year old, Australian-born, no qualifications	80.85	82.63	85.20	84.39
Age				
15 to 24	-8.49	-8.47	-10.51	-7.03
45 to 64	-11.31	-13.49	-16.67	-18.48
65 and over	-68.69	-69.64	-70.02	-66.95
Education				
Postgraduate level	21.50	21.52	19.19	19.99
Bachelor level	18.28	18.26	16.92	17.88
Certificate Level	12.62	12.24	12.59	13.88
Gender				
Female	-12.99	-15.30	-18.19	-23.38
Migrant status				
Migrant	3.23	2.49	2.28	4.09
English ability of migrants				
Not well or not at all	-21.80	-16.36	-8.62	-7.09
Very well or well	-8.57	-5.70	-4.30	-4.56
Years since migrant's arrival in Australia				
Recent (<5)	-7.95	-9.76	-1.35 [a]	0.50 [a]
Medium (5 to 15)	-1.13 [a]	0.52 [a]	2.05	0.66 [a]

Note: All reported coefficients are significant at the one per cent level, unless otherwise indicated. [a] Not significant. Model also includes interactive effects between migrants' age, education, English ability and years since arrival in Australia.

Source: Commission estimates.

Table E.3 **Unemployment rate regression results**

	2001	*1996*	*1991*	*1986*
Adj. R-square	0.77	0.77	0.82	0.71
Unemployment rate for 25-44 year old, Australian-born, no qualifications	9.15	10.79	12.6	9.88
Age				
15 to 24	5.92	6.71	8.62	8.25
45 to 64	-1.80	-1.49	-2.55	-2.09
65 and over	-4.95	-5.51	-4.37	-4.04
Education				
Postgraduate level	-5.63	-7.19	-8.61	-7.34
Bachelor level	-5.51	-6.76	-7.82	-7.48
Certificate Level	-3.62	-4.45	-4.93	-5.83
Gender				
Female	-1.55	-2.06	-2.63	-0.74
Migrant status				
Migrant	-1.47	-1.14	-1.21	-2.00
English ability of migrants				
Not well or not at all	12.16	15.2	17.98	13.48
Very well or well	2.54	3.33	3.76	1.81
Years since migrant's arrival in Australia				
Recent (<5)	5.20	9.68	9.27	12.20
Medium (5 to 15)	1.27	0.61 [a]	2.44	2.90

Note: All reported coefficients are significant at the one per cent level, unless otherwise indicated. [a] Significant at the 5 per cent level. Model also includes interactive effects between migrants' age, education, English ability and years since arrival in Australia.

Source: Commission estimates.

Table E.4 **Working hours regression results**

	2001	*1996*	*1991*	*1986*
Adj. R-square	0.83	0.81	0.76	0.7
Hours worked for 25-44 year old, Australian-born, 'other occupation' in manufacturing industry.	37.92	36.77	37.09	37.22
Age				
15 to 24	-4.90	-2.70	-1.90	0.03 [b]
45 to 64	0.16	-0.31	-0.43	-0.72
65 and over	-10.73	-9.39	-8.59	-8.32
Occupation				
Managers and professionals	7.53	5.65	5.07	4.57
Associate professionals	5.73	4.65	3.13	2.17
Tradespersons and advanced clerical	3.01	2.47	1.85	1.28
Intermediate clerical/ sales	2.73	2.42	2.26	1.72
Gender				
Female	-7.09	-6.02	-6.33	-6.38
Migrant status				
Migrant	0.07[b]	0.07[b]	0.21	0.18
English ability of migrants				
Not well or not at all	-2.26	-1.00	-0.74	-0.64
Very well or well	-0.80	-0.26	-0.13[a]	-0.10 [b]
Years since migrant's arrival in Australia				
Recent (<5)	-0.59	-0.19[b]	0.28	0.64
Medium (5 to 15)	0.14 [b]	0.37	0.49	0.39
Industry				
Accommodation, cafes & rest.	-8.39	-8.92	-8.52	-7.48
Agriculture, forest. & fish.	0.69	-1.06	-0.47	0.30 [a]
Communications	-2.44	-1.24	-2.14	-2.80
Construction	-0.56	-1.22	-1.31	-1.30
Culture and rec	-7.89	-7.99	-7.92	-6.96
Education	-6.80	-7.23	-6.40	-6.70
Electricity, gas and water	-1.07	-1.21	-0.74	-1.57
Finance	-4.09	-4.06	0.71	0.63
Government	-5.70	-5.21	-1.46	-1.24
Health	-5.60	-5.99	-4.10	-3.96
Mining	8.26	1.40	0.31[a]	-0.78
Personal services	-6.31	-6.72	-5.90	-4.22
Property & business services	-6.30	-7.21	-6.57	-5.44
Retail trade	-7.98	-8.77	-5.74	-3.76
Transport and storage	-1.20	-0.50	-0.49	-1.13
Wholesale trade	-0.90	-0.90	-0.67	0.58

Note: All reported coefficients are significant at the one per cent level, unless otherwise indicated. [a] Significant at the 5 per cent level. [b] Not significant. Model also includes interactive effects between occupation and industry as well as between migrants' age, English ability and years since arrival in Australia.

Source: Commission estimates.

F Effects on labour supply of an increase in skilled migration

The Commission has been asked to examine the effects of migration and population growth on productivity, economic growth and the skill levels of the Australian population. In addition, industry, occupation and regional effects are to be identified, where possible. It is difficult to isolate the effects of migration by simply analysing real world data, such as that collected by the ABS. There are too many other factors that are important in explaining observed outcomes.

An alternative approach is required. Therefore, to shed light on these effects, the Commission has simulated the impacts on the economy of a 50 per cent increase in the level of skilled migration. The effect of migration is estimated as the difference between the outcomes in the economy of a base-case simulation and the increased-migration simulation.

The first step in this alternative approach is to simulate the effects of increased skilled immigration on labour supply.

Outlined in this appendix is a description of two demographic models, the Labour Supply Projection model (LSP) and the New Arrival Tracker (NAT). These models are used to project the population and labour supply effects of a change in the number and composition of immigrants. The appendix is structured in six parts:

- Section F.1 describes the role of the two demographic models.
- Section F.2 presents summary results of the projections.
- Section F.3 explains the modelling framework embedded in NAT.
- Section F.4 describes the key assumptions of the demographic modelling.
- Section F.5 outlines the data used to calculate parameters for NAT.
- Section F.6 outlines some stylised facts about the new arrivals.

F.1 Role of the two demographic models

The Labour Supply Projection (LSP) model was developed for the Commission's report on ageing (PC 2005b). For the purpose of this study, LSP has been modified to project Australia's labour supply by detailed categories of qualifications.

The New Arrival Tracker (NAT) was developed to quantify the contributions of new arrivals[1] to those projections. The projections in NAT are based on reasonable assumptions about the age, gender, labour market and qualification profile of future immigrants.

The two models are used to project a base case and an increased-migration simulation. The base case is an estimate of the supply of labour over the next 20 years, using the medium scenario projections from the ageing study. It includes a base case assumption that migration continues at a fixed level from 2003-04. The increased-migration simulation includes a 50 per cent increase in the level of skilled immigration, phased in over two years from 2004-05.

F.2 Results

This section presents a summary of results from NAT and LSP,[2] including 20-year projections for:

- population size
- labour supply, including the four factors that determine hours worked per capita
- hours supplied by qualification level and field (see annex F.1 for a key to the qualification classifications).

The labour market projections are driven by two factors: parameters on participation, unemployment, hours and qualifications for different age–gender groups; and changes in the shares of age–gender groups as people age and more immigrants arrive.

The focus of this appendix is how the new arrivals, in particular the 'additional' new arrivals in the increased-migration simulation, differ from the existing population. The differences between the additional immigrants and the rest of the population affect aggregate labour supply.

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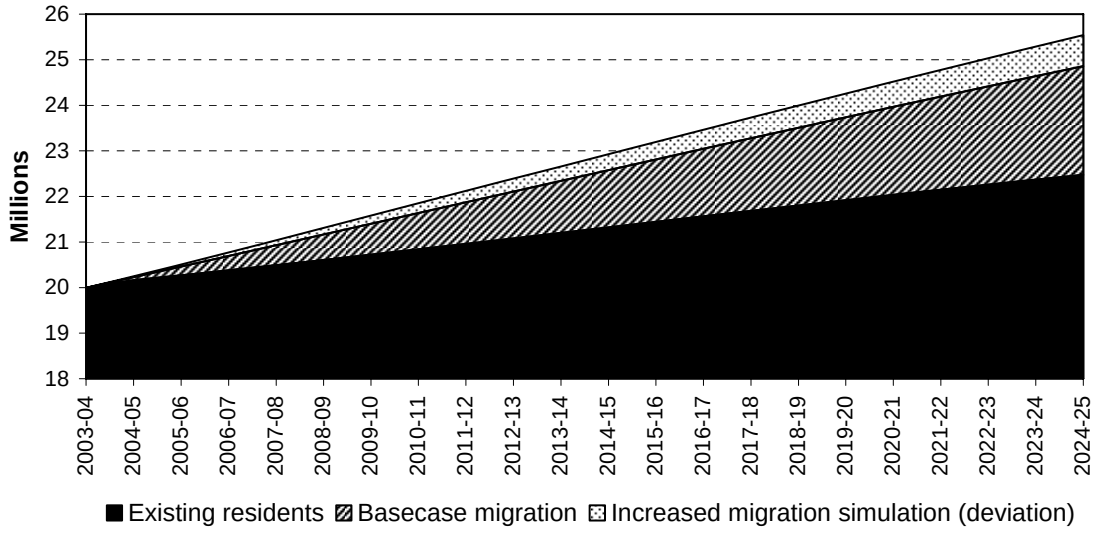
1 For the purposes of this analysis, people arriving under the migration and humanitarian programs in Australia after 30 June 2004 are called 'new arrivals'. This includes children or family that accompany the primary applicant, but not children subsequently born in Australia.

2 Technical Paper (forthcoming) describes the results in detail and how they were generated.

Population

Migration is a significant source of population increase in Australia. In the base case, there are projected to be about 2.38 million more people in Australia by 2024-25, because of the cumulative effect of immigration. This increases to 3.06 million in the increased-migration simulation. Over the same period, the natural increase in population is about 2.48 million (figure F.1).

Figure F.1 **Population projections with two migration scenarios**
Base case and increased-migration simulation



Source: Commission projections from NAT and LSP (PC 2005b).

Labour supply

In this study, labour supply is expressed in terms of hours worked per head of population. This can be expressed as the function of four ratios:

$$\frac{Hours}{POP} = \frac{POP15+}{POP} \times \frac{LF}{POP15+} \times \frac{EMP_t}{LF_t} \times \frac{Hours}{EMP}$$

$$= \frac{POP15+}{POP} \times \frac{LF}{POP15+} \times (1-UR) \times \frac{Hours}{EMP}$$

where POP15+ is the population aged over 15 years, EMP is number of persons employed, UR is the unemployment rate and LF is the labour force (people in work or looking for work). Also:

$\frac{POP15+}{POP}$ = proportion of the population of working age

$\frac{LF}{POP15+}$ = participation rate

$1-UR = \frac{EMP}{LF}$ = employment rate

$\frac{Hours}{EMP}$ = average hours worked per worker.

Table F.1 shows the components of labour supply for the base case and the increased-migration simulation in 2004-05 and 2024-25 (the first and last years of the projections).

Table F.1 **Summary of projected labour supply**

		2004-05	*2004-05*	*2024-25*	*2024-25*
		Base case	Increased migration	Base case	Increased migration
Total population	(persons)	20 228 190	20 237 920	24 855 754	25 539 730
Proportion of working age	(%)	80.2	80.2	82.6	82.7
Participation rate	(%)	63.5	63.5	59.9	60.5
Unemployment rate	(%)	5.9	5.6	4.9	4.9
Average hours per worker	(hours/week)	33.6	33.6	32.57	32.61
Hours worked per head of population	**(hours/week)**	**16.1**	**16.1**	**15.3**	**15.5**

Source: Commission projections from LSP (scenario 2) and NAT.

The projections show:

- the effect on labour supply of the increased migration is positive but small
- between 2004-05 and 2024-25, the decrease in participation, unemployment and average hours in both projections is due mostly to the effect of ageing
- by 2024-25, the effect of the increased immigration is to increase the proportion of working age people in the population, participation rates and average hours per worker. This reflects the younger age profile of new arrivals, and the fact that today's skilled immigrants tend to have better labour market outcomes than the rest of the population.

The overall effect of the additional immigrants is to increase the number of hours worked per head of population by 1.3 per cent. More than three quarters of this increase is due to the increase in participation rates.

It is the difference that matters

The aggregate effects shown in table F.1 depend on the difference between the characteristics of new arrivals and the existing population, as well as the relative size of the two groups. Specifically, the deviation between the base case and the increased-migration simulation depends on the labour outcomes of the additional new arrivals compared with the labour outcomes of the base case total population.

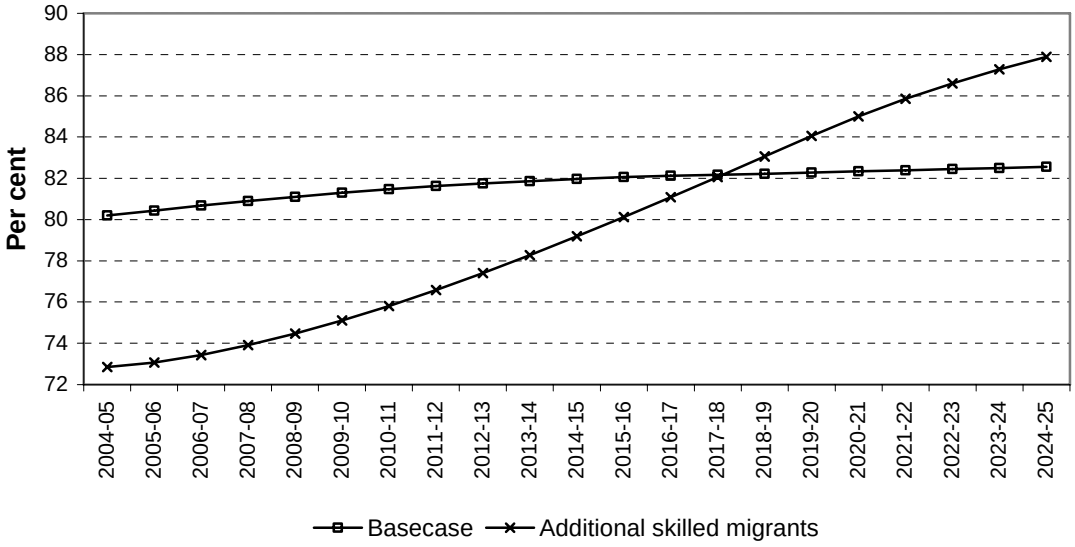
The next five figures present two panels each. Panel (a) compares the additional immigrants and the baseline population. Panel (b) shows the *effect* of the differences in panel (a). The increased-migration simulation is the weighted average of the base case population and the additional immigrants.

The working age share of the additional immigrants is initially lower than that of the base case (figure F.2). However, as the children of immigrants reach working age, the working age share increases above the base case in 2017-18.

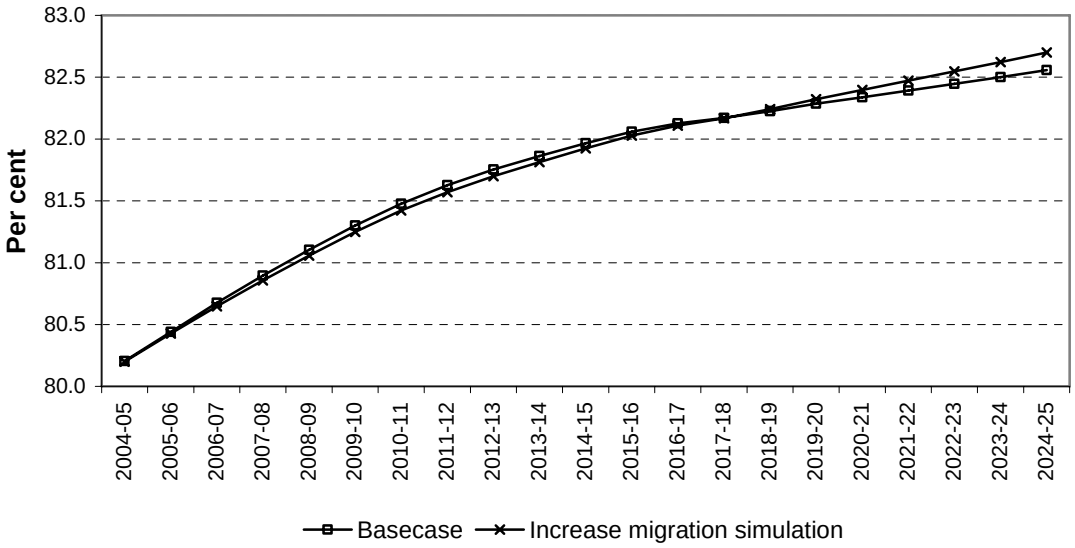
Panel (b) shows that the aggregate effect is small. Initially, the working age share is lower in the increased-migration simulation. After 2017-18, the working age share of the increased-migration simulation is higher than in the base case.

Figure F.2 **Projected working age share**
2004-05 to 2024-25

(a) Difference between the additional immigrants[a] and the base case population



(b) Effect on the total population (weighted average)



a The profile of the additional immigrants is the same as the profile of the entire skilled visa category.

Source: Commission projections from NAT and LSP (PC 2005b).

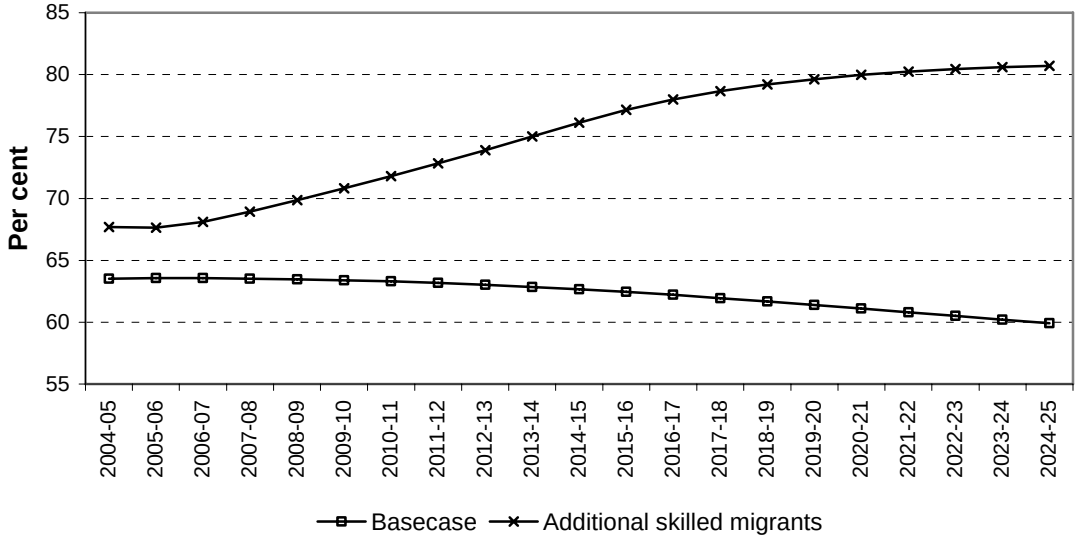
The additional immigrants have higher participation rates than does the base case population (figure F.3). This is primarily due to the age–gender structure of skilled immigrants. Skilled immigrants tend to be of prime working age and are more likely to be male. Both of these characteristics are associated with higher participation rates.

The gap between the base case and the additional immigrants increases as the new arrivals acclimatise to the Australian labour market (explained further in section F.3).

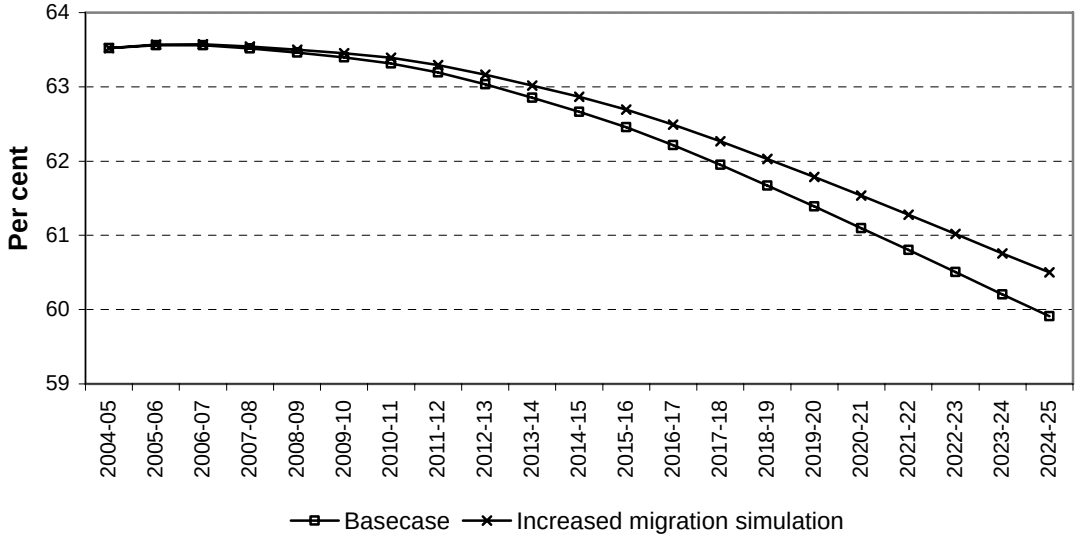
Panel (b) shows that the additional immigrants pull up the participation rates in the increased-migration simulation.

Figure F.3 **Projected participation rates**
2004-05 to 2024-25

(a) Difference between the additional immigrants and the base case population



(b) Effect on the total population (weighted average)

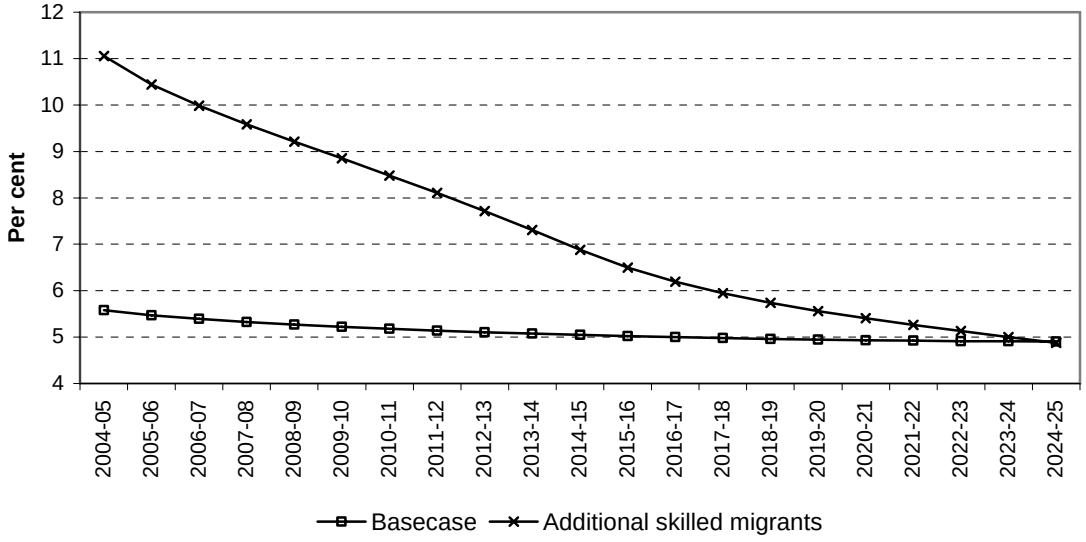


Source: Commission projections from NAT and LSP (PC 2005b).

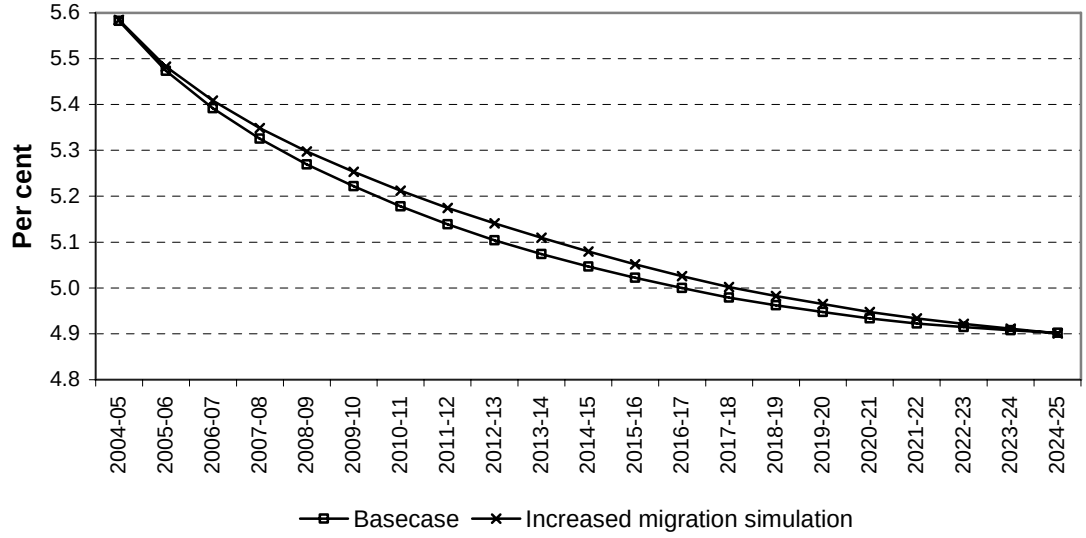
The additional immigrants have significantly higher unemployment rates for the first 18 years of the projections (figure F.4). Newly arrived immigrants tend to have higher unemployment rates after coming to Australia. However, as successive cohorts of new arrivals adjust to the labour market, the gap reduces. In 2024-25, the unemployment rate of the additional immigrants falls below the base case. Panel (b) shows that the unemployment rate is higher in the increased-migration simulation, except in 2024-25.

Figure F.4 **Projected unemployment rates**
2004-05 to 2024-25

(a) Difference between the additional immigrants and the base case population



(b) Effect on the total population (weighted average)



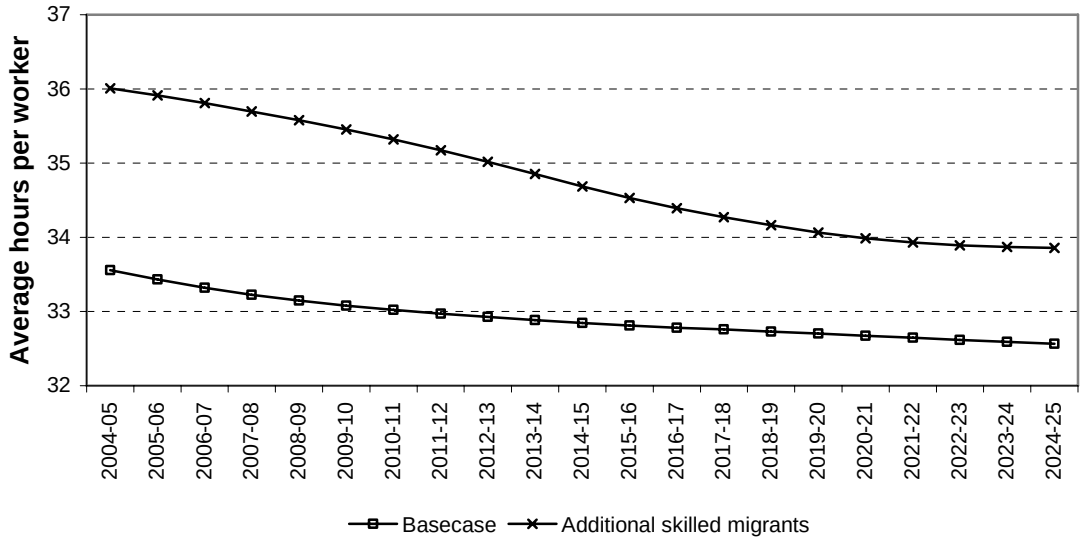
Source: Commission projections from NAT and LSP (PC 2005b).

The additional immigrants work more hours per week than does the rest of the population (figure F.5). This is due to differences in the characteristics of the additional immigrants compared with the base case. The additional immigrants tend to be of prime working age, which is associated with working longer average hours.

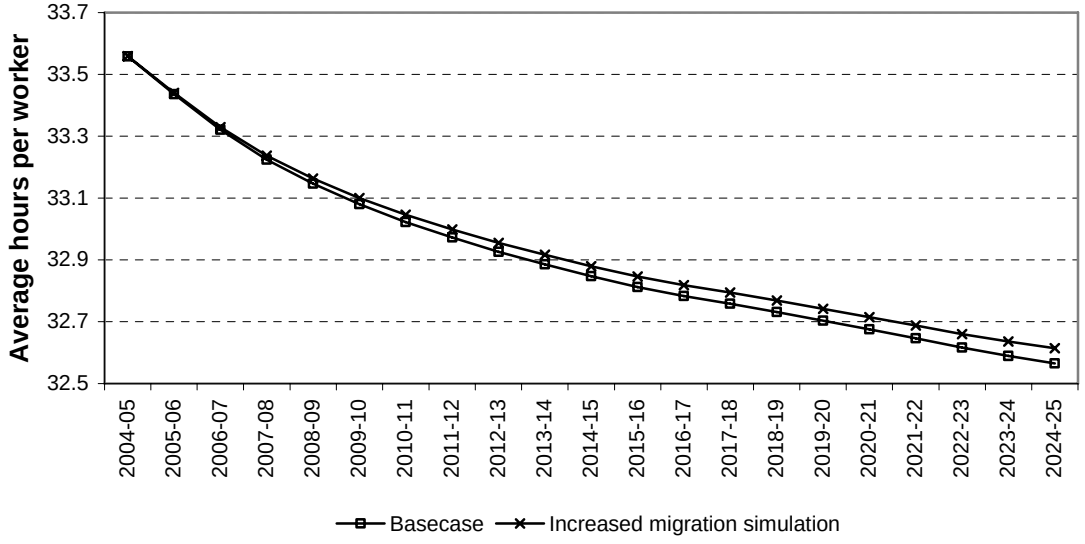
Panel (b) shows average hours per worker increases by 0.15 per cent by 2024-25.

Figure F.5 **Projected average hours per worker**
2004-05 to 2024-25

(a) Difference between the additional immigrants and the base case population



(b) Effect on the total population (weighted average)

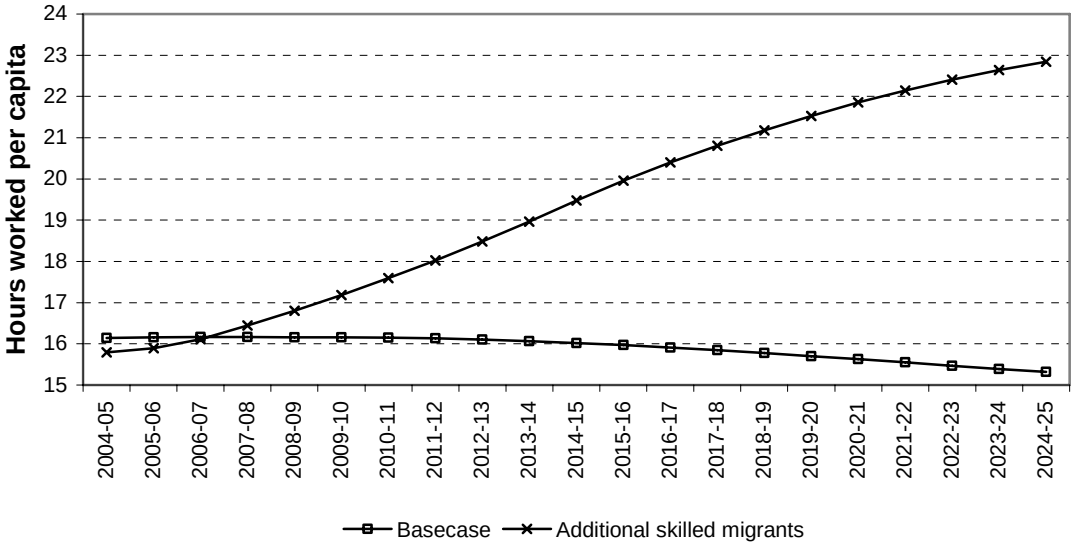


Source: Commission projections from NAT and LSP (PC 2005b).

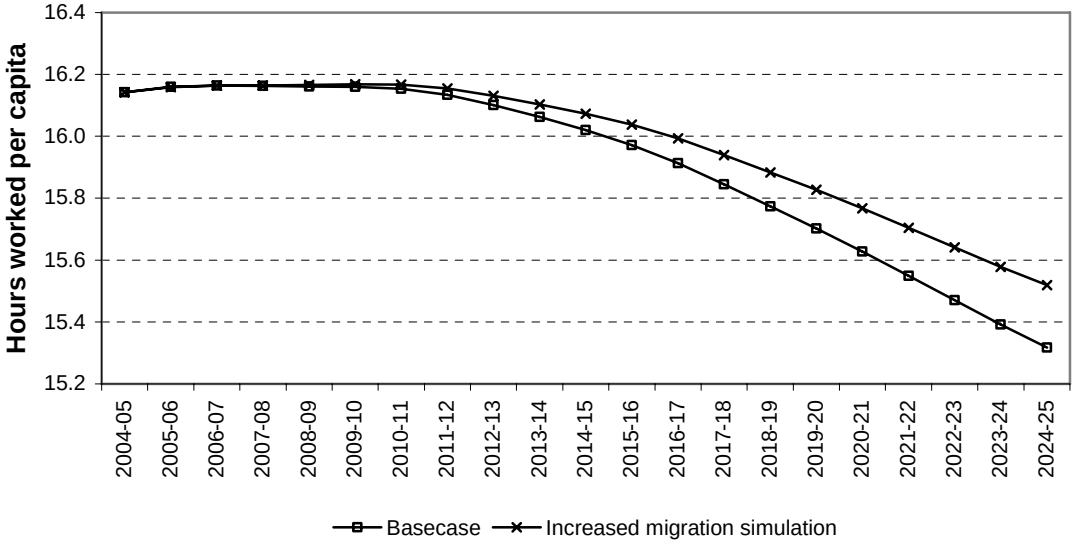
The combined effect of the four ratios determines the change in labour supply per capita (figure F.6). Panel (a) shows that, after the first three years, the additional immigrants work more hours per capita — almost 50 per cent more by 2024-25. The weighted average effect is a 1.3 per cent increase in hours worked per capita in the increased-migration simulation, shown in panel (b).

Figure F.6 **Overall effect on labour supply**
2004-05 to 2024-25

(a) Difference between the additional immigrants and the base case population



(b) Effect on the total population (weighted average)



Source: Commission projections from NAT and LSP (PC 2005b).

Hours by 67 qualifications

The main input into the MONASH Model is the change in the number of hours of work supplied, by qualification (annex F.1).

Figure F.7 shows the share of hours worked by qualification in 2004-05. Panel (a) presents the qualification mix for the base case population. It shows:

- almost 48 per cent of hours are supplied by people with no post-school qualification
- the most common level of post-school qualification is certificate III or IV, accounting for 20 per cent of hours worked, followed by bachelor degrees (16 per cent)
- diplomas, postgraduate degrees and graduate diplomas represent 9, 4 and 3 per cent of hours worked respectively
- engineering and related technologies is the most common field, providing 13 per cent of hours worked; management and commerce is almost as large, accounting for 10 per cent of hours worked.

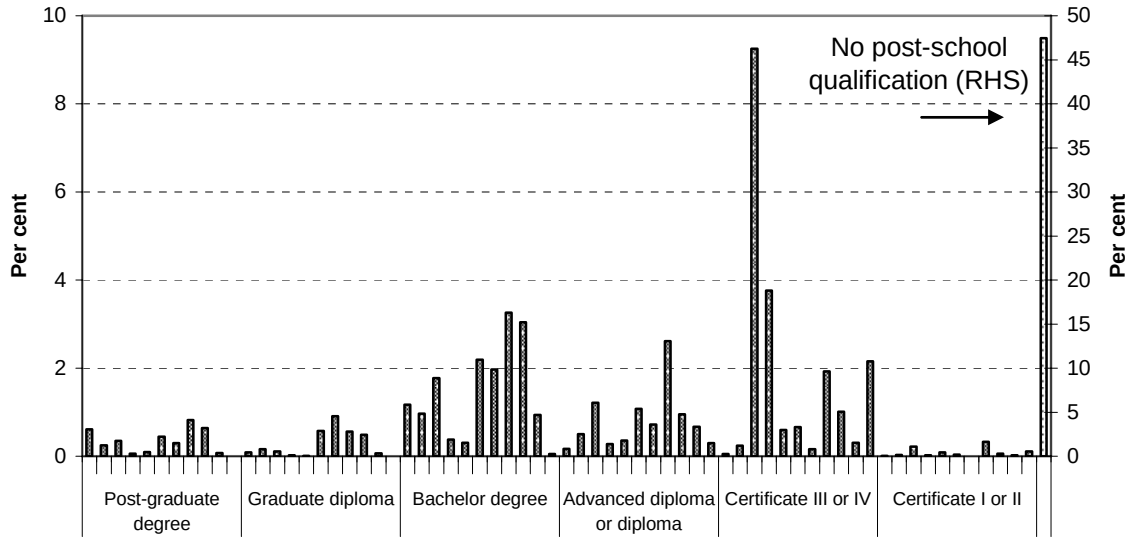
Panel (b) shows the qualification mix of the additional immigrants.[3] It shows:

- the skill mix of additional hours worked is significantly higher; only 26 per cent of the additional hours worked are by people with no post-school qualification
- the most common level of qualification is a bachelor degree, accounting for 34 per cent of the additional hours
- postgraduate degrees and certificates III or IV represent 14 and 12 per cent of the additional hours respectively
- management and commerce, and engineering are the most common fields, providing almost 18 per cent each of the additional hours worked.

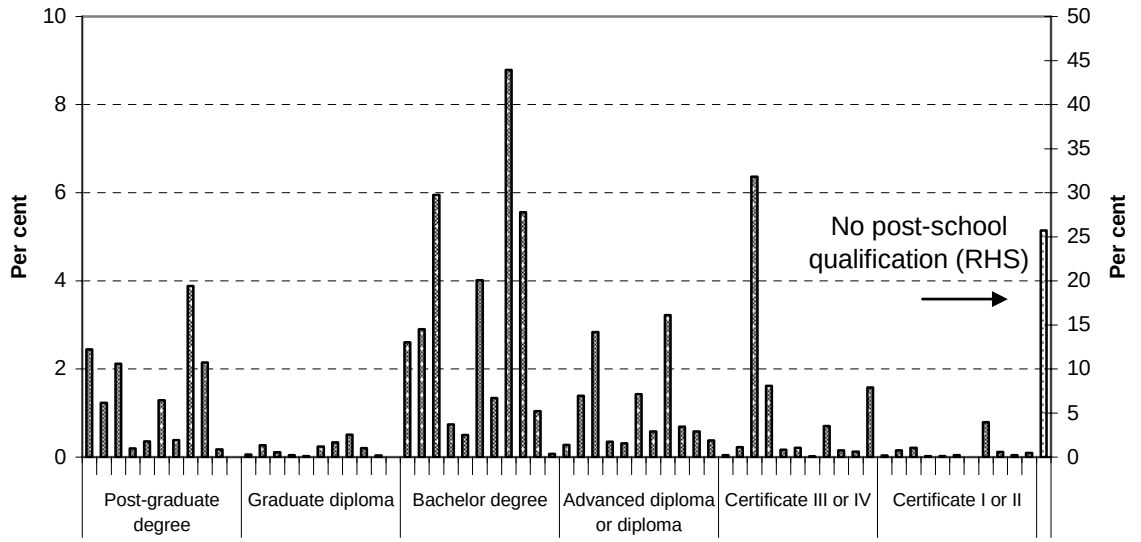
3 The qualification profile of the additional immigrants is the same as for all skilled immigrants.

Figure F.7 **Share of hours worked by qualification**
2004-05

(a) Base case — total population



(b) Increased-migration simulation — additional immigrants only



Qualification fields (from left to right within each qualification level)

1: Natural and physical sciences
2: Information technology
3: Engineering and related
4. Architecture and building
5: Agriculture
6: Health
7: Education
8: Management/commerce
9: Society and culture
10: Creative arts
11: Food, hospitality, personal services

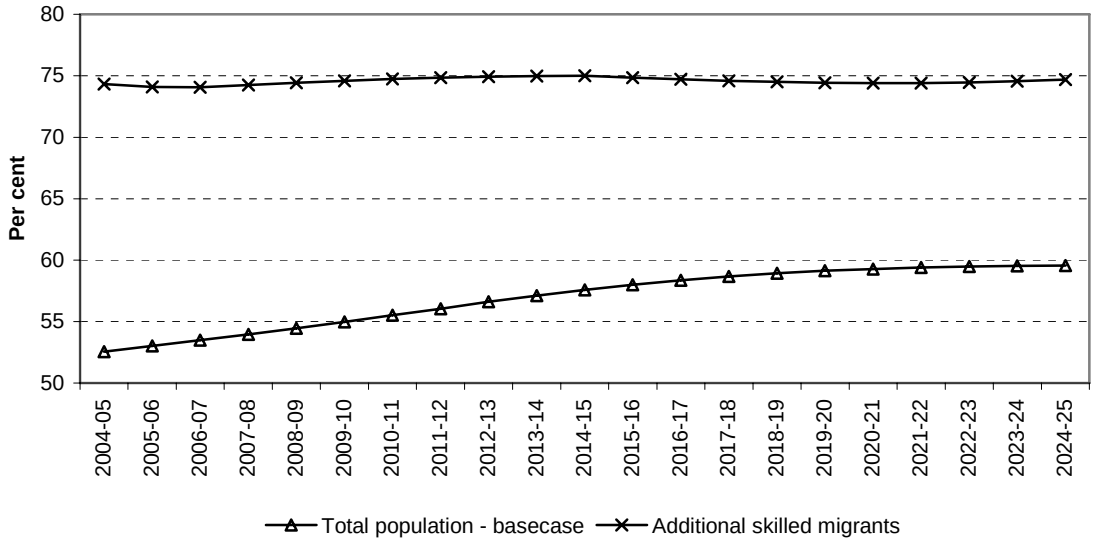
Sources: (a) Total population shares from CoPS, based on the Survey of Education and Work; (b) Commission projections from NAT. See complete qualification key in annex F.1.

The qualification shares change over time

Australia's education levels are increasing over time. The share of hours worked by people with a post-school qualification is increasing. Furthermore, the trend is toward postgraduate diplomas and degrees. This upskilling of the labour supply is incorporated into the projections for the total population in the base case. By assumption, the skills of new arrivals change at the same rate.[4] The trends in qualification shares are based on extrapolations from the Survey of Education and Work from 1995 to 2004.

From figure F.8, it can be seen that, for the total population, the share of hours worked by people with some post-school qualification increases from 52.5 per cent to 59.6 per cent.

Figure F.8 **Trends in the 'skilled' share of hours worked**
All qualifications other than 'no post-school qualification'



Sources: Commission projections from NAT; total population trends from CoPS, based on the Survey of Education and Work.

4 The rates of change were applied by broad level of qualification, gender and five-year age groups. For example, the share of hours worked by 35 to 39 year old males with postgraduate degrees increases by 33 per cent over the 20 years of the projection.

Although new arrivals are assumed to upskill at the same rate, the share of 'skilled' hours worked by the additional immigrants remains fairly constant, at around 75 per cent:

- The additional immigrants have a high proportion of skilled persons, 63 per cent compared with around 50 per cent in the total working age population.
- Furthermore, immigrants with qualifications significantly outperform unskilled immigrants in their first few years in Australia's labour market. This explains around half of the gap between the base case population and the additional immigrants in 2004-05.
- However, the change in the composition of hours worked by new arrivals counteracts the upward trend in skills across all age–gender groups:
  - The labour supply of less skilled new arrivals increases faster than skilled new arrivals, because they have further to 'catch up'.
  - The number of hours worked by cohorts with low rates of post-school qualifications increases as a share of all hours worked by new arrivals. For example, the share of hours worked by 15 to 24 year old males almost doubles from 2004-05 to 2024-25.[5]

As shown in figure F.9, by 2024-25:

- the share of hours worked by people with no post-school qualification falls by 0.6 percentage points (1.5 per cent)
- the share of hours worked by people with diplomas, bachelor degrees and higher degrees increases by 0.9 percentage points (2.5 per cent)
- the share of hours worked by people with certificates falls by 0.3 percentage points (1.5 per cent). Specifically, the additional immigrants are less likely to have certificate III or IV or 'trade' qualifications.

F.3 Modelling framework

This study uses two models to project the demographic and labour market outcomes of the total population:

- LSP: the population, labour market and GDP projection model from *Economic Implications of an Ageing Australia* (PC 2005b) provides the base of the analysis and the labour market outcomes for the majority of the Australian population.

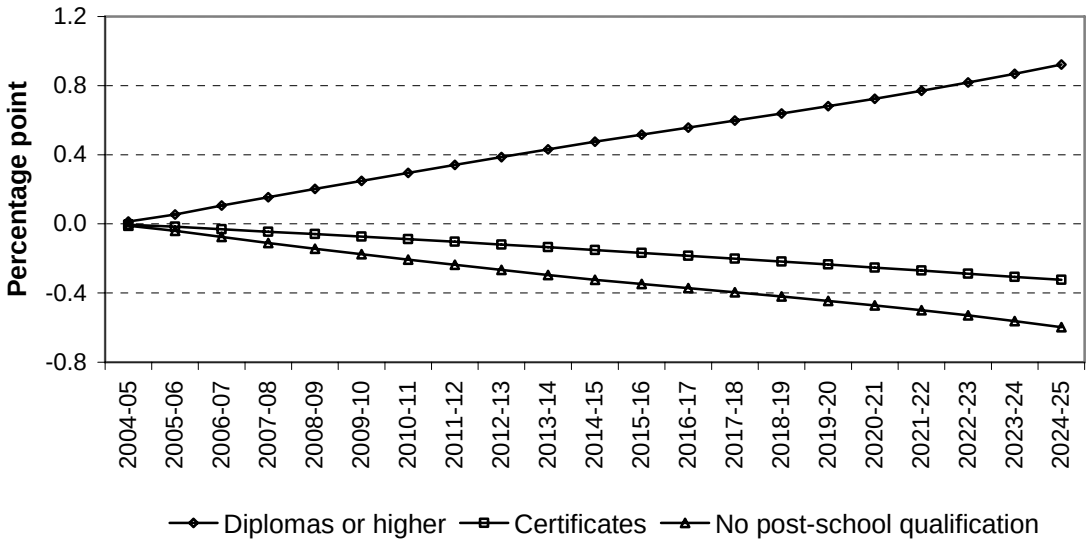
5 This is compounded by children of the additional immigrants entering the labour force.

- NAT: the New Arrival Tracker provides detailed labour supply projections of new arrivals, including a qualification dimension.

In the context of this study, the main purpose of the two models is to generate the labour supply simulation for the MONASH Model.[6] Appendix G summarises the key aspects of the MONASH Model.

Figure F.9 **Deviation in the share of hours worked by qualification levels**

Increased-migration simulation minus base case for the total population, 2004-05 to 2024-25



Sources: Commission projections from NAT; total population trends from CoPS, based on the Survey of Education and Work.

Calculating the deviation by reconciling NAT and LSP

The combination of NAT with LSP is a critical step to analysing the effect of migration. Neither model can, by itself, project results for the entire population *while* allowing for variations in the characteristics of immigrants. NAT does not project the number of existing Australians or their labour outcomes. LSP assumes that any 'extra' immigrants in Australia have the same characteristics as existing Australians of the same age and gender.

The calculation of the policy deviation is a three-step process:

6 However, the projection models can be used to estimate the effect of different policy or structural changes on the supply of labour more generally.

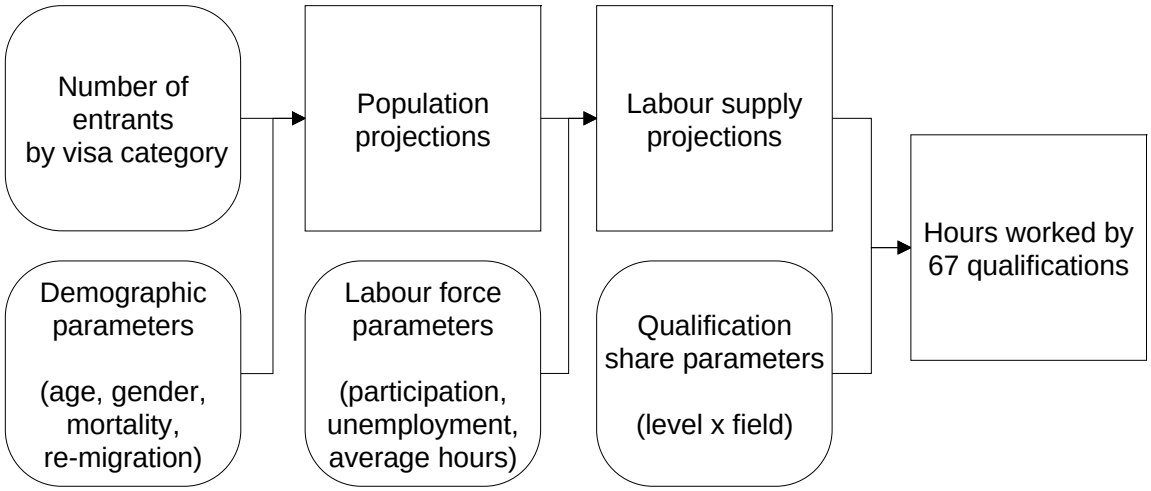
1. Use NAT to project the base case number of new arrivals, including the labour force, employed persons and hours worked.
2. Subtract the step 1 projections from the base-case simulation for the total population obtained from LSP. This provides the 'residual', a projection of the labour outcomes of the total population *excluding* the new arrivals.
3. Use NAT to project the increased-migration simulation for new arrivals, and add the results to the 'residual' from step 2.

This process generates projections for Australia's total population, labour force, workers and hours worked, allowing for the different characteristics of new arrivals.

Three key aspects of NAT

NAT projects three different types of results: population numbers, labour market projections and hours worked by qualification. The results progress from the population projections to the labour market projections, then to the hours worked by qualification (figure F.10).

Figure F.10 **Progression of the projections in NAT[a]**



a Square boxes represent results.

Population projections

NAT projects the number of new arrivals still in Australia at the end of each financial year, by single-year age and gender. The results depend on the number of new arrivals entering each year, the age and gender structure of arrivals (estimated by visa category), mortality rates and emigration rates.

To generate the projections, NAT applies the structure of LSP to a small section of the total population. Specifically, NAT uses the cohort-component method: a cohort of people of a certain age and gender move from age x in one year to age x + 1 in the next year. Some people exit the cohort, through mortality and emigration, and others enter, via immigration.[7]

For mortality, NAT uses the medium life expectancy scenario from LSP, but the focus on new arrivals in NAT requires a more detailed treatment of migration. The definition of 'new arrivals' also defines immigration: the arrivals each year under the Migration and Humanitarian Programs. The model accounts for emigration through a propensity to leave Australia based on age, gender and time in Australia (section F.5).

Labour market projections

NAT uses the population numbers to project the labour force, number of workers and hours worked. These results depend on the projected population numbers, as well as the parameters for participation rates, unemployment rates and average hours worked. All labour calculations are by five-year age group and gender.

An important new feature of the labour market projections in NAT is the acclimatisation path. This adjusts the participation and unemployment rates of new arrivals based on how many years they have been in Australia. New arrivals as a group tend to have lower participation and higher unemployment rates in their early years in Australia, but these improve over time, stabilising after ten years (section F.4).

For example, the participation rate of a 40–44 year old male who came to Australia one year ago with a skilled visa is 1.9 per cent lower than the population-average participation rate of 40–44 year old males.[8] Ten years later, the same person has a participation rate that is 10 per cent higher than the average participation rate of 50–54 year old males (section F.4 explains the assumption behind this).

Analysis of the 2001 Census and 2004 Labour Force Status and Other Characteristics of Migrants survey indicates that, relative to existing Australians, recent arrivals participate less and have higher unemployment rates, controlling for

7 Since all children born in Australia are considered to be 'natives', NAT does not track fertility separately from LSP. As a result, although children of immigrants are counted in the base case, the *additional* immigrants do not have any *additional* children. This has a negligible impact on the labour market, since only children born in the first five years would reach working age by 2024-25.

8 Per cent differences from the average, *not* percentage points.

other demographic characteristics, such as age, gender, education and English language ability. Inferior labour market performance in the early years might reflect delays or problems with qualification recognition, and a lack of informal networks that help people find a job.

This is consistent with analyses of different cohorts of new arrivals in the Longitudinal Survey of Immigrants to Australia (LSIA) that indicate that outcomes for immigrants have improved over the past decade. More recent new arrivals have better labour market outcomes than previous cohorts after 18 months (Cobb-Clark 2006), but they still participate less than existing Australians.

Over time, immigrants adapt to the local labour market. Analysis of the 2001 and 1996 Censuses indicates that the effect on participation rates of having arrived ten years ago (on average) is insignificant. In other words, after ten years, immigrants are acclimatised to the Australian labour market.

Qualification mix

NAT allocates the projected hours worked into 67 qualifications. The qualifications represent the highest *level* of qualification obtained in one of 11 *fields* (annex F.1). The categories are an aggregation of broad Australian Standard Classification of Education (ASCED).

Hours are allocated into qualifications by five-year age group and gender.

F.4 Assumptions

This section focuses on three key assumptions[9] involved in the demographic and labour market modelling:

1. The increase in new arrivals does not displace existing Australian workers.
2. There is a ten-year acclimatisation path, which means that in their early years in Australia, new arrivals have lower labour force participation and higher unemployment, but in the aggregate they have the same outcomes as Australians with the same characteristics after ten years in Australia.
3. Each year, new arrivals with the same visa have the same age–gender structure.

First, combining the projections from NAT and LSP assumes that LSP already incorporates any differences between existing Australians and new arrivals. The

[9] Technical Paper (forthcoming) provides a more detailed discussion of these and other assumptions, as well as the mechanics of NAT.

labour supply of Australians and new arrivals is not necessarily the same. Instead, the participation and unemployment parameters in LSP are aggregate rates, equal to a weighted average of the rates of existing Australians and new arrivals. Similarly, any displacement of existing Australians is also 'built in' to the aggregate participation and unemployment rates in LSP. However, NAT assumes that there is no 'extra' displacement when immigration increases in the increased-migration simulation.

Second, the acclimatisation paths assume that, after ten years, new arrivals have the same participation and unemployment rates as existing Australians of the same age, gender *and qualification*. Therefore, the average participation rates of new arrivals for a certain age and gender might be higher than for the total population, *solely* because new arrivals are on average more educated than the total population (and better education is associated with better labour market outcomes). Section F.5 describes how the acclimatisation paths for the early years were calculated.

Third, NAT assumes that the age and gender structures of new arrivals coming in each year reflect the profile of current recent arrivals to Australia, allowing for broad visa category.[10] Specifically, the average person entering with a skilled visa, in each year of the projection, is the same as the average skilled visa entrant in 2004-05.

Interpreting the projections — a 'what if' analysis

The results from the models are projections and not forecasts. The models project what would happen *if* the scenarios (and assumptions) were to hold. They do not claim that the projection is what *will* happen. Rather, they try to isolate the important factors that drive the phenomena of interest, making it easier to understand and track the mechanisms at work.

Results from the models, particularly the deviations between the two projections, also provide a useful indication of the direction and magnitude of changes. For example, when used to project a 50 per cent increase in skilled immigration, NAT projects that by 2024-25:

- average hours per worker of the total population increases by 0.15 per cent relative to the base case. The additional immigrants work 4.5 per cent more hours, but they only represent 3.8 per cent of the labour force

10 The broad visa categories are skilled, family and humanitarian.

- Australia's aggregate participation rate increases by 1 per cent (0.6 percentage points). The additional immigrants participate 35 per cent more (21 percentage points), but only represent 2.9 per cent of working-age people.

F.5 Data

NAT requires:

- the age and gender structure of new arrivals
- re-migration rates
- labour supply parameters for new arrivals, including participation, unemployment and average hours per worker
- the share of hours worked by qualification.

The age structures and re-migration rates are estimated by single-year age groups and gender. Labour force participation, unemployment and average hours per worker are defined by gender and five-year age categories, beginning with those aged 15 to 19 and ending with an open-ended category of 70 and over.

Qualifications are categorised into 67 categories, an aggregation of ASCED levels of educational attainment by broad field of study (annex F.1).

The profiles were constructed from four sets of data:

1. Age, gender, visa category and occupations from unpublished Department of Immigration, Multicultural and Indigenous Affairs (DIMIA) data on arrivals in 2004-05.
2. The ABS Survey of Education and Work (1995–2004), which provides a link between occupations and skills.
3. Labour market status and hours worked by age, gender, qualification and immigrant status from the 2001 Census. To avoid biases that might arise from using data from a single year, those who had arrived in the three years before the Census (1999, 2000 and 2001) were designated as 'recent arrivals'. The rest of the population was regarded as 'existing Australians', regardless of birthplace.
4. Labour market parameters were adjusted for each broad visa category with estimates obtained from the 2004 ABS Labour Force Status and Other Characteristics of Recent Arrivals survey.

Age and gender structure

NAT requires an age and gender profile of new arrivals by visa category, obtained from the unpublished DIMIA data.

Figure F.11 compares the age distribution for each of the visa groups and the population. New arrivals are significantly younger than the total population. The age structure also varies across visa groups. Humanitarian visa entrants are very young, while family visa entrants have the highest share of people over 60. Skilled visa entrants show a strong pattern of prime working-age applicants, often accompanied by children.

Figure F.11 **Age profile of total population and new arrivals by visa group**
Males, 2004-05

Sources: Commission estimates based on unpublished DIMIA data; Commission projections from LSP for total population.

Re-migration

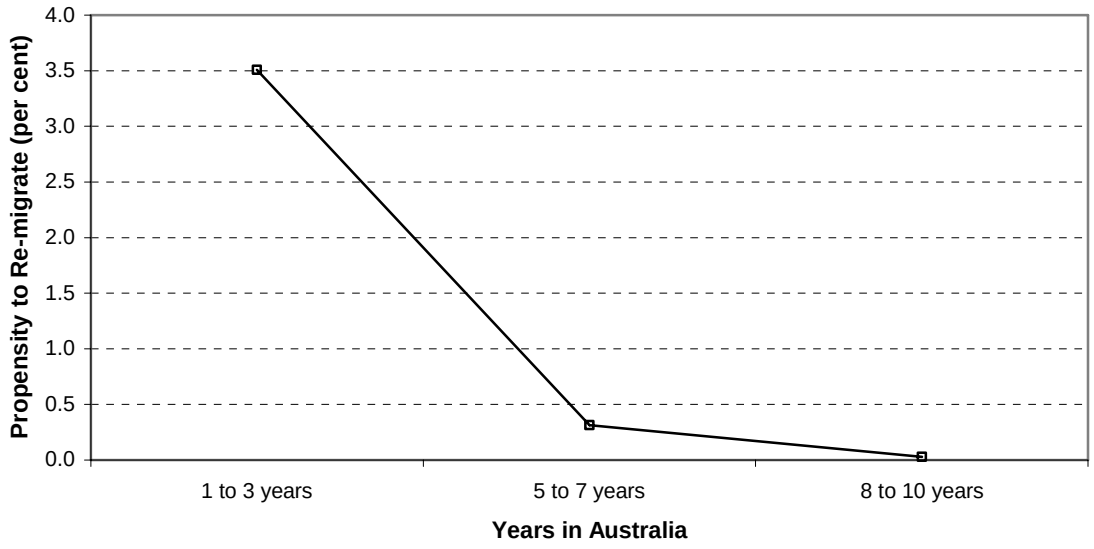
In NAT, new arrivals are assigned a propensity to re-migrate based on age, gender and time in Australia. These propensities were calculated on a cohort basis from unpublished DIMIA data. For example, the number of people[11] leaving in 2004-05

11 The cohort was restricted to people who arrived under the humanitarian and migration programs.

who had been in Australia for five to seven years was compared with the number of arrivals in 1998–2000.

The data show that re-migration rates are highest in the first few years in Australia. After one to three years, around 3.5 per cent of immigrants leave Australia each year. Re-migration is very low after five years or more, around 0.25 per cent, decreasing to less than 0.1 per cent after eight years (figure F.12).

Figure F.12 **Propensity to re-migrate from Australia**
Departures in 2004-05, aggregated across age and gender



Source: Commission estimates based on unpublished DIMIA data.

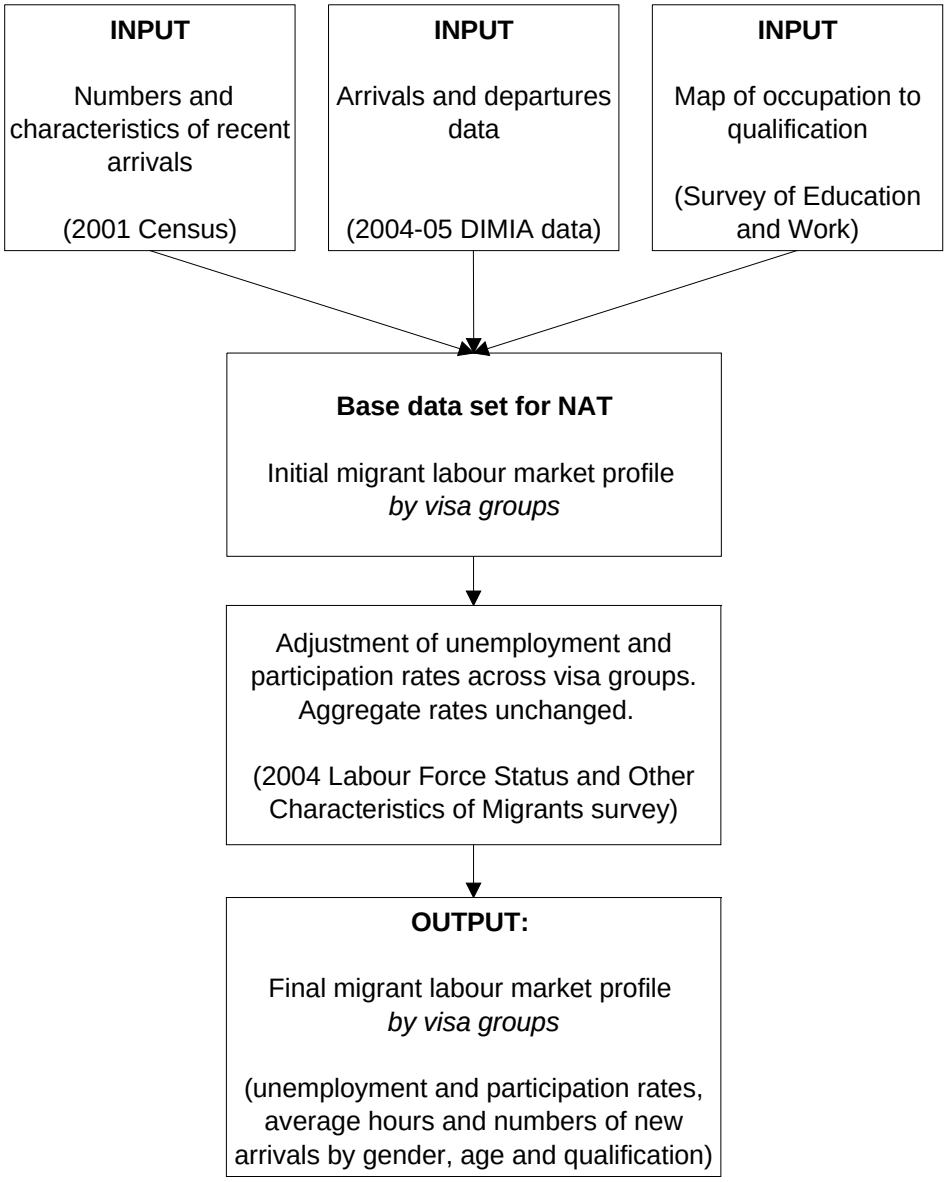
Labour market parameters

The labour market parameters (participation, unemployment, average hours) were obtained from the 'base data set', constructed for NAT through a combination of the 2001 Census, the Survey of Employment and Work, and unpublished DIMIA data. This allowed estimates of the labour market characteristics of recent arrivals by visa group.

However, the 'proportional breakdown' approach used in the base data set dampened the difference between visa groups. To account for observed differences between the labour market outcomes of different visa groups, in particular the better labour outcomes of skilled visa immigrants, the 2004 Labour Force Status and Other Characteristics of Migrants survey was used. This modified the participation and unemployment rates across visa groups, but left the aggregate participation and unemployment rates of immigrants' unchanged (figure F.13).

Figure F.13 **Producing the database for the New Arrival Tracker**

Combining Census, DIMIA and Survey of Employment and Work data sets



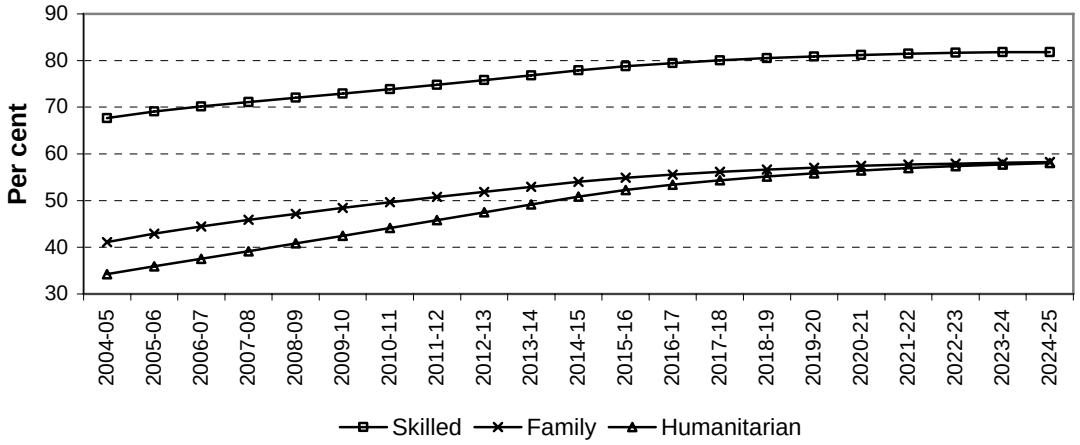
Results

Immigrants that arrived under the skilled program have significantly better labour market outcomes compared with family and humanitarian visa entrants (figure F.14). Skilled visa immigrants display significantly higher participation rates, lower unemployment and higher average hours worked.

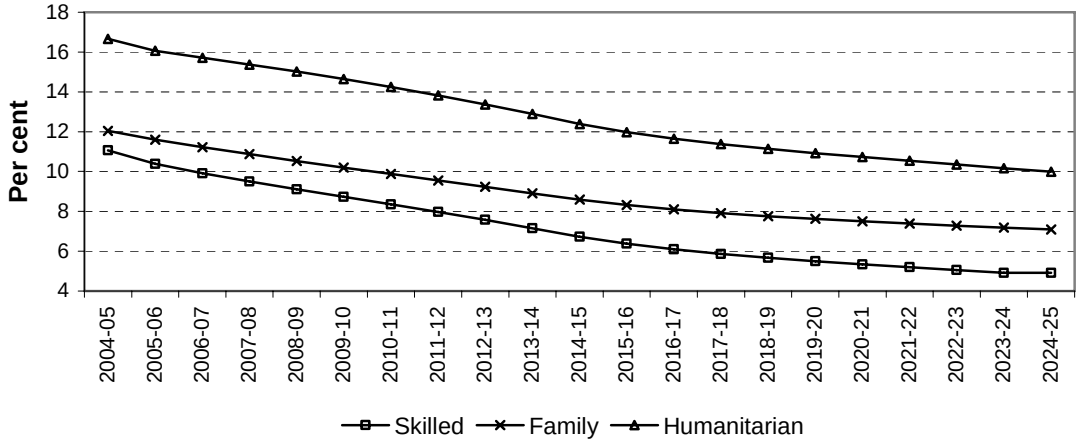
The aggregate results are a combination of the age–gender structure of each visa group and the differences in estimated parameters. The age–gender structure accounts for 35 per cent of the difference between skilled and other immigrants.

Figure F.14 **Labour market outcomes of new arrivals by broad visa group**
2004-05 to 2024-25, aggregated across age and gender

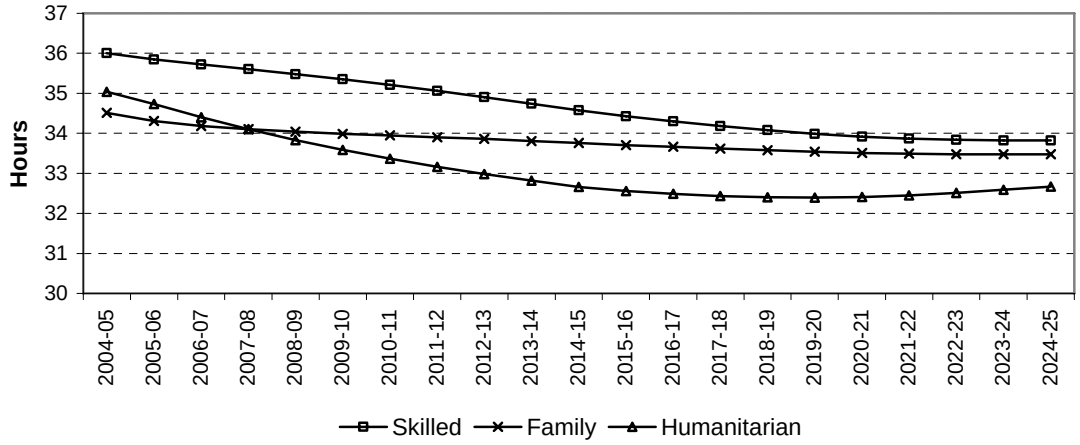
(a) Participation rates



(b) Unemployment rates



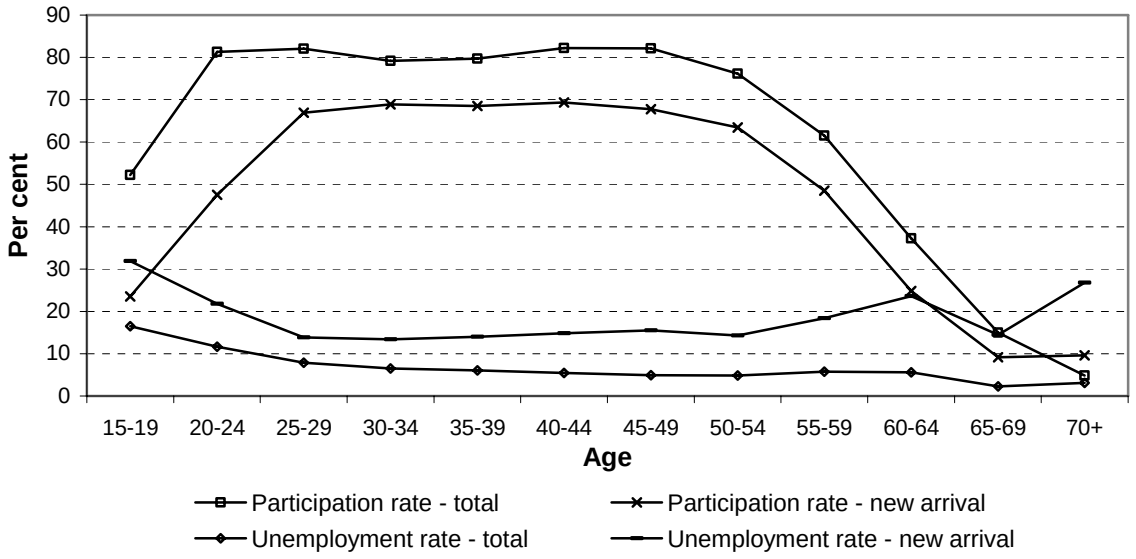
(c) Average hours per worker



Source: Commission projections from NAT.

The difference between recently arrived immigrants and the rest of the population is significant: immigrants display lower participation rates and higher unemployment rates (figure F.15). This is consistent across age groups.

Figure F.15 **Participation and unemployment rates for immigrants and the total population**
2001, aggregated across gender



Source: Unpublished 2001 Census data.

Male new arrivals work fewer hours on average compared with the total male population (figure F.16). Female new arrivals work slightly longer hours compared with the total female population.

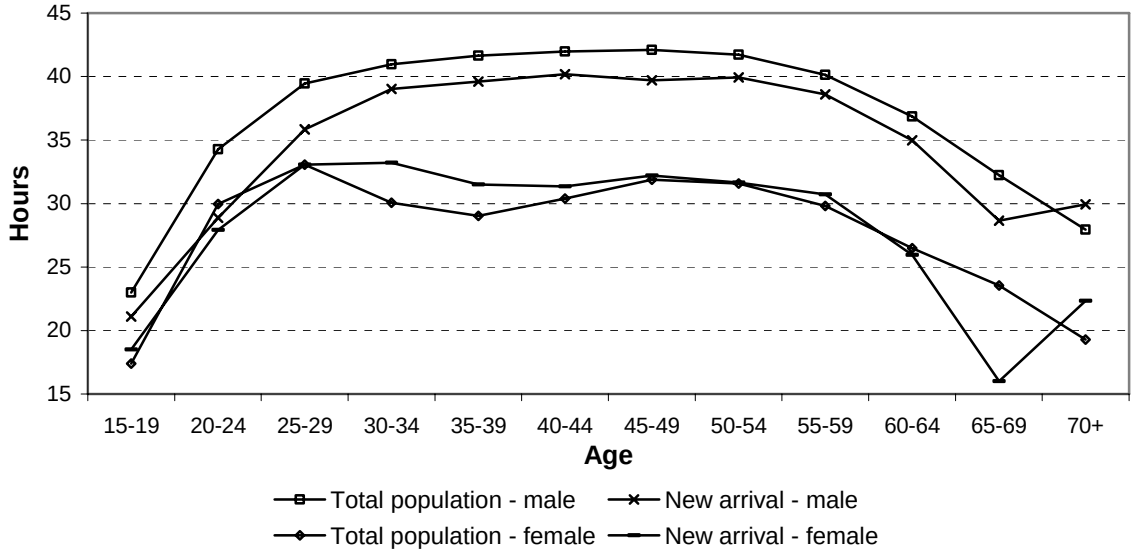
Share of hours worked by qualification

NAT assigns hours into qualification by five-year age group and gender. The share of hours worked in each qualification is a weighted average of qualification profiles by visa category, trended over time in line with the total population:

- The initial profiles of hours worked by qualification come from the base data set and reflect the qualification mix of new arrivals as estimated from the 2001 Census.
- These profiles were updated from 2001 to 2004-05 by applying trends in qualifications for the total population, provided by CoPS and estimated from the Survey of Education and Work.

- Furthermore, the qualification profile of new arrivals continues to trend over the 20-year projections, in line with the rest of the population, using extrapolated trends from the Survey of Education and Work.

Figure F.16 **Average hours worked per week for immigrants and the total population**
2001



Source: Unpublished 2001 Census data.

F.6 Summary

Increasing skilled immigration increases the quantity of labour. A 50 per cent increase in skilled immigration increases the number of hours worked per head of population by 1.3 per cent by 2024-25. The additional new arrivals have higher participation rates and work more hours compared with the rest of the population.

Increasing skilled migration also increases the quality of labour. The additional labour is supplied by immigrants who tend to have higher qualifications than the rest of the population.

It is the differences between the additional immigrants and the base case population that drive the increase in the quantity and quality of labour. In 2024-25, the hours worked per head of population increases by 1.3 per cent because:

- the additional immigrants work 49 per cent more hours per additional immigrant; but

- the additional immigrants only represent 2.7 per cent of the population.

Immigrants arriving under the skilled program have better labour market outcomes compared with family and humanitarian visa immigrants. The better outcomes arise because:

- age–gender specific labour market outcomes of skilled immigrants are better than family and humanitarian immigrants' outcomes (producing 65 per cent of the difference)
- prime working-age males, who display superior labour market outcomes, account for a large proportion of skilled immigrants (accounting for 35 per cent of the difference).

Annex F.1: Qualification classification

Table AF.1 **Qualification category, level of education/highest level of schooling and field of study**

Qualification Category	*Level*	*Field*
1	Postgraduate degree level	Natural and Physical Sciences
2	Postgraduate degree level	Information Technology
3	Postgraduate degree level	Engineering and Related Technologies
4	Postgraduate degree level	Architecture and Building
5	Postgraduate degree level	Agriculture, Environmental and Related Studies
6	Postgraduate degree level	Health
7	Postgraduate degree level	Education
8	Postgraduate degree level	Management and Commerce
9	Postgraduate degree level	Society and Culture
10	Postgraduate degree level	Creative Arts
11	Postgraduate degree level	Food, Hospitality and Personal Services
12	Graduate Diploma and Graduate Certificate level	Natural and Physical Sciences
13	Graduate Diploma and Graduate Certificate level	Information Technology
14	Graduate Diploma and Graduate Certificate level	Engineering and Related Technologies
15	Graduate Diploma and Graduate Certificate level	Architecture and Building

Continued next page.

Table AF.1 **(Continued)**

Qualification Category	*Level*	*Field*
16	Graduate Diploma and Graduate Certificate level	Agriculture, Environmental and Related Studies
17	Graduate Diploma and Graduate Certificate level	Health
18	Graduate Diploma and Graduate Certificate level	Education
19	Graduate Diploma and Graduate Certificate level	Management and Commerce
20	Graduate Diploma and Graduate Certificate level	Society and Culture
21	Graduate Diploma and Graduate Certificate level	Creative Arts
22	Graduate Diploma and Graduate Certificate level	Food, Hospitality and Personal Services
23	Bachelor Degree level	Natural and Physical Sciences
24	Bachelor Degree level	Information Technology
25	Bachelor Degree level	Engineering and Related Technologies
26	Bachelor Degree level	Architecture and Building
27	Bachelor Degree level	Agriculture, Environmental and Related Studies
28	Bachelor Degree level	Health
29	Bachelor Degree level	Education
30	Bachelor Degree level	Management and Commerce
31	Bachelor Degree level	Society and Culture
32	Bachelor Degree level	Creative Arts
33	Bachelor Degree level	Food, Hospitality and Personal Services
34	Advanced Diploma and Diploma	Natural and Physical Sciences

Continued next page.

Table AF.1 **(Continued)**

Qualification Category	*Level*	*Field*
35	Advanced Diploma and Diploma	Information Technology
36	Advanced Diploma and Diploma	Engineering and Related Technologies
37	Advanced Diploma and Diploma	Architecture and Building
38	Advanced Diploma and Diploma	Agriculture, Environmental and Related Studies
39	Advanced Diploma and Diploma	Health
40	Advanced Diploma and Diploma	Education
41	Advanced Diploma and Diploma	Management and Commerce
42	Advanced Diploma and Diploma	Society and Culture
43	Advanced Diploma and Diploma	Creative Arts
44	Advanced Diploma and Diploma	Food, Hospitality and Personal Services
45	Certificate level III and IV	Natural and Physical Sciences
46	Certificate level III and IV	Information Technology
47	Certificate level III and IV	Engineering and Related Technologies
48	Certificate level III and IV	Architecture and Building
49	Certificate level III and IV	Agriculture, Environmental and Related Studies
50	Certificate level III and IV	Health
51	Certificate level III and IV	Education
52	Certificate level III and IV	Management and Commerce
53	Certificate level III and IV	Society and Culture

Continued next page.

Table AF.1 **(Continued)**

Qualification Category	*Level*	*Field*
54	Certificate level III and IV	Creative Arts
55	Certificate level III and IV	Food, Hospitality and Personal Services
56	Certificate level I and II	Natural and Physical Sciences
57	Certificate level I and II	Information Technology
58	Certificate level I and II	Engineering and Related Technologies
59	Certificate level I and II	Architecture and Building
60	Certificate level I and II	Agriculture, Environmental and Related Studies
61	Certificate level I and II	Health
62	Certificate level I and II	Education
63	Certificate level I and II	Management and Commerce
64	Certificate level I and II	Society and Culture
65	Certificate level I and II	Creative Arts
66	Certificate level I and II	Food, Hospitality and Personal Services
67	No educational attainment	No educational attainment
67	Year 12 and below	Mixed Field Programmes

G Economic effects of increasing skilled migration: Modelling summary

The Productivity Commission has been asked to examine the role and mechanisms by which migration and population growth affect Australia's productivity and economic growth.

To assist in examining these issues, the Commission requested the Centre of Policy Studies (CoPS) to model the economic effects of increasing the intake of skilled migrants by 50 per cent, using a modified version of the MONASH model (see annex G.1). The CoPS provided a consultancy report which is available from the Commission's website. In this position paper, the Commission has not exploited all the results that were provided by the CoPS. More detailed results (at the occupational and regional levels) may be used in the final report.

A 50 per cent increase in skilled migration corresponds to an increase in the annual intake of migrants in the order of 39 000 persons. This group of migrants tends to be more qualified than the rest of the population. After 20 years, this increase adds about 685 000 persons to a population projected to consist of about 25 million persons, and translates into a 4.1 per cent increase in labour input. The details of these projections are found in appendix F.

The emphasis of this study is on the labour market aspects of migration. Specifically, the study was designed to concentrate on labour market outcomes as measured by the employment of workers who are characterised by the qualifications that define the type of labour they can supply. Since this is done in a general equilibrium context, sectoral impacts and impacts on factor and good markets are accounted for. In addition, aggregate effects and effects on incomes per person can be estimated.

The effects of increasing the skilled migrant intake are estimated by comparing two 20-year MONASH simulations:

1. a base-case simulation: a projection of the Australian economy, which incorporates macroeconomic and industry level projections, including changes in tastes, and

2. an increased migration simulation: a projection which incorporates the increase in the skilled migrant intake.

The base-case simulation is characterised by an increase in the size of the Australian economy and rising returns to labour and capital. It is also characterised by an increase in the qualification of the population.

The difference between the base-case simulation and the increased migration simulation allows for the effects of the increased migration to be isolated from all other influences. Most of the results in this report are presented in terms of cumulative deviations from the base case. This is the analog to the 685 000 additional immigrants or 4.1 per cent increase in labour supply mentioned above.

An increase in the skilled immigrant intake has two main initial effects: an increase in the amount of labour supplied to the economy, and a compositional effect due to the differences in the skills of immigrants relative to the skills of the rest of the population. These effects, combined with projected changes in the structure of the economy and assumptions about capital adjustment and export markets, combine to produce the detailed and overall impacts of increasing the migrant intake.

The remainder of this appendix summarises key aspects of the modelling.

G.1 Aggregate effects

Increasing the amount of labour increases the size of the economy by increasing real GDP. It also decreases the marginal product of labour and increases the marginal product of capital and its rate of return. The increase in the rate of return increases investment, but, due to some stickiness in investors' reactions, investment tends to lag the increase in labour. As a result, during the 20-year simulation period, the capital labour ratio is lower than it would have been without the additional migrant intake.

With an increase in labour and the capital stock, GDP rises, reflecting an increase in the size of the economy. Private and government consumption grow approximately with economic activity. Since investment is import-intensive and investment is growing strongly to catch up with the increase in labour, imports grow faster than GDP and require an increase in export volume. Because exporters are assumed to face downward sloping demands for their products, this increase in exports comes at the expense of a decrease in the prices received for our exports; this is termed a worsening of Australia's terms of trade (Box G.1). This effect would not be as strong if it was thought that, either:

- prices faced by Australian exporters were less sensitive to an expansion in export volumes, or
- increasing skilled migration could be linked to *significant* outward shifts of the demand schedules faced by Australian exporters.

Box G.1 **Terms of trade effects in the Monash model**

The Monash model assumes that Australia is an 'almost small' economy. As in the 'small country' assumption, Australia does not influence the world prices of its imports. However, foreigners are assumed to substitute between imports from Australia, imports from other countries and their own products. If the price of Australian exports rises, foreigners switch their use away from Australian exports in favour of other sources. Conversely, if Australian exports are to increase, all else equal, this will require export prices to decrease in order to increase Australian market share. This gives rise to a downward sloping demand for Australian exports.

The sensitivity of export prices to changes in export volumes are specified by the elasticity of demand for exports for each commodity in the model. Most export demand elasticities are set around -5. This means that a 1 per cent increase in export volume leads to a 0.2 per cent decrease in the price received by Australian exporters.

There is no reason to believe that either of these alternative assumptions are more appropriate than the assumptions that are currently incorporated in the MONASH model. Both the increased migration scenario and the base-case scenario include assumptions about the growth of the Australian economy and of the rest of the world, including its effect on growth in export markets.

The required increase in investment is assumed to occur by increasing external borrowing.[1] Although this facilitates the expansion of the economy, it also leads to a rise in interest payments to foreigners.

G.2 What happens to income per person

One of the important questions to answer is what increased immigration does to incomes. This is assessed with two measures of the change brought about by increased immigration:

- the additional real GNP per person, and
- the additional real GNP per additional immigrant.

[1] Although some immigrants bring capital with them, this is very small relative to the stock of capital held by the Australian-born population and the existing net foreign liabilities. As a result, although this is accounted for in the simulations, it is not modeled explicitly.

The following section details a useful framework for decomposing real GNP per person.

Changes in real GNP per person

In this section, real GNP per capita is decomposed to clarify the main drivers of changes in this ratio. The full results are presented in the chapters. The following shows the decomposition and notes the main drivers.

Real GNP is interpreted as a measure of purchasing power, because it is deflated by an index of the prices of goods and services in the basket of private and public consumption. In addition, real GNP can be linked to real GDP (an indicator of economic activity) and remittances to foreigners (which play a part in supplying additional capital required by the increased labour):

$$GNP_R = \frac{GNP}{P_{CG}} = \frac{GDP - NFL \times R}{P_{CG}} = \frac{P_{GDP} GDP_R - NFL \times R}{P_{CG}}$$

where:

GNP_R is real GNP (deflated by the public and private consumption deflator)

P_{CG} is the composite price index for private and public consumption

P_{GDP} is the GDP price deflator

GDP_R is real GDP (deflated by the GDP price deflator)

$NFL \times R$ is net foreign liabilities multiplied by the rate of interest on net foreign liabilities.

GNP is deflated by a composite deflator of public and private consumption to account for changes in income's purchasing power in terms of the entire basket of public and private goods and services.

This expression highlights the role of net foreign liabilities. Increased immigration requires an increase in investment, which results in an increase in NFL, which has a negative impact on real GNP.

Real GNP per person can be calculated by dividing by the population and real GDP can be decomposed into a sequence of ratios that represent the contributions from components of labour:

$$\frac{GNP_R}{POP} = \left(\frac{P_{GDP}}{P_{CG}}\right)\left(\frac{GDP_R}{H}\right)\left(\frac{H}{L}\right)\left(\frac{L}{WAP}\right)\left(\frac{WAP}{POP}\right) - \left(\frac{NFL \times R}{P_{CG} \cdot POP}\right)$$

where

GDP_R/H is real GDP per hour worked – a measure of labour productivity

H/L is hours per worker

L/WAP is the ratio of workers to the working age population – the participation rate

WAP/POP is the ratio of working age population to the total population.

L/WAP In this equation, the main effect of increased immigration is to increase the number of hours of labour supplied and reduce the ratio of real GDP to hours, thus reducing labour productivity. This is compensated by a large increase in the participation rate.

P_X/P_M The ratio of the GDP deflator to the public and private consumption price index can be decomposed into a terms of trade term ()and a consumption price effect term (*A*):

$$\left(\frac{P_{GDP}}{P_{CG}}\right) = A\left(\frac{P_X}{P_M}\right)$$

P_{GDP}/P_C The *A* term is a complex aggregate of price ratios. It can be interpreted as a relative consumption price effect. The easiest way to see this is to express the in percentage changes (lower case indicates percentage changes):

$$p_{GDP} - p_{CG} = S_C p_C + S_I p_I + S_G p_G + (S_X p_X - S_M p_M) - S_C^* p_C - S_G^* p_G$$

where:

S_C is the share of consumption in GDP – and similarly for other components of GDP

S_G^* is the share of private consumption in *private and public consumption* – and similarly for.

$(S_X p_X - S_M p_M)$ The term is the terms of trade. The remainder is the A term, in percentage changes:

$$a = S_I p_I - (S_C^* - S_C) p_C - (S_G^* - S_G) p_G$$

which is the difference between the change in the price of investment goods and the price of consumption. In the increased migration simulation, this term is dominated by a relative decrease in the price of consumption. This decrease in the price of consumption goods and services is a positive contribution to purchasing power, and the A term is a net positive contribution to purchasing power.

This positive contribution counteracts the negative impact of the decline in the terms of trade that was discussed above.

G.1 Changes in multifactor productivity

Increasing immigration leads to capital thinning and decreases labour productivity. But what happens to multifactor productivity (MFP)? This can be estimated from the Monash model solution by assuming a Cobb-Douglas production function:

$$Y = \alpha L^{(1-\beta)} K^{\beta}$$

where Y is output, L is labour, K is capital (all non-labour inputs, including land), α is a measure of productivity (MFP) and β is the share of capital in value added (GDP). Dividing through by L yields:

$$Y/L = \alpha (K/L)^{\beta}$$

where Y/L is (average) labour productivity and K/L is the capital labour ratio. Using lower case for percentage changes, a change in α or *mfp* can be estimated with the standard expression:

$$mfp = labprod - \beta \ caplabratio$$

or the change in MFP can be estimated with the change in labour productivity and the change in the capital labour ratio. The combined decrease in labour productivity and small capital dilution lead to a decrease in MFP.

G.2 Compositional effects

To the extent that the skill mix of immigrants differs from that of the rest of the population, there can be a compositional effect.[2] This effect is due to the migrants increasing the supply of certain skills, and the flow-on effect this has on the supply of labour to certain occupations. With a well-targeted selection of skills, this can reduce pressures for wages to rise in occupations that might be in short supply.

In the baseline simulation, the skill base of the population is assumed to improve; that is, the proportion of the labour supply from less skilled workers decreases over the 20 years of the simulation. The skill profile of the skilled migrants is superior to that of the Australian-born population (see appendix F). The skilled program is assumed to be able to maintain the qualification profile above the profile of the rest of the population in two ways:

- the rapidly increasing education of the world population, especially in some developing countries means that the pool of workers from which skilled migrants can be chosen is becoming more skilled;
- the processes and criteria by which an immigrant might qualify as a skilled migrant might be tightened.

G.3 Industry effects

Industries expand in line with the expansion in private and public consumption, investment and exports. Industries display four types of responses, most of which is conditioned by the expansion effect, but some of which is a results of the composition of the migrant intake:

1. an increase in population and labour supply expands industries linked to construction and its suppliers as they respond to the increase in demand for housing;
2. an increase in the supply of skilled workers slows wage increases in skilled occupations, reduces the relative costs of industries that are intensive in the use of these occupations, and leads to an increase in the activity of these industries, especially if they produce goods whose demand increases when their prices fall;

[2] Differences between the demographic characteristics of immigrants and of the Australian-born population affect factors that influence mainly the supply of labour (such as the participation rates). To the extent that the skill profile of immigrants differs significantly from that of the Australian-born population, demographic characteristics can also affect the overall skill mix, but this is small relative to the contribution of these factors to the aggregate labour supply and expansion effect.

3. the growth of industries that are capital intensive, such as the mining industry, tends to slow because they compete for capital with the housing sector;
4. some industries (such as agricultural industries) are able to respond to lower labour costs and expand their activity.

Occupational effects

Increasing the supply of certain skills increases the supply of occupations that are intensive in these skills. However, except in cases where they cannot be easily transformed into many occupations (as in the case of a medical degree), skills can be used to supply to many different occupations. As a result, the skill mix of immigrants does not constrain the way in which the economy can grow.[3] This means that if the skilled program targets certain skills, it seems that it is relatively easy to convert these skills into a wide variety of occupations.

Although increasing the supply of skilled workers tends to reduce pressures for wages to rise, this is not uniform across occupations. Results for individual occupations depend on (i) how an increase in a skill category can effect the supply of an occupation and (ii) results for industries in which they are employed intensively. For example, the large increase in construction activity creates a correspondingly large increase in the demand for construction trades, and puts upward pressure on the wages of these occupations, in spite of an increase in their supply.

[3] This is confirmed by an experiment in which the supply of workers with IT qualifications was increased 25 per cent. Results indicated that as returns to IT occupations declined, workers with IT qualifications supplied work to other occupations. This occurred in spite of relatively small CET transformation parameters which were set at 0.35.

Annex G.1: Framework and modifications to the MONASH model[4]

The MONASH model is a dynamic, multi-regional computable general equilibrium (CGE) model of Australia, maintained by the Centre of Policy Studies at Monash University. The model is fully documented by Dixon and Rimmer (2002). In this model, employment is disaggregated by region, industry and occupation.

Forecasts of employment by qualification level and field have been produced for the population as a whole and for migrants as an intermediate step in producing the estimates of the effects of population dynamics (growth and ageing) and migration.

The estimated effect of migration was derived by comparing the results of different MONASH model simulations.

A baseline simulation was prepared under the assumption that population growth proceeds as expected, based on modified ABS population projections which were used by the Productivity Commission in modelling developments in labour force participation rates, unemployment rates and average hours worked per week by gender and age group (see Productivity Commission 2004). These projections were combined with modelling of qualifications by level of achievement and field of study to produce forecasts of employment by qualification, exogenously from the MONASH model.

This baseline simulation is also based on the standard Monash model macroeconomic and industry growth assumptions, which are informed by forecasts from Access Economics as described in their September 2004 issue of Business Outlook: Five year forecasts for business planners. This baseline was modified from the standard MONASH model projections, in which employment and hours worked are determined by labour demand (the assumption that there is excess labour supply in all industries and occupations). In the standard MONASH simulation, wage rates are set exogenously, based on scenarios supplied by Access Economics and employment levels are determined within the MONASH model.

In contrast, in the modified baseline simulation for this project, employment levels are determined exogenously as described above and the MONASH model is used to determine wage rates. This modelling improvement allows employment in all industries and occupations to be consistent with the exogenous changes in employment by qualification, which in turn are influenced by changes to labour supply which result from population dynamics and migration. These changes in

4 Adapted from Department of Employment and Workplace Relations (2005).

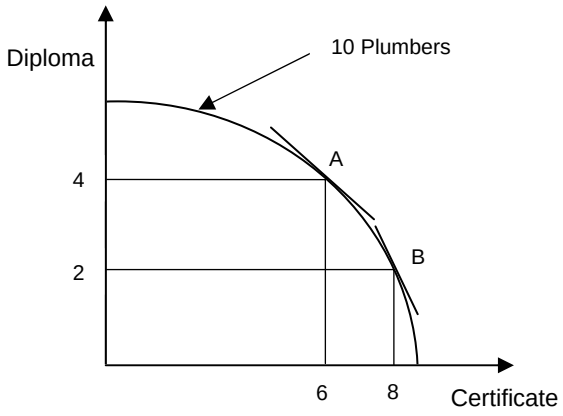
labour supply are imposed at the national level and the resulting industry employment levels are distributed among the regions.

The overall labour market environment in the baseline assumes that total employment grows at an average annual growth rate of 1.5 per cent. While this growth is less than the average annual growth of 2.1 per cent in the five years to 2004-05, slower employment growth is expected, consistent with assuming that world and Australian economic growth will slow and that it will be the difficult to achieve further reductions in unemployment in Australia (over the five years to 2004-05, the unemployment rate was reduced from 6.6 per cent to 5.2 per cent).

The changes to the forecast are complemented by changes in the model structure. Labour is supplied by workers who have certain qualifications (see appendix F). Workers with different qualifications can supply labour to different occupations according to a transformation function.

The schematic in figure G.1 illustrates how changes in returns to qualifications lead to changes in the qualification mix which is used to supply an occupation. A Constant Elasticity of Transformation (CET) function is used to allocate workers with different qualifications to all occupations. The CET parameter is set at 0.35. The total supply of plumbers is obtained by adding up all the plumbers supplied through this process.

Figure G.1 **Transforming qualifications into occupations**



As relative returns to certificates decrease (relative price line shifts from A to B), more plumbers are sourced among workers with certificates and less are sourced among workers with diplomas. This situation might arise when there is an increase in the supply of certificate holders relative to that of other qualifications.

As in the standard MONASH model, the demand for plumbers is governed for each industry by a Constant Elasticity of Substitution function. The elasticity of substitution for this function is set at 0.25.

Although the CET and CES functions are defined for all pairs of qualifications and occupations, an underlying matrix defines what transformations and substitutions are actually possible. For example, although it is possible for a person with a medical degree to be a taxi driver, it is not possible for someone with no post-school qualifications to supply labour as a medical practitioner.

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