

Population growth: past, present and future

According to preliminary estimates, Australia's population passed 22 million people by the end of September 2009. The latest one million people were added to the population in less than 2 ½ years, which is one year less than the time taken for the previous million to be added, and almost two years less than the time taken to add the million before that. The recent pace of population growth has resulted in renewed discussion about the role of immigration, and the future size of the population.

Intelligence on how fast the population is growing, and to what size it may grow (given particular assumptions), is crucial for decision-makers and planners who need to consider implications for infrastructure, services, the broader economy and the environment. This article aims to inform the discussion on Australia's population growth by examining the composition of growth in recent years and the types of migration contributing to this growth. It also presents various scenarios for Australia's future population.

How fast are we growing?

In the year ending 31 December 2009, Australia's estimated resident population (ERP) had increased by 433,000 people to 22.2 million, a 2.0% increase from December 2008. This followed growth of 460,000 people (or 2.2%) between December 2007 and December 2008.

The rate of population growth has become considerably faster since the mid-2000s. Over the two decades prior to 2006, the annual growth rate had averaged 1.3%, adding an average of 234,000 people per year in that period. The recent growth rate of around 2% per year is faster than at any other time in the past several decades, and faster than nearly all other developed countries.

Data source and definitions

ABS produces Australia's official estimates of the population every quarter. The *estimated resident population* (ERP) is an estimate of the Australian population obtained by adding natural increase (the excess of births over deaths) and net overseas migration (NOM) occurring during the period to the population at the beginning of the period. ERP is based on the concept of usual residence. It refers to all people, regardless of nationality or citizenship, who usually live in Australia, with the exception of foreign diplomatic personnel and their families. Conceptually, it includes usual residents who are overseas for less than 12 months and excludes overseas visitors who are in Australia for less than 12 months.

The status of quarterly ERP data changes over time from *preliminary* to *revised* as new component data become available. It then becomes *final* based on adjustments made following the five yearly Census of Population and Housing.

Net overseas migration is the net gain or loss of population through immigration to and emigration from Australia. It is based on the difference between the number of incoming travellers who stay in Australia for 12 months or more (NOM arrivals) and the number of outgoing travellers who leave Australia for 12 months or more (NOM departures). From September 2006, an improved method for counting NOM was introduced. Termed the '12/16 month rule', this method requires that people be in Australia for 12 months out of a 16 month period to be counted in the population.

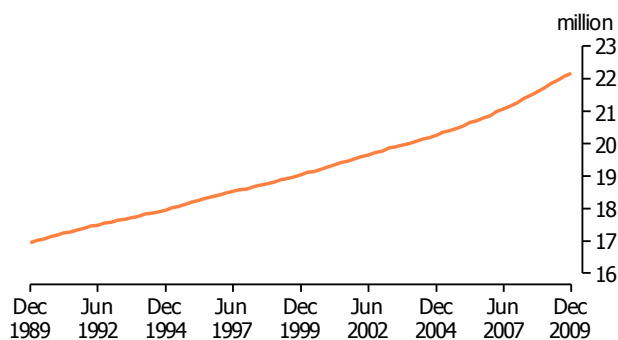
Source: ABS [Australian Demographic Statistics](#) (cat. no. 3101.0)

What is driving growth?

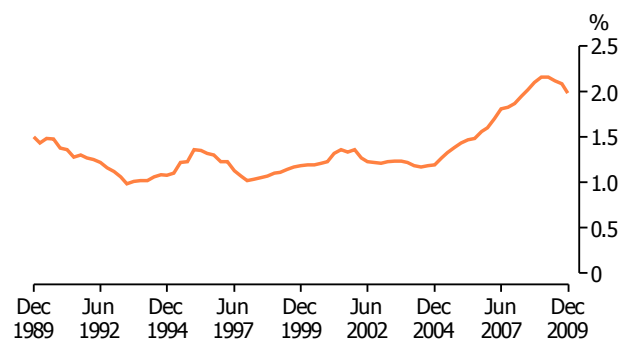
Australia's population growth has two components: natural increase (the number of births minus the number of deaths) and net overseas migration. Although the fertility rate (and the number of births) has lifted natural increase since the early 2000s, it is the growth in

Estimated resident population and annual growth rate

ESTIMATED RESIDENT POPULATION

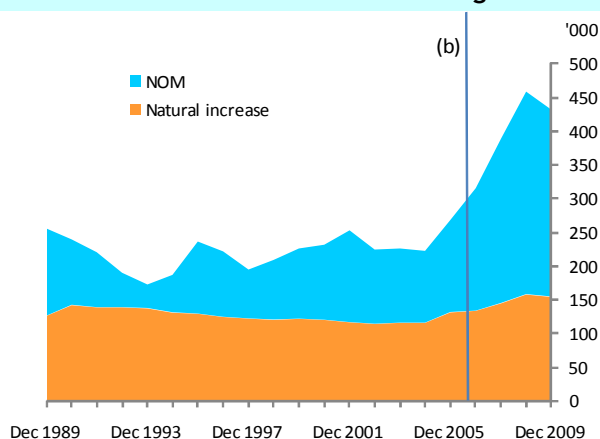


ANNUAL GROWTH RATE



Source: ABS [Australian Demographic Statistics](#) (cat. no. 3101.0)

Components of annual population growth(a): Natural increase and net overseas migration



(a) Year ending December.

(b) NOM estimates contain a break in series. Estimates from September quarter 2006 use an improved methodology. Please refer to *Net Overseas Migration* in 'Data source and definitions' box (previous page).

Source: ABS [Australian Demographic Statistics](#) (cat. no. 3101.0)

net overseas migration (NOM) that has been the main driver of population growth over the last few years. In the three years to December 2009, NOM made up almost two-thirds (64%) of population growth. This compares with the longer term average where NOM has contributed to less than half of the population increase.

Over recent decades, the economic incentives for people to migrate from less developed to more developed countries have increased. At the same time, more affordable international travel and communications are also likely to have increased the appeal for would-be migrants to resettle abroad.¹ For the receiving countries, immigration can provide both challenges and opportunities, and most governments have policies in place to regulate entry by foreigners. In Australia, successive governments have used overseas migration for economic and nation building goals.² Recent increases in immigration reflect Australia's relatively strong economic growth as well as the engagement of Australia in the wider global economy, and especially the provision of education services to large numbers of overseas students.

What comprises net overseas migration?

NOM is the net gain of migrants arriving less emigrants departing. For example, in 2007–08, there were a total of 501,300 arrivals (who were in Australia for at least 12 out of 16 months), and 224,000 departures (overseas for at least 12 out of 16 months) giving a NOM increase of 277,300 people.

The largest contribution to NOM in recent years has been from people on temporary visas. In 2007–08, these accounted for 186,500 people or

International comparison



Between 2005 and 2010, the world's population was projected to grow by an average 1.2% per year. Australia's growth between 2005 and 2009 averaged 1.9% per year, faster than most other developed countries and many developing countries. Among large developed countries, the United States and Canada had growth averaging 1.0% each, while the United Kingdom and France had growth of 0.5% per year. Japan is projected to have negative growth over the period as the number of deaths exceeds the number of births in that country. Elsewhere in the Asia-Pacific, New Zealand had growth lower than the world average at 0.9% as did China (0.6%), while Indonesia was about equal to the world average (1.2%). On the other hand, Singapore had rapid growth (2.5%) as did Papua New Guinea (2.4%).

Annual average population growth rates of selected countries(a)

	Reference year	Annual average growth rate(b)	%
Australia	2005-2009(c)	1.9	
Canada	2005-2010	1.0	
China	2005-2010	0.6	
France	2005-2010	0.5	
Greece	2005-2010	0.2	
Indonesia	2005-2010	1.2	
Italy	2005-2010	0.5	
Japan	2005-2010	-0.1	
South Korea	2005-2010	0.4	
Malaysia	2005-2010	1.7	
New Zealand	2005-2010	0.9	
Papua New Guinea	2005-2010	2.4	
Singapore	2005-2010	2.5	
Sweden	2005-2010	0.5	
United Kingdom	2005-2010	0.5	
United States of America	2005-2010	1.0	
Vietnam	2005-2010	1.1	
World total	2005-2010	1.2	

(a) Medium variant projection. Figures rounded.

(b) Data is the average exponential rate of growth.

(c) uses ABS estimates rather than projections, latest data point is December 2009 (preliminary).

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, [World Population Prospects: The 2008 Revision Population Database](#) <www.un.org>

two-thirds of all net migration. Students made up the largest category of temporary net migration and 39% of all NOM. The number of overseas students contributing to NOM has more than doubled from 45,300 in 2004–05 to 108,700 in 2007–08. Over half of the student component of NOM was made up of students who were citizens of India (33,300) and China

Visa groups contributing to net overseas migration(a)

	2004-05(b)	2005-06(b)	2006-07	2007-08	2008-09(c)
Visa category	'000	'000	'000	'000	'000
Temporary					
Student	45.3	47.3	78.9	108.7	n.y.a.
Subclass 457 business (long stay)	9.8	19.2	26.4	33.4	n.y.a.
Visitor(d)	21.5	20.8	25.9	29.0	n.y.a.
Working holiday	9.4	14.2	17.0	21.4	n.y.a.
Other temporary entrant	-4.0	-4.7	-5.1	-5.9	n.y.a.
Total Temporary	82.0	96.9	143.1	186.5	n.y.a.
Permanent					
Family	25.8	27.8	29.7	30.1	n.y.a.
Skilled	32.1	39.0	43.4	47.0	n.y.a.
Humanitarian	13.1	12.0	12.2	9.3	n.y.a.
Total Permanent	71.1	78.9	85.5	86.4	n.y.a.
New Zealand citizens	20.6	23.1	29.8	36.1	n.y.a.
Australian citizens	-21.4	-18.9	-17.2	-20.3	n.y.a.
Other	-9.8	-8.5	-8.4	-11.4	n.y.a.
Total	142.5	171.5	232.8	277.3	298.9

(a) The visa category information in this table represents the net number of visas based on the visa type at the time of a traveller's specific movement. Therefore, the number of visas in this table should not be confused with information on number of visas granted.

(b) These estimates use the 12/16 month rule (described in definitions box on p1) for calculating NOM. However, this method was not used in the official estimated resident population ERP until 2006-07 onwards. Therefore totals for 2004-05 and 2005-06 in this table do not match NOM estimates published elsewhere.

(c) Total is preliminary estimate. Visa category information is not yet available because data cannot be compiled until 16 months following the end of the reference period.

(d) Visitor visas include tourists, business visitors, medical treatment and other.

Source: ABS [Migration Australia](#) (cat. no. 3412.0) and ABS Traveller Characteristics Database

(25,600). The third largest source of students in 2007-08 was Nepal with a NOM contribution of 7,300 (equal to 7% of the total NOM of students). The balance of overseas students was spread among more than 140 other countries, each contributing less than 4% of the net student arrivals.

People entering as temporary business entrants (the Subclass 457 – business visa), Visitors and Working holiday makers made up the balance of the temporary entrants. People entering on 457 visas are sponsored by an employer to fill skilled positions for a period of up to four years.³ The net migration of people on 457 visas has more than tripled from 9,800 in 2004-05 to 33,400 in 2007-08. The countries of citizenship most represented by the 457 visas in 2007-08 were the United Kingdom and Philippines (18% each), South Africa (15%), India (13%) and China (11%).

Within the permanent visa types, Skill and Family were the visa categories contributing the greatest numbers to NOM, together making up 28% of total NOM in 2007-08. Over the three years to 2007-08, the Permanent Skill visa category increased by 46% from 32,100 to 47,000, while the Family visa category increased by 16% to 30,100. The countries of citizenship with the greatest representation among the

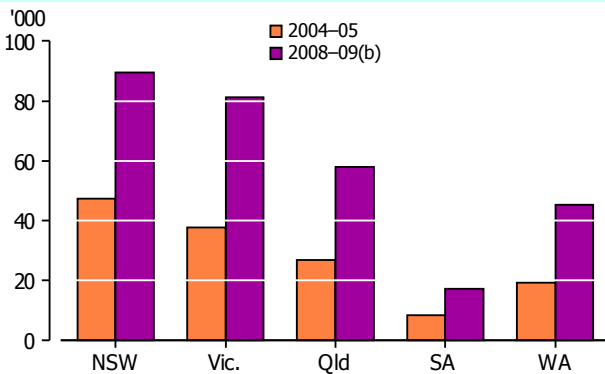
Skilled categories were the United Kingdom (13,700), India (8,700) and China (4,500). China, India and the United Kingdom were also the leading countries of citizenship of family migration, and together accounted for one-third of the NOM by Family visa.

Humanitarian visa holders made up 9,300 NOM in 2007-08, but have been closer to 12,000 in previous years. The main countries of citizenship for Humanitarian NOM were Burma (25%), followed by Iraq (18%) Afghanistan (12%) and Sudan (11%).

Where do migrants settle?

While all states and territories have had population increases from net overseas migration, the vast majority (97%) of net overseas migration in recent years was to the five most populous states. In 2008-09, just under one-third (30%) of Australia's increase in NOM was to New South Wales (89,500 people). Victoria had the second largest number of people added from net overseas migration with 81,200 (or 27%). Queensland and Western Australia added 58,000 and 45,200 respectively, and over the five years to 2008-09 had slight increases in their national share of NOM (to 19% and 15% respectively).

Net Overseas Migration gains - selected states(a)



(a) Not shown are Tasmania, Northern Territory and Australian Capital Territory. Together these State/Territories made up around 3% of NOM in 2008-09.

(b) Preliminary.

Source: ABS Traveller Characteristics Database and ABS [Migration Australia](#) (cat. no. 3412.0)

Where are the population growth centres?

In addition to the settlement pattern of newly arriving migrants, regional population growth is strongly influenced by the general mobility of Australians. While New South Wales had the greatest share of net overseas migrants in recent years, thanks to internal migration, Queensland had the largest increase in population. In the five years to June 2009, Queensland's population increased by over half a million people, or 29% of the Australian population growth. Victoria had the second largest gain (25%) followed by New South Wales (23%) and Western Australia (14%).

...cities and districts

In the five years to June 2009, Melbourne added more people to its population than any other city or region with a gain of 370,000 people (2.0% per year). Sydney had the second largest increase with an extra 290,000 people, although at 1.3% per year, this was a slower rate of growth than the national growth rate (1.8% per year in the five years to June 2009). Brisbane and Perth had gains of 219,000 (average annual growth of 2.3%) and 199,000 (2.6%) respectively.

The inner cities of the three largest capitals all grew faster than their respective city balances leading to continued increases in population densities. In the five years to 2009, Inner Melbourne gained 41,000 people, Inner Sydney added 33,000 and Inner Brisbane grew by 14,000. Inner Sydney remained the most densely populated inner city with 4,641 people per km², followed by Inner Melbourne (3,646 people per km²) and Inner Brisbane with 3,359 people per km².

Asylum seekers and immigration detention

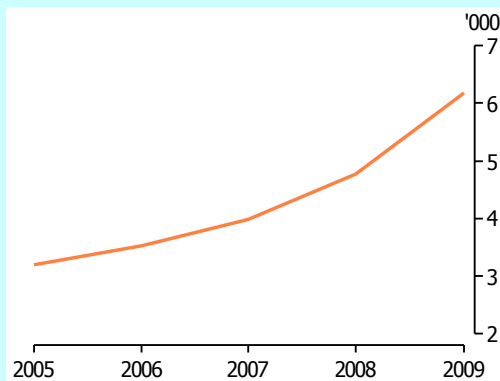
In Australia, asylum seekers can be people who arrive in an authorised manner (e.g. with visitor or student visas), or people who arrive in an unauthorised manner, usually by boat. People arriving without authority are confined in detention centres until they are granted a visa to remain in Australia, or they leave the country.

In May 2010, there were just over 3,600 people were held in detention in mainland Australia and Christmas Island. Around 93% were people who had arrived unlawfully by boat, 2% arrived unlawfully by air and 4% were visa overstayers.

Although unauthorised arrivals do not have a visa, they are counted in NOM statistics and hence may be included in the population estimates, subject to their duration of stay.

Australia has had a recent increase in asylum applications made within Australia – with more than 6,000 in 2009. This was less than 2% of the total number of applications made worldwide, and many countries had much larger numbers. For example, in 2009, the United States had 49,000 new claims for asylum, while France had 42,000 and Canada had 33,000.

Asylum applications made within Australia



Source: Department of Immigration and Citizenship, [Managing Australia's Borders - Detention Services](#) <www.immi.gov.au> and The United Nations High Commissioner for Refugees (UNHCR), [Asylum Levels and Trends in Industrialized Countries 2009: Statistical Overview of Asylum Applications lodged in Europe and Selected Non-European Countries](#) <www.unhcr.org>

What will happen in the future?

Recent rapid population growth has led to renewed focus on the projections of the population, and in particular, what size the population might be by the middle of this century.

Population projections are not predictions or forecasts. They simply show what would happen to Australia's population if a particular set of assumptions about future levels of fertility, mortality, net overseas migration, and for states and territories, net internal migration, were to hold for the next 50 to 100 years.

Selected district/capital city growth

	June 2004	June 2009	Average annual growth
	'000	'000	%
Melbourne	3 626.0	3 995.5	2.0
Sydney	4 214.2	4 504.5	1.3
Brisbane	1 784.9	2 004.3	2.3
Perth	1 460.3	1 659.0	2.6
Gold Coast-Tweed	491.7	578.0	3.3
Adelaide	1 127.2	1 187.5	1.0
Sunshine Coast	210.7	245.3	3.1
Newcastle	507.4	540.8	1.3
Canberra-Queanbeyan	372.3	403.1	1.6
Cairns	121.9	147.1	3.8
Total Australia	20 127.4	21 955.3	1.8

Source: ABS [Regional Population Growth](#) (cat. no. 3218.0)

Because of the inherent uncertainty of the future with respect to levels of NOM as well as birth and death rates, a number of different assumptions are used and projections have been produced for all combinations of the assumptions.

...different assumptions, different results

The highest NOM assumption made in the latest ABS population projections was for a level of 220,000 per year. While this is less than the 270,000 averaged over the last three financial years up to 2008–09, it is well over the longer term trend in which NOM averaged 165,000 over the decade to 2008–09. The middle assumption has a NOM of 180,000 per year, which is also historically quite high, although not in relation to recent years.

The highest fertility assumption in the projections is for the total fertility rate (TFR) to be sustained at 2.0 births per woman. The actual TFR in 2008–09 was 1.98, although this too was considerably higher than the average throughout the past decade (1.8). The latest population projections' middle assumption of fertility is for the TFR to be sustained at 1.8 births per woman, and the low assumption is for a TFR of 1.6.

The third component of national population projection assumptions, mortality, is summarised by changes in life expectancy at birth. The highest assumption for mortality is for life expectancy to continue to increase in line with the long-term trend with around 15 year increases in male life expectancy at birth (to 94 years) and 12 year increases in female life expectancy (to 96 years) by 2056. The medium assumption for mortality, still assumes an increase in life expectancy at birth,

Population projections

The ABS produces Australia's official population projections after each census. Each release updates the base population and uses assumptions based on recent and long-term demographic trends, and takes account of possible future scenarios arising from research in Australia and elsewhere.

The latest projections span the period 2008 to 2101 for Australia and 2008 to 2056 for the states, territories and regions. The base population for the projections is the estimated resident population at 30 June 2007.

For simplicity, most analysis presented is limited to three main series which cover three sets of possible future population growth outcomes: high (Series A), medium (Series B) and low (Series C). However, there are a total of 72 series available for use, and these are available from the ABS [website](#).

Population projection assumptions

	Total fertility rate(a)	NOM(b)	Life exp. at birth, males(c)	Life exp. at birth, females(c)
	Rate	'000	Years	Years
Series A	2.0	220.0	93.9	96.1
Series B	1.8	180.0	85.0	88.0
Series C	1.6	140.0	85.0	88.0

(a) From 2021 (b) From 2010-11 in Series A and C, from 2007-08 in Series B. (c) reaching this level by 2056.

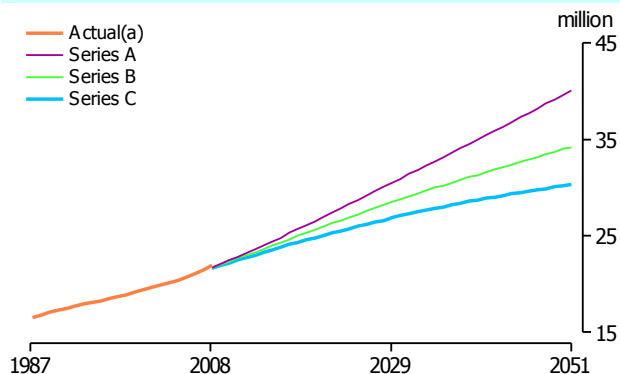
Source: ABS [Population Projections, Australia, 2006 to 2101](#) (cat. no. 3222.0)

but a slower rate, with male and female life expectancy to increase to 85 and 88 years respectively by 2056.

Series A, which uses the high assumptions for NOM, fertility and mortality, results in the Australian population being just over 40 million in 2051, equivalent to growth averaging 1.4% per year.

With the median settings of Series B, (where NOM is assumed to be 180,000, the TFR is 1.8 and life expectancy increases slowly), the

Population projections



(a) Estimated resident population.

Source: ABS [Population Projections, Australia, 2006 to 2101](#) (cat. no. 3222.0)

Australian population is projected to reach 34.2 million in 2051, which is equivalent to population growth of 1.1% per year.

...capital city growth

Despite the exceptions of certain large urban areas such as the Gold Coast and Sunshine Coast, Australia's capital cities have tended to grow faster than state balances. Under Series B (which also assumes moderate interstate migration), the concentration of Australia's population living in the capital cities is projected to increase from 64% in 2008 to 67% in 2051.

In Series B, Sydney is projected to remain the most populous city in Australia, with 6.7 million people in 2051, closely followed by Melbourne with 6.5 million people. However, in Series A, Melbourne's population is projected to exceed that of Sydney's in 2039. This is mainly due to the large migration losses for Sydney (which in this scenario is assumed to lose a net 48,000 people per year to the rest of Australia), while Melbourne only loses a net 15,000 people per year to the rest of Australia.

Under Series B, Perth is projected to experience the highest percentage growth (1.6% per year) of Australia's capital cities, increasing from 1.6 million people in 2008 to 3.2 million in 2051. The second highest percentage growth in Series B is projected for Brisbane, with an average annual increase of 1.5%, from 1.9 million people in 2008 to 3.8 million in 2051. Darwin's population is also projected to grow at 1.5% per year over the projection period, from 121,000 people in 2008 to 229,000 in 2051. The remaining capital cities are projected to experience smaller percentage increases, with the Australian Capital Territory increasing by 0.8% per year (from 344,000 in 2008 to 495,000 in 2051), Adelaide increasing 0.7% (from 1.2 million to 1.6 million) and Hobart increasing 0.6% per year, going from 209,000 to 275,000 people.

Population projections, capital cities

	2008	2051 Series A	2051 Series B
	'000	'000	'000
Sydney	4 399.7	7 262.8	6 733.8
Melbourne	3 892.4	7 492.6	6 515.9
Brisbane	1 945.6	4 580.6	3 764.4
Adelaide	1 172.1	1 772.8	1 612.7
Perth	1 602.6	3 856.7	3 181.3
Hobart	209.3	349.6	275.2
Darwin	120.7	307.1	229.2
Canberra	345.3	643.6	495.0
Total	13 687.6	26 265.8	22 807.4

Source: ABS [Population Projections, Australia, 2006 to 2101](#) (cat. no. 3222.0) and ABS [Australian Demographic Statistics](#) (cat. no. 3101.0)

State and territory projections

State and sub-state projections for each combination of assumptions of NOM, fertility and mortality have been published to complement the Australia level population projections. These are produced by applying differentials which reflect the relative differences in growth components in relation to the Australia level. In addition to this differentiation, the states and territories required further assumptions as to the population gains/losses due to interstate migration.

Three assumptions have been made about future net interstate migration levels:

- **large interstate flows:** relatively large net interstate migration gains for some states and territories, and correspondingly large losses for other states and territories. For example, this equates to large net gains in Queensland, and correspondingly large net losses in New South Wales and Victoria;
- **medium interstate flows:** medium net interstate migration for some states and territories, and medium losses for others; and
- **small interstate flows:** relatively small net interstate migration gains for some states and territories, and small losses for others.

In addition to ABS' state and territory projections, many state and territory governments produce independent projections based on their own assumptions. It is arguable that the states and territories may be in better positions to project the population. If, for example, states have policy settings that are aimed at producing a particular local migration outcome, this may help refine the migration assumption.

Source: ABS [Population Projections, Australia, 2006 to 2101](#) (cat. no. 3222.0)

Endnotes

- 1 United Nations Development Programme, 2009, [Human Development Report 2009, Overcoming barriers: Human mobility and development](#), New York, <www.undp.org>.
- 2 Metcalfe, A., July 2008, [Planned Evolution: Strategic Approach to Immigration Policy](#). Speech to the Government Policy Evolution Conference, Department of Immigration and Citizenship, Canberra, <<http://www.immi.gov.au>>.
- 3 Department of Immigration and Citizenship, [Employer Sponsored Workers, Temporary Business \(Long stay\) - Standard Business Sponsorship \(Subclass 457\)](#), viewed 21st June 2010, <www.immi.gov.au>.

Appendix 1 - Components of population growth, Australia

	<i>Births</i>	<i>Deaths</i>	<i>Natural Increase</i>	<i>NOM arrivals(a)</i>	<i>NOM departures (a)</i>	<i>Net Overseas Migration(a)</i>	<i>Estimated Resident Population (b)</i>	<i>Growth on previous year(c)</i>	<i>Growth on previous year</i>
	'000	'000	'000	'000	'000	'000	'000	'000	%
1988-89	250.2	118.8	131.4	249.9	112.6	157.4	16 814.4	282.3	1.7
1989-90	257.5	125.1	132.4	231.9	128.1	124.6	17 065.1	250.7	1.5
1990-91	261.2	119.6	141.6	236.4	141.6	86.4	17 284.0	218.9	1.3
1991-92	259.2	120.8	138.4	234.2	144.3	68.6	17 494.7	210.6	1.2
1992-93	260.0	121.3	138.6	203.8	141.1	30.0	17 667.1	172.4	1.0
1993-94	258.3	123.5	134.8	207.4	140.0	46.5	17 854.7	187.6	1.1
1994-95	258.2	126.2	132.0	238.5	145.5	80.1	18 071.8	217.0	1.2
1995-96	250.4	126.4	124.0	262.7	153.1	104.1	18 310.7	239.0	1.3
1996-97	253.7	127.3	126.4	261.0	166.6	87.1	18 517.6	206.9	1.1
1997-98	249.1	129.3	119.9	265.4	186.3	79.2	18 711.3	193.7	1.0
1998-99	250.0	128.3	121.7	271.9	175.5	96.5	18 925.9	214.6	1.1
1999-00	249.3	128.4	120.9	305.1	197.8	107.3	19 153.4	227.5	1.2
2000-01	247.5	128.9	118.6	348.6	212.9	135.7	19 413.2	259.9	1.4
2001-02	247.3	130.3	117.0	353.4	219.7	110.6	19 651.4	238.2	1.2
2002-03	246.7	132.2	114.4	373.8	219.6	116.5	19 895.4	244.0	1.2
2003-04	249.1	133.2	115.9	401.3	236.7	100.0	20 127.4	231.9	1.2
2004-05	255.9	131.4	124.6	426.9	248.9	123.8	20 394.8	267.4	1.3
2005-06	263.5	134.0	129.5	457.4	258.1	146.8	20 697.9	303.1	1.5
2006-07(d)	277.7	136.0	141.7	437.5	204.7	232.8	21 072.5	374.6	1.8
2007-08(d)	289.5	140.7	148.8	501.3	224.0	277.3	21 498.5	426.1	2.0
2008-09(e)	300.9	143.1	157.8	529.7	230.8	298.9	21 955.3	456.7	2.1

(a) NOM estimates contain a break in series. Estimates from September quarter 2006 use an improved methodology. See definition of Net Overseas Migration.

(b) At end of period (30 June).

(c) Differences between total growth and the sum of the components of population change prior to 2007-08 are due to intercensal discrepancy.

(d) Revised estimates.

(e) Preliminary estimates.

Source: [Australian Historical Population Statistics](#) (cat. no. 3105.0.65.001) and [Australian Demographic Statistics](#) (cat. no. 3101.0)