
13 Background paper¹

Each year, the Productivity Commission hosts a Roundtable on policy issues that would benefit from a frank exchange of views among senior people from government, business, academia and community groups.

This background paper was prepared for attendees at the 2011 Roundtable to facilitate discussion by setting out a framework for exploring the different dimensions of ‘population policy’. It draws on earlier research by the Commission on the impacts of migration and population ageing and its analysis of recent trends.

- Section 1 of the paper briefly describes recent population growth and its sources.
- Section 2 sets out a broad policy framework with the remaining sections addressing the potential impacts of population growth and the policy implications.
- Section 3 provides an overview of the impacts of population growth on economic growth.
- Section 4 discusses some implications for urban and environmental amenity.
- Section 5 concludes with a brief discussion of the potential social and cultural impacts.

13.1 Introduction

Australia’s population growth is a topic that has attracted a great deal of public attention and has often polarised opinion. The issues and arguments have evolved over time, reflecting changing public priorities. Concerns early in our history about building critical mass and national defence capabilities, have given way over time to concerns about achieving environmentally and socially sustainable economic growth. This is the focus of The Sustainable Population Strategy, currently being developed by the Australian Government.

The recent policy debate has sometimes been clouded by misconceptions and misperceptions about the pace, characteristics and implications of population

¹ A preliminary version of this paper was distributed at the Roundtable.

growth. Late last year, the Commission released a research paper, ‘Population and Migration: Understanding the Numbers’ (PC 2010a), which sought to explain and ‘demystify’ population-related statistics and recent trends. This paper builds on the brief final chapter of that publication, exploring further the potential impacts of population growth and the policy implications. The paper is primarily taxonomic, setting out a framework for policy development. It does *not* advocate specific policy answers or approaches.

Overview of population growth in Australia

At the end of June 2010, Australia’s resident population was estimated by the ABS to be around 22.3 million people, roughly 0.3 per cent of the world’s population (ABS 2010a).

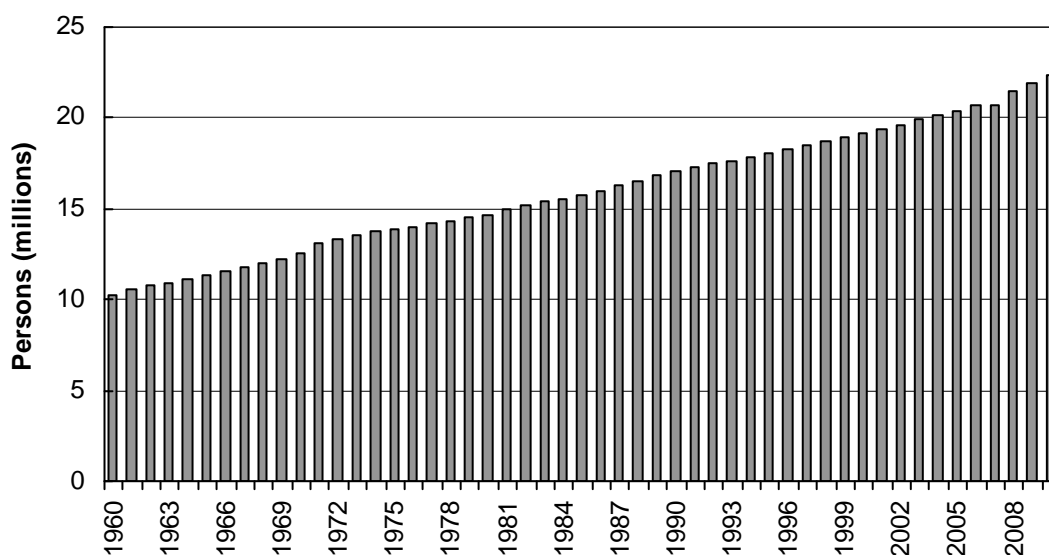
Australia’s population has increased at an average annual rate of approximately 1.6 per cent since 1960, more than doubling in size by 2010 (figure 1). This is a higher growth rate than for most OECD countries. While annual population growth has always fluctuated from year to year, it has accelerated in recent years, reflecting increased immigration (PC 2010a).

In 2008-09, the population grew by more than 2 per cent — a rate last experienced in the 1960s — before declining in 2009-10 to 1.7 per cent (still above the long-term average).

If the trends of recent years continued, Australia’s population would increase significantly in the coming decades. The most recent Intergenerational Report projected a population of nearly 36 million in 2050 in its base case scenario (Treasury 2010).²

² Population projections are not forecasts and depend on the underlying assumptions about components of population growth. Nevertheless, the low-case projection of 30.2 million by 2050, presented in the Report, illustrates an expectation that Australia’s population will grow significantly in the next 40 years.

Figure 13.1 Australia's population has doubled since 1960^{a,b}



^a End of June. ^b Prior to 1971, population estimates were based on the number of people present in Australia. Data from 1971 onwards use the estimated resident population.

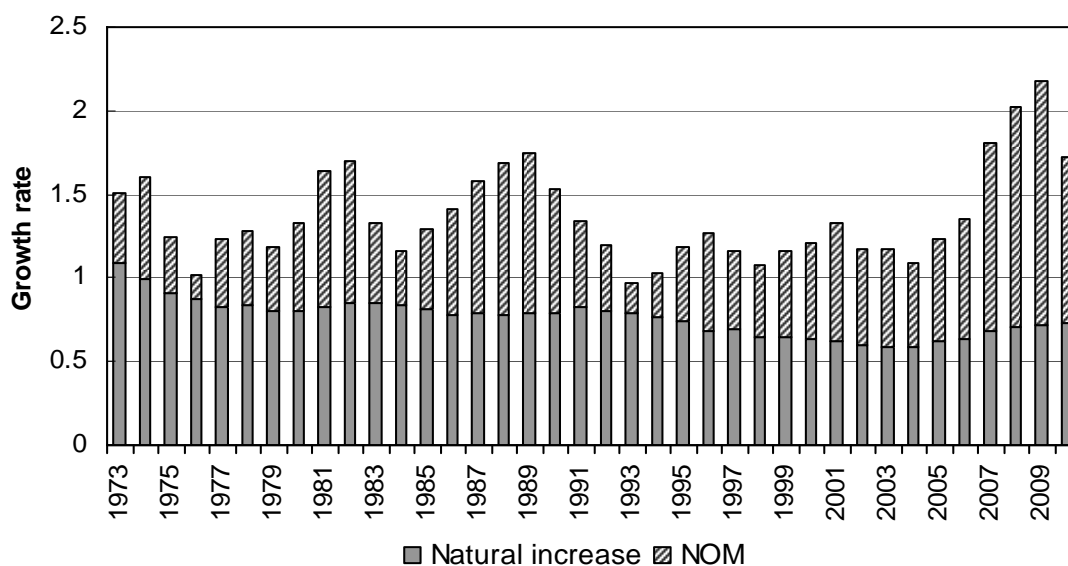
Data sources: ABS (2008, 2010a).

Immigration is the largest component of Australia's population growth

From the First Fleet onwards, migration has always been an important part of this country's development. In 2010, one quarter of Australia's population were born overseas.

Net overseas migration (NOM) — the difference between immigration and emigration — is now the largest contributor to population growth. Between 1971-72 and 1979-80, NOM (not counting descendants of immigrants) accounted for about 30 per cent of population growth on average. In the four years to 2009-10, this proportion increased to almost 65 per cent, reflected in the rapid acceleration in population growth itself (figure 2).

Figure 13.2 The contribution of migration has increased^{a,b}



^a The natural increase and NOM presented here do not necessarily sum to the total change in population in each year. Since 1976-77, the ABS has recorded this as the 'intercensal discrepancy', which is excluded from the figure. ^b The methodology for estimating NOM changed in 2006-07, and the data before and after that year are not strictly comparable (see PC 2010a for further discussion).

Data sources: ABS (2008, 2010a).

Two caveats

Population policy = immigration policy?

Migration is the component of population growth that is most amenable to influence by government policy, albeit with some constraints (such as limited influence over the rate of emigration).

The Australian Government controls permanent entry into Australia and establishes the conditions under which temporary movements into Australia are permitted. A range of visas are issued under various programs administered by the Department of Immigration and Citizenship.

For some migration streams, the Australian Government can either:

- set a 'planning level' for the maximum number of entrants, and/or
- set various criteria for visa applicants that serve to restrict the type and number of entrants (PC 2010a).

In contrast, natural increase is much more difficult to influence through policy. For example, government policy promoting medical research or subsidising diagnostics and treatment, might increase longevity and reduce death rates, but the effects would be indirect and uncertain. And the effect of targeted policies adopted in Australia to increase fertility, such as the Baby Bonus, is likely to have been modest (Lattimore and Pobke 2008).

Therefore, the population debate is essentially a debate about the size and composition of migration flows, and about the best policies to manage these and the consequent domestic impacts. Policies to influence the natural increase component of population growth are, accordingly, not dealt with here. However, many of the population pressures arising out of migration also arise in the context of natural growth. Consequently, some of the potential impacts and policy implications raised in this paper have wider relevance.

Population policy and ageing

Over the past century, Australia's population has been progressively ageing, and this trend is set to continue into the foreseeable future. Between 1901 and 2009, the proportion of people aged 65 and over has grown from 4 to 13 per cent, and according to the Treasury's latest projections, it is set to reach nearly 25 per cent by 2050 (Treasury 2010). An ageing population results in a higher dependency ratio and poses significant economic and fiscal challenges (PC 2005). This has led some to call for changes to population policy, and notably immigration policy.

However, several studies, including some undertaken by the Commission, indicate that policy-induced changes to Australia's population are unlikely to significantly affect the ageing trends.

Improvements in longevity are the major cause of population ageing over the long run. In recent projections, Commission researchers estimated that an increase in the long-run total fertility rate from 1.85 to 2.10 births per woman — even if it could be achieved — would be associated with only a 1.1 percentage point reduction in the proportion of people aged over 65 by 2051 (Lattimore and Pobke 2008).

Similarly, substantial increases in the level of net overseas migration would have only modest effects on population ageing and the impacts would be temporary, since immigrants themselves age. The Commission has estimated that an increase in annual net migration from 150 000 to 300 000 would lower the proportion of those aged 65 or over by less than 3 percentage points by 2044-45. As an illustration of the challenge, the Commission showed that delaying an increase in the dependency

ratio³ by 40 years would require a net migration-to-population ratio of 3 per cent per year, leading to a population of around 85 million by 2044-45 (PC 2005).

It follows that, rather than seeking to mitigate the ageing of the population, policy should seek to influence the potential economic and other impacts (PC 2005).

13.2 Policy framework

Good policy formulation entails three broad steps:

- clarification of objectives
- identification of the nature of the problem that policy needs to address
- assessment of the pros and cons of relevant policy alternatives.

Objectives for policy

Clearly formulating the objective is fundamental to the development of any policy.

The recent population debate reveals that multiple objectives are often attributed to ‘population policy’ (box 1). This is a consequence of the range and distribution of potential impacts of population growth, and the different priorities that participants attach to them.

However, most of the specific objectives can be seen as subordinate to the overarching policy objective of maximising the wellbeing of the Australian community. ‘Wellbeing’ itself is a multi-dimensional concept. It can be broadly defined as the overall satisfaction that members of the community derive from the various aspects of their lives and the social and physical environment in which they live (PC 2010b). This includes economic aspects that can be readily measured, such as incomes, but also other key influences that are not necessarily captured in market transactions, but are important determinants of quality of life. Those include (for example) the impacts on environmental and urban amenity, and social and cultural impacts.

³ Defined as the number of those aged 15 and under and those aged 65 and over, as a proportion of the number of people aged between 15 and 64 inclusive.

Box 1 Views differ on appropriate objectives of population policy

... Australia needs a growing population to develop our economy and to, of course, offset the issues that will arise as outlined in the intergenerational report about an ageing population. (Graham Bradley, Business Council of Australia, ABC 2010)

... using migration as a stimulus for the economy is short-sighted, unsustainable, and ultimately counterproductive ... ACF [Australian Conservation Foundation] supports the adoption of a national population policy that commits Australia to ... stabilisation of the Australian population and resource use at levels that are precautionary and ecologically sustainable. (ACF 2009, pp. 3–5)

Population numbers in Australia should be based on what science tells us is the ecological carrying capacity of Australia ... (Doctors for the Environment Australia 2011, p. 2)

Some people fear foreigners will take their jobs. Green zealots believe humans are a blight on the landscape. Others confuse immigration and border protection and some think our cities are too crowded, blaming migrants whenever they are stuck in traffic. What they all ignore is immigrants are part of the solution to our problems. More migrants, especially ones with job-generating skills, expand the economy, helping to pay for improved infrastructure. (*The Australian*, editorial, 28 January 2011)

Government reviews and studies of long-term ponderings on population have a place, but gabfests are no substitute for political decision-making and action. The obvious solution has been neglected for too long – build and develop regional Australia. (Jock Laurie, NFF 2011)

Social divisions are becoming more obvious and geographically concentrated. Non-English speaking background areas are being overlain by an ethnic identification. These trends will intensify if the population grows ... (Birrell 2010a, pp. 11–12)

The pursuit of this high level objective, accordingly, requires a recognition of trade-offs between its various subordinate objectives.

What 'community' in community wellbeing?

A threshold issue is *whose* wellbeing should be the focus of Australian policy? This is generally understood to be the Australian community existing at the time when a policy is being considered, since the responsibility of a government is primarily to its constituents.

The approach of focusing primarily on the existing Australian community would encompass future generations. It also would not completely disregard prospective immigrants. The welfare of Australians who are recent arrivals may be affected by the wellbeing of other potential immigrants seeking to immigrate through the family

reunion program. And developed countries such as Australia have a humanitarian obligation to assist refugees.

However, widening the policy-relevant population beyond this would soon become unmanageable and, ultimately, self-defeating, given the virtually unlimited global stock of prospective migrants. Clemens, Montenegro and Pritchett (2008) estimated that migrants from 42 developing countries to the United States raised their earning power by between 100 and 1500 per cent (with a median increase of 300 per cent).

While the objective is to promote the wellbeing of the community as a whole, the distribution of positive and negative impacts across society is also important. This has both equity and efficiency implications. A policy that imposes significant costs on a particular group in the community may also reduce social cohesion and lead to political resistance.

Sustainability and community wellbeing

In developing a Sustainable Population Strategy, the meaning of ‘sustainable’ requires clarification. Its original definition, derived from the Brundtland Report (UN 1987) is ‘development which meets the needs of current generations without compromising the ability of future generations to meet their own needs’. In practice, the concept has proven elusive and sometimes contentious. A strong (environmental) interpretation would require that the present generation does not draw down any non-renewable natural resources. A weaker interpretation would allow some substitution between different natural resources and between natural and manufactured capital, as long as the overall wellbeing of future generations is not compromised. A wellbeing objective is, therefore, more consistent with a weaker interpretation of sustainability. A community living at subsistence level could maintain all natural resources in a pristine state and satisfy the strong interpretation of sustainability, yet would be far from maximising its wellbeing (Guest 2010).

The Issues Paper for the Sustainable Population Strategy (DSEWPC 2010), in recognising that sustainability has environmental, social and economic dimensions and that there are trade-offs between them, has essentially adopted a definition consistent with the community wellbeing objective.

Impacts of population growth

Population and migration growth can generate a range of positive and negative impacts and, consequently, are simultaneously presented as a solution to existing problems and as a source of new ones.

In broad terms, additional people of working age increase the supply of labour and some forms of capital, contribute to government fiscal balances, and may contribute some domestic, community or broader social services in the non-market sector. They and their dependants are also consumers of various goods and services, including those delivered outside of markets (for example, subsidised government services and the services of some not-for-profit organisations). Thus, population growth has implications for wages, capital returns, and the prices of and/or access to goods and services in the market and non-market sectors.

An additional complication is that the extent of some of the impacts can be affected by existing economic ‘distortions’ (such as government policies leading to an inefficient allocation of resources, and the various unaddressed externalities, such as adverse environmental impacts), and would be mitigated if these were reduced.

Population growth can also lead to positive or negative social and cultural impacts on the incumbent population.

For the purpose of this paper — and consistent with the approach taken in the Issues Paper for the Sustainable Population Strategy — the impacts are discussed under three broad headings:

- Economic growth impacts — these relate primarily to effects on (measured) income and its components, and on non-market government services. While complex, these impacts are the easiest to identify and measure.
- Environmental and urban amenity impacts — resulting from physical and natural constraints and their interaction with population growth. These impacts sometimes fall outside of markets, and in some cases population growth can magnify existing problems. The impacts include urban infrastructure and space constraints, natural resource constraints and the effect of population growth on biodiversity and pollution.
- Social and cultural impacts — positive and negative impacts on amenity that also tend to be outside of the influence of markets.

Though separately identifiable, it is important not to view these categories in isolation, since some impacts are interlinked. For example, negative impacts on economic growth might lead to adverse social effects, while urban congestion and some types of environmental problems might limit growth in incomes, in addition to affecting other aspects of wellbeing. Such interlinkages can have important implications for policy — policies targeting specific impacts may have positive or negative collateral effects.

Policy taxonomy

In this area, as in others, governments have the choice of ‘proactive’ or ‘reactive’ policies. In the context of population, proactive policies are those seeking to influence the rate, composition, and geographical distribution of population growth. Immigration policy itself is a proactive policy under this definition. Regional development policies that attempt to draw population away from large cities, are another example.

‘Reactive’ (or adaptive) policies are designed to address the impacts of given population growth, rather than address that growth directly. For instance, if population growth placed additional demands on existing public infrastructure, subsequent government investment in infrastructure to meet those demands would constitute a reactive policy. A reactive approach does not necessarily imply addressing an issue after it has arisen — in some cases, policies will be able to anticipate adverse effects and may need to be implemented early, particularly if implementation takes time.

Policymakers ideally should adopt the mix of proactive and reactive policies that maximises net benefits to the community. However, choices can be constrained if some policies are infeasible due to prohibitive costs of implementation or difficulty in acquiring the necessary information. Domestic resistance to some policies may also inhibit their extent or effectiveness.

International considerations also come into play in immigration policy. For example, there are forces driving up the global supply of migrants, such as the significant income gaps between source and host countries, but also forces limiting the supply of particular migrants to Australia, such as the competition between many developed countries for migrants with certain skills. Australia also has international humanitarian obligations that influence part of its migrant intake.

13.3 Population growth and the economy

As noted, immigration is both the largest source of population growth in Australia and the one most amenable to policy influence. This section explores the potential impacts and policy implications of immigration for (measurable) economic growth.

By increasing the size of the population, immigration necessarily increases the aggregate size of the economy. A larger population means an increase in total labour supply. And immigrants add to the demand for goods and services, supplied both privately and by governments. As a result, immigration will raise aggregate

output and income, as measured by gross domestic product (GDP) and gross national income (GNI).

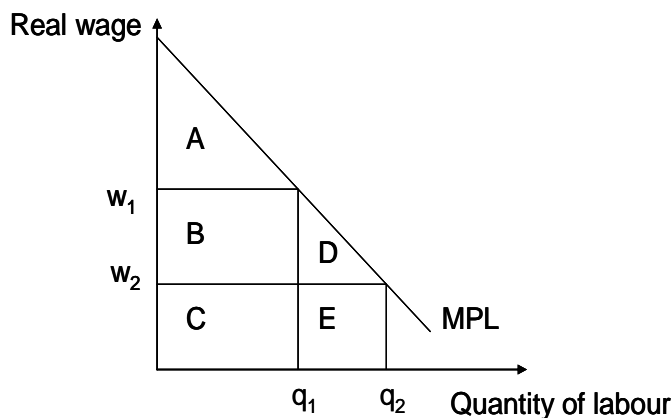
However, of more interest are the effects on economic wellbeing of the community, which have more to do with changes in the *per capita* GDP (or GNI) of the incumbent population.

The impacts on GDP per capita will be determined by several factors (PC 2010a).

In a seminal theoretical article, Berry and Soligo (1969) used a simple but instructive framework to demonstrate that immigration would reduce the wages but increase the aggregate incomes of incumbents, by raising the return on the capital stock they hold (box 2). The analysis used a simplified picture of the world with no economies or diseconomies of scale, no economic distortions, and no redistribution policies. Nevertheless, it offers an important insight into the major mechanisms driving the impacts. Subsequent theoretical and empirical research (discussed below) has allowed for various complicating factors (such as foreign ownership of capital and different types of labour) to evaluate the likely effects of migration in finer detail.

Box 2 The Berry-Soligo model of migration impacts

The seminal theoretical analysis of the effect of immigration on the real income of incumbents was presented by Berry and Soligo (1969), who built on earlier work on international movement of factors of production by MacDougall (1960). This analysis predicts that, when an economy's capital stock is owned by the populace, immigration will lead to an increase in the aggregate income of incumbents.



(Continued next page)

Box 2 (continued)

The curve MPL represents labour demand. Before immigration, the employment level is q_1 and incumbent workers earn a real wage w_1 . GDP is given by the area $A+B+C$, of which $B+C$ represents aggregate wages, and A , returns to capital. Immigration increases the employment level to q_2 and leads to a lower real wage w_2 . The new, larger GDP is given by the area $A+B+C+D+E$, of which E shows the aggregate wages of migrant labour. The aggregate wages of incumbents decline by area B , while returns to the capital held by incumbents increase by area $B+D$. Thus, immigration leads to an increase in aggregate incumbent income (triangle D — the so-called ‘migration surplus’) and some redistribution of income from labour to capital owners.

The model makes several simplifying assumptions, including:

- only one type of labour and one type of capital
- fixed stock of capital (this assumption is more valid in the short run)
- no foreign ownership of capital and, hence, no loss of income to overseas residents
- no economies or diseconomies of scale arising from population growth
- perfect competition and no economic distortions (in particular, wages adjust to accommodate increased supply of labour)
- no fiscal redistribution to compensate losers.

Sources: MacDougall (1960); Berry and Soligo (1969); Parmenter (1990); Peter and Verikios (1995).

Labour market effects of immigration

Immigration can affect the labour market and, ultimately, wages through the labour force participation and labour productivity channels.

Effect on per capita labour force participation

The effect of immigration on hours worked per head of the population can be decomposed into changes in:

- hours worked per employed person
- the employment rate (ratio of workers to people in the labour force)
- the participation rate (ratio of people in the labour force to the working-age population)
- the population of working age (15 to 64 years), as a proportion of the total population (PC 2006a).

In its study on the *Impacts of Migration and Population Growth* (PC 2006a), the Commission found that immigrants worked slightly longer hours than their Australian-born counterparts — averaging an additional half hour per week — and had also increased the proportion of the population of working age. Three-quarters of the foreign-born population were of working age in 2006, whereas this applied to only two-thirds of the Australian-born population (ABS 2010b). Similarly, of the permanent migrants admitted in 2009-10, 76 per cent were of working age (DIAC 2010).

Labour force participation and employment rates depend on the characteristics of migrants. For example, they have been higher:

- for those on skilled visas than other visa categories (a compositional effect): skilled visa holders arriving between 2000 and 2004 had a participation rate of 82 per cent in 2004, much higher than that of migrants entering on family or humanitarian visas (58 per cent and 40 per cent respectively) (PC 2006a)
- with the length of time spent in Australia (‘assimilation effect’) (Cobb-Clark and Chapman 1999).

In addition, more recent arrivals were found to have higher employment rates than those who migrated earlier — for example, 83 per cent of skilled migrants arriving in 2005 were employed within six months, compared with 76 per cent of those arriving in 1999-2000 and 63 per cent of those arriving between 1993 and 1995.⁴ This effect has been attributed, at least in part, to changes in migration policy (Cobb-Clark 2004; Richardson and Lester 2004; Birrell, Hawthorne and Richardson 2006; Hawthorne 2007). The increasing focus on skilled migration and an increase in the waiting period for access to government transfer payments from six months to two years (except for humanitarian entrants) are likely to have contributed to these effects.

The above patterns suggest that, over time, particularly with selective migration policies favouring skilled entrants, additional migrants will make a positive labour supply contribution. (This assumes no ‘crowding-out’ effect on the employment of incumbents — an assumption supported by Peri (2009)). In previous modelling, the Commission (2006a) projected that a permanent 50 per cent increase in skilled migration would increase hours worked per capita by 1.2 per cent over the base case, over a 20-year period.

⁴ Based on data on primary applicants for Independent skill stream visas from the Longitudinal Survey of Immigrants to Australia.

Effect on labour productivity

Labour productivity is typically defined as the real value of output (measured in terms of GDP per hour worked). It is affected by the characteristics of workers themselves (such as education and work experience, but also motivation) and the environment in which they work, such as the amount and quality of capital and technology, institutional and regulatory arrangements, and other external factors (PC 2006a).

Immigrants' own productivity

In 2001, immigrant workers, including recent arrivals, earned more per hour than Australian-born workers, on average (PC 2006a), indicating that immigrants have contributed to higher productivity in the Australian economy.

Most of this difference is attributable to differing composition — immigrants are typically older, more highly educated and more likely to live in capital cities than Australian-born workers. However, even after controlling for age, education, location, industry and English language ability, immigrant workers still earned about 2 per cent more per hour on average in 2001 than Australian-born workers.

Despite this, some migrants may not be optimising the use of their productive skills in the jobs they hold post-migration. Shah and Burke (2005) reported evidence of 'downward occupational mobility' among immigrants in the initial period after arrival, particularly for more highly educated immigrants. According to the authors, employment outcomes tend to improve with time spent in Australia — the assimilation effect — but there is potentially 'considerable' loss of productivity through lack of utilisation of their skills in this early period.

Effect on the productivity of incumbent workers

All else equal, where migrants are 'perfect' substitutes for local workers, migration would tend to have a negative impact on the local workers' productivity and wages, by virtue of increasing the supply of labour relative to other factors of production (Grossman 1982).

In the case of skilled immigration, which is currently the focus of Australian migration policy, an increase in skilled immigrants would tend to reduce the returns to skilled labour and so reduce the incentives for incumbents to undertake education and training to improve their skills (Harris and Robertson 2007). However, this

effect may be muted to the extent that skilled migrants induce skill-biased technical change.⁵

On the other hand, immigrants might actually increase the productivity of some incumbent workers, through some form of complementarity in production (Ottaviano and Peri 2006a; Bodvarsson, Van den Berg and Lewer 2008). One example of such productivity gains to incumbent workers is where migrants address short-term labour shortages that could not be readily resolved in the domestic labour market. Other potential sources of complementarity include cultural differences or differences in professional skills or practices.

In a US study, Ottaviano and Peri (2006b) found that, on average, US-born citizens were more productive in a culturally diversified environment. (However, the positive effects were stronger when only second and third generation immigrants were considered, suggesting that some integration into the host society was required.) Bellini et al. (2008) applied the methodology adopted in that study to 12 European Union countries and also concluded that ethnic diversity had a positive effect on the productivity and wages of incumbents. Niebuhr (2006), using German data, reported evidence of a positive impact of cultural diversity on research and development activity, the strongest effect being found among highly educated workers.

Illustrating a different type of complementarity, Epstein, Kunze and Ward (2009) found that the presence of immigrants in highly skilled workplaces discouraged shirking among incumbent workers. Drawing on European-based survey data, they found evidence of sponsoring firms hiring highly skilled immigrants at the same wage as locals, in some cases even covering their relocation costs. The authors argued that this was a strategy by employers to encourage local workers to exert more effort on the job, spurred by a credible threat of replacement.

However, Parasnis (2010) reported recent evidence of a negative input substitution effect in the Australian labour market, using data for 1994–2001.

Adjustments in capital stock

An increase in the supply of labour relative to capital would increase the returns to capital and encourage increased investment in capital. In the long run, this capital

⁵ Skill-biased technical change is the hypothesis that technological advances tend to favour high-skilled workers, by increasing their productivity relative to low-skilled workers and in turn, increasing their wage and employment prospects. Acemoglu (1998) argued that an increase in the relative supply of skilled workers in the labour force, led to a larger market for the development of technologies complementary to those workers.

accumulation could mitigate the wage effects of the initial ‘capital dilution’ (PC 2006a).⁶

A faster rate of investment in new capital could also accelerate the adoption of new and more efficient technology, thus improving both labour and multi-factor productivity (Solow 1960).

Evidence on the net impact on wages of incumbents

Assessing the net impact of immigration on the wages of incumbent workers is an empirical matter. There is a large body of empirical work on this topic, both from Australia and overseas.

Most overseas studies, using some form of regression analysis, have found little evidence to support a significant negative effect of immigration on the wages of local workers (for example, see surveys of the US literature by Friedberg and Hunt 1995 and Borjas 2003; and of European-based studies by Kerr and Kerr 2011). Two exceptions, both based on US data, are Borjas’ (2003) study, which found significant negative wage and employment effects of immigration; and Aydemir and Borjas (2011), who argued that measurement error in the immigration share of the population was responsible for misleadingly low estimates of the negative wage effect of immigration.

In the Australian context, research results differ according to the methodology employed. Studies based on regression analysis have found no significant negative wage effect, and in some cases, even a positive effect (Shan, Morris and Sun 1999; Addison and Worswick 2002; Islam and Fausten 2008; Bond and Gaston 2010). However, two studies using a general-equilibrium simulation approach — and assuming perfect substitutability of locals and immigrants within a given skill group — found a negative wage effect for competing skilled incumbents (PC 2006a; Harris and Robertson 2007). More recently, in a multi-country study using a general equilibrium simulation method, and utilising migration data for 1990–2000, Docquier, Ozden and Peri (2010) estimated that in Australia, immigration has had a negative effect on high-skill wages, a positive effect on low-skill wages, and a small positive effect on average wages of incumbents overall.

⁶ The initial capital dilution would be mitigated by migrants contributing capital on their arrival. The Commission estimated that this contribution is relatively small, even for skilled migrants — around \$25 000 per arrival (2001 dollars) over the first 18 months of residence (PC 2006a).

Other potential effects on average incomes of incumbents

Beyond the direct effects of immigration on incomes through the labour market, there may be other economic impacts such as changes in output mix and production technologies, economies of scale, and effects on public fiscal balances.

Changes in output composition and technology

As well as adjusting through changes in wages and employment, markets may respond to an increase in immigration through changes in the composition of output or the technologies used in production.

An increase in predominantly skilled immigrants could be expected to shift production towards goods and services that are relatively intensive in this type of labour. It might also contribute to an increase in the use of production technologies that are more intensive in the use of such skills, such as information technology and automation. Adjustment through these channels may mitigate negative effects on wages and employment (Dustmann, Glitz and Frattini 2008).⁷

Peri (2009) found in the United States that immigration had reduced the share of highly educated workers in the labour force, and promoted production technologies that were less capital intensive and more intensive in the use of unskilled labour. The reverse might apply in Australia's case, given the higher skill profile of immigrants to Australia in contrast with those arriving in the United States. Thus the inflow of relatively highly-skilled migrants here could induce some form of skill-biased technical change.

In the Commission's earlier study (PC 2006a), the largest industry expansions from a 50 per cent increase in skilled migration were projected to be in the construction industry (due to increased demand for housing and infrastructure) and in the health and education sectors (associated with the influx of labour with the required skills). The study projected smaller increases in agricultural and mining sectors, due to a decline in the terms of trade,⁸ and the increase in the cost of capital that affected capital-intensive industries.

⁷ Gaston and Nelson (2000) argued that in an economy with multiple goods and inputs, an increase in the endowment of one input would affect only the output mix; relative wages would only change with a change in relative output prices.

⁸ A projected decline in the terms of trade follows from an increase in exports (due to the expansion in total output from increased immigration) and the assumption in the model that export prices fall with an increase in export volume.

Potential benefits arising from economies of scale

Economies of scale arise where an increase in the quantity of output produced results in a less than proportionate increase in total costs of production — a declining average cost across some range of output. At the national level, a larger population may allow for the exploitation of potential economies of scale in the production of goods and services, at least those that are not exported.⁹

Key examples of the potential for scale effects at the national level are the provision of government services — particularly those with a large fixed cost component, such as defence and public administration — and the provision (private or public) of infrastructure such as transport and communications (PC 2006a). Economies of scale might also benefit cultural goods and services, such as the media, academic research, sporting competitions, literature and the arts (Garnaut 2002).

Garnaut (2002) argued that due to Australia's population size, geographic size and remoteness, the scale effects of immigration on infrastructure and public services provision were large enough to offset any negative wage effects for incumbents, even if immigrants had a similar age-skill profile to the existing resident population.

It is difficult to be definitive about the economic benefits from the scale effects of immigration, both because the scale effects alone are difficult to ascertain and because the role of immigration in the exploitation of such effects is unclear. Furthermore, economies of scale are unlikely to exist without limit, and in some cases, *diseconomies* of scale may be a more likely outcome of population growth (see section 4). A survey of the literature (PC 2006a) found inconclusive evidence of the aggregate impact of scale economies, and as a result did not include scale effects in its assessment of the likely impact of an increase in skilled migration.

Economies of density

One visible, and often remarked, effect of immigration has been an increasing concentration of the population in urban areas.

A greater geographical density of economic activity may generate several benefits. One of these arises from firms having proximity to larger labour markets, reducing hiring costs and promoting a finer division of labour (Fujita, Krugman and Venables 1999; Glaeser 1998). Having a large number of geographically

⁹ In the case of goods that are exported, the market is global, and an increase in Australia's population through migration will simply relocate some of that market to Australia. While unlikely to generate economies of scale, this may still create other benefits, such as a reduction in transport costs.

concentrated firms also provides workers with alternative employment opportunities and generally improves labour mobility.

Agglomeration could also support the production of specialised inputs that cannot be traded, or only at very high cost (such as legal and telecommunications services, maintenance and repairs) and promote a greater degree of specialisation in the production of consumption goods, leading to improved choices for consumers (Fujita and Thisse 2002).

It can also allow co-located firms to benefit from informational spillovers (Krugman 1991), as firms located in proximity to each other can transmit ideas and information more rapidly, facilitating innovation and improved production techniques. Such spillovers may also arise at the individual level, due to the acceleration in the rate of interaction between people (Glaeser 1998).

Ciccone and Hall (1996) found that density was a significant factor in explaining productivity differences between US states, and that a doubling of population density was associated with a 6 per cent increase in average labour productivity. Ciccone (2002) reported similar results for the United Kingdom and selected European countries.

While there are undoubted benefits from agglomeration, there are also a number of costs associated with rising urban density that imply some limits to growth and an optimal city size, even in the absence of distortions (such as inadequately priced resources). These are discussed in section 4.

Fiscal impact of immigration

Immigrants can affect public fiscal balances positively, by contributing to direct and indirect taxes and user charges, and negatively, as they add to demand for government services and transfers. A survey of the empirical literature by Withers (2003a) found a generally positive net contribution of immigration to public fiscal balances.

Access Economics (2008) conducted a detailed analysis of the impact of permanent immigrants to Australia on the Commonwealth Government budget balance over a 20-year projection period. The study projected that the total migrant intake in 2006-07 made a net contribution of \$536 million in the first year, and \$1.34 billion in 2025-26 (in 2007-08 prices).

Unsurprisingly, skill-stream migrants were estimated to make the strongest fiscal contribution of all visa categories, as a result of their younger age profile, high labour force participation and incomes, and initial exclusion from various

government benefits. Migrants entering on Family (Partner) visas were also estimated to make a positive net fiscal impact in each of the 20 years after their arrival (Access Economics 2008). This is perhaps attributable to what Withers (2003b) has called ‘assortive mating’, where spouses often match their sponsoring partners’ skills. By year 20, all permanent migrants were estimated to be making a positive fiscal impact, with the exception of Family (Parent) categories.

Previous findings on the impact of immigration on average incomes of incumbents

The Commission (2006a) estimated that a 50 per cent permanent increase in the level of skilled immigration would lead to a modest increase in average incomes within 20 years. However, most of the gains would generally accrue to migrants themselves, with the average income of incumbents declining by 0.1 per cent relative to the base case scenario.

- This result captured the projected effects of immigration on labour supply (both in terms of size and distribution among sectors), the indirect effects on labour demand and changes in output composition, and the resulting changes in relative wages and returns to capital from these impacts.
- However, it did not capture all of the effects on net fiscal balances from increased immigration, and did not include scale or agglomeration effects.

In its Third Intergenerational Report, the Treasury (2010) estimated that an increase in net overseas migration of 30 000 per year (over a base-case scenario of 180 000) would be associated with a 0.02 percentage point increase in per capita real GDP growth over the projection period (to 2049-50). This amounts to a difference of 0.86 percentage points in the level of GDP per capita in 2050 compared with the base case scenario. The report estimated that higher migration would lead to labour force growth being 0.13 percentage points per year higher than in the base case (culminating in a labour force 5.2 percentage points larger by 2050) and a lower dependency ratio. However, there was no estimate of the effect on the incomes of the incumbent population.

Effect of ‘economic distortions’

Any community benefits that result from immigration (and population growth generally) may be reduced, and any losses exacerbated, where there are distortions present in the economy. The possibility of ‘immiserising growth’ — a concept that first appeared in international trade literature to describe how economic growth can reduce real incomes due to distortions affecting trade — can also apply to population growth (box 3).

Box 3 Distortions can produce ‘immiserising’ growth

The possibility of ‘immiserising growth’ was first raised by Bhagwati (1958, 1968), whose earlier study presented the specific case of an economic expansion in a small open economy leading to a decline in its terms of trade. In the extreme scenario, the loss from the deterioration in terms of trade outweighed the gains from the growth in economic activity. Following H.G. Johnson’s (1967) demonstration that in the presence of a tariff, an expansion of the protected sector would lead to a misallocation of resources, Bhagwati (1968) developed a general case of immiserising growth, caused by distortions in the economy. In the general case, the gains that would otherwise be achieved through economic growth could be outweighed by the losses imposed by the distortions in the economy after the economic expansion.

The possibility of immiserising growth due to economic distortions has also been discussed in the literature on the impacts of population growth. For example, Clarke and Ng (1993) presented a framework in which economic distortions, such as unpriced externalities or unassigned property rights, determined whether population growth increased or reduced the incomes of incumbents.

Sources: Bhagwati (1958; 1968); H.G. Johnson (1967); Clarke and Ng (1993).

In the context of immigration, growth in the supply of labour and an increase in demand in the presence of distortions could result in misallocation of resources to the point where welfare losses outweigh the gains from the expansion. (In an extreme case, even aggregate indicators, such as GDP, may decline following the growth in population.)

The distortions that unduly impede the allocation of resources might be policy-induced, such as industry protection or labour market regulation (discussed below). They may also take the form of externalities, such as unpriced urban and environmental impacts (discussed in section 4).

The outcomes may be manifest in lower real incomes. However, in many cases, particularly where there is a gap between market prices and non-market or ‘social’ values, GDP per capita may still rise, but there may be a decline in the other components of community wellbeing.

Distribution of the impacts across the incumbent population

There will generally be both winners and losers from immigration, in terms of the effect on individual incumbents’ incomes.

Distributional effects on incumbents' labour market returns

The effect of immigration on average wages and employment may mask significant variations for particular groups of workers. Incumbent workers whose skills are most similar to those of immigrants are the most likely to be negatively affected, whereas those in other skill or occupation groups may benefit from complementarity and increased scarcity as aggregate demand rises.

Dustmann, Frattini and Preston (2008), using UK data, found evidence that immigration can have a negative effect on incumbent workers' wages in the parts of the wage distribution in which they are more densely concentrated, but a positive effect on wages for workers in other parts of the wage distribution.

In the Commission's (2006a) simulation, incumbent workers who are more highly educated and in professional occupations were projected to experience a modest reduction in wage growth from an increase in skilled immigration, while other groups experienced increased wage growth. For example, real wages of professionals were projected to be 7.3 per cent lower, at the end of the projection period. Conversely, the real wages of tradespeople and labourers were projected to rise — by 4.1 and 3.2 per cent respectively.

As discussed earlier, adjustments in capital stock, output composition or production technologies might mitigate the negative impacts of skilled migration on skilled incumbent workers.

If immigrants to Australia were highly concentrated in particular segments of the labour market, incumbent workers in those industries could be affected disproportionately in terms of wages and employment. However, Parasnis (2006) found no evidence of labour market segmentation or concentration among particular occupations or industries in Australia. Rather, the overall employment distribution was found to be similar for migrants and incumbents, for both industries and occupations, and over time (for the period 1994 to 2000).

Other distributional effects

As discussed earlier, an increase in the supply of labour relative to capital stock would increase returns to capital. This would benefit its owners, particularly owners of urban land and/or housing, and owners of business assets producing non-tradeable goods and services.

In Australia's case, ownership of each of these asset classes is now relatively widespread within the population (Garnaut 2002; Withers 2003a) especially as a result of compulsory superannuation. The predominant potential 'losers', according

to Garnaut (2002), might be existing residents on lower incomes who live in large cities and do not own their homes (thus being likely to bear the increased rental costs associated with higher urban land values). In addition, about 28 per cent of Australia's capital is foreign owned (ABS 2006) — so some of the redistributed income would flow to foreigners.

Government fiscal policy is also important to the distribution of the costs and benefits. The positive contributions to fiscal balances made by most migration streams suggest that incumbents could be net beneficiaries. However, there could be winners and losers depending on how any fiscal dividends are distributed (Chiswick 2011).

Economy-wide, immigration could be expected to affect the output mix and production technologies, driven on both the supply side (in response to the increase in labour supply) and the demand side (due to an increase in aggregate demand and any differences in the tastes and preferences of immigrants). Such changes would likely have implications for relative prices of consumption, investment and government goods and services. Individuals and groups may in turn be made better or worse off as a result of these price changes, depending on their preferences and consumption patterns.¹⁰

Policy implications

Proactive policy options?

The available evidence suggests that highly-skilled migrants with good English proficiency and high levels of education tend to raise average real incomes and fiscal balances. In Australia, the highest participation and employment rates, incomes and net fiscal contributions have been found among employer-sponsored visa categories.

In a comparison of the labour market outcomes of migrants to Australia and Canada, Richardson and Lester (2004) found evidence that policy design has been an important determinant of the labour market performance of migrants. Comparing Australia and Canada, both of which have a focus on skilled migration, the authors considered that the following aspects of Australian migration policy contributed to superior outcomes:

¹⁰ However, as illustrated by Clarke and Ng (1993) when prices rise as a result of increased demand, producers are made better off to a greater extent than existing consumers are made worse off.

-
- stringent assessment of migrants' qualifications before permitting entry
 - a younger upper age limit (45 years compared with 54 years in Canada) and mandatory vocational level English proficiency for skill-stream migrants
 - restrictions on access to social security benefits in the first two years.

Hawthorne (2007) also concluded that the mandatory pre-entry assessment of credentials and English skills, and modifications to the 'points' system, contributed to the improvement in the employment outcomes of successive cohorts of immigrants arriving between 1993 and 2005.

While there is evidence of potential economic benefits of controlling the composition of migration streams, the optimal size of the migrant intake is less clear and requires consideration of other influences. For example, if large potential benefits from unexplored economies of scale could be demonstrated, the ideal number of immigrants would be higher than otherwise. But this would have to be balanced against any environmental or social diseconomies or disamenities. Even with optimal resource pricing and user charges for environmental resources, urban amenities, infrastructure and so on, there might still be significant distributional issues associated with large increases in the population (see section 4).

There might also be options at the international level for policies to increase the benefits from migration (Holzmann and Pouget 2010). For example, Australia could cooperate with source countries on matters such as:

- assessing the relevance and suitability of migrants' skills and qualifications
- harmonising occupational requirements to facilitate two-way flows of skilled workers
- facilitating information exchanges in relation to migrants' personal characteristics, both labour market related and other (such as security issues).

Reactive/adaptive policy options?

Some existing policies and institutional settings may act as impediments to the realisation of potential benefits from immigration. These may include impediments to geographic mobility, barriers to labour market entry such as occupational licensing, or protection policies that expand inefficient industries and impede the efficient allocation or re-allocation of resources.

For example, the Commission's (2006a) study found that arrangements for assessing and recognising migrants' skills were complex and sometimes led to

inconsistencies, and that potential migrants were often poorly informed about the processes. The report suggested a number of improvements, including:

- moving towards a more uniform, national approach to occupational registration and licensing
- better dissemination of information on skills assessment and recognition
- re-evaluating and possibly broadening assessment criteria so as not to artificially exclude migrants from occupations.

Shah and Burke (2005) suggested a greater role for education and training for migrants post-arrival — specifically, for the VET sector to assist in filling any gaps in migrants' job readiness, thereby increasing the likelihood of them obtaining positions that fully utilise their existing skills.

Policies influencing the incentives of migrants to gain employment also play a role. There is evidence that precluding new migrants from accessing most government social security benefits until two years after arrival (previously six months) has improved incentives to increase participation and employment among migrants (Richardson, Robertson and Ilsey 2001; Hawthorne 2007). It may also have led to some self-selection among potential migrants, encouraging those who believed they had stronger employment prospects (Richardson, Robertson and Ilsey 2001).

Evidence presented earlier indicates that changes in output mix and production technology are important channels of adjustment to an influx of migrants, and could mitigate wage and employment impacts on incumbent workers. Distorting subsidies and taxes and regulatory regimes that discriminate among technologies can impede such adjustments and reduce the potential benefits from immigration. In the extreme scenario, they can lead to the immiserising growth outcome, described earlier. Ultimately, however, removing regulatory burdens and distortions is not just an issue for migration, but a general policy strategy to enhance economic performance.

A larger population could also lead to pressures for increased investment in infrastructure, coming both from the supply side (driven by increased labour input and resultant increases in production) and the demand side (as population growth increases demand for housing, transport, communications, utilities and so on). Insufficient investment in infrastructure may result in constraints on the productive capacity of the economy as well as exacerbating urban disamenities, such as through congestion (discussed in the next section).

As well as creating a regulatory environment conducive to private investment, there might be a role for governments to anticipate the needs of a growing population by increasing public infrastructure investment. However, as discussed previously (PC 2010a), population and immigration growth have historically been, to some

extent, unpredictable — not just in terms of total numbers but in composition and geographic distribution. As a result, any large-scale public investments run the risk of being based on the ‘wrong’ predictions about population growth. Implementing infrastructure projects in stages can allow adaptation as needs become clearer.

13.4 Urban amenity and environmental issues

Population growth may be associated with adverse urban and environmental outcomes. For example, higher levels of population could lead to increased traffic congestion and pollution, and to concerns about natural resource constraints.

In many cases, however, population growth will not be an exclusive (and in some cases, not even the main) cause of such problems. Some may be existing or emerging problems — arising out of persisting market failures or policy distortions — which are magnified by population growth. The conventional policy prescription is to address market failures and policy distortions at their source. However, cost and implementation difficulties may preclude theoretically optimal policies. More importantly, this approach by itself will not always lead to an improvement in the *wellbeing of incumbents*. According to Pincus (2011, p. 47):

... optimal policy adaptations to a larger population ... do not completely remove the disadvantages of bigness. What these policies can do is to make the best of a bad lot, that is, constrain the negative externalities to their optimal sizes – they do not guarantee that the existing population will not suffer a disadvantage.

Thus, proactive population policies may also need to be considered, either in combination with, or in place of, policies that target the sources of spillovers or policy distortions.

Urban amenity and infrastructure constraints

Some of the primary impacts of population growth are felt in the cities. The number of people living in Australia’s major cities has continued to increase over time, and roughly three-quarters of the population now reside in the 18 cities with 100 000 or more residents (PC 2010a).

If the benefits of increased population density and size (discussed in section 3) were unlimited, cities might be expected to grow infinitely. However, this clearly does not apply in practice. Although there are benefits from agglomeration — what Fujita, Krugman, and Venables (1999) refer to as ‘centripetal forces’ — there are also costs associated with urban development, which the same authors refer to as ‘centrifugal forces’. The latter could be conceptualised as the diseconomies of scale

arising out of population growth. The consequences may not always manifest themselves in lower measured incomes, but would nevertheless have real implications for community wellbeing.

Congestion

The extent to which population growth leads to transport congestion depends in part on:

- the location of population growth
- current levels of supply of roads and related infrastructure in particular locations
- timing of travel
- modes of travel
- city planning and traffic controls.

The presence of these factors means that population growth need not result in greatly increased levels of congestion. For example, if additions to the population occur in areas of a city that were previously thinly populated, the likelihood of significant congestion on local roads is reduced. Conversely, if a high proportion of newly added residents to a city travel by car to areas of concentrated activity, such as CBDs, during peak times, increased congestion is likely.

Congestion essentially reflects an absence of appropriate pricing signals. Where the price of road travel does not vary directly with the extent of use, additional road users impose costs on existing users. Accordingly, the full costs of road travel are not borne directly by any individual user. The failure to price this external cost means that population growth, by adding more vehicles to existing road networks, will increase congestion and its social costs.¹¹

Housing

A link is often drawn between population growth and increased house and land prices. Population growth naturally increases the demand for housing and, therefore, tends to place upward pressure on prices.

That said, an increase in prices would normally be expected to induce additional supply, moderating the impact of a change in demand. The Commission, in its inquiry into First Home Ownership (PC 2004), found that the supply of housing was

¹¹ For example, see Arnott, de Palma and Lindsey (1993) for a theoretical analysis of efficiency costs of congestion.

constrained from responding to changes in demand (from any source) over short time horizons. This is due to the time required to service lots, develop land, and construct new dwellings. In the long run, the supply of housing is more responsive to changes in price, although various supply-side factors, such as planning controls, will influence the degree of responsiveness, and these have been the subject of some criticism (PC 2011).

Residential amenity and social impacts

Population growth may also have impacts on the value of urban amenities such as aesthetics and air quality — some of which will be positive, others negative. The negative impacts tend to be most evident. For example, concentrated industrial zones and heavily used roads can be sources of heavy (air and noise) pollution. Increased population can also increase the demand for public parks and sporting facilities, the supply of which often does not increase as population grows. The construction of higher density residential accommodation in established areas can lead to a loss of canopy trees and shrubs, potentially contributing to a loss of biodiversity, and lowering the aesthetic appeal of a neighbourhood (Birrell 2010b).

There may also be other amenity impacts. Social networks in high density areas can facilitate the transmission of information about crimes, or the values that condone crime, and may thus increase criminal activity. Furthermore, social networks might be less developed in some cities, or sections of them, making crimes more anonymous, and the process of finding criminals more difficult. Accordingly, crime rates tend to be higher in large urban areas (Glaeser 1998).

Rising city populations can also have positive amenity effects. For example, Glaeser, Kolko and Saiz (2001) suggest that urban density may enhance the facilitation of interpersonal relationships that urban residents consider desirable, and that individuals who live in high density residences socialise more with their neighbours.

Policy implications

To a large extent, the specific impacts of population growth on urban congestion, water, housing affordability, and other aspects of urban amenity depend on institutional arrangements. Policy approaches unrelated to controlling population growth are available in each of the areas identified above. Nevertheless, in some cases, proactive policies limiting population growth might also need to be considered.

Proactive policies?

Limiting the migrant intake might be seen as an obvious response to addressing any urban amenity and infrastructure pressures. However, this approach would also have wider consequences and would require consideration of all of the costs and benefits of immigration. On the use of population policy to influence housing demand, the Commission has previously stated:

... the Commission is not suggesting that immigration policy should be used to influence housing demand or affordability. Immigration policy obviously needs to be determined by broader considerations. (PC 2004, p. 68)

Where population growth is not the main contributor or source of the problem, or where there are relatively low-cost ways of reducing the impacts, a reactive policy might be preferable.

Another proactive strategy occasionally employed in Australia involves regional development programs to promote a more 'even' geographic distribution of the population. For example, the 1970s saw the introduction at the Commonwealth level of the Department of Urban and Regional Development, which developed policies promoting 'regional growth centres'. If successful, regional development policies can decrease the demand for housing and transport in cities, reducing the extent of house price rises and the severity of congestion. There may also be effects on other aspects of urban amenity, such as air quality and pollution.

In the past, however, such programs have generally not been effective in achieving their stated objectives. For example, the regional growth centres promoted by the Department of Urban and Regional Development in the 1970s failed to attain the population growth and levels initially anticipated. That said, while picking regional winners has proven difficult (and costly), there is likely to be scope for governments to remove various impediments to population mobility (box 4).

Reactive/adaptive policies?

Population growth is not the exclusive or even the main contributor to some of the impacts just discussed, many of which are likely to emerge or persist even with limited population growth.

Infrastructure supply augmentation is a key reactive policy option warranting consideration — particularly where there are no significant diseconomies of scale in the provision of additional infrastructure or services.

Box 4 Previous Commission studies on regional development

In its 1993 inquiry into Impediments to Regional Industry Adjustment, the Industry Commission (IC 1993) concluded that policies aimed generally at spreading people and industry beyond Australia's capital cities had tended to be ineffective, simply reinforcing the tendency for people to locate in areas they perceived to be the most advantageous for their purposes. For example, between 1973 and 1976, under the broad purview of the Department of Urban and Regional Development, regional development corporations were established with the objective of creating a number of 'growth centres' (12 were initially chosen). Even those regions that received the largest amounts of funding under this policy, such as Albury-Wodonga, failed to reach the population levels initially anticipated. The Department of Urban and Regional Development itself was abolished in 1976 (IC 1993).

The Industry Commission (IC 1993, 1998) also highlighted the potential pitfalls of competition between regions to attract development projects. The risk of 'bidding wars' could lead to negative-sum outcomes from the movement of activity between regions rather than increases in activity overall.

In its inquiry into the Impact of Competition Policy Reforms on Rural and Regional Australia, the Commission (PC 1999) suggested that the various levels of government could help promote regional development by focusing on areas where market forces alone were unlikely to meet the needs of regional communities. Measures the Commission indicated had the potential to be productive included assistance in the provision of information, removing impediments to development, and improving policy coordination.

Sources: IC (1993, 1998); PC (1999).

For example, while additional people can exacerbate urban water shortages and restrictions, a key issue is whether there are economically feasible but unexploited options for increasing the supply of urban water, such as recycling or allowing trade between rural and urban areas. Similarly, in the case of housing affordability, policies that affect supply may play a significant role. Richards (2009) observed that the supply of housing has not been very responsive to changes in demand in recent years, and argued that land zoning and development and approvals processes may have contributed to this. The Commission (PC 2011) has recently found that the limited responsiveness of the supply of housing to price changes can be partly explained by unduly long timeframes associated with the land supply process.

On the other hand, Arnott (1996) noted that while increasing the supply of roads and related infrastructure may be effective in some cases, in others, an increase in

road capacity can attract greater demand for road travel or generate other perverse outcomes.¹²

Efficient pricing of infrastructure services is another option. For example, more cost-reflective pricing could induce consumers to allocate water to its most highly valued uses, and moderate consumption when water becomes more scarce. Variable prices would also convey useful information to suppliers about when to invest in new infrastructure.

Traffic congestion could also be targeted by charges that vary with the number of vehicles on the road at a particular time. In theory, such a mechanism can make travellers ‘internalise’ the additional costs they impose on other road users, and ensure that those who travel on roads during peak times are those who place the highest value on doing so. A number of countries have imposed user-charge schemes in some of their cities, and others are examining the feasibility of doing so.¹³ However, it is unclear whether such schemes have generated net benefits. The Commission has previously noted some difficulties associated with introducing congestion charges, including the implementation costs and the potential distributional consequences (PC 2006b). The latter in particular, could be an important consideration — even if the congestion charge is efficient, it would still have adverse consequences for those incumbents, who have to pay more for using the road (taking into account the time saving) or are forced to change their travel arrangements. And while those incumbents could *in principle* be compensated out of the revenue collected through the congestion charging scheme, this is unlikely to be feasible in practice.

Ultimately, the distribution of the impacts of population growth may play an important role in the choice between reactive and proactive policies. Unless the supply of the relevant infrastructure or service can be augmented at relatively low cost, population growth could result in a decline in the wellbeing of incumbents even if the problem is resolved ‘efficiently’ but at a higher cost.

¹² Supply augmentation will be less effective in reducing congestion when the demand for road travel is highly sensitive to price of travel (including time) — an increase in road capacity will then be absorbed by an increase in road use. Other perverse effects may arise when there is an alternative transport mode (such as public transport) operating under economies of scale. An increase in road capacity could then lead to a decline in the quality of public transport or an increase in the costs (Arnott 1996).

¹³ For example, Singapore has operated a cordon charging scheme since 1975, a congestion charge was introduced in central London in 2003, and user charges have also been introduced in central parts of cities such as Rome, Milan, and Dubai (BITRE 2008).

Environmental spillovers and resource constraints

The negative environmental impacts arising out of population growth can be broadly categorised as:

- unsustainable use of natural resources, many of which are finite and either non-renewable or slow to regenerate — these impacts are generally global in nature, because most natural resources are traded in world markets
- impacts associated with greater levels of activity, such as pollution and greenhouse gas emissions — these impacts can be local (such as some types of pollution) or global (for example, greenhouse gas emissions)
- loss of biodiversity — these impacts can be local or global.

At the heart of arguments that the Earth has exceeded the number of human inhabitants that it can ‘sustainably’ manage is concern that resources are finite, and will be exhausted, or at least significantly depleted, with the addition of yet more people to the world’s population. For example, Ehrlich and Holdren (1971) argued that global population control was necessary ‘if there is to be a future worth having’ (p. 1216). Measures, such as ‘ecological footprint’ and ‘ecosystem services’ are often employed by advocates of lower population growth and these typically indicate that environmental sustainability is declining with population growth (Cork 2011). Most of the arguments are by no means new, with antecedents dating back at least to Malthus (1798).

It is instructive to consider the more pessimistic arguments of authors such as Ehrlich and Holdren (1971) in the context of observed human history. At the time of Malthus, the population of the world stood at slightly less than 1 billion, compared to nearly 7 billion today (US Census Bureau 2011). Over these two centuries, far from declining as predicted by Malthusians, living standards and life expectancies have increased to an unprecedented extent (D. G. Johnson 2001; Acemoglu 2008).

Concerns about exhaustion of natural resources often ignore or downplay the role of markets, particularly the effect of scarcity-induced increases in the relative price of a resource. Increasing prices lead to substitution away from scarce resources, while encouraging greater efficiency in their use (for example through recycling) and innovation (Baumol 1986; Weil 2005; PC 2006a).

Among others, Romer (2006) has demonstrated that although falling quantities of natural resources and land *per worker* can reduce the rate of growth in per capita income, this need not happen under technological progress.

An additional consideration in the context of environmental problems arising out of global population growth, is the relatively small size of Australia’s population and

economy. Currently Australia accounts for 0.3 per cent of the world's population. In 2009, this country accounted for around 0.7 per cent of the world's population growth and 1.6 per cent of global GDP (World Bank 2010), and in 2008, it accounted for 1.3 per cent of global carbon dioxide emissions (IEA 2010). Furthermore, much of Australia's population growth is attributable to immigrants, who were obviously consumers and contributors to carbon dioxide emissions in their countries of origin (though typically at lower levels).

Global natural resource impacts of population are sometimes presented as a local issue. A typical example is 'food security', where some have argued that the encroachment of residential development on agricultural areas, coupled with increased national demand for food, would reduce Australia's capacity to feed its population (see Sobels et al. 2010, for example). However, even if local production proved inadequate, agricultural products are traded internationally, and any excess local demand could normally be addressed through trade. More importantly, Australia is a significant net exporter of various food items — over the past five years the annual surplus in our food trade has averaged nearly \$17 billion (DAFF 2010).

In an Australian context, one of the main areas of environmental concern stemming from population growth is pollution. Arguments to constrain the rate of population growth rest on the reasoning that additional people lead to additional use of transportation, electricity, and other activities that reduce air and water quality and otherwise pollute the environment. However, population growth may also bring benefits in the remediation of 'legacy' environmental problems. For example, there may be economies of scale in cleaning polluted sites, where the costs of clean up are fixed but the number of potential beneficiaries of the improved environmental outcome increases (Clarke et al. 1990).

Other environmental concerns relate to loss of biodiversity — that is, declines in the degree of variation in life systems within a particular ecosystem. Such losses may occur due to additional land required for residential, commercial or industrial use, reducing natural habitat, or because reductions in air and water quality impede the ability of flora and fauna to survive.

Policy implications

While the effectiveness of population policies by any one country to reduce global environmental impacts may be limited, such policies can more effectively target local environmental impacts, such as pollution (excluding carbon dioxide emissions).

However, the relationship between pollution and population growth is neither direct nor exclusive. For instance, pollution levels are, in part, a function of the type of production activities undertaken by an economy. Holding population and all other characteristics fixed, a community that is more highly oriented towards the production of services and other skill-intensive activities is likely to result in less pollution than a community that relies heavily on manufacturing production. Population policy may, therefore, be an indirect and blunt approach to remedying pollution.

The economic literature posits that, regardless of whether pollution problems are localised or diffuse, the best policy instruments are those that target pollution-generating activities (Nordhaus and Tobin 1973). Fisher and Ridker (1973) stated:

Direct attacks on pollution problems clearly dominate over reductions in population and economic growth as a means for obtaining a cleaner environment ... (pp. 83–4)

Some have argued that controlling population growth — a proactive stance — is necessary to slow the loss of biodiversity (Gowdy and McDaniel 1995). However, loss of biodiversity is a complex problem, and sources and remedies may be many and varied. For example, reducing population growth (broadly speaking) can decrease the demand for fish, reducing pressure on fish stocks and, therefore, make it less likely that a particular species will become endangered or extinct. However, potentially the more important driver of fish stock depletion is a failure to assign property rights. In the absence of ownership, a ‘tragedy of the commons’ may arise, with individuals exploiting the resource to excess, since a large proportion of the costs of doing so are imposed on others.¹⁴ Improving the relevant institutional arrangements could moderate the pressures on the natural resource arising from population growth.

Somewhat different policy issues are raised by the loss of biodiversity that results from expansion of land used for residential, industrial, and commercial purposes. If population growth results in the utilisation of previously unexploited land, ecosystem damage may result. However, the ability to utilise existing land more intensively — for instance, by building high density residential accommodation — and the ability to obtain more agricultural output from given parcels of land, can mitigate the need for expansion. Also, to the extent that there is some private demand for, and provision of, various environmental services, population growth can increase the aggregate demand for those services. Clarke and Ng (1993) argued

¹⁴ Weil (2005) notes that if assigning property rights is not feasible, an alternative is to give control of the resource to an authority that can take account of the costs that users of the resource would impose on each other in the absence of clearly defined property rights.

that population growth leads to increased demand for wilderness areas and hence greater provision of areas likely to sustain diverse ecosystems.

13.5 Social and cultural impacts

Immigration can generate both positive and negative social impacts through several channels. Some of those have already been identified. They include the distribution of impacts on measured incomes and the effects of a growing population on urban amenity. Another important source of impacts is the changing ethnic and cultural make-up of Australia's population.

Ethnic and cultural diversity can involve both benefits and costs for the existing population, in production, consumption and, ultimately, wellbeing. As discussed in section 3, ethnic diversity may be a source of complementarity between migrant and incumbent workers, leading to higher productivity and wages of incumbent workers. Cultural and ethnic diversity may lead to other spillover benefits, such as greater creativity and innovation, expanded consumer choices, improved ability to trade and interact with other countries, and social amenity benefits from living among people from other cultures. Also, to the extent that some of the current incumbents are themselves recent immigrants, continued immigration could deliver various benefits to them through family reunion and the preservation and growth of their ethnic community within Australia.

However, some Australians may not like to live in a multicultural or even multi-racial environment, if they perceive this as conflicting with or endangering their own cultural values and institutions ('way of life'). Increased cultural diversity could then decrease the wellbeing of incumbents.

There is some international research showing that public opposition to immigration is often motivated more by racial or cultural factors than by explicit economic self-interest, such as concerns about competition in the labour market or constraints on government welfare benefits (Dustmann and Preston 2004; Hainmueller and Hiscox 2010). In Australia, survey evidence indicates that public attitudes to migrants vary significantly depending on the migrant's country of origin. Also, negative attitudes to migrants tend to be more prevalent among Australians living in areas with a high concentration of immigrants (Marcus and Arnup 2010).

Such concerns are often dismissed as manifestations of racism of the less educated members of society. For example, a series of surveys conducted by Professor Kevin Dunn in recent years to gauge the prevalence of racist attitudes around Australia, used attitudes to cultural difference as one of the proxies for racism (Dunn 2003). While some of the opposition to migration is no doubt racially motivated (and there

is empirical evidence that public tolerance of migrant groups does increase with education), conflating all opposition to ethnic and cultural diversity under that label risks ignoring legitimate concerns about the functioning of Australian society. While this is a sensitive, and to many, controversial area, it can not be ignored by public policy.

Diversity and social capital

One of the most common grounds for resistance to immigration from ethnically and culturally diverse sources is that it could undermine the social capital of the existing population.

Robert Putnam (2000) defined social capital as ‘social networks and the associated norms of reciprocity and trustworthiness’. The concept is multidimensional and extremely difficult to measure. Typically, proxies are employed, including:

- measures of interpersonal trust and support for government welfare programs
- engagement in various voluntary activities requiring cooperation, such as community associations and clubs, and participation in charity.

Social capital can generate benefits to society through many channels including by:

... reducing transaction costs, promoting cooperative behaviour, diffusing knowledge and innovations, and through enhancements to personal well-being and associated spillovers. (PC 2003, p. viii)

In recent years, much international research has been conducted by sociologists, political scientists and economists on the impact of ethnic diversity on social capital. Though differing in methodology and country of focus, most of the studies conclude that ethnic diversity reduces social capital. For example, Costa and Kahn (2002) summarised 15 empirical studies conducted between 1997 and 2002 that looked at various dimensions of social capital in different countries across different time periods, and concluded that social capital was greater in ethnically and culturally homogeneous societies. Coffé and Geys (2005) deployed a composite measure of social capital, incorporating all of the proxies mentioned above in an analysis of the impacts of ethnic diversity in Belgian municipalities, finding that municipalities with greater ethnic diversity had lower levels of social capital.

In a comprehensive study that examined evidence from the United States, Putnam (2007) found that in the short to medium run, immigration and ethnic diversity ‘challenge social solidarity and inhibit social capital’. In particular, in areas of greater diversity, respondents exhibited:

- lower confidence in local government, local leaders and the local news media

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- less expectation that others will cooperate to solve collective action problems
 - lower likelihood of working on a community project
 - lower likelihood of giving to charity or volunteering
 - fewer close friends and confidants
 - less happiness and lower perceived quality of life.

In the Australian context, Leigh (2006) found that diversity weakened interpersonal trust and support for a welfare state.

Migration and crime

Fear of increased crime appears to be an important factor behind the public resistance to some groups of migrants (Marcus 2010; Collins 2003). There is a paucity of studies about the linkages between ethnicity and crime, and the data are sketchy. Some studies that found declining social capital as a result of ethnic diversity included crime rates as one of the indicators (for example, Coffé and Geys 2005). International evidence suggests that, in aggregate, migrants are no more likely to commit a crime than the native born. However, some ethnic groups have been found to be over-represented in crime statistics (Wortley 2009).

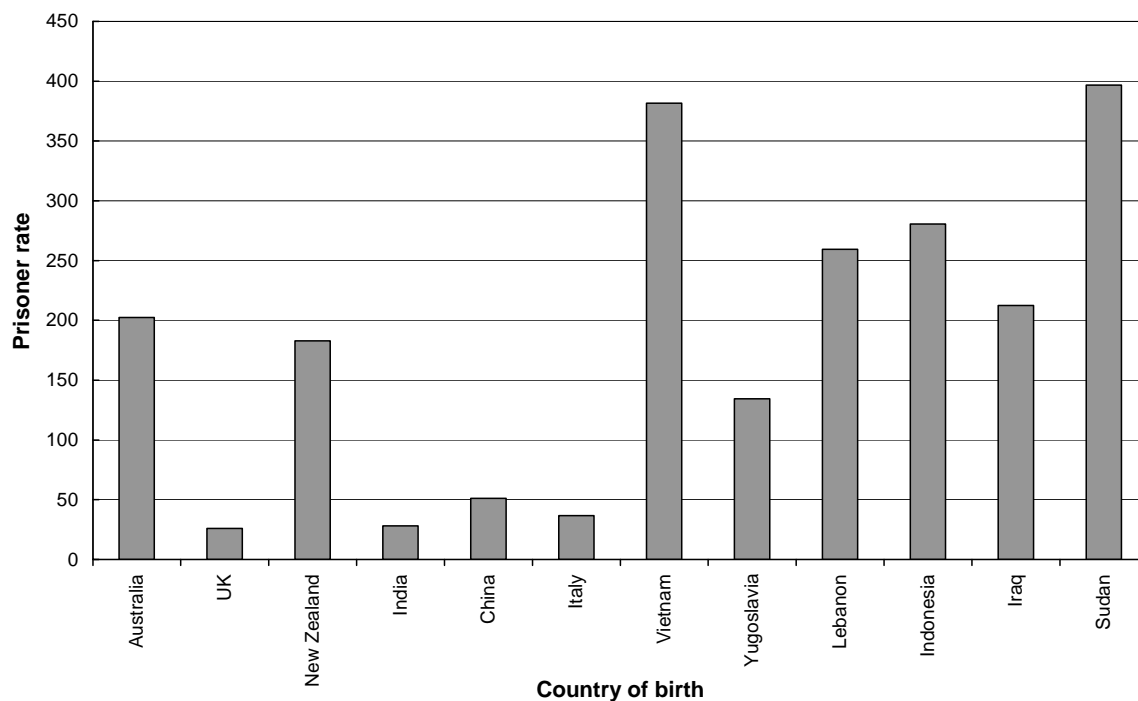
Recent ABS statistics show that overall, in 2010, first generation migrants were less likely to be incarcerated for a criminal offence than those born in Australia.¹⁵ However, there is significant variability across countries of origin and types of offences, and migrants from some countries appear to be over-represented in Australia's prisons (figure 3).

Caution needs to be exercised when drawing conclusions from these types of data. It has been argued that other variables such as socio-economic status, education levels and the outside environment are often stronger determinants of incarceration (with corresponding implications for policy) (Mukherjee 1999). Also, crime rates attributable to particular ethnic groups may decline over time and be lower for second generation migrants (Neighbour 2011). And given that the migration policy levers involve controlling the number and type of visas issued, rather than the number of entrants from particular countries, breaking down migrant incarceration statistics by visa types held by the prisoners (or on which they entered Australia), may be more relevant. However, such data are not publicly available.

¹⁵ However, the data for those born in Australia are distorted by the high incarceration rates of Indigenous Australians.

Figure 13.3 Prisoner rates vary by country of birth

Prisoner rates per 100 000 of Australia's resident population born in that country, at 30 June 2010



Data source: ABS (2010c).

A more recent concern among the Australian public is the scope for migration to contribute to a rise in ethnically or religiously motivated extremism and increased risk of terrorism. International survey data indicate that 20 per cent of respondents in Australia felt that ethnic diversity eroded the country's security, placing Australia at the higher end of surveyed countries and above the United States (Marcus 2010).

Opinion on the evidence for a linkage between migration and extremism and its policy implications is sharply divided. Some researchers have argued that this problem is small or non-existent in Australia, having been exaggerated by the media. They suggest that where it exists, it relates to minorities within immigrant communities, and that the most effective and equitable remedy involves utilising existing legal institutions (Carrington, McIntosh and Walmsley 2007). Others have argued that the threat of terrorism is significant and attributable to identifiable groups (notably, radical Islamists) that operate internationally. In this case, it is argued that existing legal institutions are inadequate for addressing the threat, and hence, there is a potential for proactive migration policy to play a role (Moore 2010).

Trade-offs between the costs and benefits of diversity?

It is virtually impossible to quantify the costs and benefits of ethnic diversity and the Commission is not aware of any studies that have successfully attempted to do so. Some researchers have adopted largely qualitative methods to conclude that on the basis of past Australian experience, the benefits have outweighed the costs (for example, Carrington, McIntosh and Walmsley 2007). And over the past 30–40 years, Government policy has clearly evolved in the direction of promoting greater ethnic and cultural diversity (NMAC 1999).

In a conceptual sense, the important question for future policy is how the benefits and costs to the existing population compare *at the margin*, and what trade-offs arise as diversity increases. For example, if the marginal social benefit of diversity declines for each additional migrant (for instance due to declining marginal product of ‘ethnic capital’), while the marginal social cost increases, this would suggest that there is some ‘optimal’ ethnic mix at any point in time. (The optimal mix may also vary over time.) Related questions are whether the marginal costs and benefits differ for particular types of migrants; how these are affected by the rate of intake; and whether they can be influenced by reactive policies. There is little guidance in the existing literature on these questions. However, research on the determinants of social, cultural and economic integration of migrants could help inform policies to reduce the potential for adverse social impacts of migration.

Determinants of integration

There is a growing body of literature examining the integration paths of migrants and the outcomes. Broadly speaking, the integration process is determined by:

- pre-migration characteristics of the individual, which are a key determinant of a migrant’s resources and constraints
- preferences and incentives of the migrant
- the host country environment, which influences both the incentives and the constraints on the migrant *and* adaptation or attitudes within the existing population.

Pre-migration characteristics of migrants

Several studies of migration to European countries and the United States suggest that pre-migration characteristics of migrants play an important role in integration. In particular, the following factors have been identified as influential to varying degrees:

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- age at entry — migrants who arrive at a young age are more likely to assimilate or integrate (Constant, Gataullina and Zimmermann 2006a)
 - educational attainment — the likelihood and extent of integration tends to increase with education levels (Constant, Gataullina and Zimmermann 2006a; De Palo, Faini and Venturini 2007)
 - religion — non-religious immigrants tend to integrate better than religious immigrants, and Muslim immigrants tend to integrate less than other religious groups (Constant, Gataullina and Zimmermann 2006a)
 - command of the language of the destination country and ‘linguistic distance’ of the immigrant’s first language from the host language (B. Chiswick and Miller 2007)
 - reason for migration — economic migrants typically have a wider range of choice in selecting a destination than do refugees or family reunion migrants and hence tend to select countries with a closer culture to their own (Constant and Zimmermann 2005). Temporary migrants are less likely to commit to integrating than permanent migrants (Djajic 2003; De Palo, Faini and Venturini 2007).

The incentives for migrants to integrate

There are two key and potentially competing forces influencing a migrant’s decision to invest effort and resources into integrating. On the one hand, by virtue of being part of a small group that retains ethnically-specific human capital, immigrants can capture ‘gains from trade’. Examples include: works of art that draw on an immigrant’s cultural heritage; ‘ethnic’ food businesses; and immigrants utilising their knowledge of another language, as well as their social networks, to facilitate cross-border trade. Not adjusting to the culture of the host country can increase migrants’ costs of transacting and reduce their employment prospects.

The balance of incentives will differ for individual migrants. However, most researchers have found that at least some degree of social and cultural integration is desirable. For example, Constant, Gataullina and Zimmermann (2006b) explored the linkages between immigrants’ ethnic identity¹⁶ and labour market outcomes in Germany, and found that adjusting to German culture significantly improved an immigrant’s probability of being employed. In a study of the integration experiences of migrants in 16 European countries, Aleksynska and Algan (2010) found that the interplay between social integration and economic outcomes for individual migrants is complex, but that there was a positive correlation between

¹⁶ The study defined ethnic identity as a balance of social and cultural commitments between the home and destination countries.

proficiency in the language of the host country and income. Barry Chiswick (2008) found that immigrants in the United States, Australia, Canada, and Israel, who were proficient in the language, had earnings 15 per cent higher than those who were not.

The incentives of migrants to integrate may also be influenced by policy. For example, subsidies for the acquisition or preservation of ethnic capital, or policies that reduce the costs to the migrants of not integrating (such as affirmative action in the workplace) could reduce the degree of integration (Kasper 2002; Carmel Chiswick 2006; Aleksynska and Algan 2010).

Adaptation of incumbents

The social transition effort is not necessarily best undertaken by immigrants alone. The incumbent population (and its key institutions) may also benefit from engaging in some adaptation to changing ethnic and cultural influences.

Some adaptation of the local population will occur naturally over time, reflecting both the incentive to capture the various social and economic benefits from inter-ethnic contact, and the evolving composition and history of the population itself. Hatton and Leigh (2007) found that the immigrants in the more established ethnic groups in Australia tended to be more integrated socially and culturally.

Survey evidence in Australia indicates that public opposition to immigration of particular ethnic groups also declines as these groups become more established. For example, the 2010 Scanlon survey found that in 2010, only around 10 per cent of respondents opposed immigration from China and Vietnam — in contrast to more prevalent negative sentiment when migration from those countries was just beginning (Marcus 2010).

Carrington, McIntosh and Walmsley (2007) provide several examples of how aspects of Australian mainstream culture — including literature, art, cuisine, sports and other recreation activities — absorbed influences from different waves of migration.

The incentives of the incumbent community to adapt to immigration may also be influenced by policy. Generally, policies that have the effect of discouraging assimilation or promoting multiculturalism would increase the pressure on the existing population to adapt, while education programs may reduce the cost of doing so.

Adopting a longer time frame

Social integration of immigrants will generally be a slow process and some have argued that any negative impacts will be short-term phenomena, whereas the benefits from increased diversity manifest themselves in the long term and will endure. The impacts (and policy implications) thus need to be considered over long time frames.

Evidence from several studies (some of which were presented in section 3), indicates that in most cases, the longer migrants stay in a country, the more integrated they become, with second generation migrants tending to be better integrated than their parents. Data on inter-ethnic marriages in Australia (a common measure of social integration and cohesion) indicate that even in ethnic groups with the lowest proportion of intermarriage among first generation migrants, second generation migrants are significantly more likely to intermarry. For example, in the case of Lebanese men, that proportion increased from 11 to 31 per cent, while for Indian women it rose from 11 per cent to 58 per cent (Heard, Khoo and Birrell 2009). Public survey results that consistently combine support for ethnic and cultural diversity arising from past migration with opposition to current migration, provide further backing for the view that the ‘melting pot’ takes time to mature.

However, it should not be presumed that integration would *always* occur naturally over time. Some individuals or groups of migrants may become increasingly marginalised. For example, Aleksynska and Algan (2010) analysed the process of social integration of immigrants in 16 European countries and found that, in several respects, outcomes deteriorated with time and reached a low point for second generation migrants. They found that the children of migrants perceived greater discrimination from natives, experienced greater unemployment rates, had lower satisfaction with democracy, and had lower levels of trust towards others and towards public institutions, such as the government and the police, than their parents.

Policy implications

The preceding discussion has identified some potential social impacts of immigration and various factors that determine the social integration outcomes of immigrants. Many of these are already recognised and accounted for in Australia’s migration and other policies.

Proactive policy options?

A key issue concerns the desirable rate of intake, which in turn largely depends on the adaptive capacity of incumbents. Australia's migration intake has fluctuated widely. As a proportion of the existing population, it has at various times exceeded recent rates, without apparent social problems. However, in the past, policies placed a much stronger emphasis on immigrants having to integrate, relative to the multiculturalist approach of today. Hatton and Leigh's (2007) findings imply that the size and age of an ethnic community could be important — the bigger and more established the community is, the better the adaptive capacity of incumbents to a larger intake.

The importance of pre-migration characteristics for integration outcomes suggests a role for policies attuned to the composition of the migrant intake. Filtering of the migration intake on the basis of ethnicity, race or religion has been explicitly rejected by Australian Governments, and the current migration programs do not discriminate against potential migrants on that basis. However, other characteristics can be targeted by policy. In that context, the current Australian policy focus on young, well-educated immigrants with English skills is consistent with the evidence on minimising potential negative social impacts.

Another notable recent development has been the growth of temporary migration as a path to subsequent permanent residency (PC 2010a). In the face of initial information gaps confronting both prospective migrants and host societies, such 'try before you buy' approaches can act as a screening mechanism with a potential to improve integration.

Reactive policy options?

Immigrants can be assisted or encouraged to integrate — for example, most are eligible for free English language courses. Other policies can be devised that impose a 'cost' on non-integration. For example, the current restrictions on access to social security benefits in the first years after arrival provide some incentive for social integration to facilitate the entry into the labour market. Policies that make citizenship conditional on demonstrating commitment to or knowledge of the cultural or political values of the host country can also have that effect. Australia's Citizenship Test was introduced with that objective, but has inevitably attracted some criticism (for example, see Fozdar and Spittles 2009). Of relevance is that in a heterogeneous society such as Australia, it is difficult to delineate a common set of values and social norms, in anything other than very general terms. And, of course, knowledge of some high level values and norms does not necessarily equate to commitment to them.

In the United Kingdom, under the points-based citizenship probation system currently being introduced, residents can accelerate their access to citizenship by acquiring certain skills and demonstrating ‘active citizenship’, such as participating in community and civic activities (BBC 2009). Points are lost and the process is delayed for engaging in ‘anti-social activities’ and crime.

Some policies focus on adaptation by incumbents. These range from the regulatory, such as anti-discrimination and racial vilification laws, to education campaigns. The latter can be broad in coverage or specific to particular groups — for example, education of some sectors of the public service, the police and the judiciary are sometimes identified as important for facilitating migrant integration (Carrington, McIntosh and Walmsley 2007). The Australian Government also operates a Diversity and Social Cohesion Program, providing grants for community projects that seek to reduce intolerance, and facilitating the running of National Harmony Day. Whether such policies are effective is contested. In a cross-country study, Aleksynska and Algan (2010) found no correlation between the strength of the various anti-discrimination policies adopted in 16 European countries and migrant integration outcomes. Millbank (1998) cited more evidence from Europe, where, at the conclusion of a 12-month anti-racism campaign run simultaneously in several European Union countries, there was an *increase* in the number of survey respondents declaring themselves racist.

Finding an appropriate balance

Finding the right balance between the above policy approaches is the key to achieving sustainable outcomes that enhance community wellbeing. But this requires taking into account the various other considerations relating to the costs and benefits of migration outlined earlier in the paper. Research can help inform public policy by identifying, quantifying and analysing the various impacts, and those policy alternatives best equipped to address them. Nevertheless, there will always be a subjective element requiring political judgement and, ultimately, public accountability.

References

- ABC (Australian Broadcasting Corporation) 2010, ‘Business slams Coalition pledge to cut migrant intake’, 8 April, <http://www.abc.net.au/rn/breakfast/stories/2010/2867016.htm> (accessed 11 February 2011).
- ABS (Australian Bureau of Statistics) 2006, *Australian Economic Indicators, April 2006*, cat. no. 1350.0, Canberra.

-
- 2008, *Australian Historical Population Statistics*, cat. no. 3105.0.65.001, Canberra, August.
- 2010a, *Australian Demographic Statistics, June 2010*, cat. no. 3101.0, Canberra.
- 2010b, *Migration Australia 2008-09*, Cat. no. 3412.0, Canberra.
- 2010c, *Prisoners in Australia, 2010*, Cat. no. 4517.0, Canberra.
- Access Economics 2008, *Migrants' Fiscal Impact Model: 2008 Update*, Prepared for the Department of Immigration and Citizenship, April, <http://accesseconomics.com.au/publicationsreports/showreport.php?id=173&searchfor=2008&searchby=year> (accessed 14 January 2011).
- Acemoglu, D. 1998, 'Why do new technologies complement skills? Directed technical change and wage inequality', *Quarterly Journal of Economics*, vol. 113, no. 4, pp. 1055–1089.
- 2008, *Introduction to Modern Economic Growth*, Princeton University Press.
- ACF (Australian Conservation Foundation) 2009, *Policy Statement no. 51 — Population and Demographic Change*, July.
- Addison, T. and Worswick, C. 2002, 'The impact of immigration on the earnings of natives: evidence from Australian micro-data', *Economic Record*, vol. 78, no. 240, pp. 68–78.
- Aleksynska, M. and Algan, Y. 2010, 'Economic and cultural assimilation and integration of immigrants in Europe', CEPII Working Paper no. 2010-29, Paris.
- Arnott, R., de Palma, A., and Lindsey, R. 1993, 'A Structural Model of Peak-Period Congestion: A Traffic Bottleneck with Elastic Demand', *American Economic Review*, vol. 83, no. 1, pp. 161–79.
- (ed) 1996, *Urban and Regional Economics*, Volume 1 of *Encyclopedia of Economics*, Harwood Academic Publishers, Amsterdam.
- Aydemir, A. and Borjas, G.J. 2011, 'Attenuation bias in measuring the wage impact of immigration', *Journal of Labor Economics*, vol. 29, no.1, pp. 69–113.
- Baumol, W.J. 1986, 'On the Possibility of Continuing Expansion of Finite Resources', *Kyklos*, vol. 39, pp. 167–79.
- BBC (British Broadcasting Corporation) 2009, 'A new way to earn UK citizenship', 15 January, http://news.bbc.co.uk/2/hi/uk_news/politics/7254926.stm (accessed 8 March 2011).
- Bellini, E., Ottaviano, G.I.P, Pinelli, D. and Prarolo, G. 2008, 'Cultural diversity and economic performance: Evidence from European regions', Hamburg

-
- Institute of International Economics, Migration Research Group, Research paper 3-14, Hamburg, Germany.
- Berry, R.A. and Soligo, R. 1969, 'Some welfare aspects of international migration', *Journal of Political Economy*, vol. 77, pp. 778–94.
- Bhagwati, J. 1958, 'Immiserizing growth: A geometrical note', *Review of Economic Studies*, vol. 25, pp. 201–05.
- 1968, 'Distortions and immiserizing growth: a generalization', *Review of Economic Studies*, vol. 35, pp. 481–85.
- Birrell, B. 2010a, 'The Risks of High Migration', *Policy*, vol. 26, no. 1, pp. 8–12.
- 2010b, *Population growth and sustainability*, Pre-election Policy Unit, Parliamentary Library, Canberra.
- , Hawthorne, L. and Richardson, S. 2006, *Evaluation of the General Skilled Migration Categories*, Commonwealth of Australia, Canberra.
- BITRE (Bureau of Infrastructure, Transport, and Regional Economics) 2008, *Moving Urban Australia: Can Congestion Charging Unclog our Roads?*, Working Paper 74, BITRE, Canberra.
- Bodvarsson, O.B., Van den Berg, H.F. and Lewer, J.J. 2008, 'Measuring immigration's effects on labor demand: A reexamination of the Mariel Boatlift', *Labour Economics*, vol. 15, no. 4, pp. 560–74.
- Bond, M. and Gaston, N. 2010, 'Is the labour demand curve downward sloping for Australia?', Working paper no. 33, Bond University Globalisation and Development Centre and School of Business, January.
- Borjas, G.J. 2003, 'The labor demand curve is downward sloping: Reexamining the impact of immigration on the labor market', *Quarterly Journal of Economics*, vol. 118, no. 4, pp. 1335–74, November.
- Carrington, K., McIntosh, A. and Walmsley, J. 2007, *The Social Costs and Benefits of Migration into Australia*, Commonwealth of Australia, Canberra.
- Chiswick, B. R. 2008, 'The economics of language: An Introduction and Overview', IZA Discussion Paper no. 3568, Bonn, Germany.
- 2011, 'Immigration: high Skilled vs. low skilled labor?', in Productivity Commission 2011, *A 'Sustainable' Population? — Key Policy Issues*, Roundtable Proceedings, Productivity Commission, Canberra, forthcoming.
- and Miller, P. 2007, 'Computer usage, destination language proficiency and the earnings of natives and immigrants', *Review of Economics of the Household*, vol. 5, no. 2, pp. 129-157.

-
- Chiswick, C. U. 2006, 'The economic determinants of ethnic assimilation', *Journal of Population Economics*, vol. 22, pp. 859-80.
- Ciccone, A. 2002, 'Agglomeration effects in Europe', *European Economic Review*, vol. 46, no. 2, pp. 213–227.
- and Hall, R.E. 1996, 'Productivity and the density of economic activity', *American Economic Review*, vol. 86, no. 1, pp. 54–70.
- Clarke, H.R., Chisholm, A.H., Edwards, G.W., and Kennedy, J.O.S. 1990, *Immigration, Population Growth and the Environment*, AGPS, Canberra.
- and Ng, Y-K. 1993, 'Immigration and Economic Welfare: Resource and Environmental Aspects', *Economic Record*, vol. 69, no. 206, pp. 259–73.
- Clemens, M., Montenegro, C.E. and Pritchett, L. 2008, 'The place premium: Wage differences for identical workers across the U.S. border', Working paper no. 148, Center for Global Development, December.
- Cobb-Clark, D. and Chapman, B.J. 1999, 'The changing pattern of immigrants' labour market experiences', Discussion paper no. 396, Centre for Economic Policy Research, The Australian National University, Canberra, February.
- 2004, 'Selection policy and the labour market outcomes of new immigrants', Discussion paper no. 1380, Institute for the Study of Labor (IZA), Bonn, Germany, November.
- Coffé, H. and Geys, B. 2005, *Community Heterogeneity: a Burden for the Creation of Social Capital?*, <http://www.socialcapitalgateway.org/Coff%E92005b.pdf> (accessed 31 January 2011).
- Collins, J. 2003, 'Immigrant crime in Europe and Australia: rational or racialised responses?', paper presented to Conference on the Challenges of Immigration and Integration in the European Union and Australia, University of Sydney, 18-20 February.
- Constant, A., Gataullina, L. and Zimmermann, K. F. 2006a, 'Ethnosizing immigrants', IZA Discussion Paper no. 2040, Bonn, Germany.
- , Gataullina, L. and Zimmermann, K. F. 2006b, Gender, ethnic identity and work, IZA Discussion Paper No. 2420, Bonn, Germany.
- and Zimmermann, K.F. 2005, 'Immigrant performance and selective immigration policy: a European perspective', IZA Discussion Paper no. 1715, Bonn, Germany.
- Cork, S. 2011, *Ways forward in the population and environment debate*, Parliamentary Library Population paper, 13 January, <http://www.aph.gov.au/library/pubs/PEPU/PopulationEnvironDebate.pdf> (accessed 7 March 2011).

-
- Costa, D. L. and Kahn, M. E. 2002, *Civic Engagement and Community Heterogeneity: an Economist's Perspective*, <http://web.mit.edu/costa/www/costa.kahn.1.4pdf.pdf> (accessed 14 February 2002).
- DAFF (Department of Agriculture Fisheries and Forestry) 2010, *Australian Food Statistics 2009-10: ABARES Overview of the Australian Food Industry*, Canberra.
- De Palo, D., Faini, R. and Venturini, A. 2007, 'The social assimilation of immigrants', SP Discussion Paper no. 0701, World Bank, Washington DC.
- DIAC (Department of Immigration and Citizenship) 2010, *Immigration update 2009-10*, Canberra, <http://www.immi.gov.au/media/publications/statistics/immigration-update/update-2009-10.pdf> (accessed 27 January 2011).
- Djajic, S. 2003, 'Assimilation of immigrants: implications for human capital accumulation of the second generation', *Journal of Population Economics*, vol. 16, pp. 831-45.
- Docquier, F., Ozden, C. and Peri, G. 2010, 'The wage effects of immigration and emigration', National Bureau of Economic Research, Working paper no. 16646, December.
- Doctors for the Environment Australia 2011, *Population and Australia*, Position Paper, 8 February.
- DSEWPC (Department of Sustainability, Environment, Water, Population and Communities) 2010, *A sustainable population strategy for Australia*, Issues paper, Canberra, <http://www.environment.gov.au/sustainability/population/publications/pubs/issues-paper-and-appendices.pdf> (accessed 8 March 2011).
- Dunn, K. M. 2003, 'Racism in Australia: findings of a survey on racist attitudes and experiences of racism', paper presented to Conference on the Challenges of Immigration and Integration in the European Union and Australia, University of Sydney, 18-20 February.
- Dustmann, C. and Preston, I. 2004, 'Racial and economic factors in attitudes to migration', Centre for Research and Analysis of Migration, Discussion paper 01/04, London.
- , Frattini, T. and Preston, I. 2008, 'The effect of immigration along the distribution of wages', Centre for Research and Analysis of Migration, Discussion paper 03/08, London.
- , Glitz, A. and Frattini, T. 2008, 'The labour market impact of immigration', *Oxford Review of Economic Policy*, vol. 24, no. 3, pp. 477-94.
- Ehrlich, P.R., and Holdren, J.P. 1971, 'Impact of Population Growth', *Science*, vol. 171, pp. 1212-17.

-
- Epstein, G.S., Kunze, A. and Ward, M.E. 2009, 'High-skilled migration and the exertion of effort by the local population', *Scottish Journal of Political Economy*, vol. 56, no. 3, July.
- Fisher, J.L. and Ridker, R.G. 1973, 'Population Growth, Resource Availability and Environmental Quality', *American Economic Review: Papers and Proceedings*, vol. 63, no. 2, pp. 79–87.
- Fozdar, F. and Spittles, B. 2009, 'The Australian citizenship test: process and rhetoric', *The Australian Journal of Politics and History*, vol. 55, iss. 4, pp. 496–512.
- Friedberg, R. and Hunt, J. 1995, 'The Impact of Immigrants on Host Country Wages, Employment and Growth', *Journal of Economic Perspectives*, vol. 9, no. 2, pp. 23–44.
- Fujita, M., Krugman, P.R., and Venables, A. 1999, *The Spatial Economy: Cities, Regions, and International Trade*, MIT Press.
- and Thisse, J-F. 2002, *Economics of Agglomeration: Cities, Industrial location and Regional Growth*, Cambridge University Press.
- Garnaut, R. 2002, 'Immigration: Who wins and who loses', *Migration: Benefiting Australia*, Conference proceedings, Department of Immigration and Multicultural and Indigenous Affairs, Sydney, 7–8 May, pp. 131–64.
- Gaston, N. and Nelson, D. 2000, 'Immigration and labour-market outcomes in the United States: A political economy puzzle', *Oxford Review of Economic Policy*, vol. 16, no. 3, pp. 104–114.
- Glaeser, E.L. 1998, 'Are Cities Dying?', *Journal of Economic Perspectives*, vol. 12, no. 2, pp. 139–60.
- , Kolko, J., and Saiz, A. 2001, 'Consumer City', *Journal of Economic Geography*, vol. 1, no. 1, pp. 27–50.
- Gowdy, J.M. and McDaniel, C.N. 1995, 'One world, one experiment: addressing the biodiversity–economics conflict', *Ecological Economics*, vol. 15, no. 3, pp. 181–92.
- Greenwood, M.J., and McDowell, J.M. 1986, 'The factor market consequences of US immigration', *Journal of Economic Literature*, vol. 24, no. 4, pp. 1738–72.
- Grossman, J.B. 1982, 'The substitutability of natives and immigrants in production', *Review of Economics and Statistics*, vol. 64, no. 4, pp. 596–603.
- Guest, R. 2010, 'The economics of a sustainable population', Australian Parliamentary Library, Canberra.

-
- Hainmueller, J. and Hiscox, M. J. 2010, 'Attitudes toward highly skilled and low-skilled immigration: evidence from a survey experiment', *American Political Science Review*, vol. 104, pp. 61-84.
- Harris, R. and Robertson, P. 2007, 'The dynamic effects of skilled labour targeting in immigration programs', Discussion paper no. 21, School of Economics, University of New South Wales, Sydney, May.
- Hatton, T.J. and Leigh, A. 2007, 'Immigrants assimilate as communities, not just as individuals', IZA Discussion paper no. 2538, Bonn, Germany.
- Hawthorne, L. 2007, *Labour Market Outcomes for Migrant Professionals: Canada and Australia Compared*, University of Melbourne, April, http://dsp-psd.pwgsc.gc.ca/collections/collection_2010/cic/Ci64-1-2007-eng.pdf (accessed 20 January 2011).
- Heard, G., Khoo, S. and Birrell, B. 2009, *Intermarriage in Australia: Patterns by Birthplace, Ancestry, Religion and Indigenous Status*, <http://arts.monash.edu.au/cpur/publications/documents/intermarriage-report-final.pdf> (accessed 7 March 2011).
- Holzmann, R. and Pouget, Y. 2010, 'Toward an objective-driven system of smart labor migration management', *Economic Premise*, World Bank Poverty Reduction and Economic Management Network, no. 42, December.
- IEA (International Energy Agency) 2010, *Key World Energy Statistics*, International Energy Agency, Paris.
- Industry Commission (IC) 1993, *Impediments to Regional Industry Adjustment*, Report no. 35, AGPS, Canberra.
- 1998, *State, Territory, and Local Government Assistance to Industry*, Report no. 55, AGPS, Canberra.
- Islam, A. and Fausten, D. 2008, 'Skilled immigration and wages in Australia', *Economic Record*, vol. 84, no. S1, pp. S66–S82.
- Johnson, D.G. 2001, 'On Population and Resources: A Comment', *Population and Development Review*, vol. 27, no. 4, pp. 739–47.
- Johnson, H.G. 1967, 'The possibility of income losses from increased efficiency or factor accumulation in the presence of tariffs', *Economic Journal*, vol. 77, pp. 151–54.
- Kasper, W. 2002, *Sustainable Immigration and Cultural Integration*, <http://www.cis.org.au/images/stories/policy-monographs/pm-55.pdf> (accessed 15 February 2011).

-
- Kerr, S.P. and Kerr, W.R. 2011, *Economic Impacts of Immigration: A Survey*, National Bureau of Economic Research, Working paper no. 16736, <http://www.nber.org/papers/w16736> (accessed 1 February 2011).
- Krugman, P.R. 1991, 'Increasing Returns and Economic Geography', *Journal of Political Economy*, vol. 99, no. 3, pp. 483–99.
- Lattimore, R. and Pobke, C. 2008, *Recent Trends in Australian Fertility*, Productivity Commission Staff Working Paper, Canberra, July.
- Leigh, A. 2006, 'Diversity, trust and redistribution', *Dialogue*, vol. 25, no. 3, pp. 43-49.
- MacDougall, G.D.A. 1960, 'The benefits and costs of private investment from abroad: a theoretical approach', *Economic Record*, vol. 36, pp. 13–35.
- Malthus, T.R. 1798, *An Essay on the Principle of Population*, London.
- Marcus, A. 2010, Mapping Social Cohesion 2010: summary Report, Scanlon Foundation Survey, <http://www.globalmovements.monash.edu.au/socialcohesion/documents/Mapping%20Social%20Cohesion%20Summary%20Report%202010.pdf> (accessed 14 February 2011).
- and Arnup, J. 2010, *Mapping Social Cohesion 2009*, Scanlon Foundation Survey, <http://www.globalmovements.monash.edu.au/socialcohesion/documents/Mapping%20Social%20Cohesion%20Summary%20Report%202010.pdf> (accessed 14 February 2011).
- Millbank, A. 1998, 'An anti-racism campaign: Who needs it?', Current issues brief 20, Department of the Parliamentary Library, Canberra.
- Mishan, E.J., and Needleman, L. 1966, 'Immigration, excess aggregate demand and the balance of payments', *Economica*, vol. 33, no. 130, pp. 129–47.
- Moore, D. 2010, 'The threat from Islamic extremism', *Quadrant*, volume LIV, no. 11, <http://www.quadrant.org.au/magazine/issue/2010/11/the-threat-from-islamic-extremism> (accessed 14 February 2011).
- Mukherjee, S. 1999, *Ethnicity and Crime*, Australian Institute of Criminology, <http://aic.gov.au/documents/B/3/B/%7BB3B48FE3-A70B-4290-A009-BD58861CF942%7Dt117.pdf> (accessed 14 February 2011).
- Neighbour, S. 2011, 'Lack of proper support for new migrants “fuels ethnic-based crime surges”', *Australian*, 8 March, <http://www.theaustralian.com.au/national-affairs/lack-of-proper-support-for-new-migrants-fuels-ethnic-based-crime-surges/story-fn59niix-1226017322867> (accessed 8 March 2011).
- NFF (National Farmer's Federation) 2011, *Population squeeze is on: make Australia Day 2011 count*, Media Release, 25 January.

-
- Niebuhr, A. 2006, 'Migration and innovation: Does cultural diversity matter for regional R&D activity?', Hamburg Institute of International Economics, Migration Research Group, Research paper 3-1, Hamburg, Germany.
- NMAC (National Multicultural Advisory Council) 1999, *Australian Multiculturalism for a New Century: Towards Inclusiveness*, Commonwealth of Australia, Canberra.
- Nordhaus, W.D., and Tobin, J. 1973, 'Is Growth Obsolete?' in M. Moss (ed.), *The Measurement of Economic and Social Performance*, UMI, pp. 509–64.
- Ottaviano, G.I.P. and Peri, G. 2006a, 'Rethinking the effects of immigration on wages', National Bureau of Economic Research, Working paper no. W12497, August.
- 2006b, 'The economic value of cultural diversity: Evidence from US cities', *Journal of Economic Geography*, vol. 6, pp. 9–44.
- Parasnis, J. 2006, 'Segregation in the Australian labour market', *Australian Economic Papers*, vol. 45, no. 4, pp. 318–32.
- 2010, 'Estimating the relationship between immigrant and native workers in Australia: A production theory approach', *Australian Economic Papers*, March, pp. 73–85.
- Parmenter, B. R. 1990, 'The economics of immigration', *Economic Papers*, vol. 9, no. 2, pp. 39–50.
- PC (Productivity Commission) 1999, *Impact of Competition Policy Reforms on Rural and Regional Australia*, Report no. 8, AusInfo, Canberra.
- 2003, *Social Capital: Reviewing the Concept and its Policy Implications*, Research Paper, Canberra.
- 2004, *First Home Ownership*, Report no. 28, Melbourne.
- 2005, *Economic Implications of an Ageing Australia*, Research Report, Canberra.
- 2006a, *Economic Impacts of Migration and Population Growth*, Research Report, Canberra.
- 2006b, *Road and Rail Freight Infrastructure Pricing*, Report no. 41, Canberra, December.
- 2010a, *Population and Migration: Understanding the Numbers*, Commission Research Paper, Melbourne, December.
- 2010b, *Impacts and Benefits of COAG Reforms: Reporting Framework*, Research Report, Canberra, December.

-
- 2011, *Performance Benchmarking of Australian Business Regulation: Planning, Zoning, and, Development Assessment*, Draft Research Report, Canberra.
- Peri, G. 2009, 'The effect of immigration on productivity: Evidence from US states', National Bureau of Economic Research, Working paper 15507, Cambridge, United States, November.
- Peter, M. W. and Verikios, G. 1995, 'The effect of immigration on residents' incomes in Australia: some issues reconsidered', General paper G-115, Monash University, Melbourne.
- Pincus, J. 2011, 'A population policy for Australia', *CEDA Economic and Political Overview 2011*, pp. 40-49.
- Putnam, R. 2000, *Bowling Alone: The Crumbling and Revival of American Community*, Simon and Schuster, New York.
- 2007, 'E pluribus unum: diversity and community in the twenty-first century', *Scandinavian Political Studies*, vol. 30, no. 2, pp. 137-74.
- Richards, A. 2009, 'Housing Market Developments', Reserve Bank of Australia *Bulletin*, October, pp. 20–6.
- Richardson, S., Robertson, F. and Ilsley, D. 2001, *The Labour Force Experience of New Migrants*, Report prepared for Department of Immigration and Multicultural and Indigenous Affairs by the National Institute of Labour Studies, AGPS, Canberra.
- and Lester, L. 2004, *A Comparison of Australian and Canadian Immigration Policies and Labour Market Outcomes*, Report to the Department of Immigration and Multicultural and Indigenous Affairs, Canberra.
- Romer, D. 2006, *Advanced Macroeconomics*, 3rd edn, McGraw-Hill, New York.
- Shah, C. and Burke, G. 2005, 'Skilled migration: Australia', Monash University Centre for the Economics of Education and Training, Working paper no. 63, December.
- Shan, H., Morris, A. and Sun, F. 1999, 'Immigration and unemployment: new evidence from Australian and New Zealand', *International Review of Applied Economics*, vol. 12, no. 2. pp. 253–60.
- Sobels, J., Richardson, S., Turner, G., Maude, A., Tan, Y., Beer, A., and Wei, Z. 2010, *Research into the Long-Term Physical Implications of Net Overseas Migration: Australia in 2050*, Report prepared for the Department of Immigration and Citizenship, Canberra.

-
- Solow, R. 1960, 'Investment and technical progress', in Arrow, K., Karlin, S., Suppes, P. (eds), *Mathematical Methods in the Social Sciences*, Stanford University Press, Stanford, pp. 89–104.
- Treasury 2010, *Intergenerational Report 2010*, Commonwealth of Australia, Canberra.
- United Nations (UN) 1987, *Our Common Future*, Report of the World Commission on Environment and Development, World Commission on Environment and Development, New York.
- US Census Bureau 2011, 'International Data Base', <http://www.census.gov/ipc/www/idb/worldpopinfo.php> (accessed 21 January 2011).
- Weil, D.N. 2005, *Economic Growth*, Pearson Addison-Wesley, Boston.
- Withers, G. 2003a, 'Immigration economics: Concord and contestation', National Europe Centre Paper no. 65, Paper presented to conference entitled *The Challenges of immigration and integration in the European Union and Australia*, 18–20 February 2003, University of Sydney, Australia.
- 2003b, 'Core issues in immigration economics and policy', *Economic Papers*, vol. 22, no. 1, pp. 13–23.
- World Bank 2010, *World Development Indicators*, <http://data.worldbank.org/data-catalog>, Washington DC (accessed 4 March 2011).
- Wortley, S. 2009, 'Introduction. The immigration-crime connection: competing theoretical perspectives', *Journal of International Migration and Integration*, vol. 10, pp. 349–358.