



Australian Government
Centre for Population

POPULATION STATEMENT

CENTRE FOR POPULATION

December 2020



Strong evidence. Deep insights. Collaborative approach.

© Commonwealth of Australia 2020

ISBN 978-1-925832-23-5

This publication is available for your use under a [Creative Commons Attribution 3.0 Australia](https://creativecommons.org/licenses/by/3.0/au/legalcode) licence, with the exception of the Commonwealth Coat of Arms, the Treasury logo, photographs, images, signatures and where otherwise stated. The full licence terms are available from <http://creativecommons.org/licenses/by/3.0/au/legalcode>.



Use of Treasury material under a [Creative Commons Attribution 3.0 Australia](https://creativecommons.org/licenses/by/3.0/au/legalcode) licence requires you to attribute the work (but not in any way that suggests that the Treasury endorses you or your use of the work).

Treasury material used 'as supplied'.

Provided you have not modified or transformed Treasury material in any way including, for example, by changing the Treasury text; calculating percentage changes; graphing or charting data; or deriving new statistics from published Treasury statistics — then Treasury prefers the following attribution:

Source: Centre for Population 2020, Population Statement, the Australian Government, Canberra.

Derivative material

If you have modified or transformed Treasury material, or derived new material from those of the Treasury in any way, then Treasury prefers the following attribution:

Based on Centre for Population analysis / data.

Use of the Coat of Arms

The terms under which the Coat of Arms can be used are set out on the Department of the Prime Minister and Cabinet website (see www.pmc.gov.au/government/commonwealth-coat-arms).

Other uses

Enquiries regarding this licence and any other use of this document are welcome at:

Manager
Media and Speeches Unit
The Treasury
Langton Crescent
Parkes ACT 2600
Email: media@treasury.gov.au

CONTENTS

Contents.....	iii
From the Minister for Population, Cities and Urban Infrastructure	1
From the Executive Director of the Centre for Population.....	2
Summary.....	3
1. How our population has changed (1988-89 to 2018-19).....	8
1.1 Overview of the last 30 years	8
1.2 National population	11
1.2.1 Natural increase	13
1.2.2 Net overseas migration	19
1.2.3 Net internal migration.....	21
1.3 State and territory populations	25
1.4 Capital city and rest-of-state populations.....	36
2. Our future population (2019-20 to 2030-31).....	46
2.1 Overview of the next 10 years	46
2.2 National population	49
2.2.1 Natural increase	52
2.2.2 Net overseas migration	55
2.2.3 Net internal migration.....	58
2.3 State and territory populations	60
2.4 Capital city and rest-of-state populations.....	71
3. Technical appendix.....	78
3.1 Methodology.....	78
3.1.1 Population projections	78
3.1.2 Net overseas migration forecasts	79
3.2 Assumptions.....	80
3.2.1 Fertility	80
3.2.2 Mortality.....	81
3.2.3 Net overseas migration	82
3.2.4 Net internal migration.....	85
3.3 Limitations and uncertainty	88
Glossary	91
Notes	91
Definitions	92
References	95

FROM THE MINISTER FOR POPULATION, CITIES AND URBAN INFRASTRUCTURE



The Hon Alan Tudge MP

Minister for Population, Cities and Urban Infrastructure

Acting Minister for Immigration, Citizenship, Migrant Services and Multicultural Affairs

In 2019, the Australian Government created the Centre for Population to provide a single point of analysis to assess, monitor and project changes to the population. The Government also committed to publishing an annual Population Statement containing the Centre’s analysis.

This is the first such Statement, providing a major analytical contribution and a foundation for further analysis.

The Statement includes a discussion of how our population has changed and how it is expected to change in the future spanning states and territories, capital cities and regions, by age and gender.

In 2020, the Population Statement has a timely focus on the consequences of the COVID-19 pandemic. We all know the health and economic consequences of the pandemic, but the impact on our population has been equally extraordinary. This year, for example, we expect to see the slowest population growth since World War I. This has largely been due to closing the international borders and the resultant change in net overseas migration from averaging over 200,000 per annum for the last decade to negative 72,000 this year.

The pandemic has also had an impact on internal migration between states and will contribute to a lower fertility rate.

This Population Statement provides the transparent and meaningful analysis needed to help build a clear evidence basis and further inform policy. At this time of heightened uncertainty, we need high quality data and research to support decision-making as we navigate through the recovery and beyond.

Developed in consultation with the states and territories, local government, expert working groups and academics, the Statement delivers on the commitment made by government leaders when they agreed on the National Population and Planning Framework in February this year.

This Statement presents the analysis and projections needed to inform long-term policy challenges raised by demographic change and the short-term challenges we face in our recovery from the pandemic. Some of these challenges are more acute as a result of the COVID-19 pandemic which has rapidly changed our overseas migration levels and limited the ways people have been able to move domestically.

As we better understand trends in our population, we can better answer future population challenges. It will inform decisions on infrastructure, services and housing that support growth, as well as help us better understand and analyse population distribution across the country.

Australia has a diverse and growing national population with many local and regional success stories. Understanding these stories and recognising the vastly different dynamics of Australia’s states and territories, cities and regions is vital to effectively plan for the future.

FROM THE EXECUTIVE DIRECTOR OF THE CENTRE FOR POPULATION

Victoria Anderson

Executive Director
Centre for Population

This Population Statement is the first in an annual series that will provide a comprehensive national picture of how the Australian population has changed and how we expect it to change in the future.

The Statement analyses the last 30 years of population history in Australia, starting just before the recession of the early 1990s. This analysis is focused on informing projections of the future population to the end of the decade with reference to the main components of population change — overseas migration, natural increase and internal migration. Future population statements will update this work annually and provide further insights into what has changed from the previous year.

The Centre houses a dedicated team of population, policy and data analysts whose role is to analyse population dynamics, understand past trends and project future changes.

The Centre also plays an important role in enriching the population evidence base with timely insights into the impacts of the COVID-19 pandemic, including commissioning and publishing papers on *Recent Impacts on Australia's Population: A Quick Guide*, *A Projection of Australia's Future Fertility Rates*, and work underway on other population research topics.

Most recently, the Centre funded the Australian Bureau of Statistics to release early provisional Regional Internal Migration Estimates in November 2020, which provides an early look at the impacts of COVID-19 on people's decisions to move around Australia.

Transparency and openness to scrutiny are also necessary if the Centre is to advance the quality and reliability of population analysis available to governments and the public. In compiling this first Population Statement, the Centre has drawn upon external input and expertise from a number of academics and population experts.

The Centre is working with other Australian Government departments and agencies, all states and territories, and the Australian Local Government Association to share information, leverage collective expertise, and compile accurate data and informed insights — all of which have informed this Statement.

The challenges of 2020 have and will continue to cause an environment of uncertainty for those wanting to understand and predict population dynamics.

This heightened level of uncertainty makes the projections in this Statement sensitive to new data — especially data clarifying the early known effects of COVID-19, the effects of any new COVID-19 outbreaks, as well as the decisions made and restrictions imposed by governments to help manage the pandemic. The Statement, therefore, plays an important role in pulling together the available information at a point in time, and clearly setting out how it is used to inform population projections.

I look forward to engaging with our stakeholders on this first annual Population Statement and thank those involved in its preparation.

SUMMARY

The National Population and Planning Framework tasks the Centre for Population to prepare an annual Population Statement as part of national efforts to increase understanding about populations, population change and its implications for all levels of government.

COVID-19 will likely have an impact on Australia's future population of a magnitude not seen for several generations. Consequently, the Statement comes at a time when there is a real need for good quality and coherent population projections built on transparent assumptions.

To estimate future population, it is necessary to look back and understand historical population trends and then apply judgment about the extent to which past trends should be applied to future projections.

Part I of the Statement looks back over the last 30 years of official population statistics, which are complete across national, state and territory, and capital city and rest-of-state aggregations to 30 June 2019. The analysis extends back to 1988-89, just prior to Australia's last recession in the early 1990s.

Australia's population was 25.4 million at 30 June 2019, having grown around 1.4 per cent a year on average since it was 16.8 million at 30 June 1989. Australia's population growth over the last decade has been 1.6 per cent a year. This is higher than the long-run average annual rate of 1.4 per cent since 1971 when the Australian Bureau of Statistics estimated resident population series begins. Around two-thirds of Australia's population live in the 8 capital cities with the share increasing from 65 per cent at 30 June 1988 to 68 per cent at 30 June 2019. Over this period, most capital cities grew faster than the rest-of-state areas.

Part II of the Statement provides the Centre's best estimates of future population (the central case scenario) with projections commencing from 2019-20 and extending just beyond the end of the decade to 2030-31. The onset of COVID-19 is expected to dominate estimates of future population in the near term, particularly through its impact on net overseas migration. However, longer-term trends will continue to play out; such as the ongoing decline in the fertility rate and slowdown in the number of people who make interstate or intrastate moves.

In the central case, Australia's population is projected to increase to 28.8 million by 30 June 2031. While this reflects population growth of around 1.1 per cent a year on average, population growth is projected to commence at just 0.2 per cent in 2020-21 and then 0.4 per cent in 2021-22. It is then projected to increase to 1.3 per cent by 2023-24 before declining slightly to 1.2 per cent from 2029-30.

The projected slowdown in population growth at the end of the decade reflects Australia's ageing population and is consistent with the experience of other developed countries. Since the late 1970s, Australia's fertility rate has been below the replacement rate of 2.1 babies per woman. Australia's fertility rate of 1.66 last observed in 2018-19 is already the lowest on record. It is assumed to fall further in future as Australian families continue to have children later in life and have fewer children overall when they do.

The strong migration Australia has historically attracted has slowed population ageing. Over the last decade, net overseas migration has contributed around 0.9 percentage points a year on average to Australia's average annual population growth of 1.6 per cent. Australia's population growth over the last decade from net overseas migration alone is more than the total population growth of many developed countries. It is 1.5 times the OECD average population growth over the same period. The policy emphasis on skilled migration since the mid-1990s has led to the selection of migrants who are younger, on average, than the resident population and of an age when they are more likely to have children. This has contributed to births remaining relatively stable despite falling fertility rates.

Population statement

Migration has slowed, but not halted or reversed, the ageing of Australia's population. The share of people aged 65 and over increased from 11 per cent on 30 June 1989 to 16 per cent by 30 June 2019. This is projected to rise further to 20 per cent by 30 June 2031. Population ageing has been slower in the capital cities compared to the rest-of-state areas, even though fertility rates are lower and life expectancies are generally higher in the capital cities. Several factors have contributed to the younger age structures of capital cities, including a net outflow of young people from regional areas to capital cities (Bourne, Houghton, How, Achurch, & Beaton, 2020), higher levels of overseas migration into capital cities, and older adults migrating to coastal areas (Bureau of Infrastructure, Transport and Regional Economics, 2011). However, the Regional Australia Institute has found that despite the net loss of younger people from regions, there is also a sizeable flow of young people migrating from capital cities to rest-of-state areas, and between regions (Bourne, Houghton, How, Achurch, & Beaton, 2020).

Given the importance of net overseas migration to the size and composition of the population, it should come as no surprise the major effect of COVID-19 on population growth will be its impact on net overseas migration. Australia is forecast to record the first net outflow of migrants from Australia since the end of World War II. In the central case, arrivals are assumed to be restricted while onshore migrants on temporary visas are assumed to depart as normal. For a short period, natural increase is projected to be the main driver of population growth and will account for more than 60 per cent of Australia's population growth for the first time since the 1990s.

To a lesser extent, COVID-19 is also expected to affect household decisions about family size and moving house — between and within states and territories. This is not expected to be due to health implications of COVID-19, but rather to the economic uncertainty associated with the pandemic and activity restrictions introduced to limit its spread.

Historically, the level of internal migration and families' decisions about children have been influenced by the economic cycle. People are more likely to make an internal move during good times; for example, when they can find a job at their desired destination. They are less likely to move during times of economic uncertainty. Some families are likely to delay decisions to have children during times of economic uncertainty and, instead, wait to have children as the economy stabilises and future prospects become more certain.

As a result of activity restrictions and economic uncertainty associated with the pandemic, the fertility rate and the proportion of the population migrating internally are expected to fall in the immediate term and then recover as the effects of COVID-19 lessen. While the expected level is temporarily lower due to COVID-19, internal migration and fertility were already at historically low levels and would have been projected to decline even in the absence of COVID-19.

Future population growth at every geographic level analysed is projected to slow in the near term and then recover. This recovery is not to the growth rates observed in the lead-up to the onset of the pandemic in 2018-19, but instead to the estimated growth rates that would have occurred in the absence of COVID-19. This reflects the expected trend that population growth will slow gradually over time as future fertility declines and fixed future net overseas migration contributes less to annual population growth. Faster growth during and following the recovery is also not expected to be high enough to compensate for the slow growth expected in the near term.

Taken together, this means that future population across all geographic levels analysed is projected to be smaller than it would have been in the absence of COVID-19. Australia's population is estimated to be around 4 per cent smaller (1.1 million fewer people) by 30 June 2031 than it would have been in the absence of COVID-19.

Sydney is projected to grow to around 6.0 million by 30 June 2031. Despite the immediate effects of COVID-19, Melbourne is projected to overtake Sydney to become Australia's largest city in 2026-27, growing to an

estimated 6.2 million by 30 June 2031. Given that capital cities receive the majority of net overseas migration, the absolute and proportional effects of COVID-19 are projected to be felt more in the capital cities. Following the recovery, capital cities are then projected to return to higher rates of growth than the rest-of-state areas in each state, with the share of population living in capital cities rising in every state and territory. The population share in cities is projected to increase from 68 per cent last observed at 30 June 2019 to 69 per cent by 30 June 2031. The Government has a number of initiatives in place to support population growth in the regions and some early indicators suggest that COVID-19 may be disrupting the historically observed patterns of overseas and internal migrant settlement — at least in the short term. It remains to be seen how this may play out in the future.

The ways in which the COVID-19 pandemic will shape our future are still uncertain. The projections in this first Population Statement, as with all projections, rely heavily on the assumptions underpinning them. A number of factors influence these projections of future population; primarily domestic and global economic conditions and the timing of decisions to impose or remove restrictions on domestic and international borders. It has, therefore, been important to apply expertise and judgment in estimating the effects of the pandemic on future population in a rapidly changing environment.

Given the uncertainties and the importance of timely and well-informed estimates of future population, this Statement contains 2 counterfactual scenarios: one estimates future population where the COVID-19 pandemic never occurred ('pre-COVID-19 scenario') and the other estimates future population based on ongoing restrictions and localised outbreaks ('extended restrictions scenario').

The pre-COVID-19 scenario allows separation of the likely effects of the pandemic on the future population from trends that were apparent prior to the outbreak. This scenario is based on pre-COVID-19 assumptions. When compared to the central case, it informs estimates of the impact of COVID-19 on the size and distribution of the population. Australia's total population is projected to be 29.9 million by 30 June 2031 in the pre-COVID-19 scenario, reaching 28.8 million roughly 3 years earlier (by 30 June 2028) than is projected in the central case.

The extended restrictions scenario projects what the future population might look like if some of the restrictions to manage the pandemic are extended beyond those in the central case by a further 12 months. This scenario shows how changes, even relatively minor ones, to the assumptions in the central case could affect the national population. Under the extended restrictions scenario, it is estimated that future population would reach around 28.5 million by 30 June 2031, needing roughly another year to reach the 28.8 million projected under the central case.

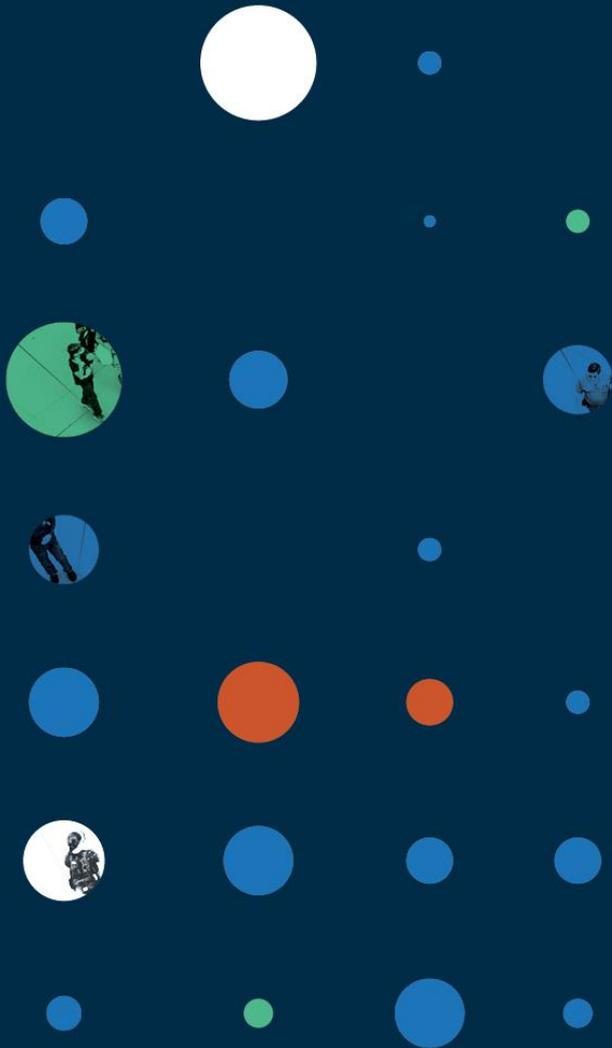
Part III of the Statement provides a guide to the forecasts and projections in this Statement and details the assumptions and methodology applied. Because of the changing nature of decision-making to manage the pandemic, new information can have a meaningful impact on the projections in this Statement. The introduction and release of new data will shed further light on short-term trends.

Population projections underpin economic and fiscal forecasts, policy decisions and program design and implementation across all levels of government. Regularly updated and transparent estimates of the future population, along with comprehensive analysis of past trends, will complement historical data from the Australian Bureau of Statistics and provide a better foundation for policy decisions that guide Australia's economic recovery.

Data for the projections in the Statement are available to compare and download at www.population.gov.au.

PART I — HOW OUR POPULATION HAS CHANGED (1988-89 TO 2018-19)

•



1. HOW OUR POPULATION HAS CHANGED (1988-89 TO 2018-19)

1.1 OVERVIEW OF THE LAST 30 YEARS

The impact of COVID-19 on Australia's future population will be of a magnitude not seen for several generations. To inform projections of future population, Part I of the Statement analyses in detail the population trends from the last 30 years of official population statistics.

The Australian Bureau of Statistics' estimates of population, with detail down to the capital city and rest-of-state level, are available to 30 June 2019. The analysis in this section goes back to 1988-89, just prior to Australia's last recession in the early 1990s.

The size and distribution of the population is affected by the components of population change. At the national level, these components are natural increase (births minus deaths) and net overseas migration. Net interstate migration is a third component for analysis at the state and territory level, and net intrastate migration is a fourth component of change at the capital city and rest-of-state level. Part I of the Statement explores in detail these drivers of the size and distribution of the national population, for the states and territories ('the states'),¹ and then for capital cities and rest-of-state areas.

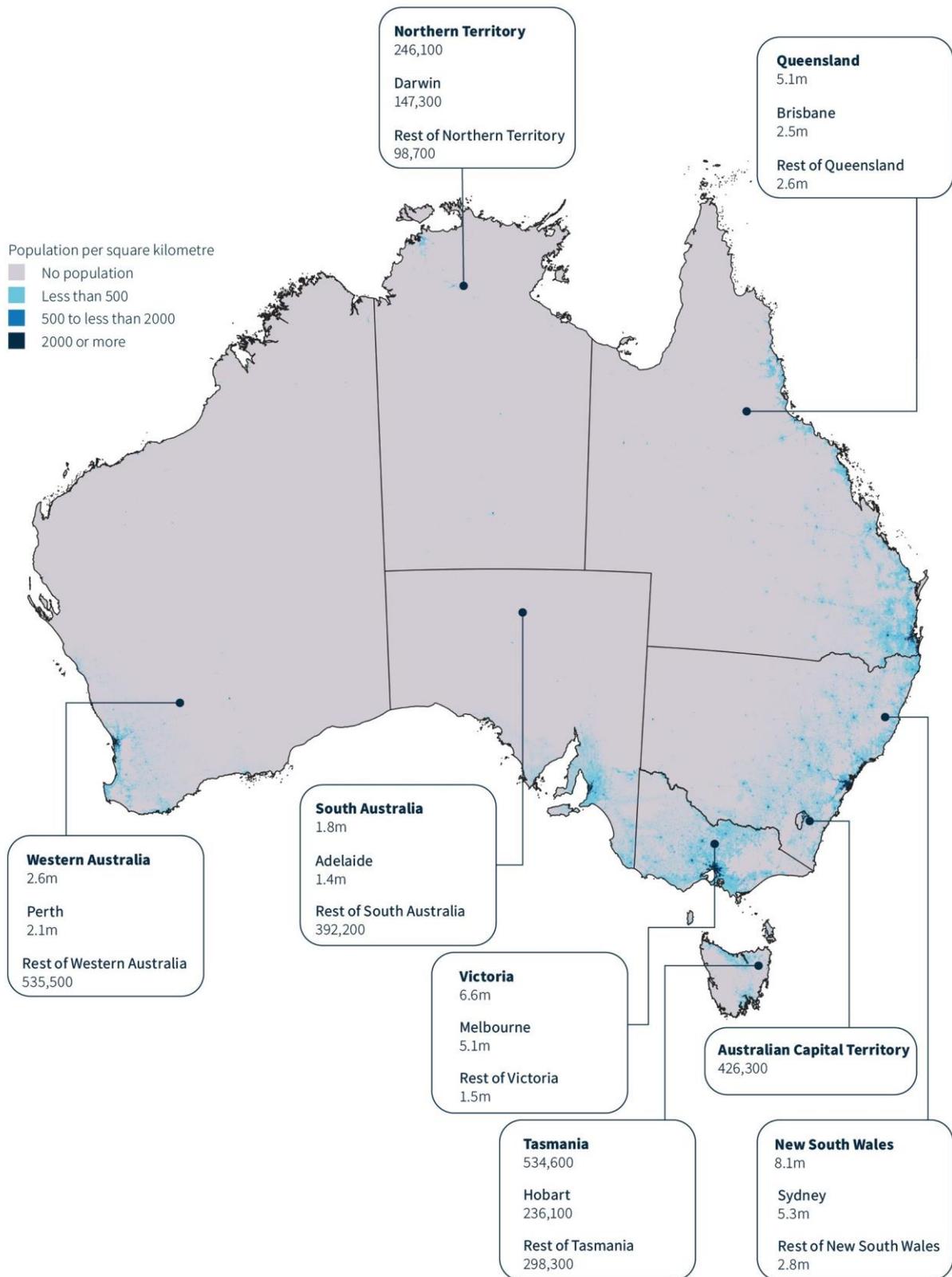
Main points:

- Australia's population grew at an average rate of 1.4 per cent a year since the start of the estimated resident population series in 30 June 1971. Growth over the last decade ran slightly higher at 1.6 per cent a year on average.
- In recent years, natural increase added around 150,000 people a year to the Australian population. Over the last 30 years, the total fertility rate fell from 1.84 babies per woman in 1988-89 to 1.66 in 2018-19. Life expectancies at birth increased and are some of the best in the world. Despite these improvements, the number of deaths has grown faster than the number of births. As a result, natural increase has become smaller as a proportion of the population.
- Over the same period, net overseas migration has been the main driver of Australia's population growth. Natural increase was briefly the main driver of population growth during the early 1990s recession, but net overseas migration has consistently contributed more to population growth since 2005-06.
- Net overseas migration has not only contributed to population growth directly, but has also lifted natural increase and helped to maintain the number of births a year even though the fertility rate has fallen over time. This is because migrants coming to Australia have been younger on average than the resident population and more likely to arrive at an age when they may have children.
- The intake of migrants who are younger on average than the resident population has helped to slow, but not reverse, population ageing.
- The composition of migrants to Australia has changed over time as policy settings shifted to target skilled migration over family reunion, as well as allowing for an increased flow of temporary migrants who are in Australia for an extended period but do not intend to settle here. For example:

¹ Throughout the Statement, references to the 'states' or 'each state' includes the Northern Territory and the Australian Capital Territory.

- the permanent skilled intake today is almost 5 times greater than in 1996, while the family intake is only 60 per cent of the peak that occurred in the late 1980s
- the annual net flow of students, temporary skilled workers, working holiday makers and other temporary migrants has increased from 82,000 in 2004-05 to 189,000 in 2018-19.
- Australia’s population has grown older over time. The share of people aged 65 and over increased from 11 per cent on 30 June 1989 to 16 per cent by 30 June 2019. The median age increased from 32 to 37 years over the same period.
- Population growth in Australia has varied widely across cities and regions and has been largely shaped by the flow of net overseas migration and net internal migration. While the contribution to growth from natural increase has varied across parts of the country, it has been stable over time, albeit declining gradually.
- Australia has high rates of internal migration compared to other countries (Australian Bureau of Statistics, *Population Shift: Understanding Internal Migration in Australia*, 2018), although the rate of internal migration (the number of people who move as a proportion of the total population) has been declining over time.
- The level of internal migration — inter- and intra-state — tends to follow the economic cycle as people are more likely to move in good economic times and are less willing to take chances in times of recession or uncertainty.
- The geographic pattern of interstate migration, or the direction in which it flows, has varied across the states over the last 30 years. In this period, New South Wales and South Australia have typically had a net loss of people to other states, while Queensland has typically had a net gain. Where the pattern of interstate migration has changed, it can partly be attributed to a change in the relative economic prospects of a state. This was observed in Western Australia and the Northern Territory, which are linked to employment opportunities such as the mining and resource cycle, and also in Victoria over the last few decades and Tasmania in recent years.
- The geographic distribution of net overseas migration and internal migration has also changed the distribution of the population around the country over time.
- Historically, the capital cities have attracted a larger share of net overseas migration than the rest-of-state areas. Given overseas migrants tend to be, on average, younger than the overall population of Australia, capital city populations tend to be younger and also age more slowly relative to the rest-of-state areas. The difference in ageing is also driven by internal migration into capital cities of younger people from the rest-of-state areas (Bureau of Infrastructure, Transport and Regional Economics, 2011). This is despite fertility rates generally being higher and life expectancies being lower in rest-of-state areas (Australian Bureau of Statistics, *Births, Australia*, 2019; Australian Bureau of Statistics, *2016-18 Life Tables*, 2019).
- Overseas migrants contributed 26 per cent of the population growth in the rest-of-state areas of Australia between 1996 and 2016. In certain regions, migrants contributed more than 50 per cent of the population growth (The Treasury and the Department of Home Affairs, 2018).
- Just over two-thirds of the overall population lives in capital cities and cities have grown faster than the rest-of-state areas in almost every state. At 30 June 2001, 85 per cent of the overall population lived within 50 km of the coast. By 30 June 2019, that share had increased to 87 per cent, equating to over 22 million people (Australian Bureau of Statistics, *Regional population, 2018-19*, 2020).

A SNAPSHOT OF OUR CURRENT POPULATION, 30 JUNE 2019



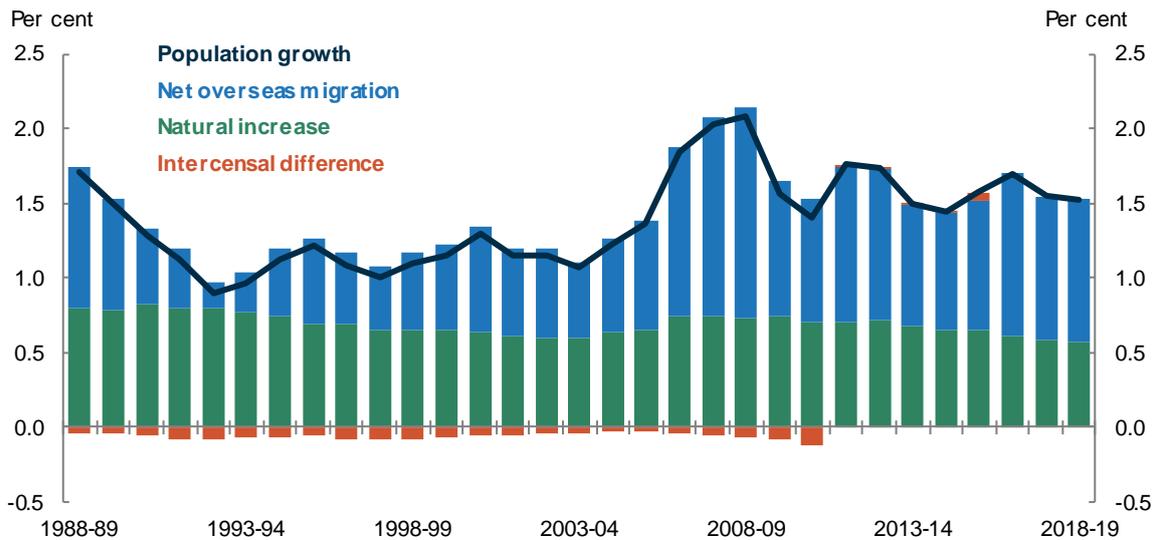
Note: The population data is taken from the release for the March 2020 reference period for the states and from the 2018-19 reference period for capital cities and rest-of-state populations.

Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020; Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

1.2 NATIONAL POPULATION

Australia's average annual growth rate over the last 30 years has been 1.4 per cent per year. This has fluctuated from as low as 0.9 per cent in 1992-93 (during a recession) to as high as 2.1 per cent in 2008-09 around the time of the Global Financial Crisis (see Chart 1). The contributions from each of the national components of change — natural increase and net overseas migration — have varied over this period. Both have led to Australia having high population growth compared to other developed countries, most recently with Australia's population growth for the calendar year 2019 having been almost 3 times the OECD average (see Box 1 and Table 1).

Chart 1. COMPONENTS OF POPULATION CHANGE, AUSTRALIA, 1988-89 TO 2018-19



Note: The intercensal difference shown in Chart 1, and also further down in the state charts, is caused by differences in population estimates between successive censuses, post-enumeration surveys, and the administrative data sources used for quarterly updates, which cannot be attributed to a particular source. More information and the Australian Bureau of Statistics official definition can be found in the Glossary.

Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

The pace and composition of population change has varied across different parts of Australia. This is discussed further in the sections on the populations of states, and of capital cities and rest-of-state areas below. There are also differences between the rates of population change for the Aboriginal and Torres Strait Islander population compared to the overall population (see Box 1).

BOX 1. AUSTRALIA'S POPULATION IN A GLOBAL CONTEXT

Australia's population growth rate is higher than that of most developed countries. In 2019 it was 1.5 per cent; higher than the OECD average of 0.5 per cent. This growth was largely driven by net overseas migration. In the 5 years between 1 July 2014 and 30 June 2019, net overseas migration directly contributed 60 per cent of Australia's population growth. This net overseas migration also led to a greater number of births than would otherwise have been the case, as migrants have been younger on average than the resident population and, therefore, more likely on average to have children than the resident population.

While fertility rates remain high in developing countries, women globally are having fewer children. The world's total fertility rate is projected to drop below 2.10 babies per woman after 2065, after which the global population will start to decline (United Nations, 2019). Australia's total fertility rate in 2018 of 1.74 babies per woman was slightly higher than the OECD average of 1.69. For calendar year 2018, Australia's total fertility rate was higher than that of Italy, Japan, Canada, New Zealand, USA, Germany and Brazil, but lower than France. Australia and other developed countries have generally experienced declines in fertility since the end of the baby boom of the mid-1960s (The World Bank, World Development Indicators, 2020).

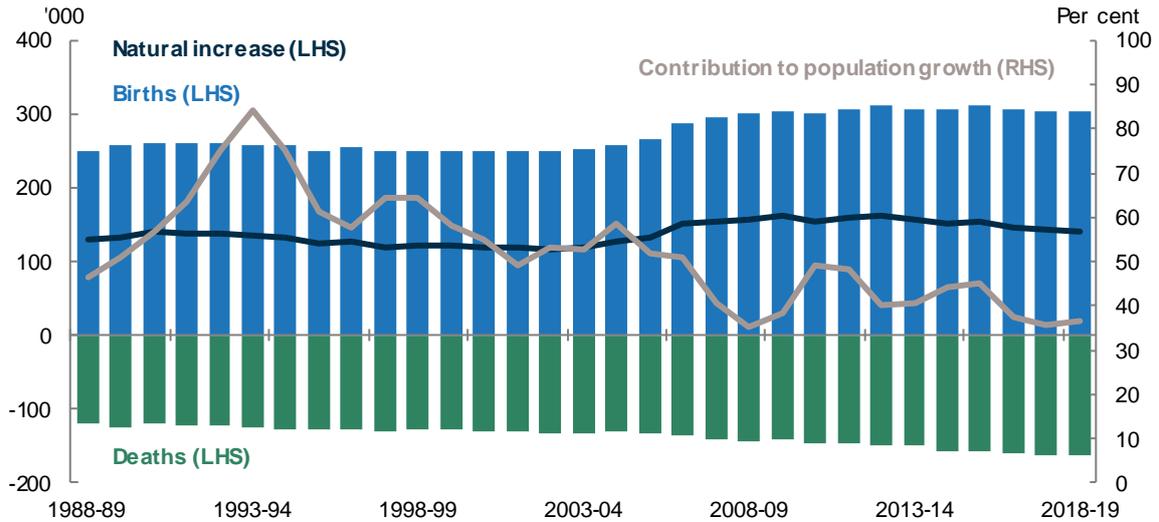
In 2018, Australia's life expectancy at birth for men and women was ranked 12 in the world (The World Bank, World Development Indicators, 2020).

Table 1. INTERNATIONAL POPULATION COMPARISONS, SELECTED COUNTRIES

COUNTRY	POPULATION GROWTH (2019)	FERTILITY (CHILDREN PER WOMAN, 2018)	FEMALE LIFE EXPECTANCY AT BIRTH (YEARS, 2018)	MALE LIFE EXPECTANCY AT BIRTH (YEARS, 2018)
AUSTRALIA	1.5	1.74	84.9	80.7
NEW ZEALAND	1.6	1.71	83.6	80.2
G7 COUNTRIES				
CANADA	1.4	1.50	84.1	79.9
USA	0.5	1.73	81.1	76.1
UK	0.6	1.68	83.1	79.5
JAPAN	-0.2	1.42	87.3	81.3
GERMANY	0.3	1.57	83.3	78.6
FRANCE	0.1	1.88	85.9	79.7
ITALY	-0.2	1.29	85.6	81.2
BRAZIL, RUSSIA, INDIA AND CHINA (BRICS)				
BRAZIL	0.8	1.73	79.4	72.0
RUSSIA	-0.1	1.57	77.8	67.8
INDIA	1.0	2.22	70.7	68.2
CHINA	0.4	1.69	79.1	74.5
OECD MEMBERS	0.5	1.69	82.8	77.5
WORLD	1.1	2.41	74.9	70.4

Source: (The World Bank, World Bank Open Data, 2020)

Chart 2. BIRTHS, DEATHS AND NATURAL INCREASE, AUSTRALIA, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Consistent with what has been observed in other developed countries, Australia’s total fertility rate is below its replacement rate² of 2.1 babies per woman (Chart 3). Within Australia, however, there are sub-group differences in fertility rates. For example, Aboriginal and Torres Strait Islander women have higher fertility rates compared with all women (see Box 2). By contrast, female migrants in Australia on temporary visas have fewer children than Australian-born women and overseas-born Australian permanent resident women (McDonald, 2020).

Over the last 30 years, the total fertility rate declined from 1.84 babies per woman in 1988-89 to 1.66 in 2018-19, primarily due to women with higher educational attainment³ delaying having their first child. This was not a linear decline, as the total fertility rate increased temporarily in the early 2000s to peak at 2.00 in 2007-08 — just below the replacement rate. While some attribute part of this increase to the introduction of the Baby Bonus in 2004-05 (Gray, Qu, & Weston, 2008), it is difficult to determine how much of the increase was due to changes in policy incentives and how much was due to the overall positive economic outlook at the time. Furthermore, the rise in fertility from 2004-05 indicates that the preceding decline was a result of some women delaying when they had children (Lattimore & Pobke, 2008). Some of these ‘delayed’ births were ‘recuperated’, meaning they were not entirely foregone but instead occurred later in life. This is supported by higher age-specific fertility rates for women with higher educational attainment in their 30s. As a result, women in their 30s exceeded women in their 20s as having the highest rates of fertility and the total fertility rate temporarily increased (McDonald, 2020).

Since 2007-08, the fertility rate gradually fell and is now at a historic low. There has been a decline in the fertility rates of older teenagers and of women in their late 20s. This is associated with young women with lower educational attainment⁴ having fewer children and growth in the share of the population consisting of female migrants on temporary visas who are less likely to have children. Recuperation also slowed as the fertility rates of women in their 30s started to decline in recent years (Centre for Population, 2020).

² Replacement level fertility is the total fertility rate — the average number of children born per woman — at which a population exactly replaces itself from one generation to the next, without migration. This rate is roughly 2.1 children per woman for most countries, although it may modestly vary with mortality rates.

³ This refers to a high level of education including completion of Year 12 of secondary school (or equivalent) and having a post-school qualification such as a post-secondary degree, diploma or certificate (McDonald, 2020).

⁴ This refers to people without a post-school qualification, including people who have completed Year 12 (or equivalent) (McDonald, 2020).

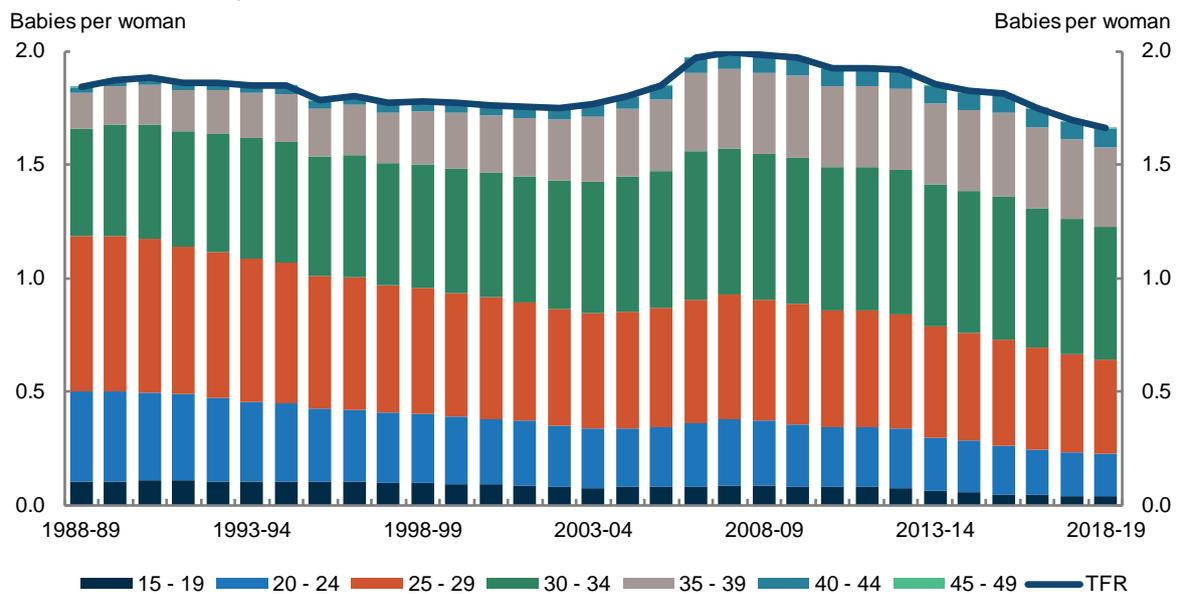
1.2.1 NATURAL INCREASE

In recent years, natural increase has added around 150,000 people annually to the Australian population, the difference between approximately 300,000 births a year and around 150,000 deaths each year (see Chart 2). Although the level of natural increase rose over the last 30 years, natural increase became smaller as a proportion of the population.

In part, this is because deaths rose more quickly than births due to population ageing. Population ageing in Australia is part of a longer-term trend with baby boomers and post-WWII migrants transitioning to ages 65 and above. The share of the population aged 65 and over increased from 11 per cent in June 1989 to 16 per cent in June 2019 (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020) (also see Box 3).

The declining contribution of natural increase to population growth is also partly due to falling fertility rates as families, over time, have chosen to have children later in life and have fewer children when they do (McDonald, 2020). The long-term decline in the fertility rate has led to fewer births than otherwise. It has also been due to a smaller proportion of the population being at child-bearing ages. In the absence of significant net overseas migration to Australia recently, natural increase would have been even lower. Migration has increased the proportion of the population likely to have children and, therefore, kept the number of births relatively stable in Australia despite falling fertility rates.

Chart 3. TOTAL FERTILITY RATE DECOMPOSED INTO BABIES PER WOMAN WITHIN 5 YEAR AGE BRACKETS, AUSTRALIA, 1988-89 TO 2018-19



Source: (Centre for Population, 2020)

Australia’s female and male life expectancies at birth are some of the best in the world at 84.9 years for women and 80.7 years for men, based on the Australian Bureau of Statistics’ 2016-18 Life Tables. Over the past decade, life expectancy at birth increased by 1.5 years for men and 1.2 years for women. This reduced the gap in life expectancies between men and women from 6.4 years in 1988 to 4.2 years in 2016-18 (Australian Bureau of Statistics, 2016-18 Life Tables, 2019). While life expectancy at birth has improved over time, over recent years it has done so at a decreasing rate (Chart 4). Over the last 30 years, life expectancies improved at an average annual rate of 0.3 per cent for men and 0.2 per cent for women. By comparison, these average annual rates were lower over the last 5 years — improving by 0.2 per cent for men and 0.1 per cent for women.

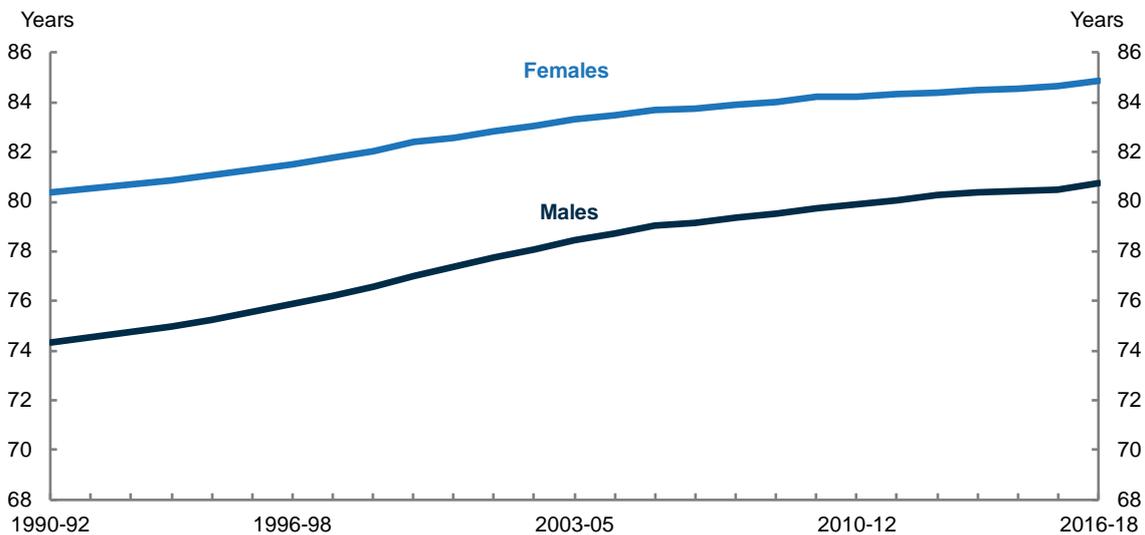
Public health efforts, improvements to medicine and access to treatment as well as improved workplace and road safety (such as the use of seat belts) have contributed to declining mortality. In particular, the widespread

availability of heart by-pass surgery and reduction in smoking have been major contributors to rising life expectancies in Australia.

With the exception of those aged over 100 years, mortality rates at all other ages improved on average over the last 30 years. Substantial improvements have been seen for childhood mortality for boys and girls (with average annual improvements of around 3.5 per cent per year for mortality rates for children under 5 years old). As with fertility, there are sub-group differences in mortality, with Aboriginal and Torres Strait Islander Australians having lower life expectancies compared with non-Indigenous Australians (see Box 2).

Not only have annualised rates of mortality improvement slowed in the most recent 5 year period, in some cases mortality rates have worsened, particularly for men aged 40 to 49 years. In this sub-group, there have been significant increases in the number of deaths from accidental poisoning.⁵ Over 2016-18, the age-specific mortality rate per 100,000 population due to accidental poisoning was 17.8 for men and 7.5 for women. Five years earlier, over 2011-13, the comparable rates were 11.5 for men and 5.3 for women (Australian Institute of Health and Welfare, General Record of Incidence of Mortality Books 2018, 2020).

Chart 4. LIFE EXPECTANCY AT BIRTH FOR MALES AND FEMALES, 1990-92 TO 2016-18



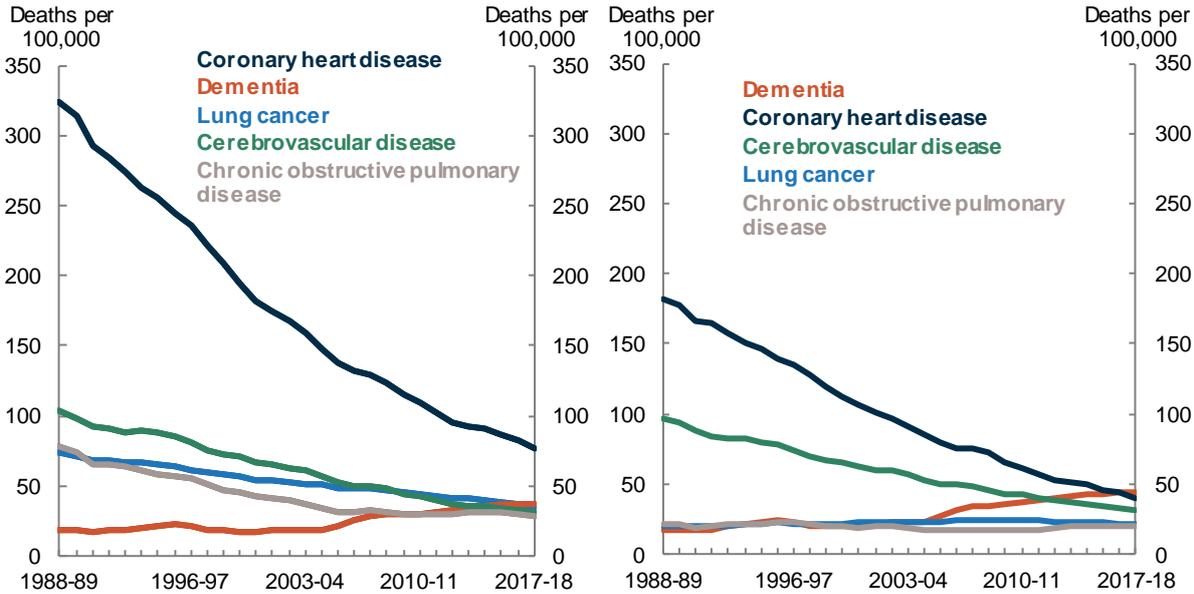
Source: (Australian Bureau of Statistics, 2016-18 Life Tables, 2019; Australian Bureau of Statistics, Historical population, 2016, 2019)

Higher rates of mortality improvement at ages 60 to 80 are related to changes in the main causes of death. Coronary heart disease is currently, and has long been, the primary leading cause of death in Australia (Chart 5), although advances in public health systems and medical treatments have greatly reduced the death rate associated with the disease. A combination of factors, including population ageing and improvements in the treatment of other diseases, has led to an increased number of people dying from dementia.⁶ There are differences between men and women in the leading cause of death in Australia, with coronary heart disease being the leading cause of death for men and dementia being the leading cause of death for women (Australian Institute of Health and Welfare, General Record of Incidence of Mortality Books 2018, 2020).

⁵ 'Accidental poisoning' includes deaths from: accidental overdose of drug, wrong drug given or taken in error, and drug taken inadvertently, accidents in the use of drugs, medicaments and biological substances in medical and surgical procedures (self-inflicted) poisoning, when not specified whether accidental or with intent to harm.

⁶ Some of this increase is also attributable to how dementia deaths have been recorded on medical certificates in recent years.

Chart 5. AGE STANDARDISED DEATHS, LEADING CAUSES, MEN (LHS) AND WOMEN (RHS) 1988-89 TO 2017-18



Source: (Australian Institute of Health and Welfare, General Record of Incidence of Mortality Excel workbooks, 2020; Australian Institute of Health and Welfare, General Record of Incidence of Mortality Books 2018, 2020)

BOX 2. ABORIGINAL AND TORRES STRAIT ISLANDER AUSTRALIANS

In 2016, there were 798,400 Aboriginal and Torres Strait Islander peoples in Australia, representing around 3 per cent of the total Australian population at the time (Australian Bureau of Statistics, 2019). Between 2006 and 2016, the Aboriginal and Torres Strait Islander population increased by 2.2 per cent (from 640,000 people) per year on average, compared with 1.6 per cent for the total Australian population. The Australian Bureau of Statistics produces population estimates and projections of the Aboriginal and Torres Strait Islander population, while the Census is the primary source of data for measuring changes in the population.

While three-quarters of the Aboriginal and Torres Strait Islander population lived in New South Wales, Queensland and Western Australia, the Northern Territory had the highest proportion of its population represented by Aboriginal and Torres Strait Islander peoples (30 per cent compared with 3 per cent for Australia overall). More Aboriginal and Torres Strait Islander Australians lived outside the major cities⁷ (63 per cent) compared to the non-Indigenous population (28 per cent) (Australian Bureau of Statistics, Estimates of Aboriginal and Torres Strait Islander Australians, 2018).

⁷ Major cities here refers to the Australian Bureau Statistics remoteness area classification, not the Greater Capital City Statistical Area classification.

Components of change in the Aboriginal and Torres Strait Islander population

Between the 2011 and 2016 censuses, the number of Aboriginal and Torres Strait Islander people in Australia increased by 18.4 per cent (100,800 people) (Australian Bureau of Statistics, Census of Population and Housing: Understanding the Increase in Aboriginal and Torres Strait Islander Counts, 2018). Most (79,300 or 79 per cent) of the increase in the Census counts of Aboriginal and Torres Strait Islander people between 2011 and 2016 can be explained by births, deaths and migration. The remaining 21 per cent (21,500) of the increase is non-demographic change (that is, change not explained by births, deaths or migration).

Unlike measurements of the total population, measurement of the Aboriginal and Torres Strait Islander population relies on individuals identifying as an Aboriginal and/or Torres Strait Islander person. Changes in self-identification can lead to changes in the population that cannot be explained by demographic factors. The components of change between 2011 and 2016 for the Aboriginal and Torres Strait Islander population of each state are shown in Chart 6. In level terms, non-demographic change contributed the largest changes to New South Wales (20,100 people), Western Australia (-5,600 people), and Queensland (5,500 people).

Chart 6. COMPONENTS OF POPULATION CHANGE, ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE, 2011 TO 2016



Source: (Australian Bureau of Statistics, Census of Population and Housing: Understanding the Increase in Aboriginal and Torres Strait Islander Counts, 2018)

Natural increase

For the Aboriginal and Torres Strait Islander population, natural increase incorporates fertility, paternity and mortality. While fertility and mortality are defined in the same way as for the general population, paternity is associated with births of Aboriginal and/or Torres Strait Islander babies to an Aboriginal and/or Torres Strait Islander father and a non-Indigenous (or not-stated-Indigenous status) mother. Based on birth registrations, the total paternity rate has been slowly increasing for more than a decade; from 0.77 births per Aboriginal and Torres Strait Islander man in 2001 to 1.06 in 2017 (Australian Bureau of Statistics, 2019).

Aboriginal and Torres Strait Islander women had a higher fertility rate compared with other women in Australia (in 2018, 2.37 babies per woman compared with 1.74) (Australian Bureau of Statistics, Births, Australia, 2019). While the fertility rate for all women has fallen since 2008 (2.02 babies per woman), the fertility rate for Aboriginal and Torres Strait Islander women has not declined over the same period (reaching a high of 2.46 in 2010). The median age of Aboriginal and Torres Strait Islander mothers (26 years in 2018) was lower than for the general population (31 years in 2018), which was reflected in age-specific fertility rates. In 2018, the fertility rate for Aboriginal and Torres Strait Islander women aged 15-19 years was 5 times

the teenage fertility rate for all women (48 and 10 births per 1,000 women respectively). The fertility rate for Aboriginal and Torres Strait Islander women aged 20-24 years was 3 times the fertility rate for all women of the same age (130 and 43 respectively). Conversely, the fertility rate for all women aged 40-44 years was 1.5 times the fertility rate for Aboriginal and Torres Strait Islander women of the same age (16 and 11 respectively) (Australian Bureau of Statistics, Births, Australia, 2019).

Aboriginal and Torres Strait Islander peoples experience higher mortality rates than non-Indigenous Australians across all age groups and for all major causes of death. The median age at death for Aboriginal and Torres Strait Islander people in 2019 was 60 years (up from 56 years in 2010), compared with 82 years for non-Indigenous people (up from 81 years a decade ago) (Australian Bureau of Statistics, Deaths, Australia, 2020). Age-specific death rates for Aboriginal and Torres Strait Islander peoples were higher in all age groups than those for non-Indigenous people, but declined in most age groups (with the exception of 75 years and over), compared with a decade ago. The differences in age-specific death rates between Aboriginal and Torres Strait Islander people and non-Indigenous people were highest in the broader 25-54 years age group.

Life expectancy for the Aboriginal and Torres Strait Islander population between 2015 and 2017 was estimated at 8.6 years lower than that of the non-Indigenous population. For men, this was 71.6 years compared with 80.2. For women, life expectancy was 7.8 years lower at 75.6 years compared with 83.4 (Australian Institute of Health and Welfare, Deaths in Australia, 2020). There has been a clear distinction between life expectancy for Aboriginal and Torres Strait Islander Australians living in remote areas compared to other parts of Australia. This is in contrast to non-Indigenous Australians, where life expectancy is broadly similar across remoteness categories. Life expectancy for Aboriginal and Torres Strait Islander Australians living in remote areas has been significantly lower than life expectancy for those living in regional areas and major cities (Australian Bureau of Statistics, 2018). In 2015-2017, life expectancy for Aboriginal and Torres Strait Islander men living in remote and very remote areas combined was estimated to be 6.2 years lower than that of Aboriginal and Torres Strait Islander men living in major cities (65.9 years compared with 72.1 years). The equivalent comparison for Aboriginal and Torres Strait Islander women was 6.9 years lower (69.6 years compared with 76.5 years).

The leading cause of death for Aboriginal and Torres Strait Islander men and Aboriginal and Torres Strait Islander women in 2019 was Ischaemic heart disease (Australian Bureau of Statistics, Causes of Death, Australia, 2020). Intentional self-harm was the second leading cause for Aboriginal and Torres Strait Islander men, but was ranked seventh for Aboriginal and Torres Strait Islander women. Chronic lower respiratory disease was the second leading cause for Aboriginal and Torres Strait Islander women and ranked third for Aboriginal and Torres Strait Islander men. Diabetes was the third leading cause for Aboriginal and Torres Strait Islander women, and the fifth for Aboriginal and Torres Strait Islander men. Dementia, including Alzheimer disease, was the sixth ranked cause among women and ranked twelfth for men (Australian Bureau of Statistics, Causes of Death, Australia, 2020).

Net overseas migration

Net overseas migration is not a significant contributor to changes in the Aboriginal and Torres Strait Islander population. According to the 2016 Census, there were 1,970 Aboriginal and Torres Strait Islander people resident in Australia in 2016 who lived overseas in 2011. Slightly fewer numbers of Aboriginal and Torres Strait Islander people resident in 2011 also lived overseas in 2006 (1,380 people) (Australian Bureau of Statistics, 2019). This level of overseas immigration was small, and the scale of net overseas migration would also be further reduced by overseas emigration.

Net internal migration

In 2016, the Aboriginal and Torres Strait Islander population had a higher rate of mobility than the non-Indigenous population (Australian Bureau of Statistics, Population Shift: Understanding Internal Migration in Australia, 2018). In the 2016 Census, around 18 per cent of Aboriginal and Torres Strait Islander people changed address in the year prior to the Census, based on age-standardised rates, compared with 15 per cent for the non-Indigenous population.

The Census question related to ‘place of usual residence 5 years ago’ shows the number of Aboriginal and Torres Strait Islander people who changed their state or territory of usual residence. Between the 2011 and 2016 censuses the number was 25,960. Between the 2006 and 2011 censuses the number was 21,340 and between the 2001 and 2006 censuses the number was 18,440.

Between the 2011 and 2016 censuses, the Australian Capital Territory, Victoria, South Australia, Queensland and Western Australia recorded a net gain in Aboriginal and Torres Strait Islander residents from interstate migration. While most rates of net gain remained largely similar for these states over the 2006 to 2011 intercensal period, the Australian Capital Territory recorded a net gain of 20 per cent between 2011 and 2016 compared with 11 per cent between 2006 and 2011. The Northern Territory, Tasmania and New South Wales experienced net loss from interstate migration between 2011 and 2016. The net loss was highest in New South Wales (around 2,000 people).

Projections

Population projections of the Aboriginal and Torres Strait Islander population are produced by the Australian Bureau of Statistics every 5 years. The most recent projections were produced following the 2016 Census, which projected the Aboriginal and Torres Strait Islander population to increase to between 1,055,000 people (low series) and 1,100,000 people (high series) by 2031. These projections represent an average annual growth rate of between 1.9 per cent and 2.2 per cent per year.

There is currently little information available about the population impacts of COVID-19 on the Aboriginal and Torres Strait Islander population and no official population projections have been produced to consider any effects. The 2021 Census is an opportunity for these considerations to be better understood.

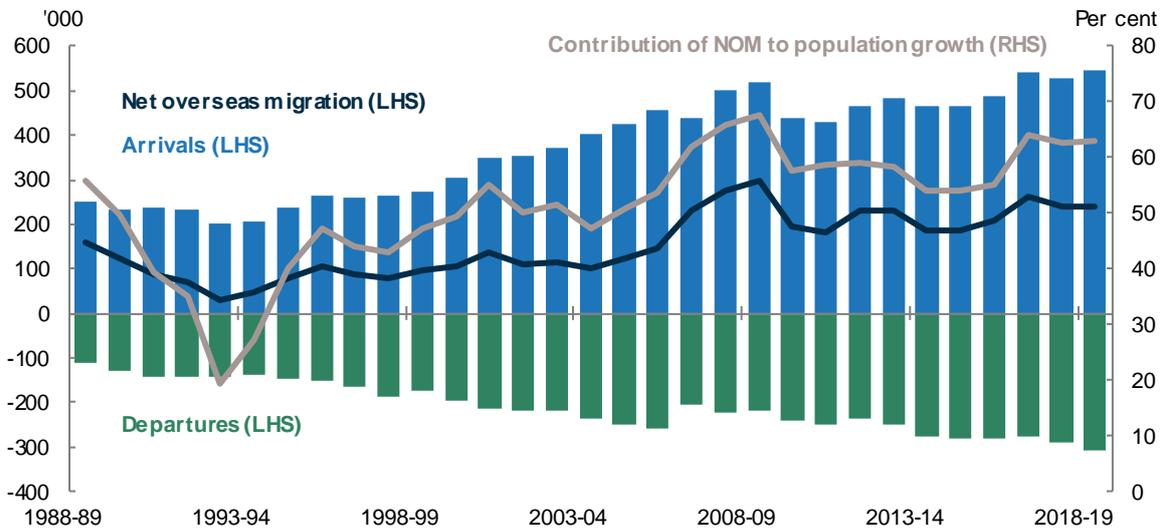
1.2.2 NET OVERSEAS MIGRATION

Since the early 2000s, net overseas migration — the difference between the inflow of immigrants to Australia and the outflow of emigrants from Australia — has been the main driver of Australia’s population growth (see Chart 7). ‘Migration’ for the purposes of estimating the resident population is not the same as the numbers of overseas arrivals and departures and is also not necessarily the same as someone’s citizenship or residency status. Rather, someone is counted as an immigrant to Australia if they arrive and then remain in Australia for 12 months out of a 16-month period (and the same is true of emigrants).

The contribution of net overseas migration to Australia’s population growth has been trending upwards over the past 30 years from around 56 per cent in the late 1980s to being consistently above 60 per cent since 2016-17. It fluctuated substantially over time due to varying economic conditions and policy settings, from a low of 19 per cent in the recession of the early 1990s as fewer people entered the country to a high of 68 per cent in 2008-09. The recent high was due to policy changes around pathways from temporary residency to permanent residence that led to rapid growth in enrolments in the vocational and higher education sectors (Australian National Audit Office, 2011). Policy measures introduced in late 2009 to improve the integrity of student visas resulted in a rapid decline in international student enrolments and student net overseas migration levels fell sharply.

Consequently, from 2009-10, the contribution of net overseas migration to population growth increased from 58 per cent to 63 per cent. This has been driven by 2 things: a 13 per cent fall in the level of natural increase over this period and a 22 per cent rise in the level of migration.

Chart 7. NET OVERSEAS MIGRATION, 1988-89 TO 2018-19⁸



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

The Australian Government directly influences the size and composition of net overseas migration through its migration policies. A core policy element is the permanent migration program of skilled and family migrants. This program underpins the level of migration to Australia through time as temporary migrants, with the exception of New Zealanders,⁹ must eventually transition to permanent residents to remain in Australia or depart Australia at some point. However, the influence of the permanent migration program on arrivals in any given year is smaller than the program size in that year. This is because many of those who are granted a permanent visa are already onshore and have previously been counted as an arriving migrant. For much of the last decade, around 50 per cent of the permanent migration program intake has been from temporary migrants already residing in Australia, although the share has been slowly rising in recent years (Chart 8).

The number of places in the permanent program in 1988-89 was 123,900. This level was reduced in response to the recession in the early 1990s and subsequent slow recovery, dropping to 61,500 by 1993-94. By 2012-13, the program size had increased to 190,000. Since 2017-18, the program intake has been around 160,000 and the permanent migration planning level was subsequently reset to 160,000 for the following 4 years in 2018-19.

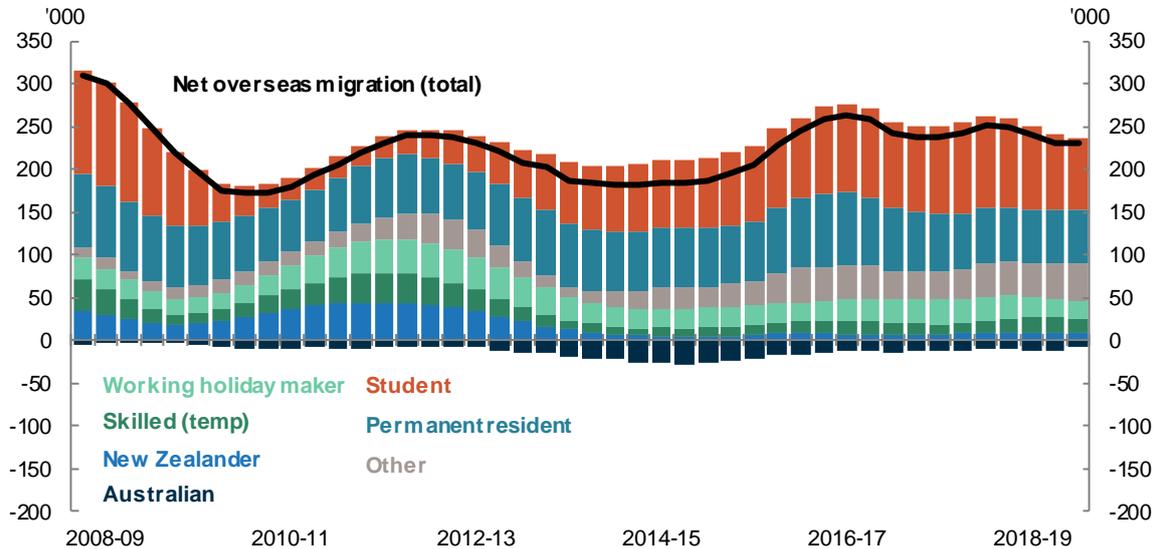
Temporary migrants have also contributed to the growth in migration — much more so this century than previously. Australia’s education institutions have benefited from the rapid growth in demand from students from middle-income countries seeking education at highly ranked universities around the world, predominantly in English-speaking countries. As a result, the net flow of international students to Australia increased threefold between 2013 and 2019, although the growth has slowed rapidly from 2018. Students from China, India, Nepal, Vietnam and Brazil accounted for almost 60 per cent of the 664,200 international students in Australia in 2020 (Department of Education, Skills and Employment, 2020).

⁸ The Australian Bureau of Statistics (ABS) changed their measure of net overseas migration in 2006, which increased the reported level of net overseas migration. In comparing the new and former definitions for the 3 years to September 2006, the ABS estimated that the current approach (the 12/16 rule) resulted in net overseas migration being 25 per cent higher on average compared to the previous method for that period (Sánchez & Andrews, 2011).

⁹ There is free movement of Australian and New Zealand citizens between both countries under the 1973 Trans-Tasman Travel Arrangement. This Arrangement allows individuals to work and reside in either country without the need to seek authority from the relevant government through a visa application.

The contribution of temporary skilled migrants, New Zealanders and working holiday makers to population growth has declined in recent years. This contrasts with their relatively strong contribution during the construction cycle of the mining boom. Since the end of that cycle in around 2013, the number of migrants on temporary skilled visas in Australia has fallen by more than a quarter.

Chart 8. NET OVERSEAS MIGRATION BY VISA GROUP, 2008-09 TO 2018-19



Note: Quarterly data presented on a year-ending basis. Number of visas is based on the visa type at the time of a traveller's arrival or departure. Care should be taken attributing net flows to specific groups of migrants as transfers to other visa types while onshore are not captured; for example, some international students transfer to other temporary visas including skilled visas while onshore. 'Other' includes visitors, temporary and unclassified visas (missing administrative visa information). 'Permanent resident' includes skilled, family and humanitarian categories.

Source: Centre for Population calculations based on unreleased Department of Home Affairs data

Immigrants recorded on 'Visitor' visas have had an increasing role in migration arrivals over the past decade. These are migrants who likely first travel to Australia on a visitor visa but primarily consist of students, skilled workers and partners, who subsequently transition to these visa categories.

As a category, Australian citizens have been net emigrants over the 30-year period analysed, meaning that more Australian citizens departed than arrived in most years. As Australian emigrants are generally departing for work opportunities, the levels of departures and arrivals fluctuate in response to global economic conditions. During the Global Financial Crisis in 2007 to 2009, the number of Australian citizens departing fell sharply while the number returning rose. Similarly, recent data suggests that Australian citizens previously resident overseas are returning to Australia in greater numbers in response to the COVID-19 pandemic.

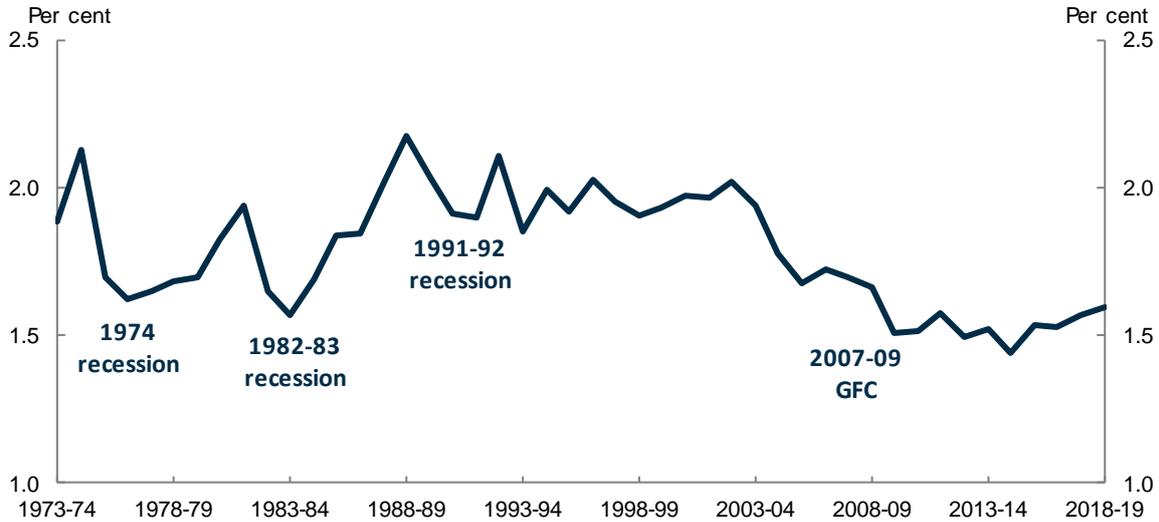
1.2.3 NET INTERNAL MIGRATION

Australia has a mobile population and one of the highest rates of internal migration in the world. According to OECD analysis of Household, Income and Labour Dynamics in Australia survey data (Sánchez & Andrews, 2011), Australia had the second highest residential mobility rate among OECD countries with 24 per cent of people having changed residence in the last 2 years (Iceland has 29 per cent).¹⁰ However, in Australia and other countries around the world, there has been a long-term decline in internal migration as a proportion of the total population (Chart 9). Research indicates that this is largely behavioural and is partly due to people

¹⁰ This analysis includes moves by people who moved to a different address within the same capital city or rest-of-state area.

choosing to stay or feeling unable to leave a place (University of Queensland, unpublished). Alongside this long-term decline, the rate of interstate migration — or the number of people who move as a proportion of the total population — has fallen in response to recessions and economic shocks.

Chart 9. ANNUAL INTERSTATE MIGRATION RATE, 1973-74 TO 2018-19

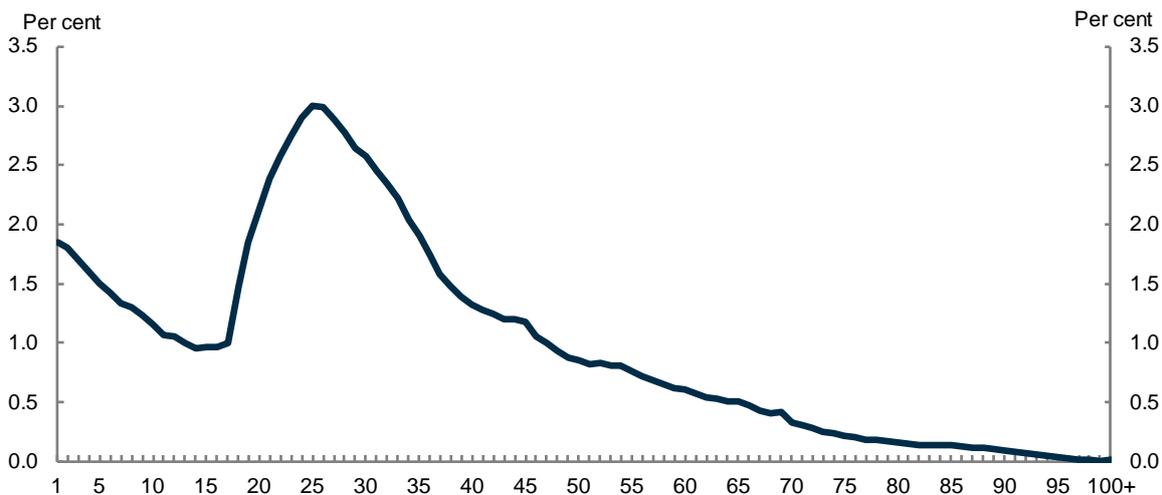


Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020; Australian Bureau of Statistics, Historical population, 2016, 2019)

Geographic patterns of internal migration in Australia have seen a long-term trend away from inland regional areas. The result is a concentration of people in capital cities and coastal areas. Centralisation of the population in these areas has been driven by improved access to economic opportunities, amenities, goods and services and economic restructuring (Bureau of Infrastructure, Transport and Regional Economics, 2014).

Internal migration is typically triggered by life events, many of which occur in early adulthood. As a result, young people aged in their 20s have historically been the most mobile population group (Chart 10). This age typically coincides with life events such as undertaking higher education, entry into the labour force and starting a family.

Chart 10. DISTRIBUTION OF PEOPLE WHO MOVED IN THE PREVIOUS YEAR, BY AGE IN 2016



Note: This analysis includes moves by people who moved to a different address within the same capital city or rest-of-state area.

Source: (Australian Bureau of Statistics, Census of Population and Housing, 2016, 2017)

BOX 3. POPULATION AGEING — 1988-89 TO 2018-19

Australia's overall population has been growing older over time, with the share of people aged 65 and over roughly doubling between 30 June 1946 and 30 June 2019 (Australian Bureau of Statistics, Historical population, 2016, 2019). Australia's population ageing has been driven by low fertility and increasing life expectancy, which have led to a growing proportion of older people in the population each year.

The ageing of Australia's population has been slowed down by our migration program which brought young adults into Australia (The Treasury and the Department of Home Affairs, 2018). In 2015-16, around 84 per cent of migrants arriving in Australia were aged under 40, compared to only 54 per cent of the resident population (The Treasury and the Department of Home Affairs, 2018). Migration also improved Australia's labour force participation rate given younger age groups tend to have higher participation rates than older age groups.

Since 30 June 1989, the median age of people in Australia increased from 32 to 37 years. The share of people aged 65 and over increased from 11.0 to 15.9 per cent and the dependency ratio¹¹ decreased from 2.02 to 1.89. The populations of New South Wales, Victoria, Queensland and Western Australia experienced similar patterns of ageing.

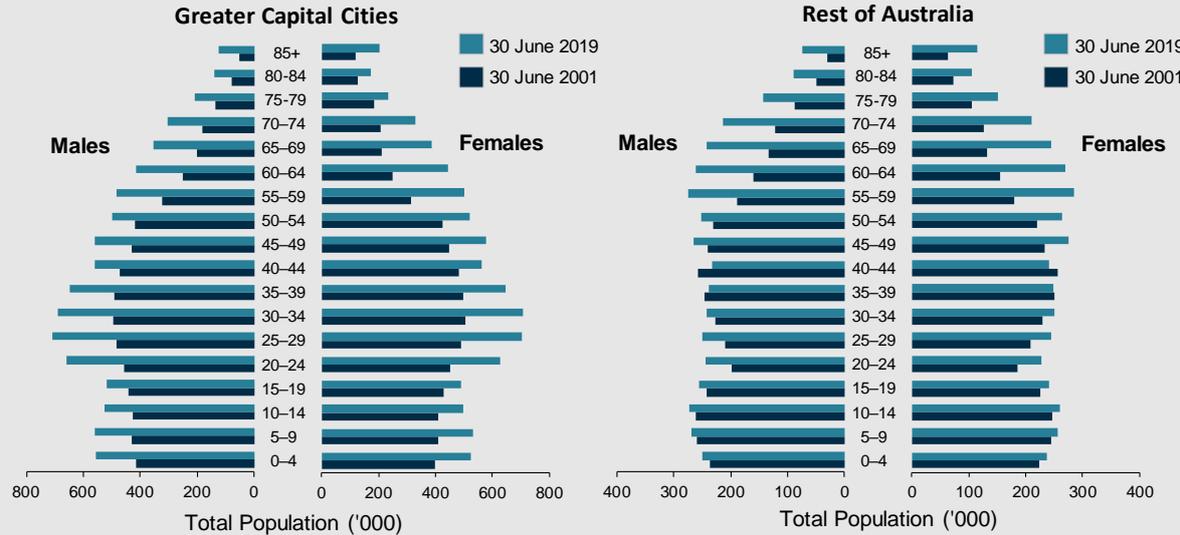
As at 30 June 2019, the Northern Territory had the youngest population with a median age of 33 years, 8.0 per cent of its population aged 65 and over, and a dependency ratio of 2.40. This was due to the higher proportion of Aboriginal and Torres Strait Islander people in the Northern Territory who, on average, had a younger median age than the non-Indigenous population (Australian Institute of Health and Welfare, Profile of Indigenous Australians, 2019). Since 30 June 1989, the median age in the Northern Territory increased by 6.7 years and the proportion of people aged 65 and over increased by 5.4 percentage points. These changes are the result of the Northern Territory's total fertility rate and increasing life expectancy. However, the Northern Territory is the only state in Australia to have its dependency ratio increase since 30 June 1989, from 2.24 to 2.40.

The Australian Capital Territory had Australia's second youngest population at 30 June 2019 with a median age of 35 years, 13.0 per cent of people aged 65 and over and dependency ratio of 2.12. Its younger age structure reflected the number of young adults who move to the Australian Capital Territory for education or employment (Australian Bureau of Statistics, Regional population by age and sex, 2020), and its smaller cohort of older residents. However, similar to the Northern Territory, since 30 June 1989 its median age increased by 6.4 years, the share of people aged 65 and over increased by 7.2 percentage points, while its dependency ratio decreased by 0.22.

Tasmania had Australia's oldest population at 30 June 2019. Between 30 June 1989 and 2019, Tasmania's median age increased from 32 to 42 years, its share of people aged 65 and over increased from 11.6 to 20.1 per cent and its dependency ratio decreased from 1.87 to 1.65. Its median age increase of 10.4 years was nearly double the increase for all of Australia in the same period. Tasmania's ageing population was partially due to young Tasmanians pursuing education and employment opportunities interstate and older Australians moving into Tasmania (Australian Bureau of Statistics, Regional population by age and sex, 2020). South Australia had Australia's oldest population in 30 June 1989, but now has the second oldest. Since 30 June 1989, its median age increased from 33 to 40 years, its share of people aged 65 and over increased from 12.5 to 18.7 per cent and its dependency ratio decreased from 2.00 to 1.75.

Within each state, the ageing of the population has been significantly more pronounced in the rest-of-state areas, despite these areas having higher fertility rates and lower life expectancies than the capital cities. The Regional Australia Institute has reported that between 2011 and 2016 there was a net outflow of young people from rest-of-state areas to capital cities (Bourne, Houghton, How, Achurch, & Beaton, 2020). Other factors that contributed to the younger age structures of capital cities included higher levels of overseas migration into capital cities, and older adults migrating to coastal areas (Bureau of Infrastructure, Transport and Regional Economics, 2011). Chart 11 shows that the age group of 55 to 59 is the largest age group in the rest-of-state areas.

Chart 11. AGE STRUCTURE, GREATER CAPITAL CITIES AND REST OF AUSTRALIA, 30 JUNE 2001 AND 2019



Note: Consistent data for capital cities and rest-of-states is only available from 2001.

Source: (Australian Bureau of Statistics, Regional population by age and sex, 2020)

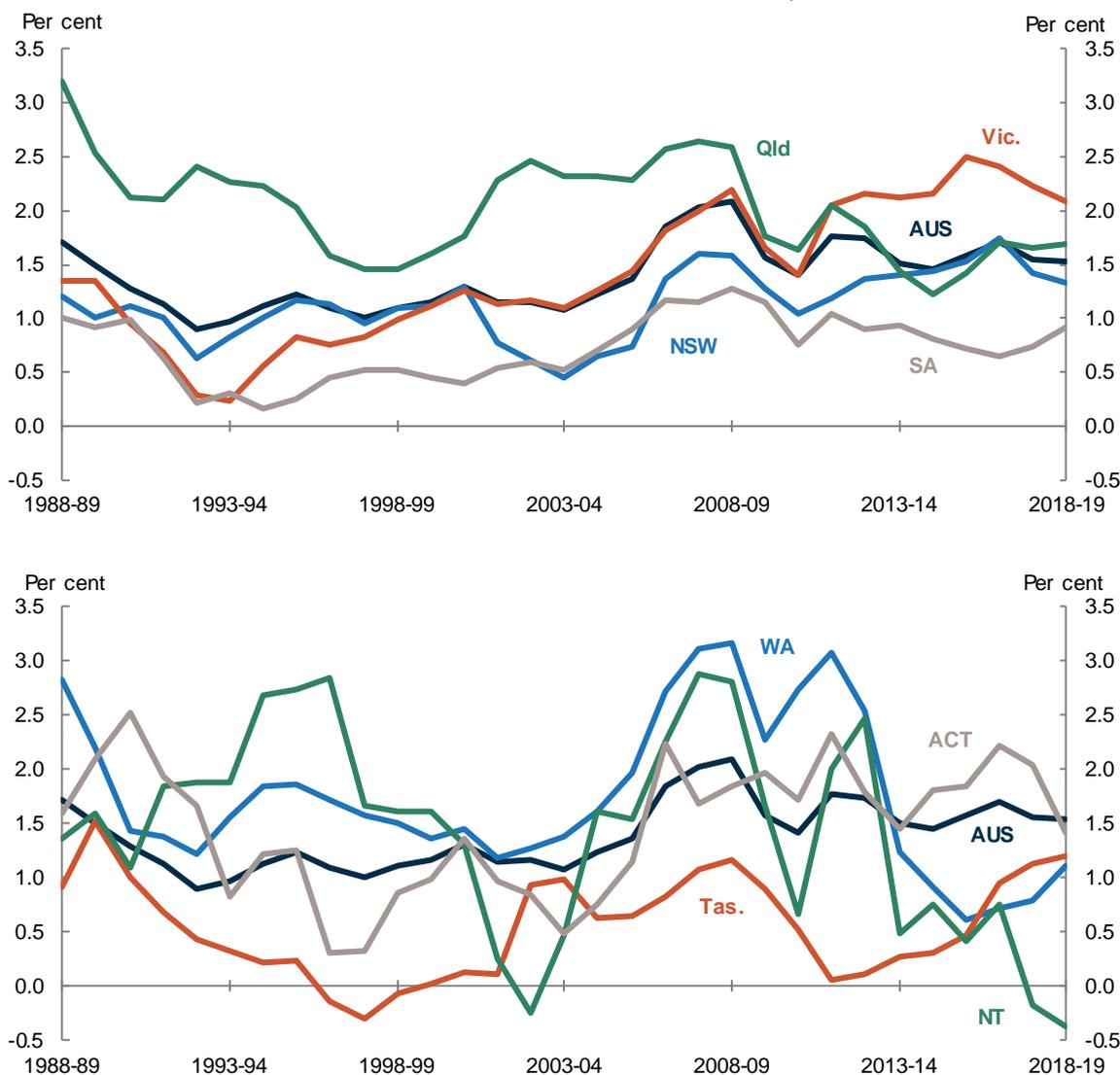
¹¹ The dependency ratio refers to the number of people of traditional working-age (15-64) for every person aged under 15 and 65 and over. The old age dependency ratio refers only to the number of people of traditional working-age (15-64) for every person aged 65 and over.

1.3 STATE AND TERRITORY POPULATIONS

Population growth rates across states have varied over time, generally driven by much the same natural increase and net overseas migration trends that have affected national population growth, but also by net interstate migration. In 1988-89, Queensland and Western Australia were the fastest growing states with annual growth rates of 3.2 per cent and 2.8 per cent respectively, while South Australia and Tasmania were the slowest growing, with rates of around 1.0 per cent. By 2018-19, Victoria and Queensland were the fastest growing states (2.1 per cent and 1.7 per cent respectively). By contrast, the Northern Territory's population growth declined by 0.4 per cent and South Australia's annual rate of population growth was just 0.9 per cent (see Chart 12).

With very few exceptions, trends in natural increase across states followed national patterns while levels have varied. Mortality rates and life expectancies at birth have steadily improved over time in line with the national trend. The Northern Territory was the exception, having a higher contribution from natural increase compared to other states, and with lower life expectancy at birth than the national average despite improvements over time, due to Aboriginal and Torres Strait Islander people comprising a relatively larger share of the territory's population compared with other states (see Box 2).

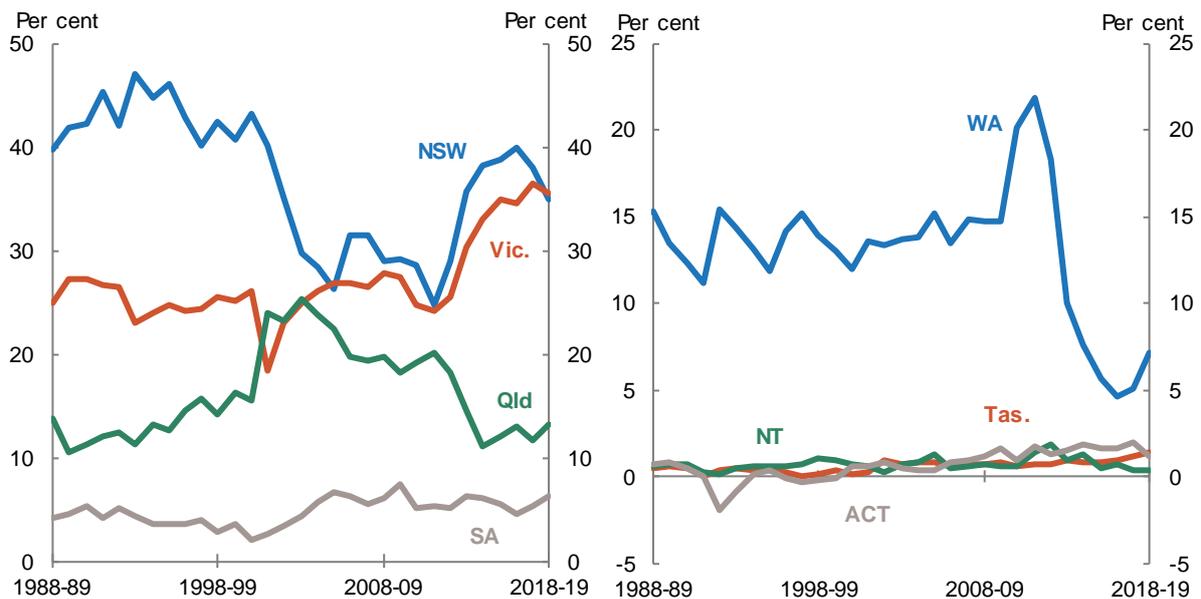
Chart 12. COMPARISON OF HISTORICAL STATE POPULATION GROWTH RATES, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Most of the variation in rates of population growth across the states has been driven by overseas and interstate arrivals and departures rather than differences in natural increase. Historically, around 64 per cent of net overseas migration has gone to New South Wales and Victoria (see Chart 13). Net overseas migration contributed relatively strongly to population growth in Western Australia, New South Wales and Victoria in the late 2000s. However, in line with the rise and fall of the mining cycle, overseas migration to Western Australia fell steeply between 2011-12 and 2016-17. Smaller states, such as South Australia, Tasmania, the Australian Capital Territory and the Northern Territory, experienced low but relatively steady levels of overseas migration over the last 30 years.

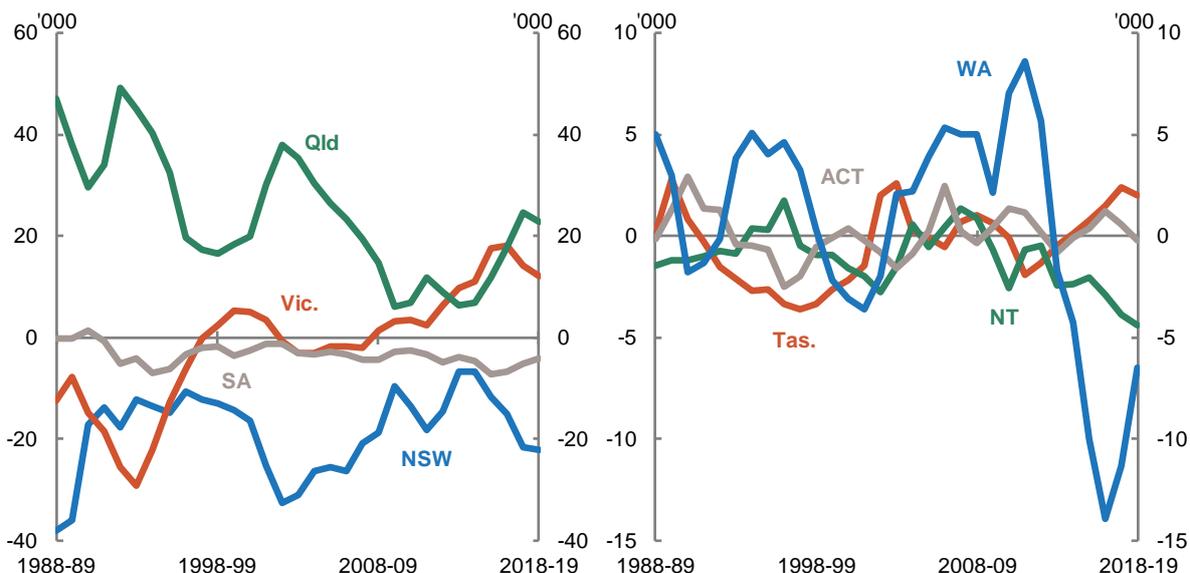
Chart 13. SHARE OF NATIONAL NET OVERSEAS MIGRATION IN EACH STATE, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Interstate migration patterns have fluctuated for most states in line with changes in economic conditions and opportunities (Chart 14). Most states experienced relatively higher net inflows of interstate migrants during periods of lower unemployment in their states and relatively higher net outflows during times of higher unemployment in their states (University of Queensland, unpublished; Reserve Bank of Australia, 1998).

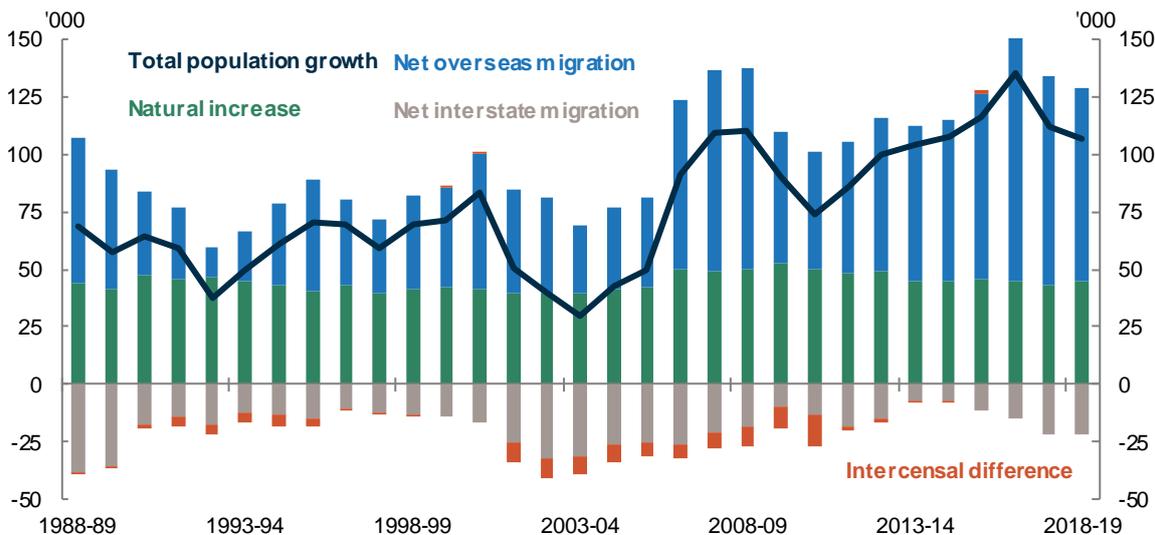
Chart 14. NET INTERSTATE MIGRATION BY STATE, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

New South Wales

Chart 15. POPULATION CHANGE IN NEW SOUTH WALES, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Population growth in New South Wales averaged 1.5 per cent over the last 5 years, compared to 1.2 per cent at the start of the 30-year period. Growth was as high as 1.8 per cent in 2016-17 and as low as 0.5 per cent in 2003-04.

New South Wales has had consistent net losses of people through interstate migration with a 10-year average net interstate loss of around 14,000 people between 2009-10 and 2018-19. Historically, people have typically moved from New South Wales to Queensland. In the quarter to June 2019, around 44 per cent of people who left New South Wales moved to Queensland. However, in the same quarter around 38 per cent of inflows into New South Wales came from Queensland, which partially offset the losses.

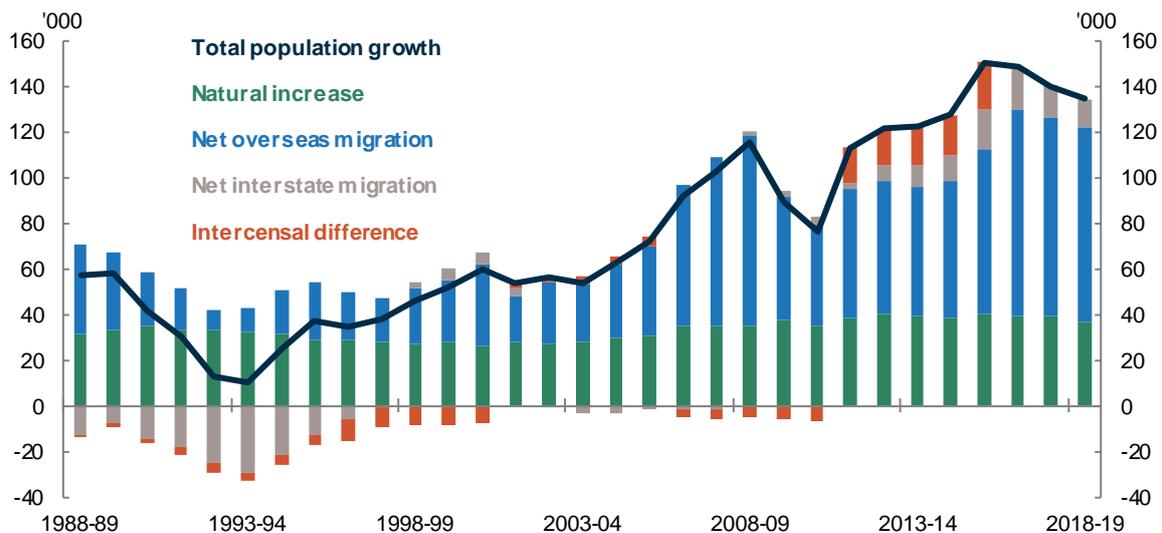
Chart 15 shows that population growth in New South Wales is primarily driven by the growth in net overseas migration. New South Wales has historically had the largest share of overseas migration to Australia. There has also been substantial variation in year-to-year overseas migration largely driven by varying flows of student

arrivals. Following policy changes to improve the integrity of the student visa processes in 2009, student numbers declined before rising in late 2013. After reaching a peak level of 105,500 in 2016-17, net overseas migration to New South Wales declined as student numbers began to fall again (Australian Bureau of Statistics, Migration, Australia 2018-19, 2020).

Although the total fertility rate in New South Wales has declined, it was higher than the Australian average (at 1.70 in 2018-19 compared with 1.66 for Australia) and births in 2018-19 were at record levels. Life expectancy at birth in New South Wales has been similar to the national average, as were the leading causes of death (coronary heart disease for men and dementia for women).

Victoria

Chart 16. POPULATION CHANGE IN VICTORIA, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Recently, Victoria has been one of the fastest growing states, in spite of its population growth slowing after 2015-16. Annual population growth has averaged 2.3 per cent over the last 5 years, compared to 1.4 per cent for 1988-89. Growth was as high as 2.5 per cent in 2015-16 and as low as 0.2 per cent in 1993-94 (Chart 16).

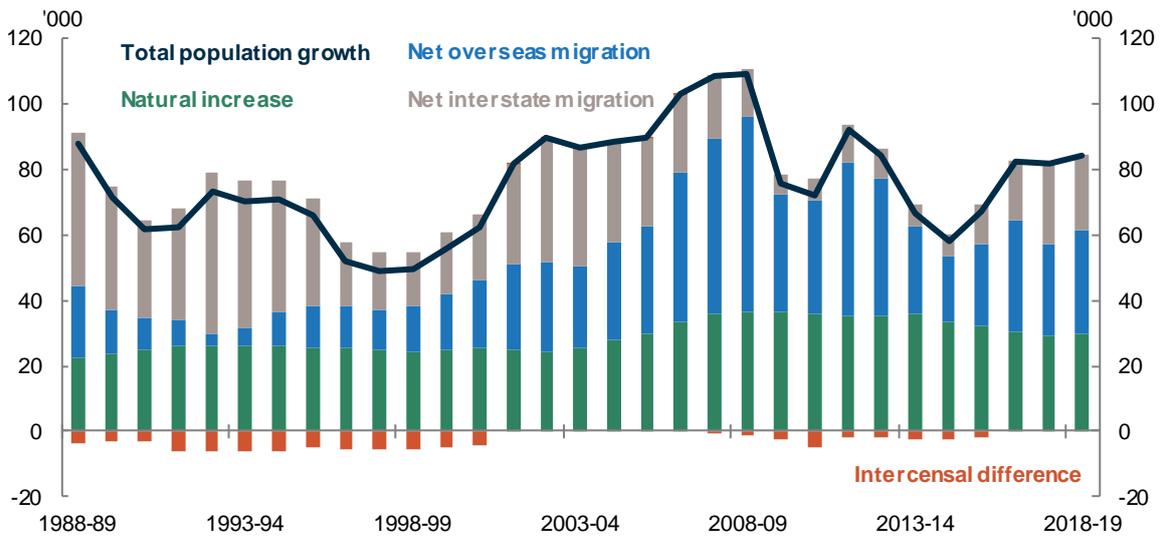
The Victorian share of Australia's net overseas migration, historically the second largest after New South Wales, has risen steeply over the last 7 years to match that of New South Wales at 35 per cent in 2018-19. As a result, population growth in Victoria has been primarily driven by net overseas migration. This remained strong post the Global Financial Crisis in 2007-09 due to increases in student arrivals and temporary migration.

Interstate migration to and from Victoria has varied. Victoria was significantly affected by the 1991-92 recession following the collapse of its state bank and the decline of some manufacturing industries, along with significant reforms to the Victorian public service. Manufacturing underpinned the state's economy, accounting for 20 per cent of Victoria's Gross State Product in 1989-90. (Australian Bureau of Statistics, Australian Economic Indicators, 1992; O'Neil & Kaye, 2016). As a result there was a large outflow of people in the 1990s. Victoria lost 0.7 per cent of the population in 1993-94, the financial year with its lowest net interstate migration rate. Victoria's interstate migration patterns changed in the mid-1990s. Departures decreased from a high of 82,000 in 1992-93 to 60,000 in 2009-10. Arrivals increased in almost the same period from a low of 47,000 in 1993-94 to 64,000 in 2009-10. Since 2009-10, both arrivals and departures have increased.

Victoria's natural increase has remained steady over the last 30 years. While life expectancies have been higher in Victoria compared with the national average, the total fertility rate has been lower. The leading causes of death in Victoria were the same as those for Australia overall.

Queensland

Chart 17. POPULATION CHANGE IN QUEENSLAND, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Queensland has consistently been in the top 4 fastest growing states over the last 30 years with all 3 components of growth remaining positive. Since around 2016-17, all 3 components have contributed roughly equally to Queensland’s population growth (see Chart 17).

Annual population growth averaged 1.5 per cent over the last 5 years, compared to 3.2 per cent at the start of the 30-year period which was the highest growth rate of the period. The lowest growth rate was in 2014-15 at 1.2 per cent.

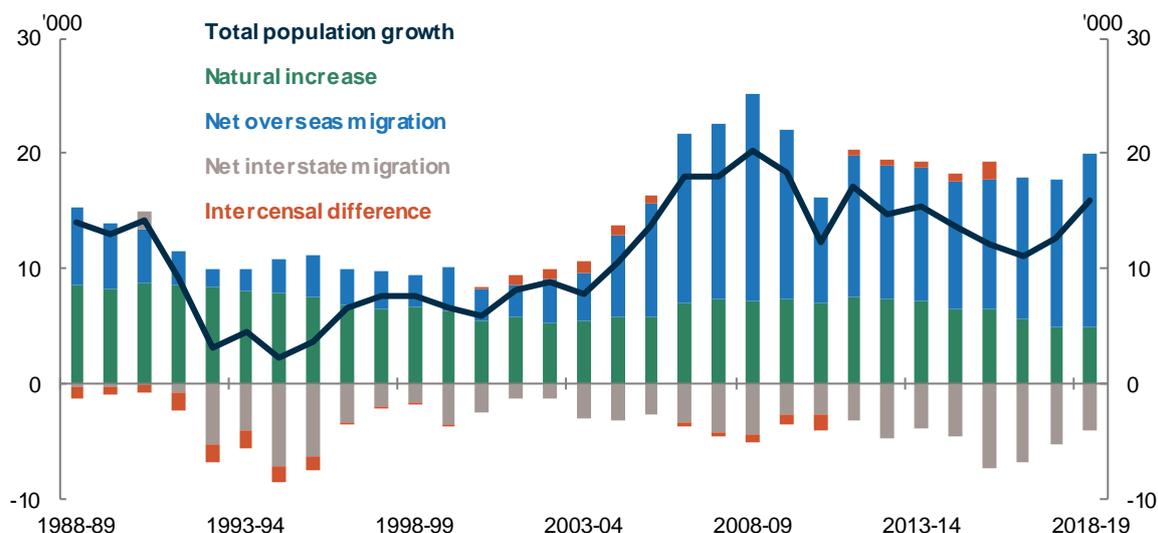
Historically Queensland has had net gains of people through interstate migration with a 10-year average gain of 12,400 people between 2009-10 and 2018-19. Queensland typically experienced the mirror image of New South Wales’ net interstate migration with around 49 per cent of interstate migrants arriving in Queensland coming from New South Wales and 24 per cent from Victoria in the quarter to June 2019. This has been partly offset by the flow of Queenslanders to New South Wales, as mentioned above.

Queensland received the third highest share of all net overseas migration in Australia after New South Wales and Victoria. This accounted for approximately 13 per cent of total net overseas migration in 2018-19. Net overseas migration to Queensland over this period increased from a low period in the early 1990s to a peak in 2008-09, driven primarily by students and New Zealand migrants. An increase in student departures resulted in a decrease in net overseas migration from 2008-09 onwards.

The total fertility rate in Queensland has been higher than the Australian average, while male life expectancy at birth has been slightly lower. The leading cause of death for men and women was coronary heart disease. This contrasts with Australia’s leading cause of death for women, which was dementia.

South Australia

Chart 18. POPULATION CHANGE IN SOUTH AUSTRALIA, 1988-89 TO 2018-19



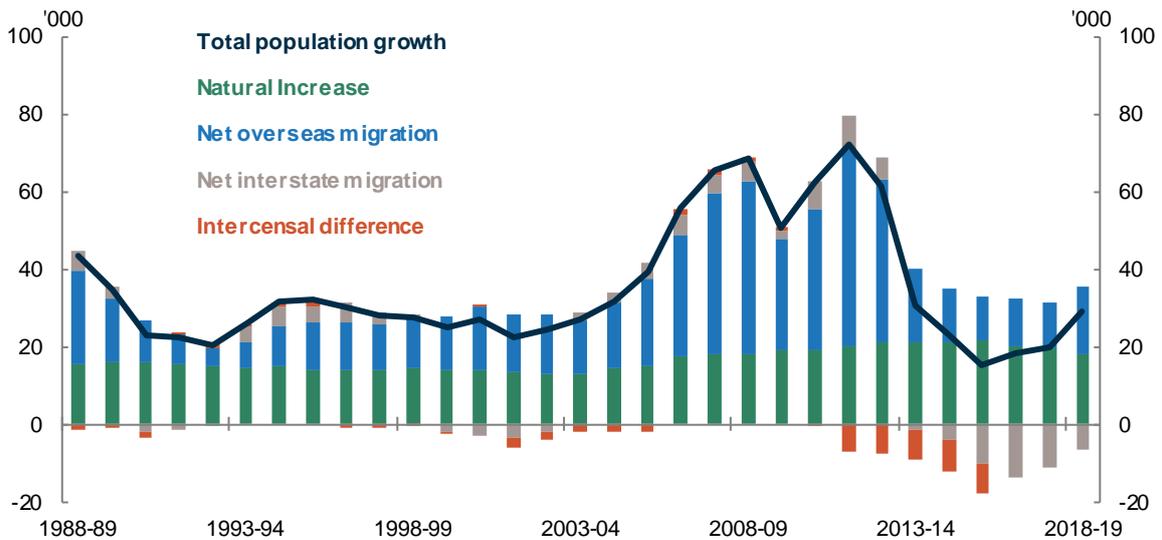
Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

South Australia has experienced relatively slow population growth over the last 30 years with a peak of 1.3 per cent in 2008-09, but with annual growth of generally less than 1.0 per cent a year for most of this period (Chart 18). Annual population growth in South Australia averaged 0.8 per cent over the last 5 years, compared to 1.0 per cent at the start of the 30-year period. Annual growth was at its lowest in 1992-93 and 1994-95 at just 0.2 per cent.

Similar to New South Wales, South Australia’s net interstate migration levels have been negative for most of the period analysed. South Australians tend to migrate to Victoria, Queensland and New South Wales. Like Victoria, South Australia was significantly affected by the 1991-92 recession due to its reliance on manufacturing and the collapse of its state bank (manufacturing accounted for 19 per cent of South Australia’s Gross State Product in 1989-90). The recession was followed by a drop in interstate migration to, and an increase in interstate migration from, South Australia. This led to a loss of 0.5 per cent of population in 1994-95, the financial year with the lowest net interstate migration rate (Australian Bureau of Statistics, Australian Economic Indicators, 1992; O’Neil & Kaye, 2016).

Following a sustained period of low population growth through to the early 2000s, South Australia became the first Australian state to publish a population policy where increasing immigration was central; specifically to increase the share of national net overseas migration flowing to South Australia (Hugo, 2008; Government of South Australia, 2004). This share rose rapidly during the mid-2000s — more than tripling South Australia’s share of net overseas migration from around 2 per cent to almost 7 per cent in 2006 through support from the then ‘state-specific and regional migration’ scheme. More recently this share has been around 5 per cent. South Australia has been unique relative to other states because net overseas migration numbers have stayed relatively stable from 2008-09.

South Australia’s total fertility rate and female life expectancy at birth have been similar to the national averages, while male life expectancy at birth has been slightly lower. The leading causes of death were coronary heart disease for men and dementia for women, the same as Australia overall.

Western Australia**Chart 19. POPULATION CHANGE IN WESTERN AUSTRALIA, 1988-89 TO 2018-19**

Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Population growth in Western Australia has varied over the last 30 years, experiencing peaks and troughs as economic conditions change (see Chart 19). Annual population growth averaged 0.8 per cent over the last 5 years, compared to 2.8 per cent at the start of the 30-year period. Growth was as high as 3.2 per cent in 2008-09 and as low as 0.6 per cent in 2015-16.

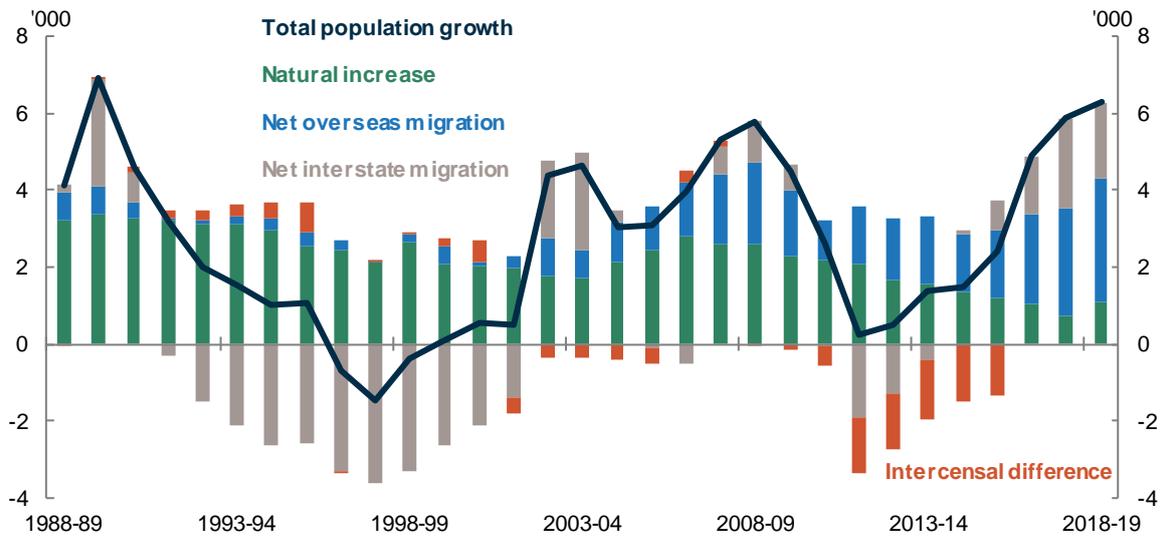
Western Australia experienced net inflows of people from overseas and interstate between 2003-04 and 2012-13 followed by lower net overseas migration and net outflows of people interstate thereafter, aligning with the mining construction cycle (Australian Bureau of Statistics, Migration, Australia 2018-19, 2020; Department of Treasury and Finance, Western Australia, 2006).

Over this period, overseas migration arrivals into Western Australia peaked at 78,000 people in 2011-12 before falling. Overseas migration departures were increasing until 2013-14, after which they began to decline. In net terms, migration into Western Australia fell from 50,800 people in 2011-12 to 12,000 in 2017-18, before rebounding to almost 16,000 people in 2018-19. Consequently, Western Australia's share of total net overseas migration in Australia fell significantly from 18 per cent in 2012-13 to 7 per cent in 2018-19. This can be attributed to a decrease in skilled migration and the number of working holiday makers and New Zealand migrants arriving in Australia from 2012-13 onwards.

The total fertility rate in Western Australia has been higher than the Australian average, while life expectancies at birth have been similar. The leading cause of death for men and women in the state was coronary heart disease. This contrasts with Australia's leading cause of deaths for women, which was dementia.

Tasmania

Chart 20. POPULATION CHANGE IN TASMANIA, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Along with South Australia, Tasmania has had long periods of population growth below 1.0 per cent over the last 30 years. This has increased over the last 5 years due to higher inflows of international students and skilled migrants. Annual population growth averaged 0.8 per cent over the last 5 years, compared to 0.9 per cent at the start of the 30-year period. Growth was as high as 1.5 per cent in 1989-90 and as low as -0.3 per cent in 1997-98 (see Chart 20).

Although not traditionally a large contributor to Tasmania’s population growth, net overseas migration has been steadily increasing in the state since 2003-04. A steady growth in student arrivals combined with an increase in humanitarian migration and some temporary migration has driven this trend.

Net interstate migration to and from Tasmania has waxed and waned over the last 30 years in line with economic conditions (see Box 4).

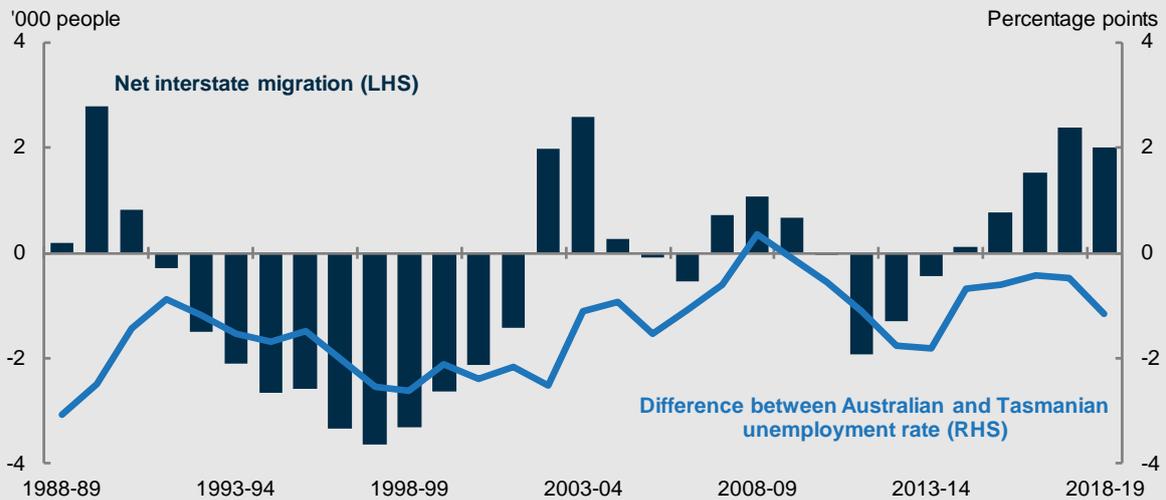
Fertility in younger age groups (20 to 29 years) has been higher compared to the national average. Tasmania experienced an increase in fertility among women aged 20 to 24 in the mid-2000s. Life expectancy at birth in Tasmania has been consistently lower than the Australian average over the past few decades. There was evidence of this gap widening over recent years with a difference of 1.5 years for men and 1.7 years for women in 2016-18. The leading causes of death in Tasmania were coronary heart disease for men and dementia for women, the same as Australia overall.

BOX 4. NET INTERSTATE MIGRATION AND TASMANIA

Tasmania has experienced net interstate migration gains in the past 5 years, from 2014-15 to 2018-19, adding around 1,400 people per year. This reversed the trend of the previous 5-year period when Tasmania averaged a net loss of 600 people per year. The reversal likely reflects, in part, the strengthening economic conditions over the period with the unemployment rate in Tasmania trending down toward the national average (see Chart 21). At the same time, high housing costs in large population centres on the mainland made Tasmania an attractive and affordable destination, even as house prices have risen in Hobart (Australian Bureau of Statistics, Residential Property Price Indexes: Eight Capital Cities 2020).

The gap between state and national unemployment rates has tracked closely with patterns in net interstate migration. During the 1990s, Tasmania experienced large and persistent net outflows of residents coinciding with high unemployment following the early 1990s’ recession. As economic conditions strengthened through the 2000s, the flow of interstate migration reversed with net inflows in most years.

Chart 21. NET INTERSTATE MIGRATION AND UNEMPLOYMENT IN TASMANIA, 1988-89 TO 2018-19

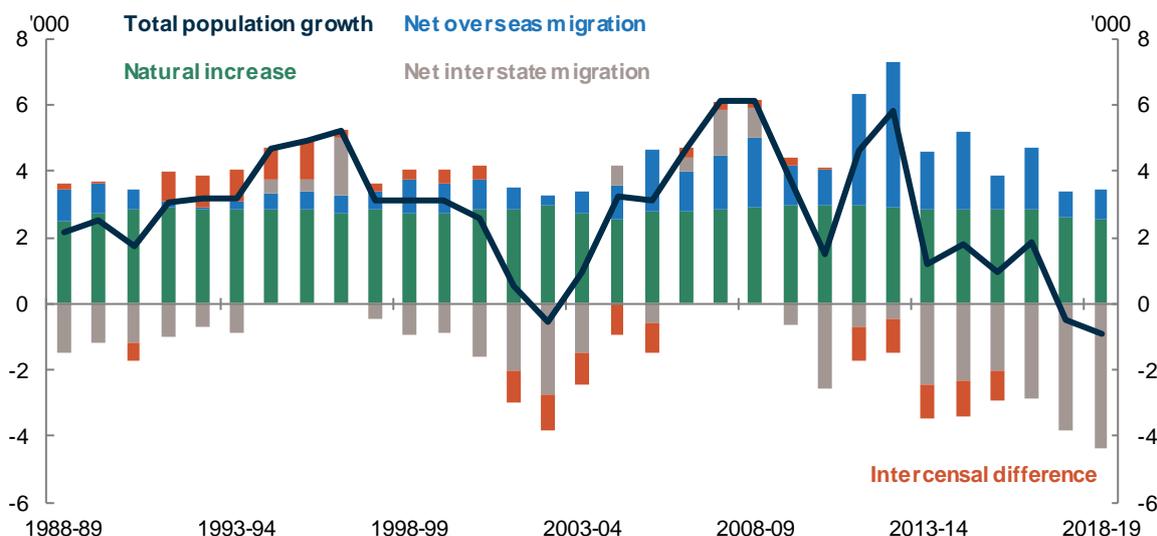


Note: a negative unemployment rate differential indicates that the Tasmanian unemployment rate is higher than the Australian unemployment rate.

Source: (Australian Bureau of Statistics, Labour Force, Australia, 2020; Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Northern Territory

Chart 22. POPULATION CHANGE IN NORTHERN TERRITORY, 1988-89 TO 2018-19



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

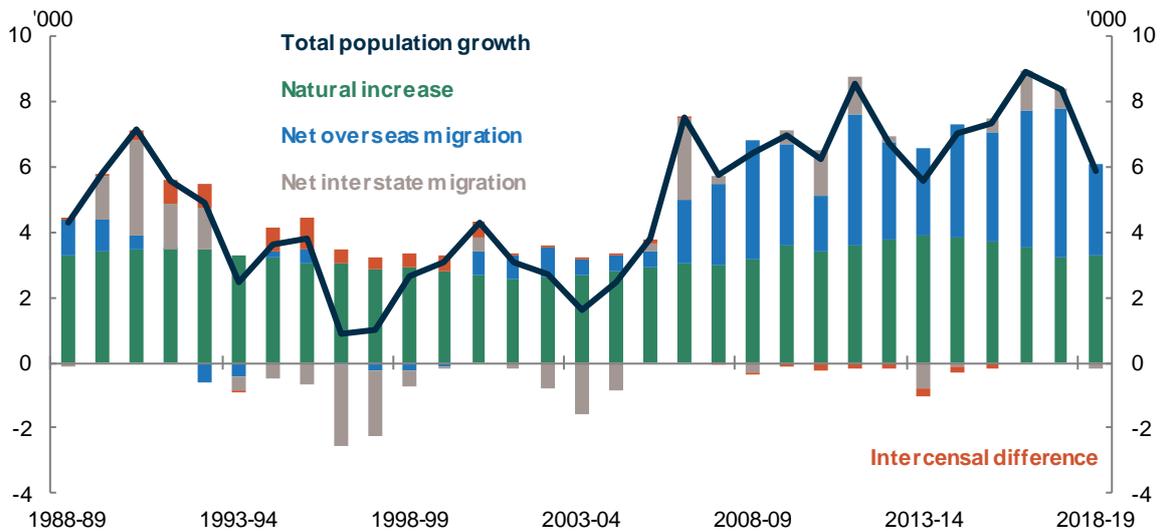
Annual population growth in the Northern Territory averaged 0.3 per cent over the last 5 years, compared to 1.4 per cent at the start of the 30-year period. Growth was as high as 2.9 per cent in 2007-08 and as low as -0.4 per cent in 2018-19 (see Chart 22).¹²

Over this period, overseas migration has been a consistent net contributor to the Northern Territory’s population growth. This is despite almost one-for-one arrivals and departures in the early 1990s and again in the early 2000s. The increase in net overseas migration until 2006-07 was driven primarily by temporary skilled workers and working holiday makers. Net overseas migration spiked to a high of around 4,400 people in 2012-13 but has since fallen, corresponding with the end of the mining boom (Australian Bureau of Statistics, Migration, Australia 2018-19, 2020). Downward trends in net overseas migration have been driven by a decrease in arrivals and an increase in the departures of temporary skilled workers.

Conversely, interstate migration has generally recorded a net outflow of people from the Northern Territory for the majority of the last 30 years. Most net interstate migration losses have been to the big 3 east coast states — Queensland, New South Wales and Victoria, followed closely by outflows to South Australia and Western Australia. The Northern Territory had high in-migration and out-migration flows relative to other states, resulting in high population turnover through interstate migration.

The Northern Territory had the highest fertility rate and lowest life expectancies at birth of all Australian states. In the Northern Territory, fertility rates have been notably higher for teenagers and women aged 20-24 years compared with the rest of Australia. Life expectancy at birth has been lower than the Australian average over the last 30 years and the gap varied over that time. The leading cause of death for women was diabetes, which differed from Australia’s leading cause of death for women (dementia). The leading cause of death for men was coronary heart disease, which was the same nationally.

¹² The Northern Territory has a small population with a large proportion of Aboriginal and Torres Strait Islander people, many living in remote locations. These 2 factors mean that projecting the territory’s population and its components for a period of any more than a few years is subject to significant and compounding error. This is evidenced by the relatively high intercensal difference observed in the Northern Territory population estimates and in the significant differences between projections and outcomes (see Part III).

Australian Capital Territory**Chart 23. POPULATION CHANGE IN AUSTRALIAN CAPITAL TERRITORY, 1988-89 TO 2018-19**

Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

Annual population growth in the Australian Capital Territory averaged 1.9 per cent over the last 5 years compared to 1.6 per cent at the start of the 30-year period. Growth was as high as 2.5 per cent in 1990-91 and as low as 0.3 per cent in 1996-97 and 1997-98.

Net overseas migration has grown to become a key driver of population growth in the Australian Capital Territory. This is related to the growth of international students coming to Australia, including to universities in Canberra. For much of the past decade, increases in the number of student arrivals accounted for the overwhelming majority of the total increase in arrivals into the Territory (Australian Bureau of Statistics, Migration, Australia 2018-19, 2020). The Australian Capital Territory was the only state or territory to experience net outflows of overseas migrants in some of the last 30 years (see Chart 23).

While net interstate migration has not been a key driver of growth in the Australian Capital Territory, the flows of interstate migration are notable. Similar to the Northern Territory, the Australian Capital Territory had relatively large flows of people in and out compared to other states. This was due in part to the proximity of other major population centres within New South Wales and the short-distance moves being classified as interstate moves.

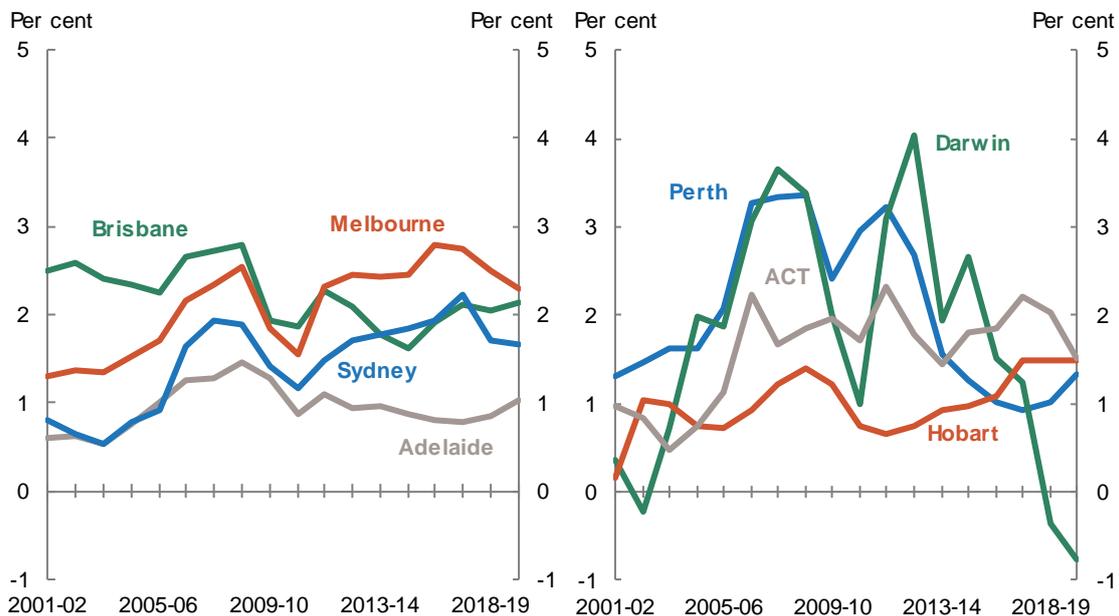
The Australian Capital Territory had the lowest total fertility rate of all the states, at 1.54 babies per woman in 2018-19. Life expectancy at birth has been higher than the Australian average over the last 30 years, but the gap has narrowed since 2011-13. The leading causes of death were coronary heart disease for men and dementia for women, the same as Australia overall.

1.4 CAPITAL CITY AND REST-OF-STATE POPULATIONS

The last 30 years have seen capital cities¹³ on average grow faster than rest-of-state areas. In recent years, this has mainly been due to higher inflows of overseas migration to the capital cities than to the rest-of-state areas. Capital cities generally have lower fertility rates and higher life expectancies than rest-of-state areas, but are younger (see Box 3). This is because cities have attracted a greater share of net overseas migration and the age composition of net internal migration has also reflected younger people moving to cities from rest-of-state areas (Regional Australia Institute, 2020).

With the exception of Darwin, growth rates in the capital cities have been consistently positive since 2000-01. Darwin recorded negative growth in 2002-03 and more recently in 2017-18 and 2018-19 (Chart 24). All cities have experienced variation in their growth rates over time, but growth in Perth and Darwin has been more varied than other cities. Darwin has reported the highest and the lowest growth over the past 20 years, primarily due to the highly cyclical nature of economic activity in the Northern Territory.

Chart 24. RATES OF POPULATION GROWTH IN CAPITAL CITIES, 2001-02 TO 2018-19



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020)

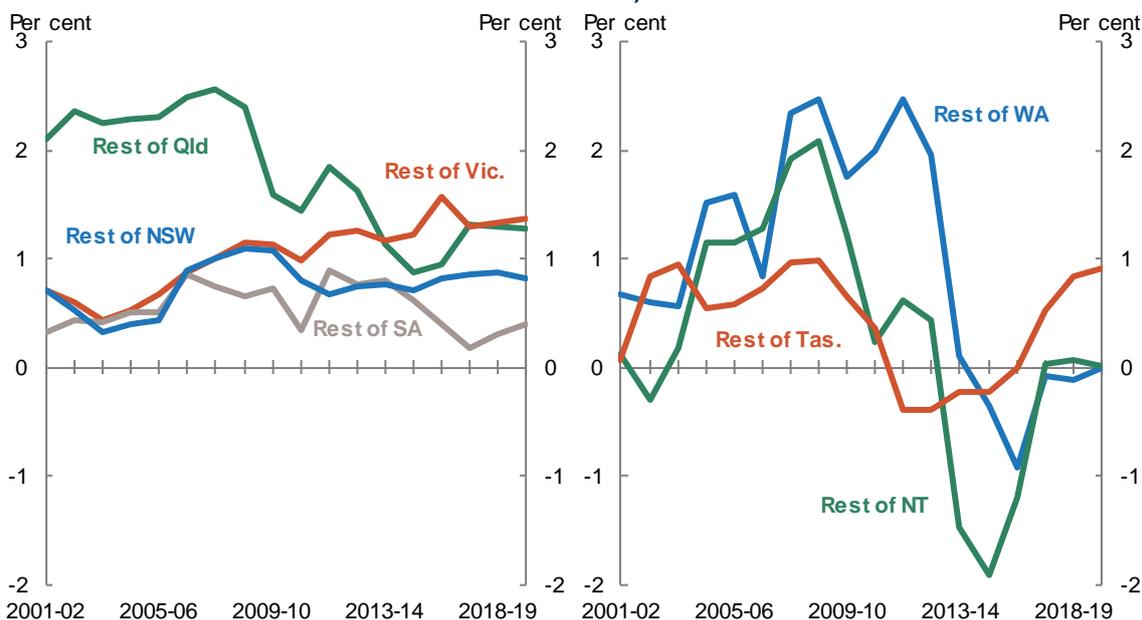
Growth rates in the capital cities have typically been higher than growth rates in the rest-of-state areas since 2000-01 (see Chart 24 and Chart 25). As with Darwin and Perth, population growth in the rest-of-state areas in Western Australia and the Northern Territory has moved in line with the economic cycle and has varied more over time than in other states. The rest-of-state areas in Tasmania have also experienced varied growth with population decline from 2011-12 to 2015-16. Population growth across different parts of each rest-of-state area varies as well, with population having largely grown faster in towns or regions that are close to capital cities (see Box 5).

Current sustained higher growth in the capital cities compared to rest-of-state areas has led to each capital city, apart from Darwin, being at its largest share of the state or territory's population on record. Since 1988-89, Perth, Melbourne and Adelaide have consistently increased their share of the state's population. In 2018-19, Perth had 80 per cent of its state population, Melbourne had 77 per cent and Adelaide had 78 per cent. Sydney increased its share of the New South Wales population over the period after experiencing small reductions

¹³ This Statement defines capital cities using the Australian Bureau of Statistics definition of Greater Capital City Statistical Areas (GCCSA) — see the Glossary for more information.

until 1994-95. Brisbane grew from 48 to 49 per cent of the Queensland population. Overall, from 1988-89 to 2018-19, capital cities increased from 65 per cent of Australia’s population to 68 per cent (Australian Bureau of Statistics, Regional population, 2018-19, 2020).

Chart 25. RATES OF POPULATION GROWTH REST-OF-STATES, 2001-02 TO 2018-19

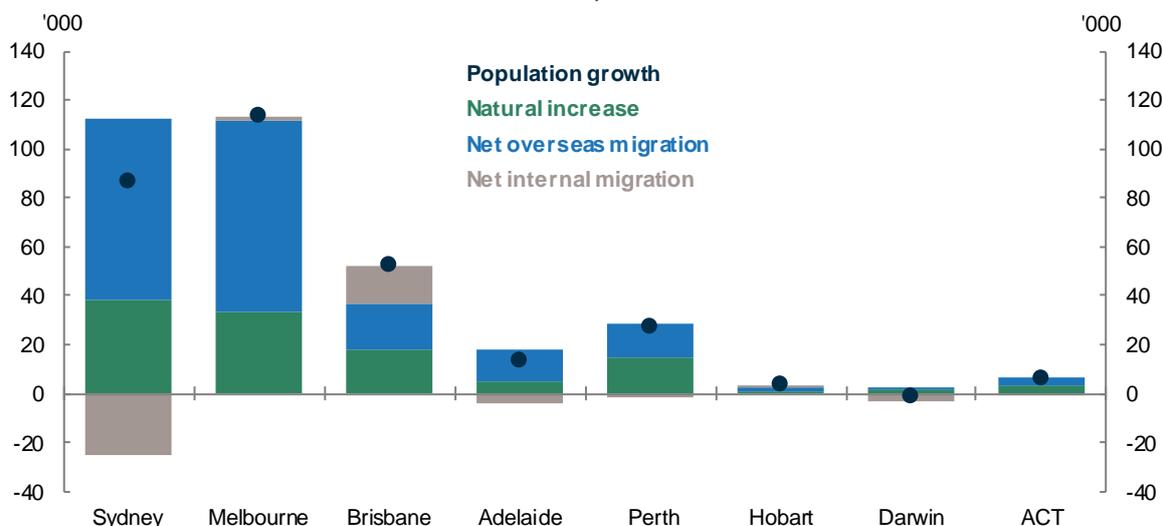


Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020)

Net overseas migration has been the major contributor to population growth in capital city and rest-of-state areas (see Chart 26 and Chart 27). Net overseas migration contributed 1.2 percentage points of the 1.8 per cent growth in capital cities in 2018-19 and half the 1.0 per cent growth in the rest-of-states.

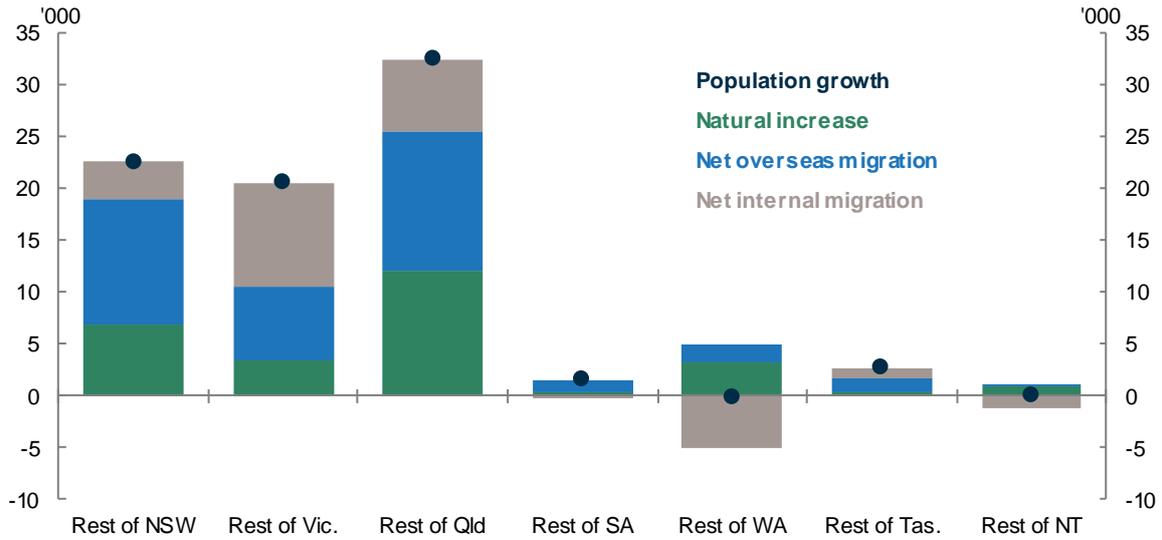
Natural increase has contributed positively to population growth around Australia — particularly in Perth and in the rest of the Northern Territory where it has been the largest contributor to population growth. The contribution of net internal migration varied across capital cities and rest-of-state areas. Rest-of-states generally gained more people through net internal migration than did capital cities overall (15,000 people).

Chart 26. COMPONENTS OF CHANGE IN CAPITAL CITIES, 2018-19



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020)

Chart 27. COMPONENTS OF CHANGE IN REST-OF-STATES, 2018-19

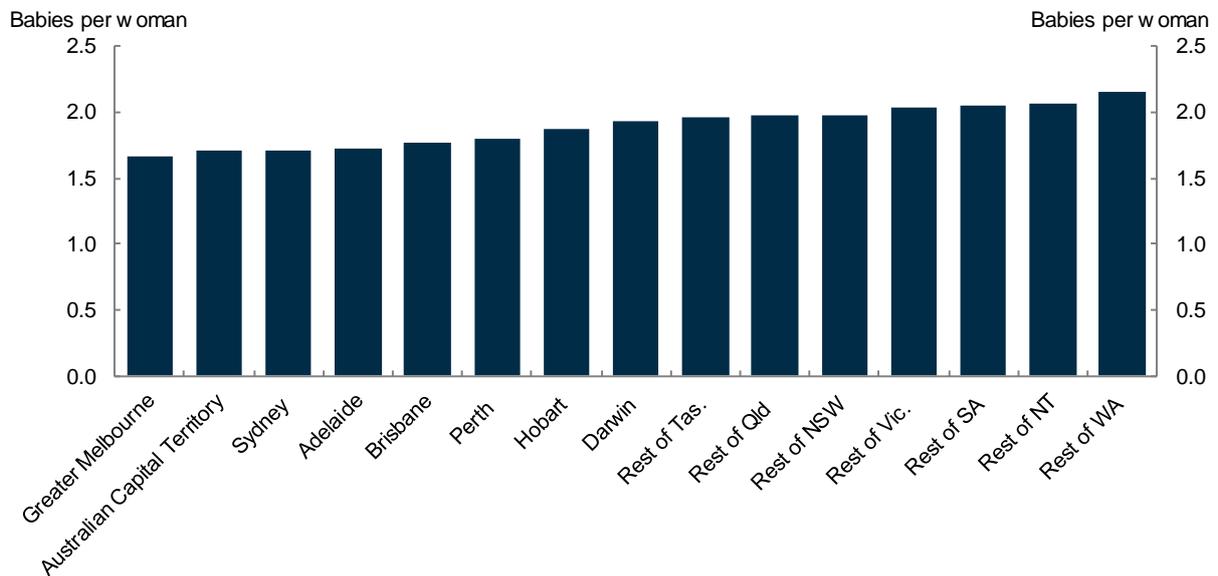


Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020)

Natural increase

Fertility rates have been lower in all capital cities compared with the rest-of-state areas (Chart 28). Melbourne and the Australian Capital Territory had the lowest fertility rates, while the rest-of-state areas in the Northern Territory (excluding Darwin) and Western Australia (excluding Perth) had the highest fertility rates. In general, trends for fertility rates and births over time have been similar for capital cities and rest-of-state areas.

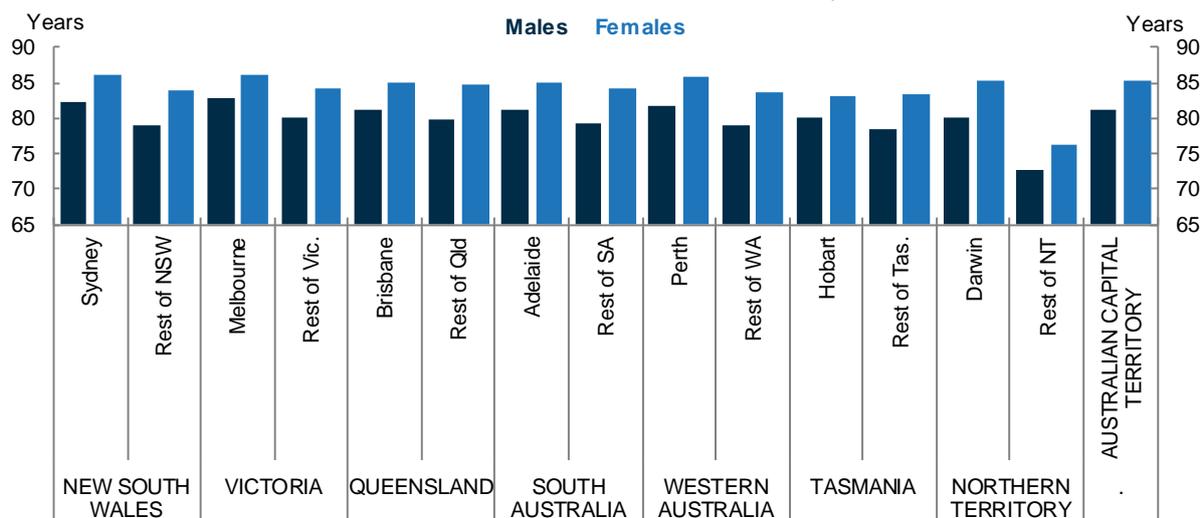
Chart 28. TOTAL FERTILITY RATES BY CAPITAL CITY AND REST-OF-STATE, 5-YEAR AVERAGE, 2014-18



Source: (Australian Bureau of Statistics, Births, Australia, 2019)

For each state in 2016-18, life expectancy has been higher for men and women living in capital cities compared with those in rest-of-states (Chart 29). The exception was Tasmania where women in Hobart had a lower life expectancy at birth than women residing in the rest of Tasmania. The difference was largest in the Northern Territory with those living in Darwin having a much longer life expectancy than those living in the rest of the Northern Territory. The gap was 7.2 years for men and 9.0 years for women.

Chart 29. LIFE EXPECTANCY AT BIRTH BY CAPITAL CITY AND REST-OF-STATE, 2016-18



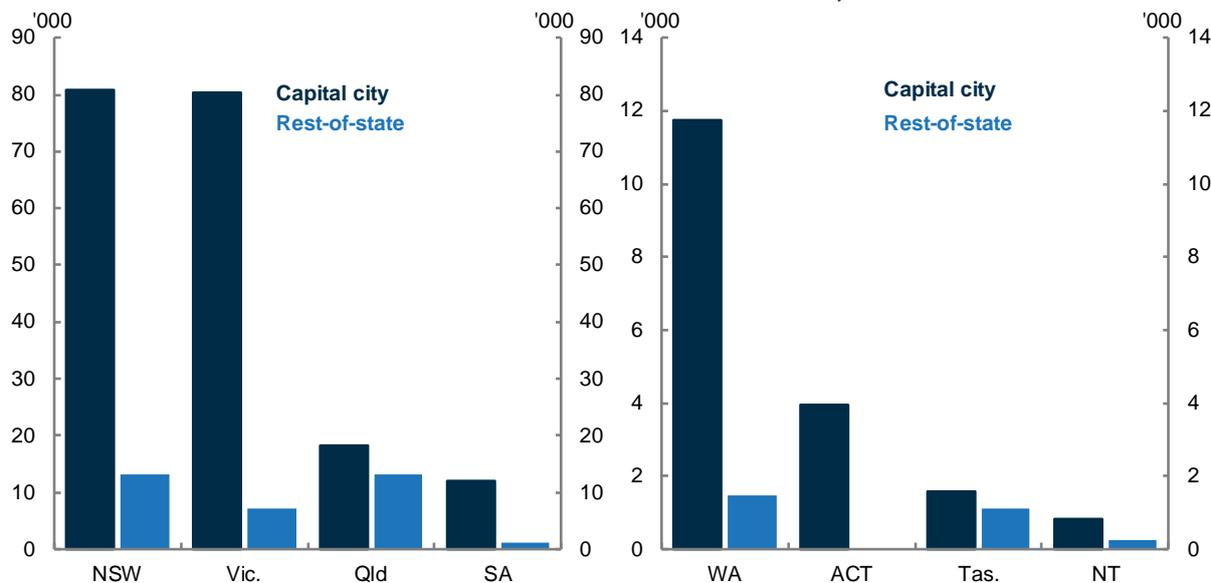
Source: (Australian Bureau of Statistics, 2016-18 Life Tables, 2019)

Across the capital cities and rest-of-states, life expectancy at birth increased over the period 2010-12 to 2016-18. However, in Western Australia, the Northern Territory and Tasmania life expectancy for men living in the rest-of-state areas has plateaued in recent years. Women living in Hobart have had a smaller improvement in life expectancy since 2010-12 than those living in the rest of Tasmania.

Net overseas migration

In 2018-19, Australia’s 3 largest cities (Sydney, Melbourne and Brisbane) accounted for 71 per cent of total net overseas migration. Net overseas migration has been higher in the capital cities than in the rest-of-states for all states. While most overseas migration arrivals have flowed to the capital cities, migrants who have settled in the rest-of-states have made up a significant share of the population growth to these areas (Chart 30).

Chart 30. NET OVERSEAS MIGRATION BY CAPITAL CITY AND REST-OF-STATE, 2016-17 TO 2018-19



Note: There are only 3 years of data on net overseas migration by region. The charts above use an average of the available data.

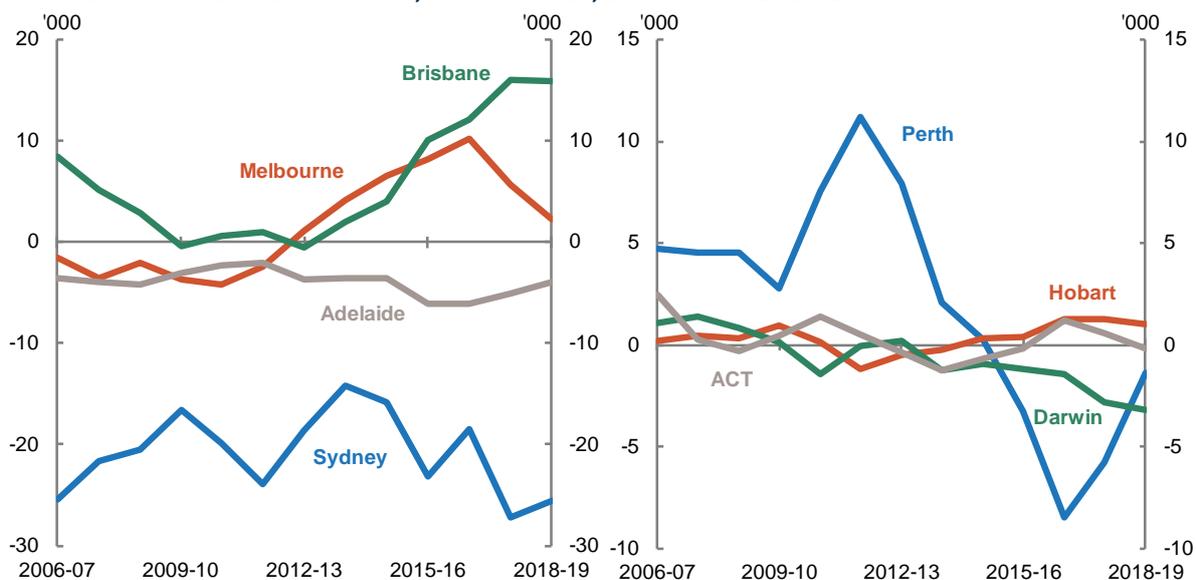
Source: (Australian Bureau of Statistics, Net internal and overseas migration estimates by region (SA2 and above) and age, 2016-17 onwards, 2020)

While not analysed in detail in the Statement, components of population change can vary considerably within the rest-of-state areas. For example, the contribution of net overseas migration to population growth in the rest-of-states has been focused on a handful of regional centres outside the capital city, such as Wollongong and Newcastle in New South Wales, and the Gold Coast and Sunshine Coast in Queensland.

Net internal migration

Net internal migration has been more varied among capital cities and rest-of-state areas than the other components of population change. Among the capital cities, Sydney historically experienced a net loss of people through internal migration (-25,600 in 2018-19), while Melbourne and Brisbane experienced strong net gains in internal migration in recent years (2,300 and 15,900, respectively, in 2018-19) (see Chart 31).

Chart 31. NET INTERNAL MIGRATION, CAPITAL CITIES, 2006-07 TO 2018-19

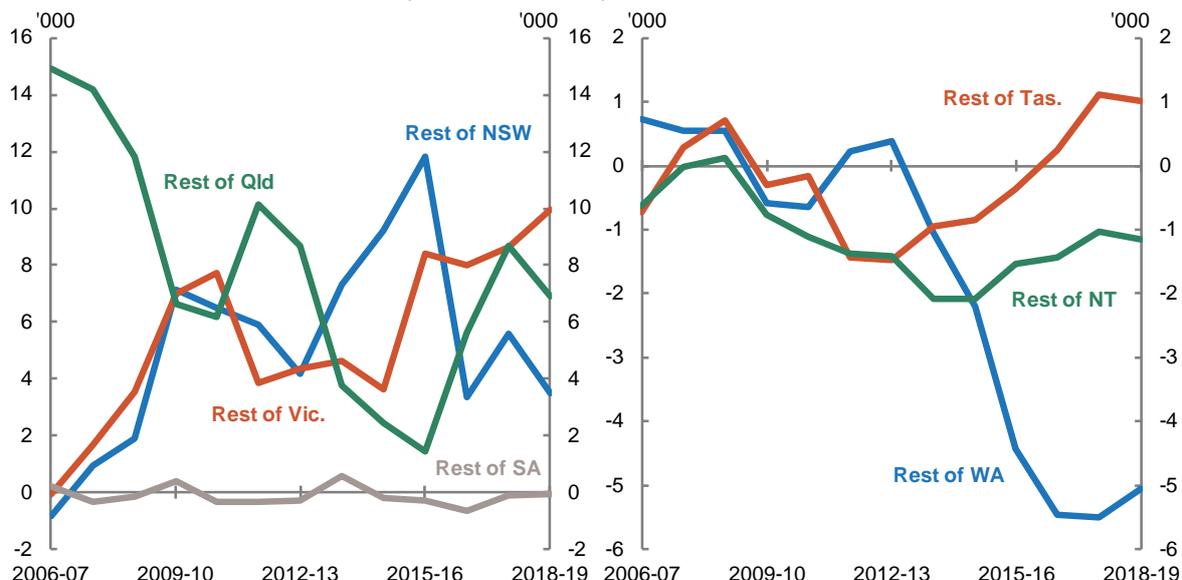


Note: Net internal migration shown above is the net migration to or from any other capital city or rest-of-state area.
 Source: (Australian Bureau of Statistics, Regional Internal Migration Estimates by Region (SA3 and above), Age and Sex, 2006-07 to 2015-16; Regional Internal Migration Estimates by region (SA2 and above) and age, 2016-17 onwards, n.d.)

The rest of New South Wales has typically gained people through internal migration. This is similar to the rest of Victoria, Queensland and, in recent years, the rest of Tasmania. The rest of Western Australia has experienced a net loss of people through internal migration since 2013-14 after a period of net gains, reflecting the mining construction cycle (see Chart 32).

Analysis by the Regional Australia Institute found that between the 2011 and 2016 Censuses around 1.2 million people moved to or moved within rest-of-state areas outside the capital cities (Regional Australia Institute, 2020). The report found that between 2011 and 2016 rest-of-state areas had a net gain of 65,200 people through internal migration. The same areas had a net gain of 70,500 people between 2006 and 2011.

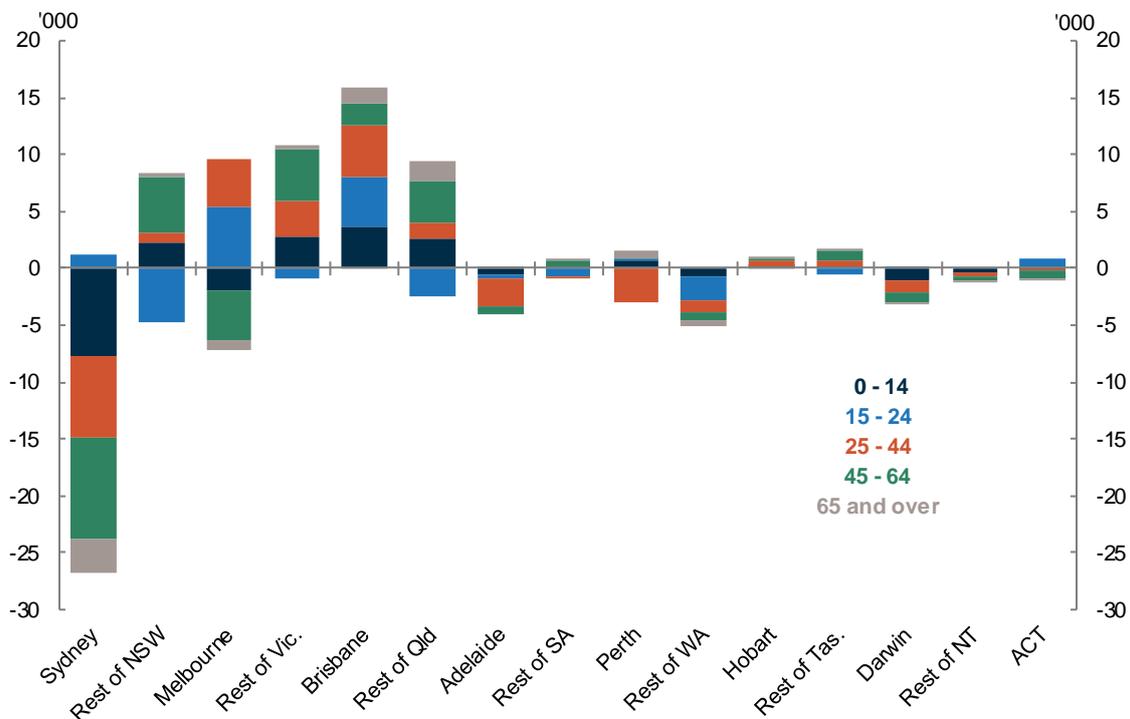
Chart 32. NET INTERNAL MIGRATION, REST-OF-STATES, 2006-07 TO 2018-19



Note: Net internal migration above is the net migration to or from any other capital city or rest-of-state area.
 Source: (Australian Bureau of Statistics, Regional Internal Migration Estimates by Region (SA3 and above), Age and Sex, 2006-07 to 2015-16; Regional Internal Migration Estimates by region (SA2 and above) and age, 2016-17 onwards, n.d.)

Younger people have been the most mobile group (see Chart 33). In 2018-19, the most common destinations for people aged 15-24 years were the inner-city areas in Melbourne, Sydney and Brisbane. The most common destinations for people aged 65 and over were areas on the south-east coast of Queensland.

Chart 33. NET INTERNAL MIGRATION BY AGE, CAPITAL CITIES AND REST-OF-STATES, 2018-19

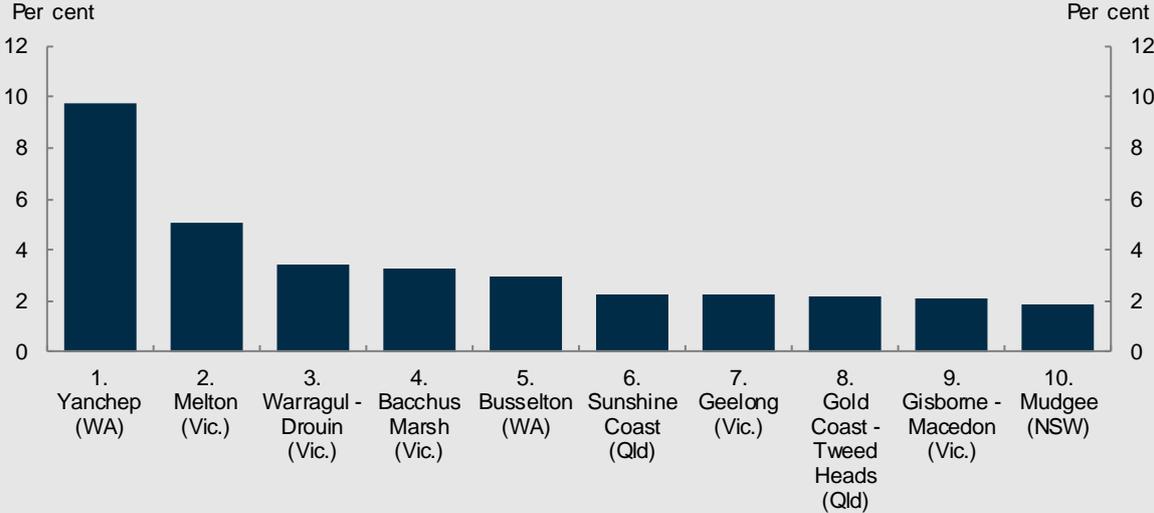


Source: (Australian Bureau of Statistics, Net internal and overseas migration estimates by region (SA2 and above) and age, 2016-17 onwards, 2020)

BOX 5. CHARACTERISTICS OF FAST-GROWING AREAS

Growth rates in the rest-of-state areas have been highly variable. Over the last decade, the Significant Urban Area (SUA)¹⁴ with the highest growth was Yancheep in Western Australia (Australian Bureau of Statistics, Regional population, 2018-19, 2020). Yancheep has been designated by Western Australia for future urban development and the City of Wanneroo anticipates it will become its largest urban centre (City of Wanneroo, 2019). Yancheep had an average annual population growth rate of 9.8 per cent. The area with the lowest average annual growth was Mount Isa with a rate of -1.4 per cent. Chart 34 shows the 10 fastest growing SUAs, excluding capital city SUAs, over the last decade. Note some of these SUAs are included in the Greater Capital Cities Statistical Areas definition (Yancheep, Melton, Bacchus Marsh and Gisborne-Macedon).

Chart 34. FASTEST GROWING SIGNIFICANT URBAN AREAS, 10-YEAR AVERAGE GROWTH



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020)

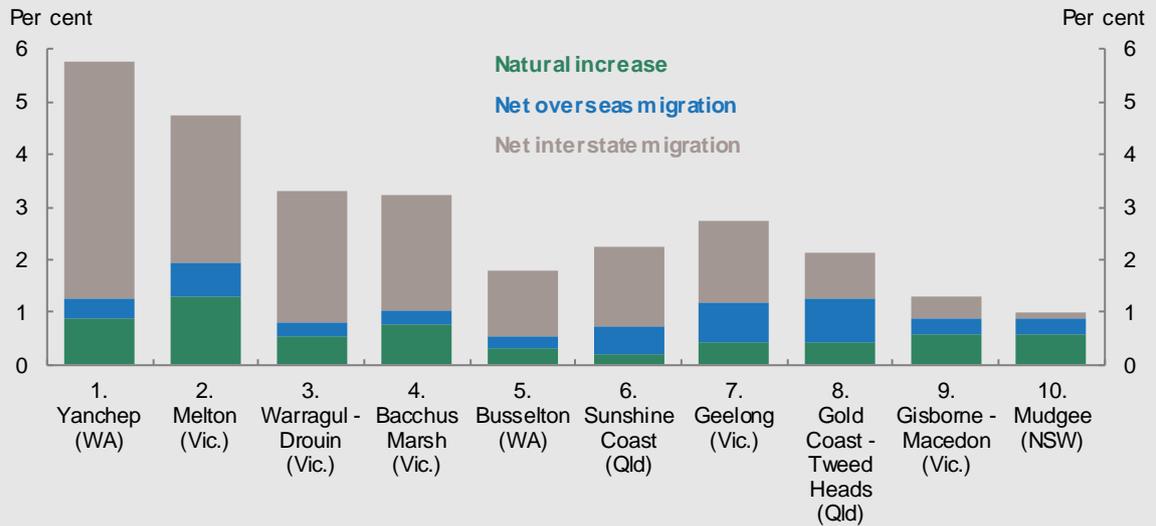
The fastest growing areas are quite diverse. They have very different population sizes (ranging from 693,700 in the Gold Coast/Tweed region to 12,500 in Mudgee), different median ages (ranging from 33 in Melton to 44 on the Sunshine Coast in 2018) (Australian Bureau of Statistics, Regional Statistics, ASGS 2016, 2011-2019, 2020) and different unemployment rates (ranging from 2.6 per cent in Gisborne-Macedon and 12.2 per cent in Melton) (National Skills Commission, 2020). However, there are aspects in which they are similar.

While the fastest growing areas are spread across Australia, 6 out of the 10 areas are within 100 km of a capital city. The main exceptions to this are Busselton (222 km) and Mudgee (266 km). The Sunshine Coast and Warragul-Drouin are also exceptions but are very close to 100 km from their capital cities (106 and 104 kms respectively).

¹⁴ Significant Urban Areas (SUAs) are a statistical geographic area assembled by the Australian Bureau of Statistics from existing SA2 areas. They are classified as significant urban towns or cities of 10,000 people or more (Australian Bureau of Statistics, 2017).

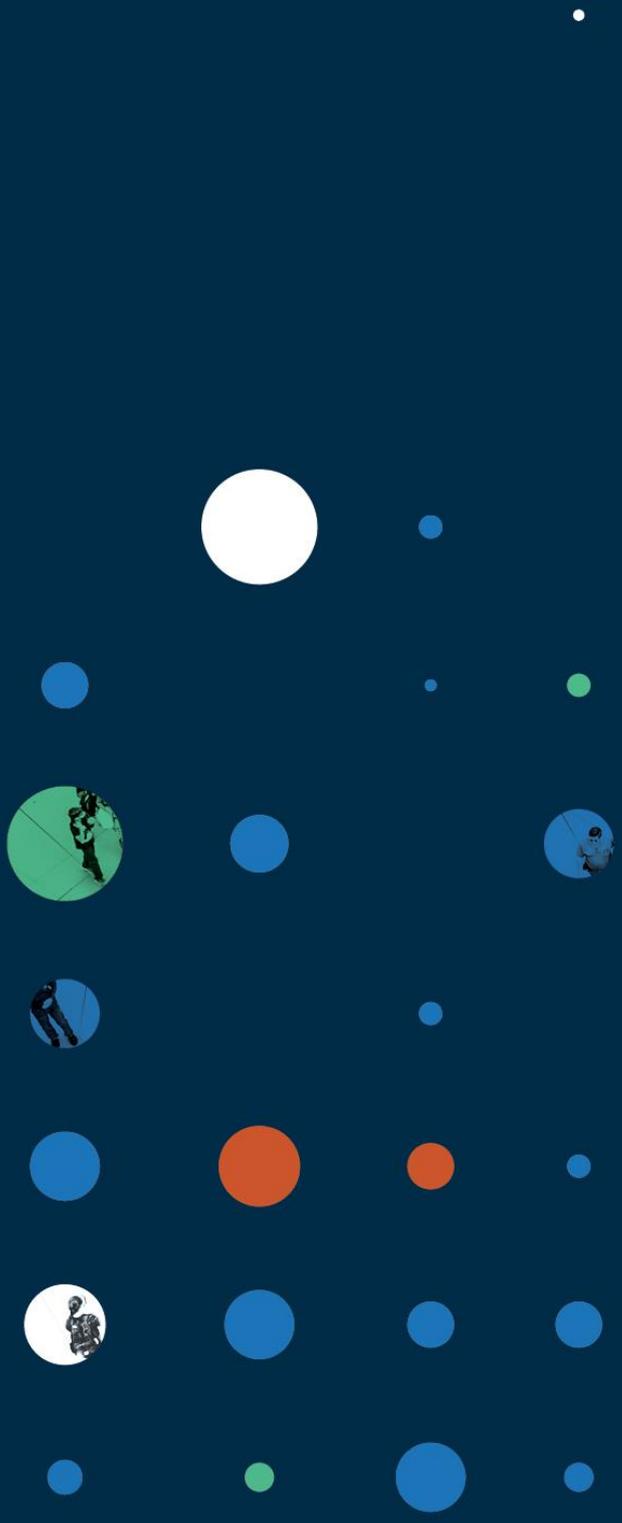
Growth in the fastest growing areas has been predominantly driven by internal migration. Chart 35 shows that for 8 of the 10 fastest growing areas a net internal migration gain was the largest component of population growth.

Chart 35. FASTEST GROWING SIGNIFICANT URBAN AREAS, COMPONENTS OF CHANGE, 2018-19



Source: Australian Bureau of Statistics, Net internal and overseas migration estimates by region (SA2 and above) and age, 2016-17 onwards, and Estimated Resident Population and components by SA2 and above (ASGS 2016), 2017 onwards — ABS.Stat extraction

PART II — OUR FUTURE POPULATION (2019-20 TO 2030-31)



2. OUR FUTURE POPULATION (2019-20 TO 2030-31)

2.1 OVERVIEW OF THE NEXT 10 YEARS

Part II contains the Australian Government's first detailed, nationally consistent population projections that take account of COVID-19. It sets out the Centre for Population's best estimates of Australia's future population, projected out to 30 June 2031. This is the 'central case'.

Given that official population statistics, including at the national level, have almost a 6-month lag, the starting population for these projections is Australia's population as at 30 June 2019. Thus, the first projection year is 2019-20. The projections run out to 30 June 2031, which is consistent with the medium-term time horizon referred to in the Australian Government's annual Budget.

Estimates of future population are inherently uncertain and judgment is applied to impose reasonable assumptions (see Part III). Future estimates are more variable given the uncertainty associated with COVID-19 as well as the nature and duration of measures intended to contain it in Australia and the rest of the world.

In addition to the Centre's best judgment of Australia's future population (the central case), 2 projection scenarios are explored:

- a 'pre-COVID-19' projection scenario that estimates what the future population may have been in the absence of COVID-19. This approach allows separation of the likely effects of COVID-19 on the future population from trends that were apparent irrespective of the pandemic, and
- an 'extended restrictions' projection scenario that estimates what the future population may be if the economic and activity restrictions to manage COVID-19 extend beyond those in the central case by a further 12 months. This approach shows how a change to the assumptions in the central case, which itself is highly sensitive to assumptions, could affect the national population.

The assumptions for all of the projection scenarios are detailed in full in Part III.

The central case and pre-COVID-19 scenario projections of population growth, and the likely drivers of the size and distribution of population, have been prepared at the national, state and territory ('state'),¹⁵ and capital cities and rest-of-state geography levels.

Main findings:

- Future population growth is projected to remain positive but slow over the next few years, falling from 1.5 per cent last observed in 2018-19 to 1.2 per cent in 2019-20, and then to 0.2 per cent in 2020-21, which would make it the lowest annual rate of growth since zero per cent recorded in 1916-17.
- Natural increase is projected to drive all of Australia's population growth in 2020-21 and 2021-22, with net overseas migration forecast to be the largest contributor to population growth again by 2023-24. Net overseas migration remains essential for long-run population growth. Without net overseas migration, and with fertility remaining below replacement rates, Australia's population growth would turn negative within one generation.
 - Measures to limit the spread of COVID-19 are the primary drivers of the slower growth with travel restrictions and uncertainty due to health risks expected to result in net overseas migration falling

¹⁵ Throughout the Statement, references to the 'states' or 'each state' includes the Northern Territory and the Australian Capital Territory.

from around 154,000 people in 2019-20 to around -72,000 people in 2020-21, and then to around -22,000 people in 2021-22. By the end of the forecast period in 2023-24, net overseas migration is still not expected to return to pre-COVID-19 levels.

- Once the effects of the international travel restrictions subside, migration flows of permanent residents, Australian citizens and temporary migrants are assumed to gradually increase to flows reflecting pre-COVID-19 behaviours. By 2028-29, net overseas migration is assumed to reach 235,000 per year and is assumed to remain at this level thereafter.
- The contribution of natural increase to population growth is expected to decline from around 139,000 people in 2019-20 to 112,000 people in 2030-31.
- Lower future fertility is assumed to contribute to slower growth as people delay decisions to have children and the total fertility rate falls from 1.69 babies per woman in 2019-20 to 1.58 in 2021-22. It is then assumed to rise to 1.69 by 2023-24, as most families are assumed to subsequently have the babies they delayed. From then on, the total fertility rate is assumed to decline to and then stabilise at 1.62 babies per woman by 2030-31.
- Life expectancies are projected to continue to increase over the projection period, and life expectancy at birth is projected to increase from 80.7 years for men and 84.9 years for women in 2016-18 to 83.1 years for men and 86.5 years for women in 2030-31.
- Australia’s population is projected to continue to age, and at a faster rate than in the absence of COVID-19. Between 2019-20 and 2030-31, the median age is projected to increase from 37 to 40 years, older than the pre-COVID-19 estimate of 39 years.
- Future rates of population growth are projected to vary across Australia. In the short term, population growth for all areas analysed is projected to slow in the near term, with some areas returning to long-run trends more quickly than others.
 - The number of people migrating interstate is projected to fall by 12 per cent in 2020-21, which would make for the lowest rate of interstate migration as a proportion of the population on record. From 2023-24, the level of interstate and intrastate migration are assumed to return to the 20-year average.
 - While Victoria is the hardest hit state due to the pandemic’s effect on net overseas migration and net interstate migration, its population growth is projected to return to the highest of the states from 2022-23 onward.
 - The Northern Territory is projected to remain the slowest growing state until 2030-31 with annual growth rising from a low of -1.4 per cent in 2019-20 to just under 0.7 per cent by the end of 2030-31.
 - Capital cities are projected to continue growing faster than rest-of-state areas. Melbourne is projected to overtake Sydney to become Australia’s largest city in 2026-27, growing to an estimated population of 6.2 million by 30 June 2031, compared to 6.0 million in Sydney.
 - : As the populations of the capital cities are projected to continue to grow faster than the rest-of-state areas, the share of the population living in capital cities is projected to increase in all states over the projection period.
 - : Some of the rest-of-state areas are projected to become entirely reliant on overseas and internal migration for future population growth. Natural increase is projected to become negative, as

future deaths overtake future births, from 2019-20 in the rest of South Australia, 2020-21 in the rest of Tasmania, and 2029-30 in the rest of New South Wales.

- Australia's future population growth and distribution have already been heavily influenced by the effects of the COVID-19 pandemic and this is expected to continue over the next 2 years. Even following a recovery, the effects of COVID-19 are projected to be long-lasting.
 - Australia's population is estimated to be around 4 per cent smaller (1.1 million fewer people) by 30 June 2031 than it would have been in the absence of COVID-19.
 - The population is projected to reach 28.8 million by 30 June 2031 under the central case — 3 years later than estimated in the pre-COVID-19 projection scenario under which Australia's population is estimated to reach 29.9 million by 30 June 2031.
 - Under the extended restrictions scenario, Australia's population is projected to be around 28.5 million by 30 June 2031, needing roughly another year to reach the 28.8 million under the central case.
- The projected duration and magnitude of the pandemic's impact on population growth is strongly related to the relative significance of net overseas migration to different parts of the country.
 - Capital cities are projected to bear the heaviest brunt from the pandemic, absolutely and proportionally. The total population across all capital cities is estimated to be around 5 per cent smaller by 30 June 2031 than in the absence of the pandemic. By contrast, the rest-of-states are estimated to be around 2 per cent smaller than they would have been in the absence of the pandemic.
- The likely impacts of the pandemic on population change are largely informed by the analysis of long-term trends and historic patterns summarised in Part I and reflect the information available at a point in time. The projections are also informed by incomplete, early indicators for 2019-20 such as overseas arrivals and departures, provisional mortality statistics, and the official estimated resident population statistics released in September 2020.
 - To help with the availability of more timely information, the Centre for Population funded the Australian Bureau of Statistics' release of early provisional Regional Migration Estimates in November 2020, which provides an early look at the impacts of COVID-19 on how people are deciding to move around Australia. The first quarterly release shows a drop in overall interstate migration in 2019-20, consistent with projection assumptions.

The projection approach, assumptions and data used are detailed in Part III.

2.2 NATIONAL POPULATION

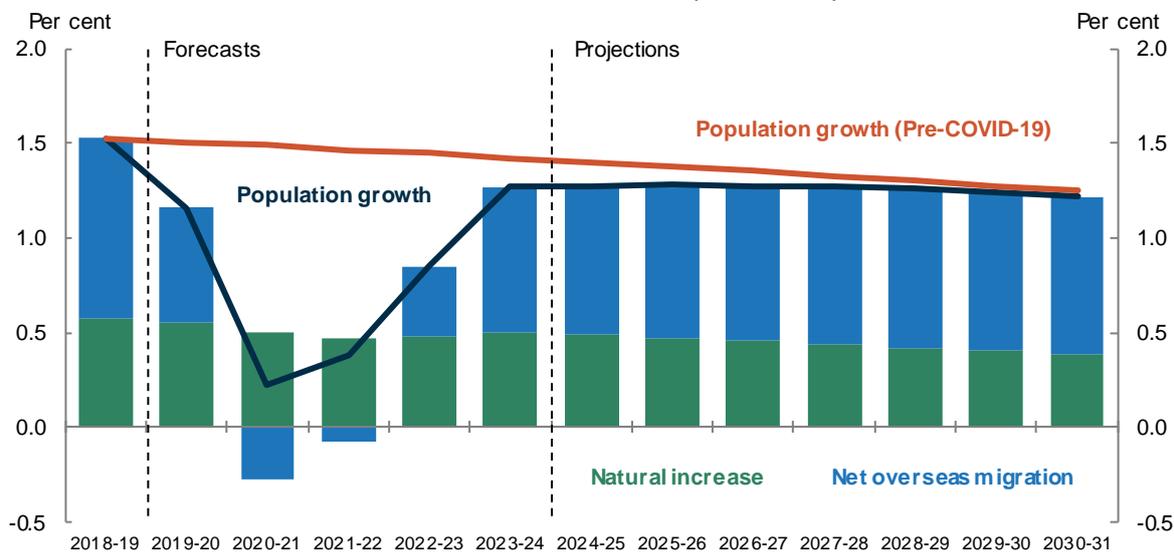
Australia’s population growth is projected to slow to its lowest rate in over 100 years, falling from 1.2 per cent in 2019-20 to 0.2 per cent in 2020-21 and 0.4 per cent in 2021-22 (see Table 2). This slower growth is a result of existing trends combined with the effects of the COVID-19 pandemic, although the latter dominates in the near term. Annual growth is projected to increase to around 1.3 per cent by 2023-24 and then slow to around 1.2 per cent by the end of the projection period.

Measures to limit the spread of the virus, such as restrictions applied to international borders and travel, are assumed to result in net overseas migration falling from 154,000 people in 2019-20 to -72,000 people in 2020-21, and then to -22,000 people in 2021-22. This comes on top of a lower assumed total fertility rate of 1.58 babies per woman in 2021-22 (a fall from what is already the lowest fertility rate recorded for Australia), as some families are expected to delay having children as a result of the pandemic.

Despite the assumed drop in the fertility rate, natural increase is projected to contribute all of Australia’s population growth in 2020-21 and 2021-22 (see Chart 36). Net overseas migration is forecast to again be the largest contributor to population growth by 2023-24, even though levels of net overseas migration are forecast to still be below pre-COVID-19 levels. Net overseas migration is assumed to increase from 201,000 in 2023-24 to the long-run assumption of 235,000 by 2028-29 and remain at that level thereafter (discussed further in Part III).

In the long run, net overseas migration is essential for population growth. Assuming future fertility remains below replacement rates, Australia’s population growth would turn negative within one generation in the absence of net overseas migration. This is because net overseas migration not only contributes directly to population growth when it occurs, but because migrants also contribute to future natural increase by having children after they arrive.

Chart 36. PROJECTED POPULATION GROWTH AND COMPONENTS, AUSTRALIA, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

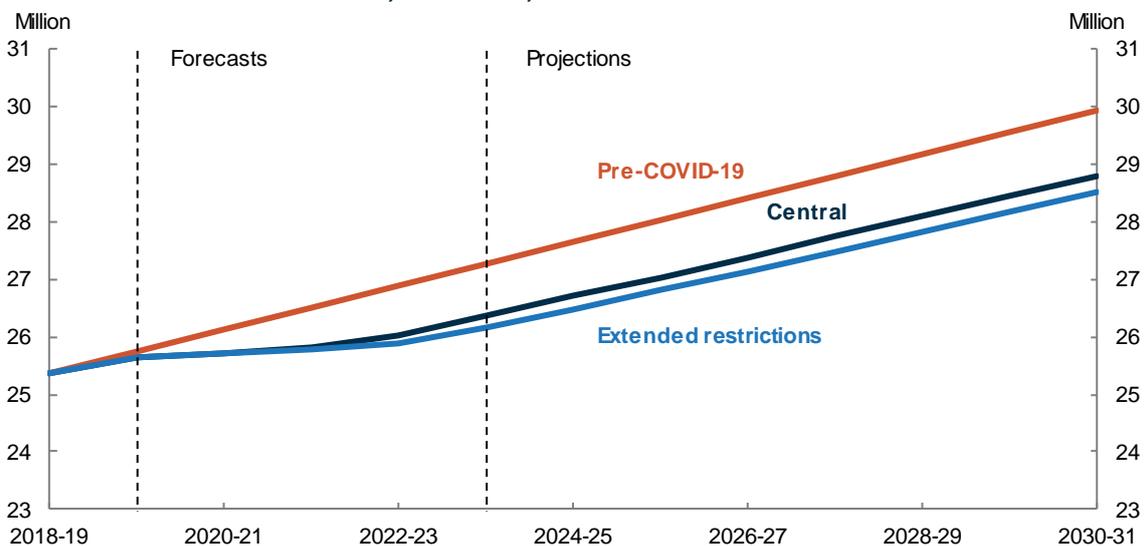
As projected population movements are dominated by the likely effects of the pandemic in the near term it is helpful to isolate its effects from longer-term trends. To do this, population projections under the central case are compared against a pre-COVID-19 projection scenario. Even in the absence of COVID-19, the rate of population growth would have been projected to slow from 1.5 per cent in 2018-19 to 1.3 per cent in 2030-31 reflecting the long-run decline in the fertility rate. At a national level, the main differences in growth rates

between the 2 scenarios are projected to occur over the next 5 years from changes to net overseas migration and fertility.

Australia’s population is expected to be smaller by 30 June 2031 in the central case compared to the pre-COVID-19 projections (see Chart 37). While the rate of population growth under the central case converges to the growth rate in the pre-COVID-19 scenario, population in the central case is projected to reach 28.8 million by 30 June 2031, 3 years later than under the pre-COVID-19 projection scenario.

In addition to the central case and the pre-COVID-19 scenario, the Centre has modelled an ‘extended restrictions’ scenario (see Box 6) at the national level. This scenario explores the possible population effects of extending the economic and activity restrictions to manage the pandemic beyond those in the central case by a further 12 months. Under the extended restrictions scenario, Australia’s population is projected to reach 28.5 million by 30 June 2031 — about one year later than in the central case, and about 4 years later than in the pre-COVID-19 projection. Scenario assumptions are summarised in Box 6 and detailed in Part III.

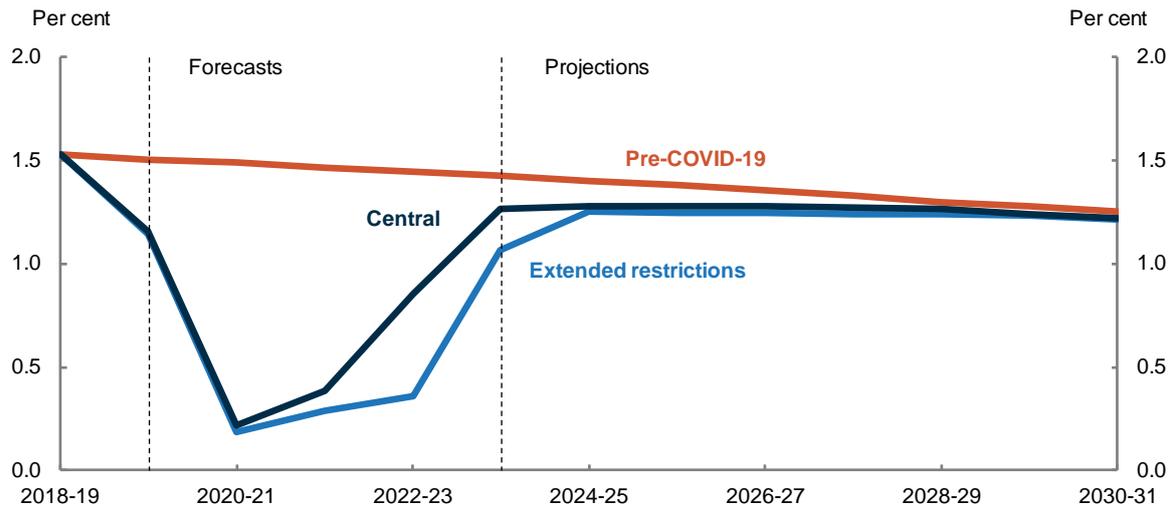
Chart 37. POPULATION PROJECTIONS, AUSTRALIA, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

The main effect of the extended restrictions on Australia’s population is expected to occur through net overseas migration. Under this scenario, net overseas migration is forecast to remain negative for a third consecutive year due to continued departures and a lack of arrivals to replenish those departures. The extended restrictions scenario is also expected to have a further impact on the fertility rate, associated with prolonged economic uncertainty.

Under the extended restrictions scenario, population growth is still expected to fall to a low of 0.2 per cent in 2020-21; however, it reaches just 0.3 per cent in 2021-22 compared to 0.4 per cent in the central case, and climbs to 0.4 per cent in 2022-23 compared to 0.9 per cent in the central case (see Chart 38). Overall, the total population projected for 30 June 2031 ranges from 28.5 million people under the extended restrictions scenario to 29.9 million people under the pre-COVID-19 projections.

Chart 38. POPULATION GROWTH, AUSTRALIA, 2018-19 TO 2030-31

Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

Table 2. SUMMARY OF POPULATION PROJECTIONS

	2019-20	2020-21	2021-22	2022-23	2023-24	2030-31
CENTRAL CASE						
Population at start of year (m)	25.4	25.7	25.7	25.8	26.0	28.4
Births ('000s)	310	301	296	302	310	317
Deaths ('000s)	171	174	176	178	181	205
Natural Increase ('000s)	139	128	120	124	129	112
Arrivals ('000s)	435	123	232	361	519	594
Departures ('000s)	280	195	254	265	318	359
Net Overseas Migration ('000s)	154	-72	-22	96	201	235
Population at end of year (m)	25.7	25.7	25.8	26.0	26.4	28.8
Population Growth (%)	1.2	0.2	0.4	0.9	1.3	1.2
PRE-COVID-19 SCENARIO						
Population at end of year (m)	25.7	26.1	26.5	26.9	27.3	29.9
Population Growth (%)	1.5	1.5	1.5	1.4	1.4	1.3
EXTENDED RESTRICTIONS SCENARIO						
Population at end of year (m)	25.7	25.7	25.8	25.9	26.1	28.5
Population Growth (%)	1.1	0.2	0.3	0.4	1.1	1.2

Source: Centre for Population projections

BOX 6. SCENARIO ANALYSIS

The effects of COVID-19 on Australia's long-term future population growth are extremely uncertain and dependent on a range of factors, including but not limited to: the ongoing management of COVID-19 cases in Australia, the delivery of a vaccine, the requirement for ongoing quarantine measures, international travel restrictions and the recovery of the economy.

The assumptions applied to develop projections under the **central case** are consistent with the assumptions used in Budget 2020-21:

- It is assumed that over the forecast period material localised outbreaks of COVID-19 occur but are largely contained. A population-wide Australian COVID-19 vaccination program is assumed to be fully in place by late 2021. General social distancing restrictions are assumed to continue until a vaccine is fully available.
- It is assumed that state border restrictions currently in place are lifted by the end of 2020, except for Western Australia which is assumed to open from 1 April 2021.¹⁶ Inbound and outbound international travel are assumed to remain low through the latter part of 2021.

To explore the range of possible impacts on population due to COVID-19, 2 scenarios have been modelled in addition to the central projections.

- The **pre-COVID-19** projection scenario estimates what the future population may have been in the absence of COVID-19. This approach allows separation of the likely effects of COVID-19 on the future population from trends that were apparent irrespective of the pandemic.
- The **extended restrictions** projection scenario estimates what the future population may be if the economic and activity restrictions to manage COVID-19 extend beyond those in the central case by a further 12 months. This approach shows how a change to the assumptions in the central case, which itself is highly sensitive to assumptions, could affect the national population. The extended restrictions are assumed to give rise to a similar level of economic upheaval and uncertainty as that observed in Australia's initial wave of infections and the second outbreak in Victoria. This scenario assumes that inbound and outbound international travel restrictions remain in place until late 2022, which could be due to one of the following:
 - rolling outbreaks of the virus in Australia necessitating the reimposition of severe containment measures
 - a delay in the availability and/or roll out of a population-wide COVID 19 vaccination program.

A summary of assumptions for each population component under each scenario is outlined in Part III.

2.2.1 NATURAL INCREASE

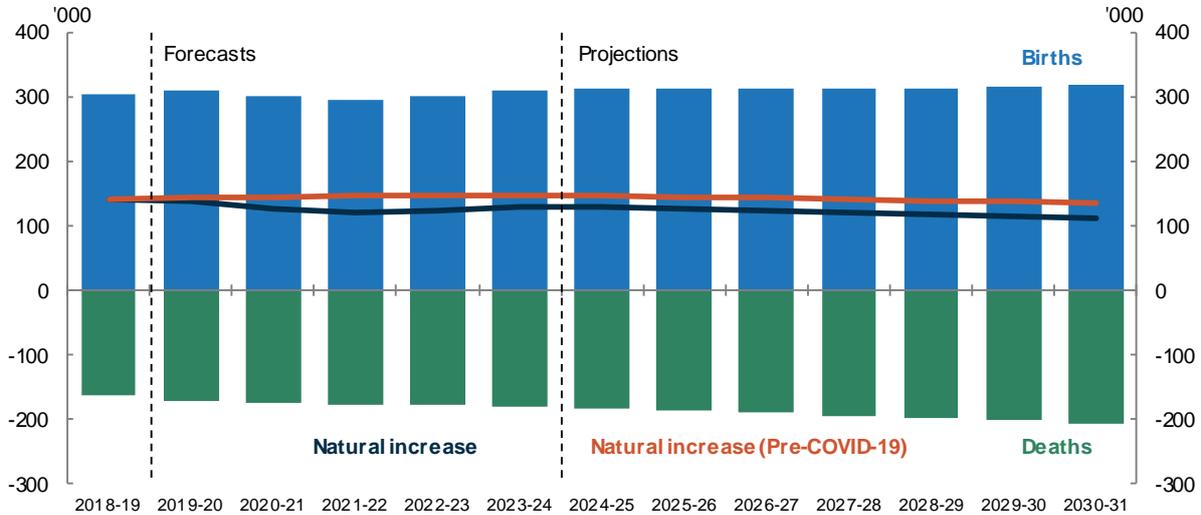
Consistent with the observed long-run trend, natural increase in the central projections is estimated to decline over the projection period from around 139,000 people in 2019-20 to around 112,000 in 2030-31. This decline is the result of a smaller increase in the number of babies being born compared to the rise in the number of annual deaths due to an older population. A gradual decline is also assumed to occur in the pre-COVID-19 projections as the total fertility rate is assumed to decline in the long run even without the pandemic (see Chart 39).

The total fertility rate is assumed to fall from 1.69 babies per woman in 2019-20 to 1.58 in 2021-22 as a result of some families delaying when they have a child. This delay is assumed to be short-lived with around 4 out of every 5 babies who would have been born in this period projected to be born within 10 years. The total fertility rate is, therefore, projected to recover to 1.69 babies per woman in 2023-24 before gradually declining to 1.62 in 2030-31. This longer-term decline reflects the trend of families tending to have children later and having fewer children when they do (McDonald, 2020), and is also reflected in the pre-COVID-19 projection scenario.

¹⁶ This assumption does not materially impact the projections, but has been retained for consistency with Budget.

Overall, it is estimated there will be around 245,000 fewer births by 2030-31 under the central case compared to the pre-COVID-19 projection scenario. This is due not only to a lower assumed fertility rate, but also to there being a smaller population of potential parents as the inflow of migrants slows.

Chart 39. NATURAL INCREASE AND COMPONENTS, AUSTRALIA, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

Life expectancies are projected to continue to increase over time as age-specific mortality rates are assumed to continue to improve. Over the projection period, mortality rates are generally assumed to improve at the same annual rates observed in the last 30 years over all ages and sexes. Life expectancy at birth is projected to increase from 80.7 years for men and 84.9 years for women in 2016-18 to 83.1 years for men and 86.5 years for women in 2030-31.

There have been around 28,000 confirmed cases of COVID-19 in Australia and, at the time of publication, just over 900 deaths attributed to it (Department of Health, 2020). Provisional Australian Bureau of Statistics mortality data shows that the number of doctor-certified deaths between January and July 2020 was slightly higher than the number of doctor-certified deaths on average between January and July in the previous 5 years (Australian Bureau of Statistics, Provisional Mortality Statistics Jan-July, 2020). In particular, compared with the January-July average over the previous 5 years, aggregate doctor-certified deaths between January and July in 2020 were slightly higher for men aged 65 years and over. Deaths due to COVID-19 have been reported in those aged in their 20s to their 100s, but the majority of deaths have been reported in people aged 70 years and over (Department of Health, 2020).

The Australian Institute of Health and Welfare modelled what might have happened in Australia if infection rates as high as those in the UK, Canada and Sweden were experienced here in the first 4 months of the pandemic. If these rates were applied to the Australian population, it is estimated there could have been between 4,800 and 14,400 deaths due to COVID-19 in the first 4 months of the pandemic (Australian Institute of Health and Welfare, Australia’s Health 2020 Data Insights, 2020). Other research has found that had Australia experienced the high mortality observed in England and Wales there would have been 19,400 ‘excess deaths’ in 2019-20 (Wilson, Temple, & Charles-Edwards, 2020).¹⁷

To put this in context, there would need to be around 25,000 additional deaths from COVID-19 (or a 15 per cent annual increase in deaths) to reduce Australia’s annual rate of population growth by 0.1 percentage

¹⁷ Excess deaths refers to the number of deaths from all causes during a crisis above and beyond what would have been expected under ‘normal’ conditions.

points. Based on the evidence to date, COVID-19 is not currently expected to significantly affect future mortality or rates of improvement at the aggregate level. This may change depending, for example, on the potential for future outbreaks, the effects of people deferring medical treatment and the unknown long-term health outcomes for survivors of the virus.

Lower future fertility and higher future life expectancies lead to further population ageing (see Box 7). Towards the end of the projection period, the level of net overseas migration is assumed to remain flat, meaning that it will contribute proportionally less population growth in later years. This also contributes to projected population ageing.

BOX 7. POPULATION AGEING — 2019-20 TO 2030-31

Between 30 June 2019 and 2031, the median age in Australia is projected to increase from around 37 to 40 years. The proportion of people aged 65 and over is projected to increase from 15.9 to 19.5 per cent, and the dependency ratio¹⁸ is projected to change from 1.89 to 1.75. This deterioration is projected to come as the youngest of the baby boomer generation turn 65 by 30 June 2031.

Compared to the central case, and in the absence of COVID-19, the median age is projected to increase to around 39 years, the proportion of the population age 65 and over is projected to increase to 18.8 per cent, and the dependency ratio is projected to fall to 1.78.

COVID-19 will contribute to the faster ageing of Australia's population as some families put off having children and fewer young migrants enter Australia in the short term due to international border restrictions. Once these restrictions are lifted, the resumption of overseas migration will again help to slow the rate of population ageing. Without overseas migration, labour force growth in Australia would become negative by 2050 (Chomik, Piggott, & McDonald, 2017), and overall population growth would decline within a generation.

By 30 June 2031, the future populations in New South Wales, Victoria, Western Australia and Queensland are projected to have similar median ages (between 39 and 40 years), shares of people aged 65 and over (between 18.0 and 20.2 per cent) and dependency ratios (between 1.69 and 1.87) as those for Australia generally (40 years, 19.5 per cent and 1.75 respectively).

The Northern Territory is projected to remain Australia's youngest state at 30 June 2031, with its median age projected to be 36 years, its share of population aged 65 and over to be 11.8 per cent and its dependency ratio to be 2.36. The projected ageing of the Northern Territory's population is partially due to its increasing life expectancy and declining fertility rate. The Australian Capital Territory's population is projected to remain Australia's second youngest state at 30 June 2031. Its median age is projected to be 38 years, the share of its people aged 65 and over 16.4 per cent and its dependency ratio 2.01.

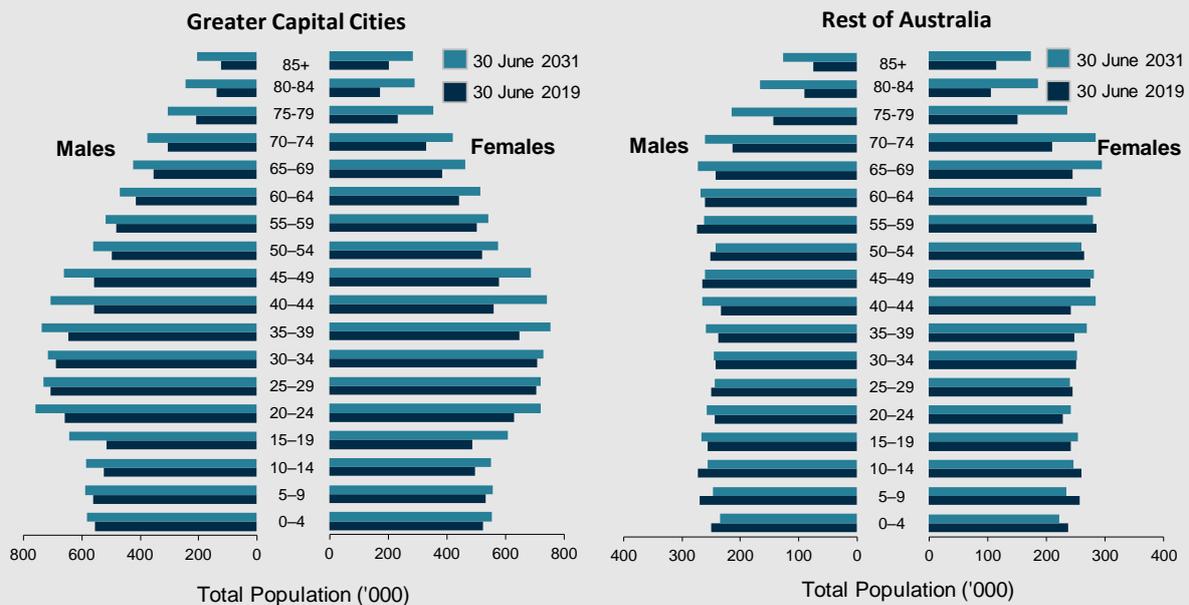
¹⁸ The dependency ratio refers to the number of people of traditional working-age (15-64) for every person aged under 15 and 65 and over. The old age dependency ratio refers only to the number of people of traditional working-age (15-64) for every person aged 65 and over.

Tasmania is projected to remain Australia’s oldest state at 30 June 2031. Its median age is projected to be 44 years, its share of population aged 65 and over 24.9 per cent and its dependency ratio 1.49. The projected increases in the share of its population aged 65 and over and dependency ratio are large compared to most other states. This is partially due to young Tasmanians migrating to other states for education and employment opportunities and a trend of adults aged 45 and over moving into Tasmania (Australian Bureau of Statistics, Regional population by age and sex, 2020).

South Australia’s population is projected to remain Australia’s second oldest at 30 June 2031. Its median age is projected to be 42 years, the share of its population aged 65 and over 23.4 per cent, and its dependency ratio 1.58. The ageing of South Australia’s population is partly due to its young adults migrating to other jurisdictions (Australian Bureau of Statistics, Net internal and overseas migration estimates by region (SA2 and above) and age, 2016-17 onwards, 2020).

For each state, the ageing of the population is projected to be more pronounced in the rest-of-states areas. Chart 40 shows that the biggest increases in population in the rest-of-states are projected to occur in the 65 and over age bracket, and that the 65 to 69 age group is projected to be the largest age group at 30 June 2031. This ageing is due to multiple factors, including the ageing of the baby boomer cohort, lower inflow of overseas migrants into rest-of-state areas, and older Australians choosing to live in coastal areas (Bureau of Infrastructure, Transport and Regional Economics, 2011).

Chart 40. AGE STRUCTURE, GREATER CAPITAL CITIES AND REST OF AUSTRALIA, CENTRAL CASE, 30 JUNE 2019 AND 2031



Source: (Australian Bureau of Statistics, Regional population by age and sex, 2020), Centre for Population projections produced by Dr Tom Wilson

2.2.2 NET OVERSEAS MIGRATION

Net overseas migration is the component of population change expected to be hit hardest by COVID-19 due to the effect of travel restrictions to stop the spread of the virus. Travel restrictions implemented in March 2020 meant temporary migrants, with limited exceptions, have not been able to enter Australia. At the same time, existing, on-shore temporary migrants have continued to leave the country. For example, temporary migrants in Australia (excluding visitors) declined by almost 162,000 from the beginning of March to the end of October

2020 following the closure of international borders on 20 March 2020. This is in stark contrast to the previous 9 years when the change in the number of temporary migrants in Australia from the beginning of March to the end of October was always positive, with an average increase of 38,000 people.

Inbound and outbound international travel is assumed to remain low through to the end of 2021. A population-wide COVID-19 vaccination program is assumed to be in place by that time. That is, the vaccine program is in place enough to allow for relatively free movement of people (no assumptions are made about vaccination coverage rates). As international borders reopen, behavioural responses to COVID-19 and softer labour markets domestically and globally are anticipated to affect potential migrants' decisions about emigrating to or from Australia (see Part III for more details).

Forecasts and projections have been prepared by incorporating assumptions about these behavioural responses to the pre-COVID-19 scenario where the COVID-19 pandemic is assumed not to have occurred (see Part III for a description of the pre-COVID-19 scenario). Table 3 summarises the effect of assumptions and reflects differing behaviours among migrant groups. For example, migrants arriving to join the Australian labour market are assumed to have a higher likelihood of returning to pre-COVID-19 behaviours within the forecast period than students or working holiday makers who have more options, such as to defer or undertake alternative activities in their home country or elsewhere. The assumptions relating to permanent arrivals reflect the current permanent migration program settings which are expected to result in a relatively high proportion of onshore visa grants.

Table 3. LEVEL OF OVERSEAS ARRIVALS AND DEPARTURES RELATIVE TO PRE-COVID-19 SCENARIO (%)

FINANCIAL YEAR	ALL TEMPORARY ARRIVALS	NZ ARRIVALS	PERM. ARRIVALS	PERM. DEPARTURES
2020–21	4	25	20	0
2021–22	20	100	50	50
2022–23	61	100	65	75
2023–24	91	100	100	100

Note: Australian citizen departures are included in permanent departures. Australian citizen arrivals are not included in permanent arrivals as these are assumed to be the same as in the pre-COVID-19 scenario. Similarly, departures by temporary migrants are assumed to be the same as in the pre-COVID-19 scenario.

Source: Centre for Population forecasts and projections

The effect of travel restrictions in the March and June quarters of 2020 is forecast to lead to net overseas migration falling from 240,000 in 2018-19 to 154,000 in 2019-20 (Chart 41). This is expected to occur for a number of reasons and provides insights into forecasts further out.

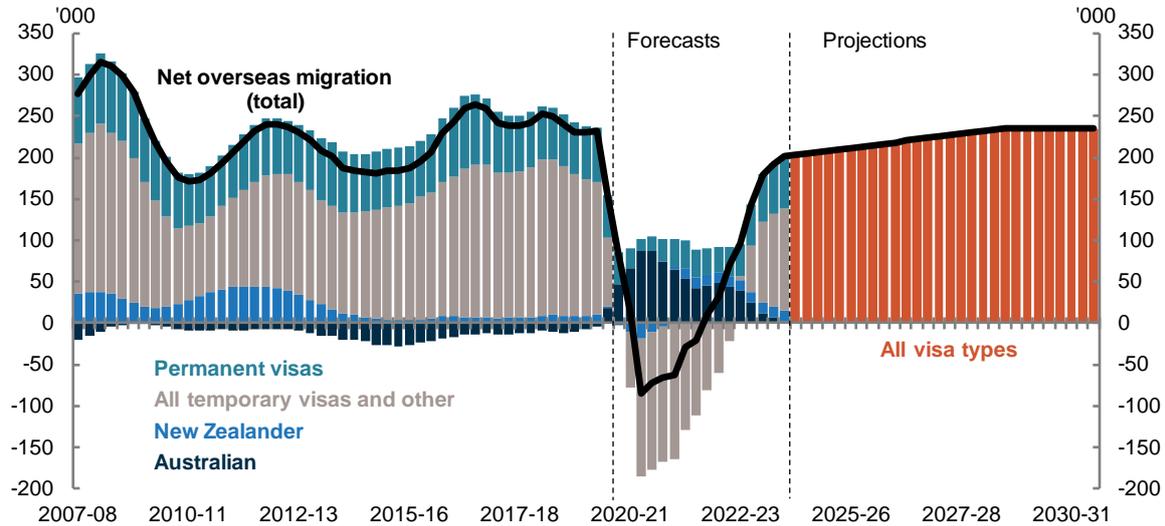
While the international border was closed to most temporary migrants for less than one full quarter, net overseas migration in 2019-20 for all temporary migrants is forecast to be almost half the size it was in 2018-19. The departure of existing, on-shore temporary migrants discussed above is expected to have a large downward effect on net overseas migration numbers.

Australian citizens are forecast to return to Australia in record numbers in 2019-20 and few departures are anticipated. The lower departures recorded to March 2020 are considered to be influenced by those who departed in 2019 returning earlier than they anticipated due to the pandemic. As Australian citizens are forecast to be net immigrants rather than emigrants over the entire forecast period, this keeps the level of net overseas migration (and hence population growth) higher than it otherwise would be. This record flow is not

expected to offset the flow of temporary migrants leaving Australia. Finally, the number of permanent resident arrivals is expected to have declined significantly since March 2020 relative to 2018-19.

In 2020-21, with only very low levels of temporary migrants expected to be in demand to address priority skills shortages in the health, construction and software development sectors, all temporary migrant groups are forecast to be net emigrants. This would be the first time that more people have left Australia than arrived in 75 years — since just after World War II.

Chart 41. NET OVERSEAS MIGRATION FORECASTS AND PROJECTIONS, 2007-08 TO 2030-31



Note: Net overseas migration forecasts are based on the same assumptions as at Budget 2020-21. Quarterly data presented on a year-ending basis. Number of visas is based on the visa type at the time of a traveller’s arrival or departure. Transfers to other visa types while onshore are not captured, for example, some international students transfer to skilled visas or permanent visas while onshore. ‘Other’ includes visitors, temporary and unclassified visa (missing administrative visa information). ‘All permanents’ includes skilled, family and humanitarian categories.¹⁹

Source: Centre for Population calculations based on unreleased Department of Home Affairs data, Centre for Population forecasts and projections

As travel restrictions are assumed to ease during 2021-22, temporary migrants are forecast to begin returning, although with arrivals forecast to be lower than 30 per cent of pre-COVID-19 levels, while departures of temporary migrants continue as normal. As a result, net flows for all temporary migrants, with the exception of New Zealanders, are forecast to remain negative and reduce population growth. With weak labour markets globally, emigration rates of Australian citizens and permanent residents are expected to remain depressed with Australian citizens continuing to arrive in larger numbers than depart the country. Overall, net overseas migration is forecast to be -22,000 in 2021-22.

Over the remainder of the forecast period — with increasing arrivals of students, temporary skilled workers and other temporary migrants — net overseas migration is forecast to increase to 201,000 by 2023-24. Net overseas migration is not expected to return to pre-COVID-19 levels by the end of the forecast period (2023-24) due to reduced demand from international students and a soft labour market leading to lower demand for skilled migrants and working holiday experiences.

¹⁹ The visa composition in the transition from the end of the forecast period, 2023-24, to the long-run net overseas migration assumption, cannot be fully identified. The orange bars in the projection period reflect both that the 2023-24 starting point is only one of many possible forecast outcomes, and that the long-run assumption incorporates temporary migrants that transition to permanent residents into the permanent resident component. It is not possible to compare net overseas migration components in the long-run assumption with the history and forecast elements.

Once the effects of COVID-19 international travel restrictions subside, migration flows of permanent residents, Australian citizens and temporary migrants are assumed to gradually increase to flows reflecting pre-COVID-19 behaviours. By 2028-29, net overseas migration is assumed to reach the long-run assumption of 235,000 per year and is assumed to remain at this level thereafter. The long-run assumption is discussed in more detail in Part III.

Compared to the pre-COVID-19 scenario, the central scenario for net overseas migration estimates that between 2019-20 and 2028-29, there will be 1.1 million fewer immigrants and almost 250,000 fewer emigrants as a result of the pandemic. Equivalently, the direct contribution to population growth from net overseas migration in the central scenario is 900,000 fewer people when compared to the pre-COVID-19 scenario.

All forecasts have varying levels of uncertainty around them. The unknown behavioural responses to changing health and economic conditions have lowered the predictability of future migration patterns significantly. The forecasts of future net overseas migration remain highly dependent on assumptions made about the spread of the virus, the duration of the mitigation measures here and abroad, and the behavioural responses by would-be migrants to evolving economic conditions.

2.2.3 NET INTERNAL MIGRATION

The COVID-19 pandemic is expected to reduce the number of internal moves in the short term, due to economic uncertainty and restrictions such as hard border closures. Impacts in the longer term are less clear, but can be expected to be driven by the relative economic conditions of different parts of the country; such as, gross state product, unemployment, house prices and people's assessment of the net benefit they will have from moving. This includes the non-financial benefits such as family, social connections and lifestyle (Australian Bureau of Statistics, Reflecting Australia - Stories from the Census, 2016, 2018).

As decisions about internal migration reflect multiple social and economic considerations for an individual and the relative economic prospects of different locations, forecasting or projecting internal migration is very difficult. The onset of the COVID-19 pandemic further compounds this uncertainty as its impacts have not been evenly distributed across the country. Victoria has experienced greater social and economic impacts due to its second outbreak and resulting lockdown. This can be expected to lead to a short-term increase in out-migration from Victoria, and Greater Melbourne in particular, relative to other states. Further, a short-term increase in net migration from the cities to rest-of-state areas can be expected within each state, except for the Northern Territory (University of Queensland, unpublished).

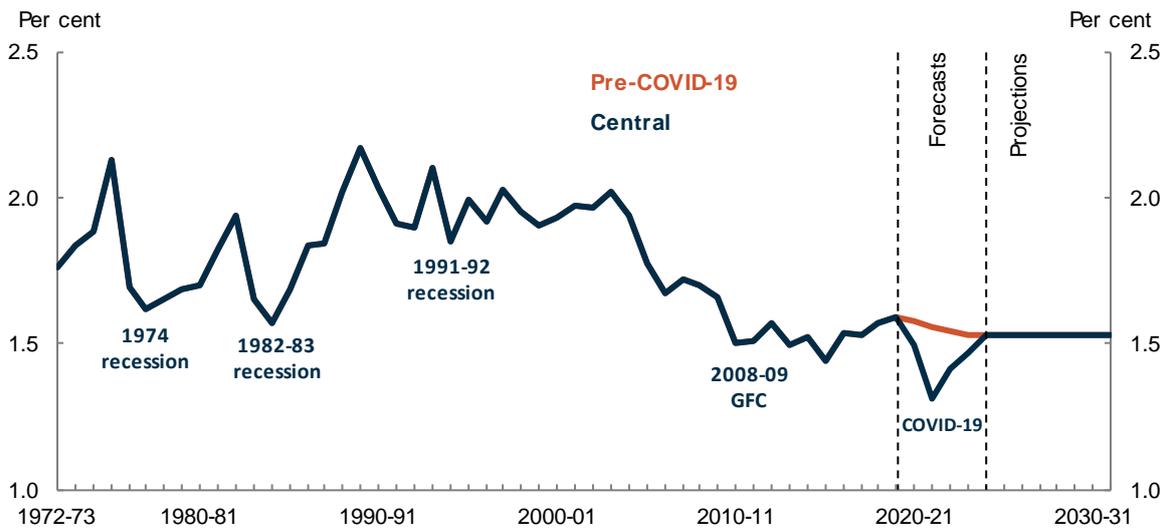
In projecting future net internal migration, it is assumed that the level of net internal migration — the number of people who move — falls as a result of the pandemic and the associated economic and activity restrictions. The level of interstate migration is projected to fall by 12 per cent in 2020-21 compared to 2019-20, which will be the largest year-on-year drop in interstate migration in around 40 years and lead to the lowest rate of interstate migration as a proportion of the population on record. This is because there is assumed to be a 15 per cent drop in 2020-21 across all states and territories, except for Victoria which is assumed to have fewer people arriving and more people leaving. This reflects the direct impacts of the COVID-19 pandemic (such as hard border closures) and indirect impacts (such as the resulting economic recession), in addition to historically low levels of interstate migration in Australia. The level of interstate migration is assumed to return to the 20-year average from 2023-24, along with an increase in the proportion of the population that moves (see Chart 42).

The geographic pattern of future net internal migration is already difficult to predict and COVID-19 has further added to this uncertainty. As a result, the patterns of net interstate migration are assumed to reflect the direction of interstate migration in recent years, before returning to the average allocation for the last 20 years from 2023-24 onward. This means that states like Tasmania and Western Australia, which have experienced

positive and negative net interstate migration over the last 20 years, are assumed to have future net interstate migration of close to zero.

The Centre has developed assumptions regarding future net internal migration and will continue to update these assumptions as more information and data becomes available. The Centre is funding the Australian Bureau of Statistics to produce quarterly provisional Regional Internal Migration Estimates. The first quarter of this release contains insights that are consistent with the projection assumption that the level of interstate migration will fall, and that the flow of internal movement to the capital cities from the rest-of-state areas will slow. As this is a new release, the single quarter’s worth of provisional estimates have not been taken account in the Statement in detail, but subsequent releases will inform future internal migration analysis and insights from the Centre. This is discussed further in Part III.

Chart 42. ANNUAL INTERSTATE MIGRATION RATE, AUSTRALIA, 1972-73 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020; Australian Bureau of Statistics, Historical population, 2016, 2019), Centre for Population assumptions based on advice from University of Queensland

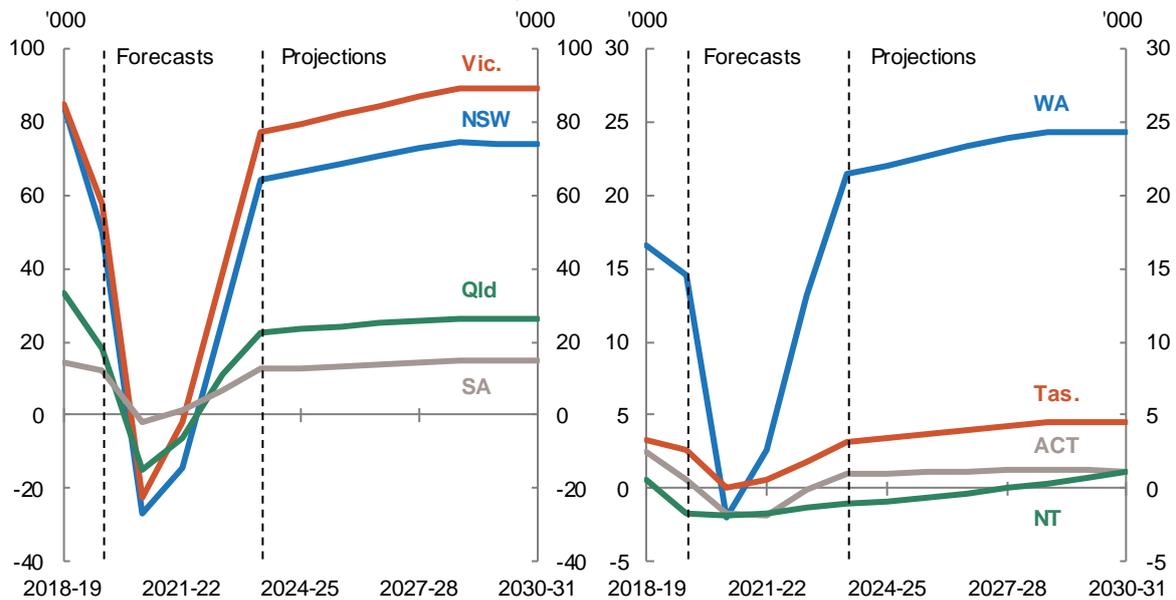
2.3 STATE AND TERRITORY POPULATIONS

Consistent with historical trends and the projections of Australia’s overall population growth, net overseas migration and net interstate migration are expected to continue to have the greatest impact on driving differences in state population growth over time. By contrast, natural increase is projected to remain relatively stable and does not drive substantial changes in population growth over time, although it does vary across different parts of Australia.

The distribution of migrants is strongly affected by the composition of migrant classes (such as international students, New Zealanders and working holiday makers) across states and territories, which in turn is driven by differing economic opportunities. For example, New South Wales and Victoria have historically had a larger share of temporary student migrants and the Northern Territory has historically attracted working holiday makers.

Due to the impacts of the COVID-19 pandemic on international movements, states and territories that have historically gained a large proportion of their growth from overseas migrants are forecast to experience a relatively larger fall in their population growth (Chart 43). The level of migrants forecast to flow to states and territories reflects the underlying trends in current arrival and departure patterns as well as the composition of migrants. Despite the impacts of COVID-19 on net overseas migration, the increasing share of net overseas migration accounted for in Victoria, and underway for much of the last decade, is projected to continue. By 2030-31, Victoria’s share of net overseas migration is projected to increase to 38 per cent while New South Wales share is projected to decline to 31 per cent. In 2018-19, these 2 state’s shares were almost identical.

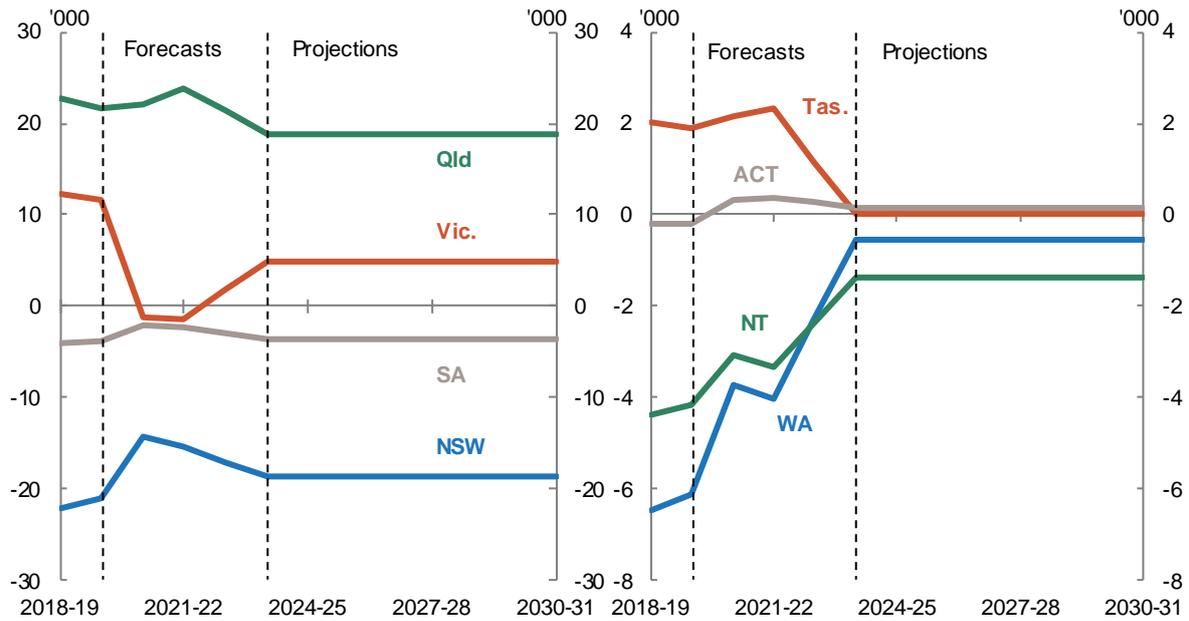
Chart 43. NET OVERSEAS MIGRATION BY STATE, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population forecasts and projections

Additionally, levels of interstate migration in most states and territories are expected to be lower than in the pre-COVID-19 scenario due to the economic effects of the pandemic (Chart 44). In the forecast period, and in net terms, fewer people are expected to leave states that usually experience net interstate migration losses, and fewer people are expected to arrive in states that usually experience net interstate migration gains.

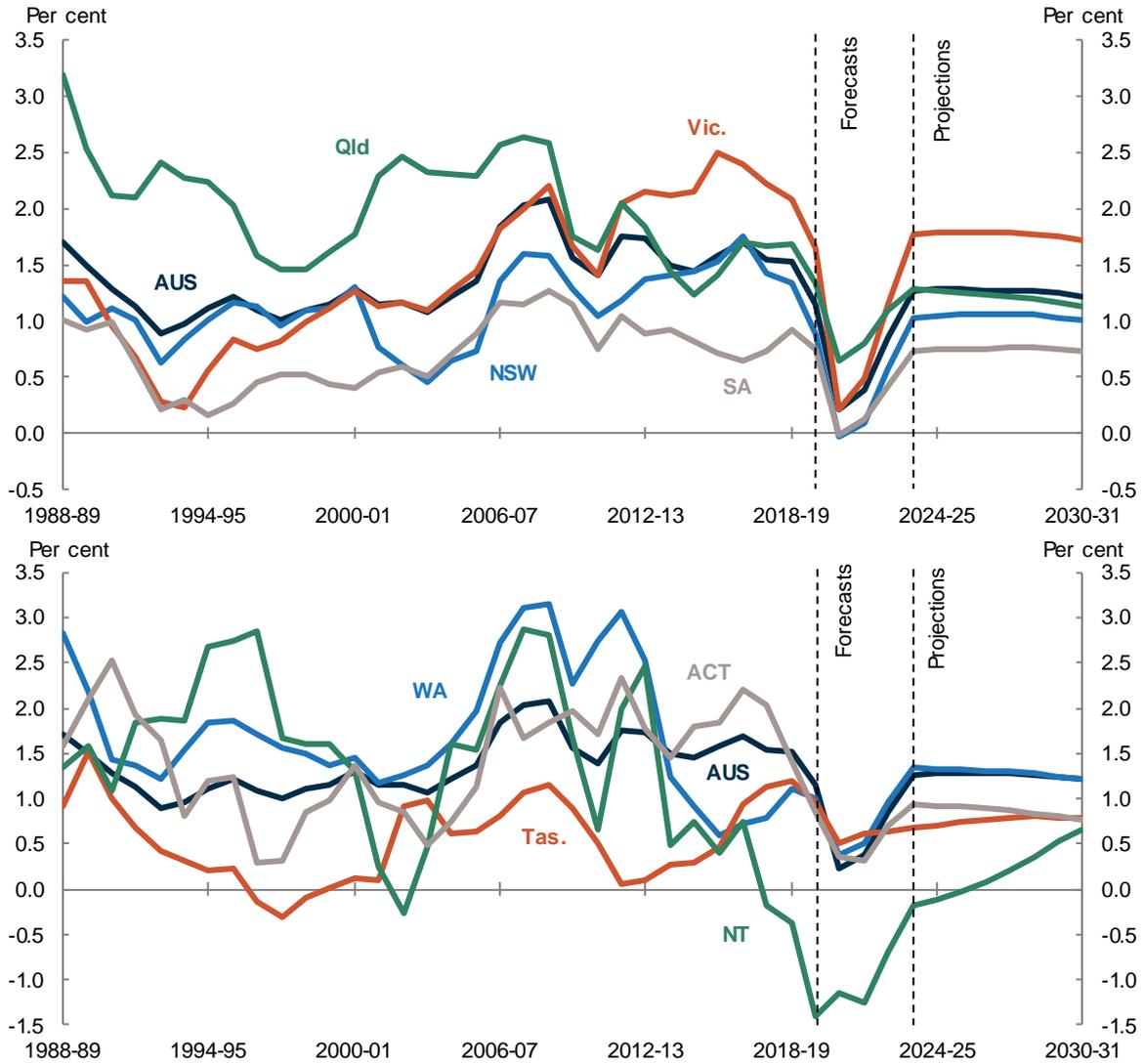
Chart 44. NET INTERSTATE MIGRATION BY STATE, CENTRAL CASE, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population assumptions based on advice from University of Queensland

In the short term, all states and territories are projected to experience an immediate drop in population growth (Chart 45). By the end of the medium term, growth rates for the states under the central case are projected to converge close to growth rates under pre-COVID-19 projections. While Victoria is the hardest hit state due to the pandemic’s effect on net overseas migration and net interstate migration, population growth is projected to rebound and result in Victoria having the fastest growing population by 2022-23. The Northern Territory is projected to remain the slowest growing state until 2030-31 with annual growth rising from a low of -1.4 per cent in 2019-20 to just under 0.7 per cent by the end of the medium term.

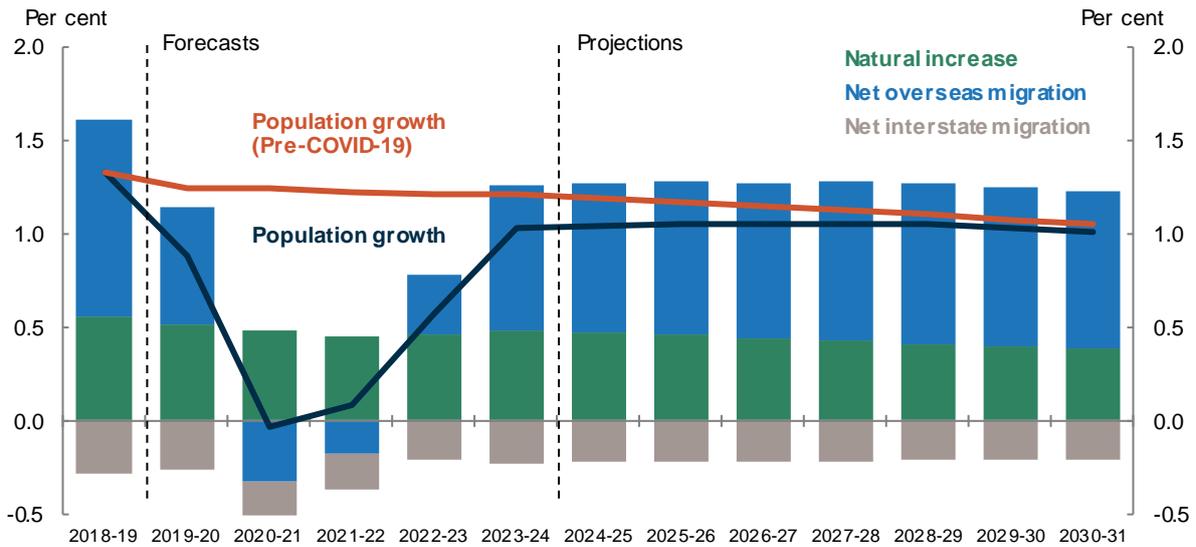
Chart 45. COMPARISON OF PROJECTED GROWTH RATES, STATE POPULATIONS, 1988-89 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

New South Wales

Chart 46. FUTURE POPULATION GROWTH AND COMPONENTS, NEW SOUTH WALES, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

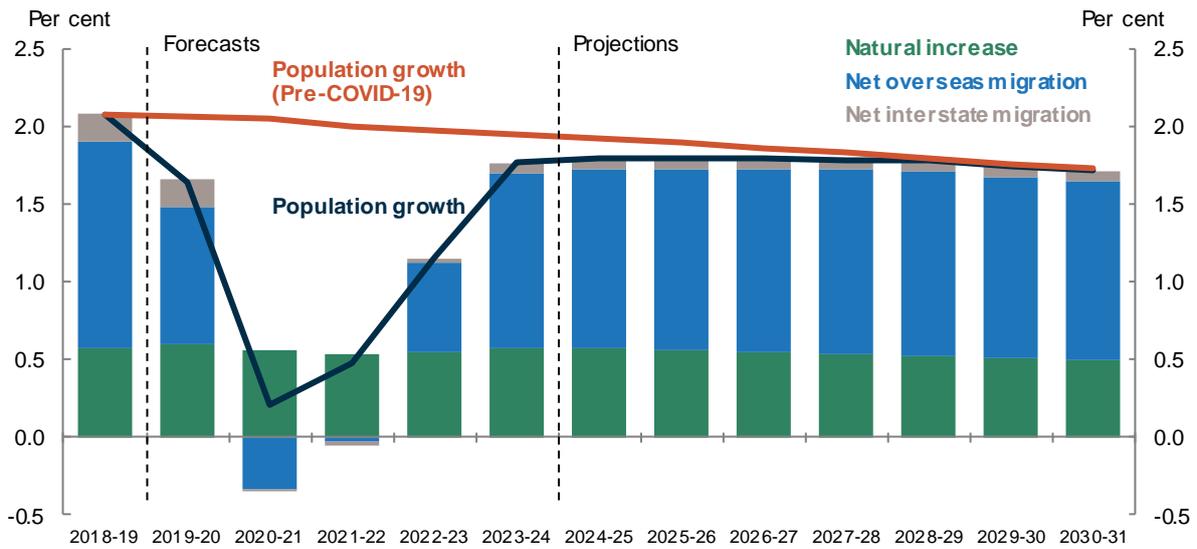
New South Wales is projected to remain the largest state, growing from 8.1 million in June 2019 to 8.9 million by June 2031. As the largest state, population growth reflects national trends and is projected to fall from 1.3 per cent in 2018-19 to a low of zero per cent in 2020-21 before recovering to 1.0 per cent by 2023-24 (see Chart 46). Population growth in the state is projected to hold this growth rate to 2030-31. Overall, the New South Wales population is estimated to be 4 per cent (377,100 people) smaller by the end of 2030-31 compared to pre-COVID-19 projections.

Over the projection period, 13,500 fewer people are assumed to leave New South Wales through net interstate migration when compared to the pre-COVID-19 scenario. Net interstate migration for the state is assumed to experience its smallest net loss in 2020-21 with approximately 14,300 people leaving in net terms, before returning to the 20-year average of -18,500 from 2023-24 onward. The 20-year average reflects the fact that New South Wales has consistently had net losses of interstate migrants over the past 20 years.

Consistent with national forecasts, New South Wales is projected to have 2 consecutive years of negative net overseas migration in 2020-21 and 2021-22. Fewer migrant arrivals, coupled with the departure of onshore migrants on temporary visas, are expected to result in zero growth for the state in 2020-21. A return to positive net overseas migration after international borders reopen is forecast, expected to be driven by a recovery in arrivals from students and people on temporary visas. From 2023-24, net overseas migration in New South Wales is expected to approach pre-COVID-19 trends.

Victoria

Chart 47. FUTURE POPULATION GROWTH AND COMPONENTS, VICTORIA, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

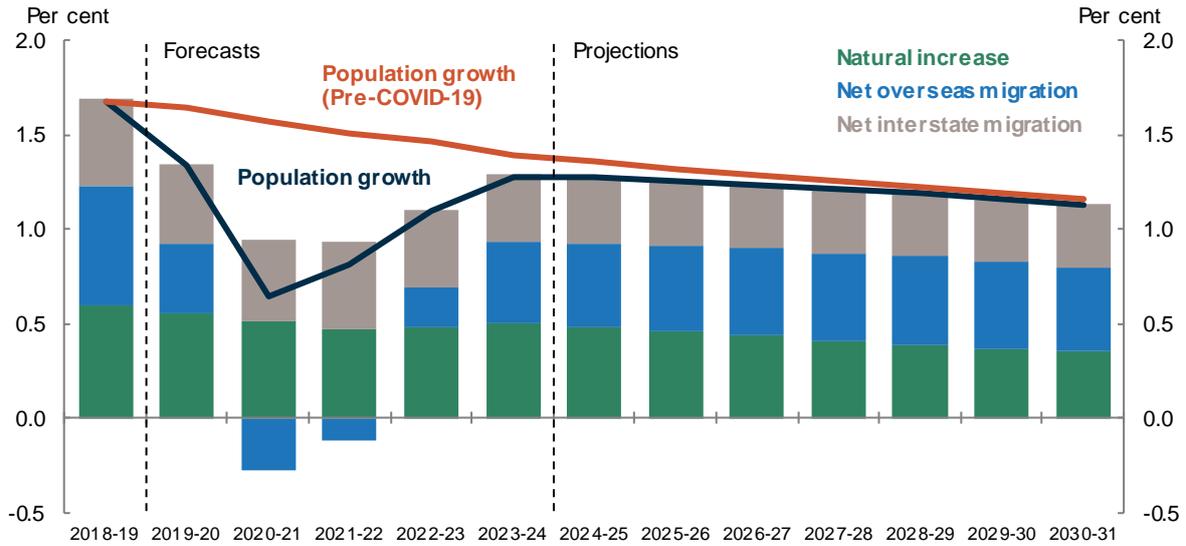
Victoria’s population is projected to increase from 6.6 million at 30 June 2019 to reach 7.9 million by 30 June 2031. Population growth in Victoria is projected to decline from 2.1 per cent in 2018-19 to 0.2 per cent in 2020-21 (see Chart 47). As travel restrictions ease and the economy recovers, Victoria’s population growth is projected to recover to 0.5 per cent in 2021-22 and then to 1.8 per cent in 2023-24. The state’s population growth rate in a pre-COVID-19 scenario is projected to have been around 2 per cent until 2023-24 before gradually declining. As a result, Victoria’s population is expected to be 5.0 per cent (411,700 people) smaller by 30 June 2031, compared to pre-COVID-19 projections.

Over the projection period, Victoria is assumed to gain 23,600 fewer people through net interstate migration when compared to the pre-COVID-19 scenario. Travel and activity restrictions in the state are assumed to further reduce net interstate migration in the short term such that in 2020-21 and 2021-22, net interstate migration is projected to be negative for the first time since 2007-08. A return to the 20-year average (a gain of 5,000 people each year) is assumed from 2023-24. It is smaller than net interstate migration in recent years because the 20-year average includes the net losses of migrants from Victoria in the 1990s.

More overseas migrants are forecast to leave Victoria than arrive in 2020-21 and 2021-22, resulting in negative net overseas migration. The departure of international students and temporary migrants is projected to dampen population growth in the state. However, the trend is forecast to reverse from 2022-23, with a sharp increase in net overseas migration driven by students and permanent migrants forecast to lift Victoria’s population growth significantly. Population growth in Victoria is, thus, projected to recover to what it is expected to have been without the pandemic, faster than other states and territories.

Queensland

Chart 48. FUTURE POPULATION GROWTH AND COMPONENTS, QUEENSLAND, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

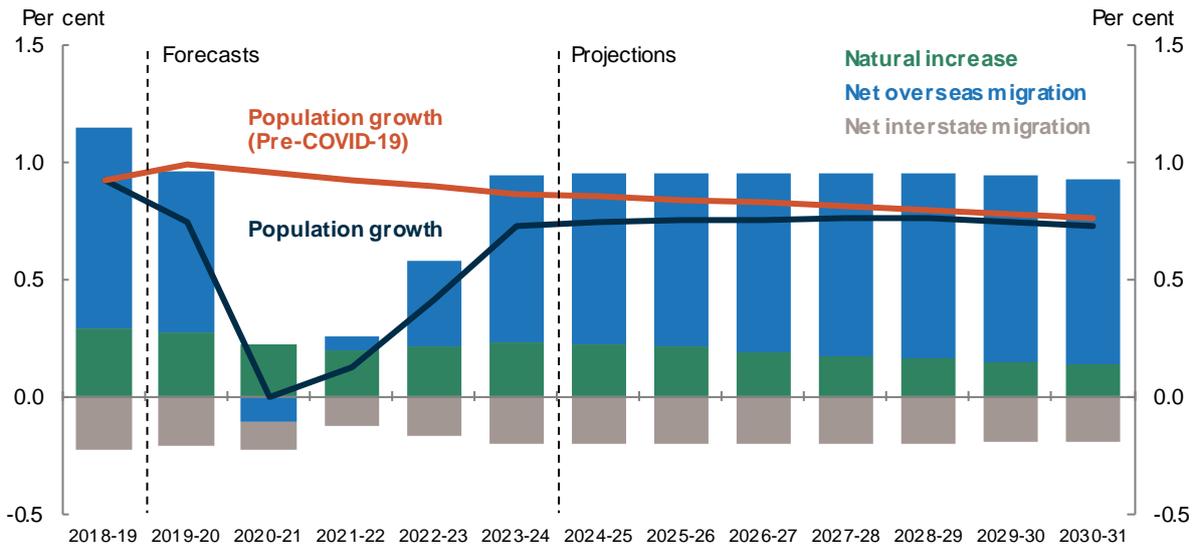
Population growth in Queensland is projected to slow, pushing it from the second fastest growing state in 2018-19 to the third fastest by 2030-31, overtaken by Western Australia from 2023-24 onward. The growth rate is projected to fall from 1.7 per cent in 2018-19 to a low of 0.6 per cent in 2020-21. It is then projected to rise to 1.3 per cent in 2023-24 before declining to 1.1 per cent in 2030-31 (see Chart 48). While the population is projected to increase from 5.1 million to 5.8 million people in that time, Queensland is projected to be 2.7 per cent (159,700 people) smaller in 2030-31 compared to pre-COVID-19 projections.

Net interstate migration for Queensland is assumed to peak in 2021-22 with approximately 23,800 people arriving in the state, before returning to the 20-year average (19,000 people) from 2023-24. This reflects the fact that over the past 20 years Queensland has consistently had net gains of people through interstate migration. Over the projection period, 5,300 more people are assumed to arrive in Queensland through net interstate migration when compared to the pre-COVID-19 scenario. This is because Queensland typically gains population from Victoria, and outflows from Victoria are not assumed to decrease.

Consistent with national forecasts, net overseas migration is forecast to be negative in Queensland in 2020-21 and 2021-22 with very few migrant arrivals and departures of onshore migrants on temporary visas. Net overseas migration is expected to recover by 2023-24 with the inflow of students and New Zealand citizens.

South Australia

Chart 49. FUTURE POPULATION GROWTH AND COMPONENTS, SOUTH AUSTRALIA, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

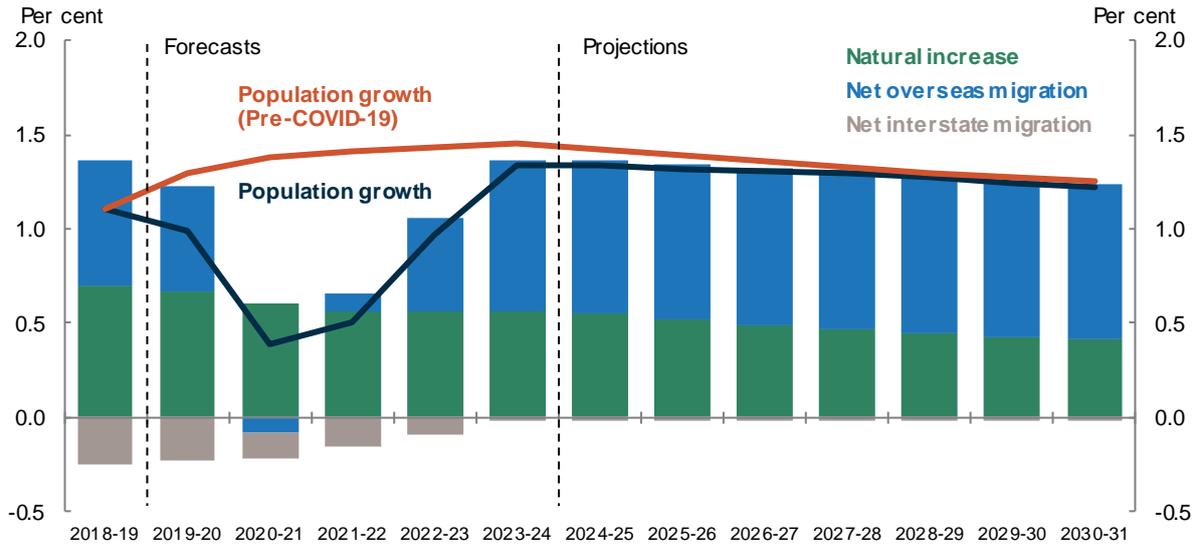
In addition to being one of the smaller states, South Australia has one of the lower projected growth rates, growing from 1.8 million as at 30 June 2019 to reach 1.9 million by 30 June 2031. Under the central case, South Australia’s population growth is not projected to reach 1.0 per cent in the projection period, instead falling to zero per cent in 2020-21, then recovering from 2021-22 onwards to reach 0.7 per cent by 2030-31 (see Chart 49). It is estimated that South Australia’s population growth rate would have reached 1.0 per cent for the first time since 2011-12 in the absence of COVID-19. South Australia’s population is projected to be 3 per cent, or 58,500 people, smaller by 30 June 2031 compared to pre-COVID-19 projections.

South Australia is assumed to experience a net interstate loss of people in 2020-21 with approximately 2,200 people leaving the state. Net interstate migration then returns to the 20-year average of a net outflow of 3,600 from 2023-24. This 20-year average reflects that South Australia has had consistent net losses of people through interstate migration over the past 20 years. Over the projection period, 3,900 fewer people are assumed to leave South Australia through net interstate migration when compared to the pre-COVID-19 scenario.

Net overseas migration is forecast to be negative in South Australia only in 2020-21. The composition of South Australia’s migrant flows is more diversified than that of the larger states — albeit with less gains due to smaller international student demand. Consequently, South Australia is not expected to experience as deep or as prolonged a period of negative net overseas migration compared to other states. The state is projected to recover quickly as international borders reopen and temporary and permanent migrants begin arriving from 2021-22.

Western Australia

Chart 50. FUTURE POPULATION GROWTH AND COMPONENTS, WESTERN AUSTRALIA, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

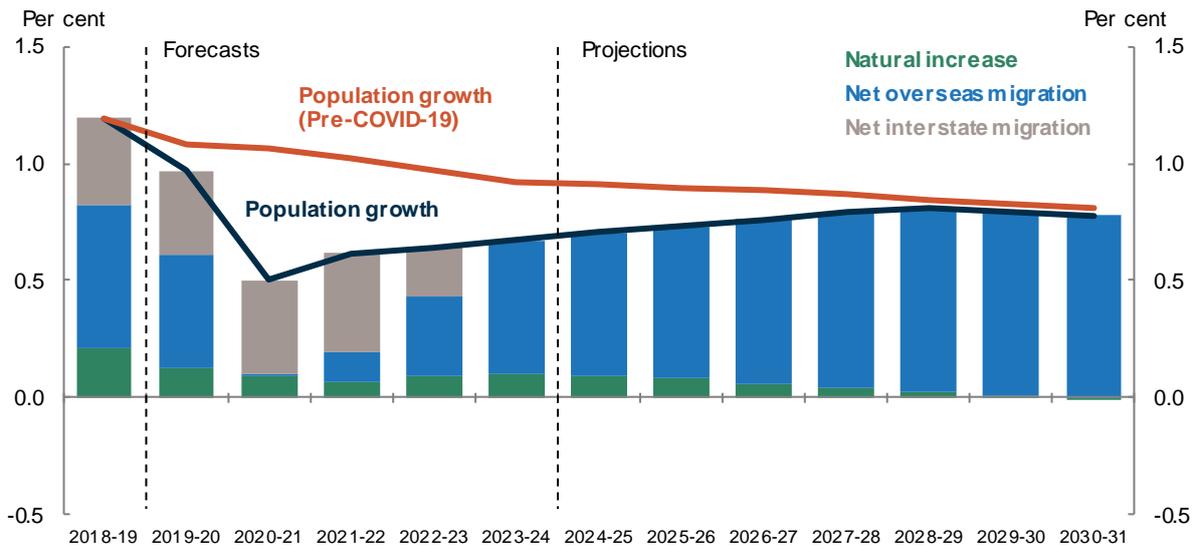
Western Australia’s population growth is strongly influenced by net overseas migration and is projected to fall from 1.1 per cent in 2018-19 to a low of 0.4 per cent in 2020-21. It is then projected to rise to 1.3 per cent by 2023-24, before declining to 1.2 per cent by 2030-31 (see Chart 50). While the population is projected to grow from 2.6 million in 2019 to 3.0 million over the projection period, it is estimated to be 3 per cent (93,700 people) smaller by 30 June 2031 compared to pre-COVID-19 projections.

Net interstate migration in Western Australia has historically tracked alongside economic cycles. Consistent with the long-run assumption applied across all states, future net interstate migration is assumed to return to the 20-year average of losing 530 people a year from 2023-24 onward. The 20-year average takes into account the variation in Western Australia’s interstate migration over the past 20 years, which has aligned with economic performance and opportunities in the past. Over the projection period, 2,200 more people are assumed to leave Western Australia through net interstate migration when compared to the pre-COVID-19 scenario.

Population growth after 2023-24 is mostly driven by natural increase and net overseas migration. Western Australia is expected to recover quickly from one year of negative net overseas migration in 2020-21. This is driven by strong expected growth in the number of temporary and skilled migrants arriving into the state. Like South Australia, Western Australia is not expected to experience as sharp a drop in net overseas migration as some states, primarily due to the smaller contribution of international students to migration flows in the state.

Tasmania

Chart 51. FUTURE POPULATION GROWTH AND COMPONENTS, TASMANIA, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

While Tasmania’s population is projected to grow from 534,600 at 30 June 2019 to 583,400 by 30 June 2031, it is estimated to be 2 per cent (13,600 people) smaller by 30 June 2031 compared to pre-COVID-19 projections. Growth is projected to fall to 0.5 per cent in 2020-21, and then gradually recover to, and then remain at, 0.8 per cent by 2026-27 (see Chart 51).

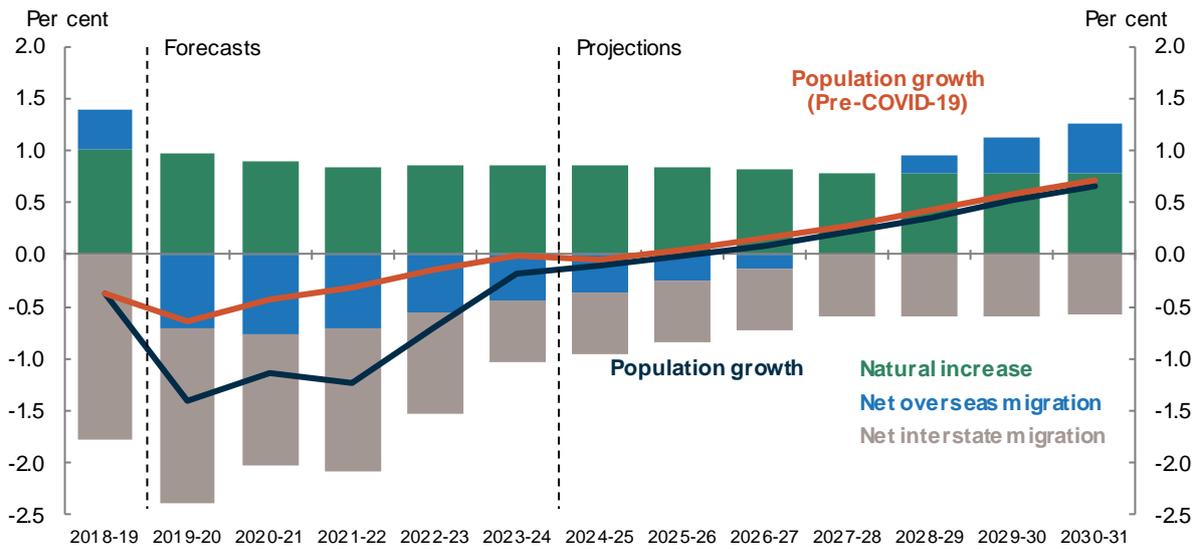
In recent years, Tasmania has gained people through net interstate migration. Net interstate migration in the state is assumed to peak in 2021-22 at approximately 2,300 people before returning to the 20-year average of around zero people from 2023-24 onward. The long-run net interstate migration assumption is not based on expectations of Tasmania’s future relative economic performance, but on the 20-year average flow of net interstate migration, consistent with assumptions for other states. Tasmania’s interstate migration patterns have varied between net inflow and net outflow over the last 20 years, which is why the assumed level of net interstate migration is smaller than has been seen in recent years. Over the projection period, Tasmania is assumed to gain 3,500 more people through net interstate migration than in the pre-COVID-19 scenario. This is because Tasmania typically gains population from Victoria, and outflows from Victoria are not assumed to decrease.

Tasmania’s total fertility rate is projected to fall to 1.65 babies per woman by 2030-31. Declining fertility rates in the state are projected to result in deaths surpassing births in 2030-31, leading natural increase to detract from the state’s population growth. Natural increase in the rest of Tasmania is projected to be negative from 2020-21 onwards and eventually counter the positive natural increase projected for Hobart.

Net overseas migration is projected to be the primary driver of population growth in Tasmania from 2022-23. Unlike the rest of Australia, the state is not expected to experience negative net overseas migration as a result of the pandemic. This is because the Tasmania has a more diverse flow of migrants and the contribution from temporary migrants overall is relatively smaller when compared to other states. Net overseas migration is expected to recover from a low of close to zero in 2020-21 to 3,100 in 2023-24, driven by the return of Australian citizens and temporary migrants.

Northern Territory

Chart 52. FUTURE POPULATION GROWTH AND COMPONENTS, NORTHERN TERRITORY, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

Population growth in the Northern Territory is projected to fall from -0.4 per cent in 2018-19 to a low of -1.4 per cent in 2019-20 before gradually increasing to 0.7 per cent in 2030-31 (see Chart 52). The Territory’s population is projected to fall from 246,100 as at 30 June 2019 to 238,900 by 30 June 2031, and to be 4 per cent (8,800 people) smaller by 30 June 2031 compared to pre-COVID-19 projections. Even in the absence of COVID-19, the state’s population is estimated to hold roughly stable, growing to reach 247,600 by 30 June 2031, or around 1,500 people higher than at the beginning of the projection period.

The Territory has the smallest population of all the states, with the largest share of Aboriginal and Torres Strait Island residents who disproportionately live in remote locations. These 2 factors combined mean that projecting the Territory’s future population and its components of change are inherently more challenging (Table 7 in Part III shows that there is a much greater likelihood that actual outcomes are significantly different from forecasts, even when they are prepared using best practice principles).

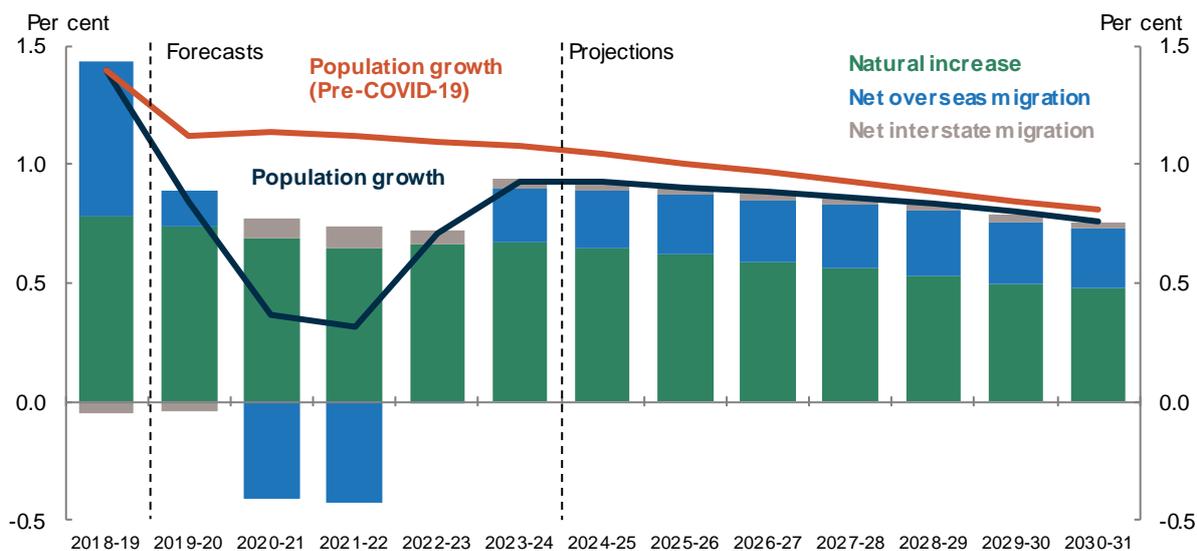
Net interstate migration to the Northern Territory has fluctuated in line with the mining and construction cycle, and is expected to do so in future. However, the Territory has generally had a net outflow of interstate movements, including in the most recent years. This loss is assumed to continue and to be 3,300 people in 2021-22 before returning to the 20-year average consistent with the assumptions for all other states.

The long-run net interstate migration assumption means a net outflow of 1,400 people from the Territory from 2023-24 onwards. The projected result is driven from 2018-19, the financial year where the Territory had its lowest net interstate migration. Over the projection period, a total of 1,400 more people are assumed to leave the Northern Territory through net interstate migration when compared to the pre-COVID-19 scenario.

The departure of working holiday makers and temporary skilled migrants, combined with lower migrant arrivals, is expected to result in a prolonged period of negative net overseas migration in the Northern Territory. Migrant arrivals are projected to recover from 800 in 2020-21 to 3,800 in 2023-24, but migrant departures are expected to increase from 2,700 in 2020-21 to 4,800 in 2023-24.

Australian Capital Territory

Chart 53. FUTURE POPULATION GROWTH AND COMPONENTS, AUSTRALIAN CAPITAL TERRITORY, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population projections

The Australian Capital Territory’s population growth is projected to fall from 1.4 per cent in 2018-19 to a low of 0.3 per cent in 2021-22 before recovering to around 0.9 per cent growth in 2023-24 (see Chart 53). While the Territory’s population is projected to grow from 426,300 at 30 June 2019 to 466,900 by 30 June 2031, it is estimated to be 3 per cent (13,600 people) smaller by 30 June 2031 compared to pre-COVID-19 projections.

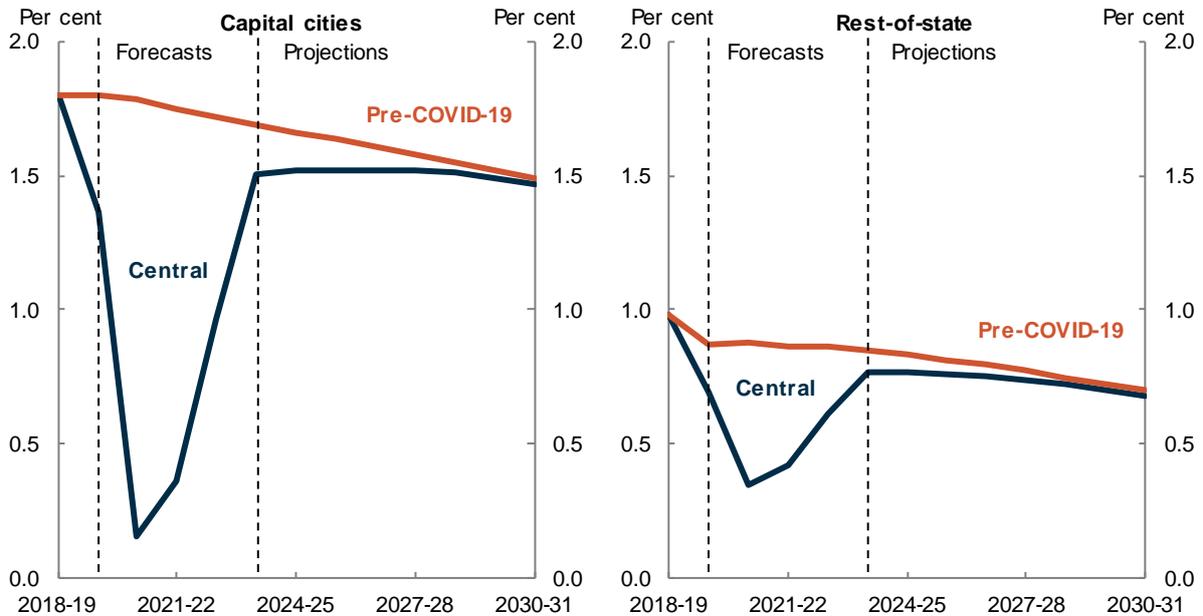
Net interstate migration to the Australia Capital Territory has fluctuated throughout history, with the Territory recording a loss in people in 2018-19 following 3 years of gains (where, similar to the Northern Territory, small changes can heavily influence projection assumptions). A peak gain of approximately 370 people is assumed in 2021-22 before the Territory returns to the 20-year average of 155 people in 2023-24. This takes into account that the interstate migration for the Australian Capital Territory has varied over the past 20 years and does not just reflect the net losses of people through interstate migration that has been seen in recent years. Over the projection period, the Australian Capital Territory is assumed to gain 870 more people through net interstate migration when compared to the pre-COVID-19 scenario.

The effects of negative net overseas migration are expected to detract more from the Australian Capital Territory’s population growth in 2021-22 compared to 2020-21. Net overseas migration in the Territory has historically been fuelled by strong growth in the higher education sector. A halt in migrant arrivals and a pronounced increase in departures by students is expected to lead to negative net overseas migration in 2020-21 and 2021-22. Given the reliance on international students, net overseas migration in the Territory is not expected to recover to pre-COVID-19 levels by 2030-31, as the international student flows to Australia are assumed not to have fully recovered by then (see Part III).

2.4 CAPITAL CITY AND REST-OF-STATE POPULATIONS

Over two-thirds of Australian residents live in capital cities and capital cities receive the vast majority of net overseas migration. As a result, the effects of the COVID-19 pandemic are estimated to be more pronounced in capital cities than in the rest-of-state areas of Australia. Capital cities are also projected to recover to a higher growth rate than rest-of-state areas, driven primarily by the forecast recovery in net overseas migration (see Chart 54, Chart 55, Chart 56 and Box 8).

Chart 54. POPULATION GROWTH IN CAPITAL CITIES AND REST-OF-STATES, SCENARIOS, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020), Centre for Population projections produced by Dr Tom Wilson

Melbourne and Sydney are projected to experience the largest population decrease as a result of the pandemic with an estimated 390,000 and 340,000 fewer people respectively by 30 June 2031 compared to pre-COVID-19 projections. Despite the immediate impacts of COVID-19, Melbourne is projected to overtake Sydney to become the largest city in 2026-27, with a population of 6.2 million by 30 June 2031 compared to Sydney’s 6.0 million (see Chart 55). Within the forecast period, Sydney’s population is projected to fall by 0.2 per cent in 2020-21, followed by no growth in 2021-22, whereas Melbourne’s population continues to grow, albeit at a slower rate than in the absence of COVID-19.

Over the medium term, Melbourne is projected to grow at around 2.0 per cent a year on average from 2023-24 to 2030-31, compared to around 1.3 per cent a year on average for Sydney over the same period. Both cities are projected to continue to have net outflows of interstate migration, but Melbourne’s is projected to be smaller than Sydney’s (a net outflow of around 1,500 from Melbourne from 2023-24 onward, compared to a net outflow of 23,000 from Sydney). Further, Melbourne’s future net overseas migration is projected to be around 140,000 higher than Sydney’s over the same period. Reflecting trends that have been underway for several years, Victoria’s share of Australia’s net overseas migration is projected to increase (to 38 per cent by 2030-31), while New South Wales’ share is projected to fall (to 31 per cent by 2030-31). The growing share of net overseas migration also contributes to Melbourne’s faster population growth through higher births.

BOX 8. MIGRATION BETWEEN CAPITAL CITIES AND REGIONAL AREAS

Regional rest-of-state areas have historically grown at slower rates than capital cities. A large part of this difference has been driven by the settlement patterns of overseas migrants, with 84 per cent of net overseas migrants going to capital cities in the year to June 2019 (Australian Bureau of Statistics, Regional population, 2018-19, 2020). In the past, internal migration patterns have also seen a movement of people away from inland regional areas to coastal areas and capital cities (Bureau of Infrastructure, Transport and Regional Economics, 2014).

The Government has implemented a number of policies to grow regional towns and economies, and encourage people to live in regional areas. Prior to the COVID-19 pandemic the Government's *Planning for Australia's future population* outlined a number of policy initiatives targeted towards supporting growth in regional areas. This included:

- introducing 2 new regional visas and increasing the number of regional visas to 25,000 places
- expanding the use of Designated Area Migration Agreements, to allow employers in designated regions to sponsor skilled workers for occupations not available under standard visa arrangements
- allowing international students studying at regional universities to access an additional year in Australia on a post-study work visa, and establishing the \$94 million Destination Australia scholarship program
- announcing a faster rail plan that will enable people to live in regional centres while being able to easily commute daily to larger employment markets
- investing around \$100 billion in road, rail and air infrastructure across the country over the decade including investing in congestion-busting infrastructure through the \$4 billion Urban Congestion Fund
- engaging with state and territory governments through Regional Deals.

It is expected that COVID-19 will temporarily affect the historical settlement patterns of overseas migration and internal migration. With net overseas migration effectively on hold in the short term, changes in the population distribution will be driven mainly by internal migration.

It is projected that in each state there will be a short-term shift of internal migration away from capital cities toward regional areas due to the pandemic. Recent early insights from the provisional Regional Internal Migration estimates released by the Australian Bureau of Statistics in November 2020 show the early impacts of COVID-19 on migration between capital cities and regions. They show that capital cities had a net loss of 10,500 people to regional areas in the quarter to June 2020, the largest net quarterly move to the regions on record. This is more than double the average observed over the last 10 years. Over the year to June 2020, regions outside the capital cities had a net gain of 30,100 people, compared with 23,800 in the year to June 2019. This was almost 60 per cent higher than the average over the 10 prior years.

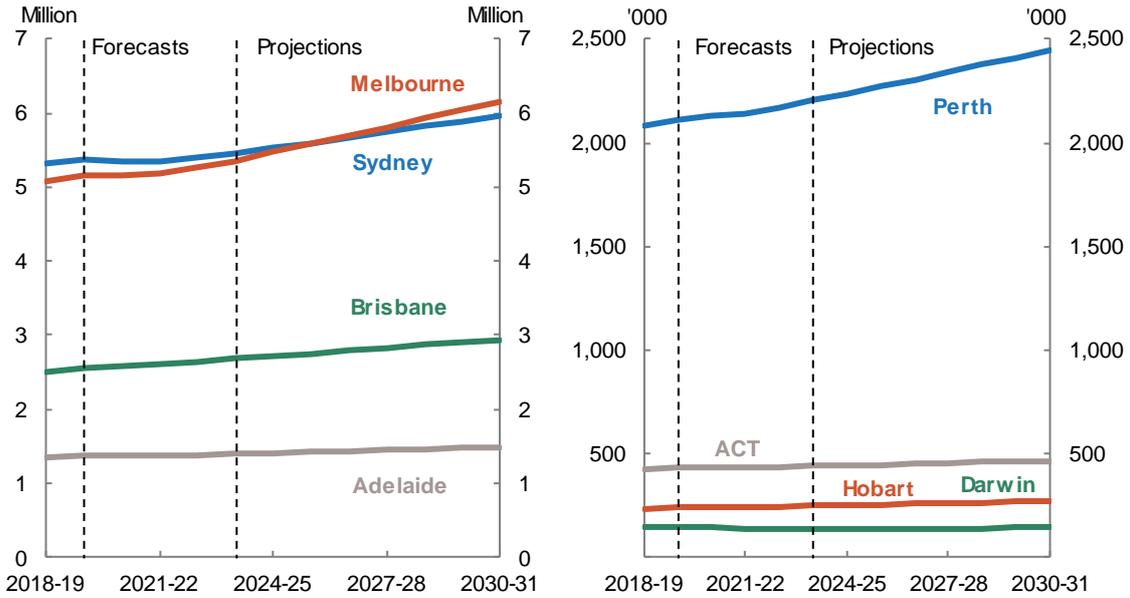
The projections also show that capital cities will recover to higher growth rates than rest-of-state areas in the future (see Chart 57 and Chart 58). These projections are conservative as they are based on historical patterns of net overseas migration and internal migration. There has been much anecdotal discussion in the public domain that COVID-19 may disrupt these traditional patterns, with many workplaces offering greater flexibility to work remotely, creating opportunities for people in cities to move to regional areas.

The Government is providing support to the regions and industries most affected by the impacts of the pandemic, including a \$1 billion COVID-19 Relief and Recovery Fund announced in March 2020.

In addition, the Government has announced a package of measures to the value of over \$550 million over 4 years from 2020-21 to support regional Australia to recover from the impacts of COVID-19 and recent natural disasters, build resilience to future economic shocks and support long-term economic growth. This will be followed by \$16.6 million in 2024-25, and \$16.1 million per year ongoing.

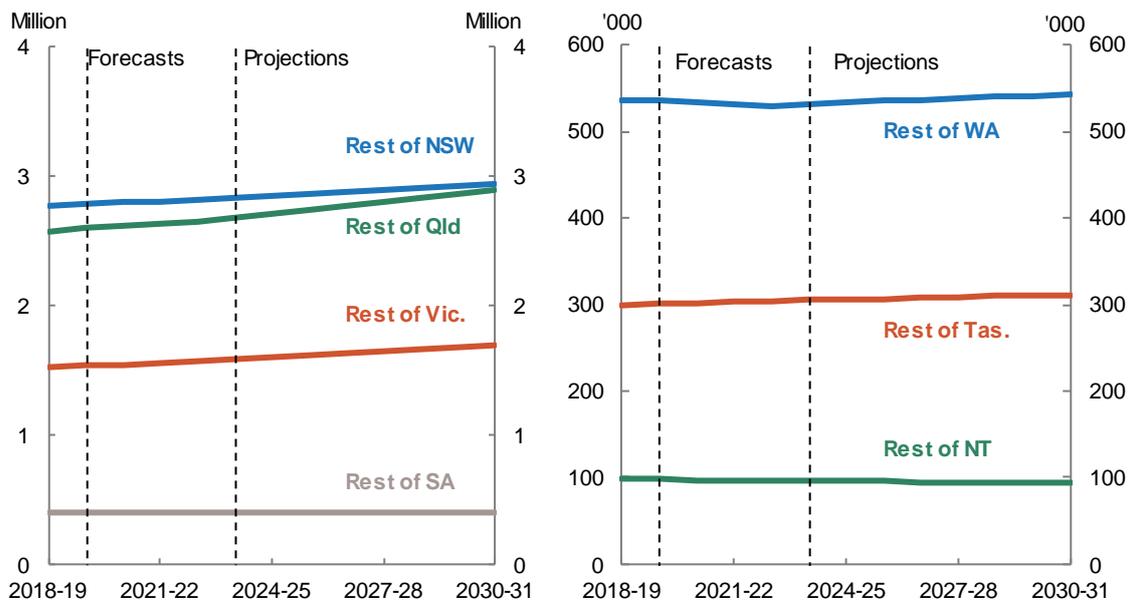
The effect of COVID-19 on settlement patterns will remain a close watch-point over the coming months to determine whether the pandemic has disrupted historical patterns.

Chart 55. TOTAL POPULATION, CAPITAL CITIES, CENTRAL CASE, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020), Centre for Population projections produced by Dr Tom Wilson

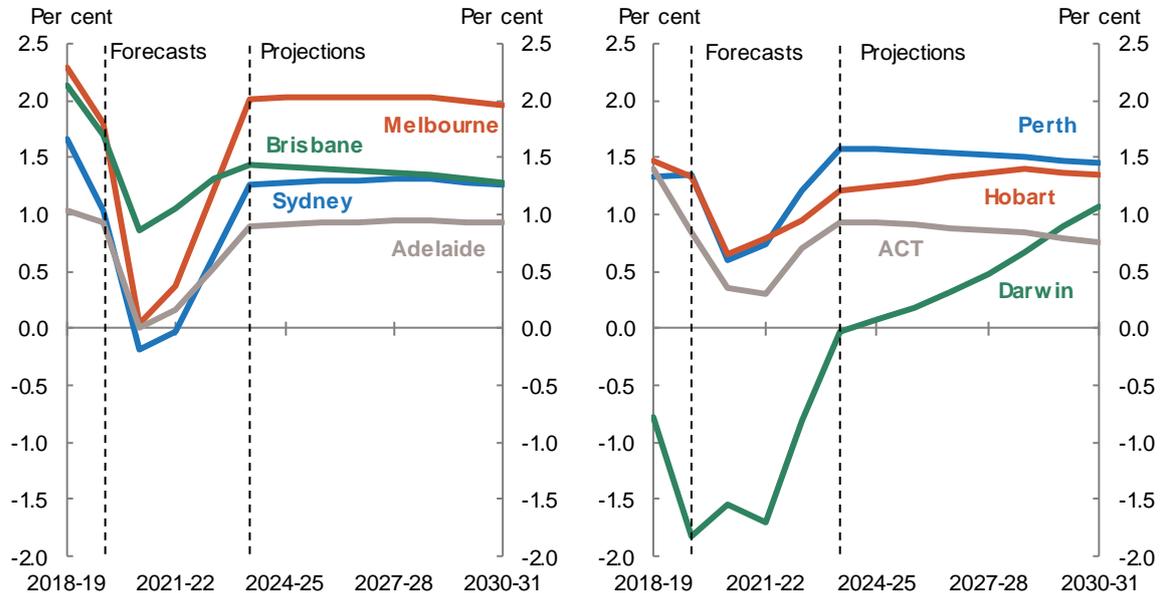
Chart 56. TOTAL POPULATION, REST-OF-STATES, CENTRAL CASE, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020), Centre for Population projections produced by Dr Tom Wilson

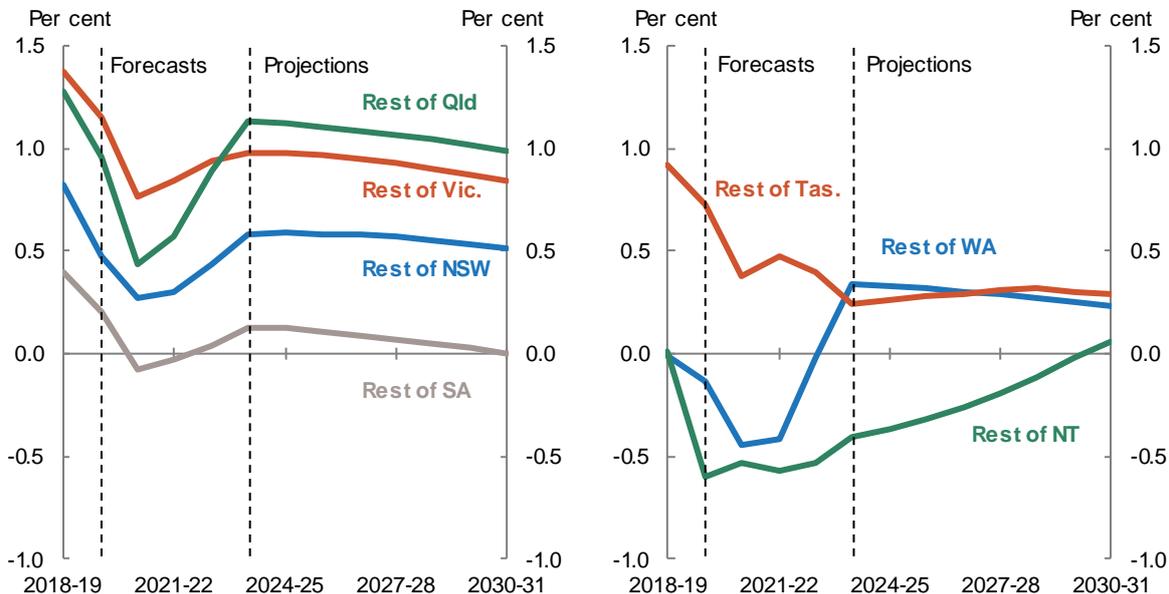
Sydney’s population is projected to decline by 0.2 per cent in 2020-21 as a result of the pandemic, returning to positive growth of 0.6 per cent in 2022-23. Despite an intense short-term shock, growth rates in Melbourne are projected to recover by 2023-24 and be the highest of all capital cities over the rest of the projection period (see Chart 57).

Chart 57. RATES OF POPULATION GROWTH, CAPITAL CITIES, CENTRAL CASE, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020), Centre for Population projections produced by Dr Tom Wilson

Chart 58. RATES OF POPULATION GROWTH, REST-OF-STATES, CENTRAL CASE, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020), Centre for Population projections produced by Dr Tom Wilson

The capital city population of each state is projected to hold the majority of each of that state’s population by 30 June 2031, with the exception of Hobart, which is nevertheless projected to contain around 47 per cent of Tasmania’s population. This is based on the assumption that the capital cities will continue to grow faster than the rest-of-state areas, although it remains to be seen whether COVID-19 will significantly alter this pattern. Over the projection period, Perth and Hobart are estimated to experience the largest increases to their share of

state population, increasing by around 2 percentage points each. The smallest projected increase over this period is for Darwin, where the share is projected to drop slightly during the start of the projection period, but then increase between 2023-24 and 2030-31 to return to the 2018-19 share by the end of the projection period.

Natural increase

The contribution of natural increase to population growth is projected to be larger in the capital cities compared to rest-of-state areas, even though fertility rates are lower in capital cities. This is because populations in the rest-of-state areas are currently older than, and projected to age faster than, capital cities. The populations in the rest-of-state areas of South Australia and in Tasmania are projected to experience negative natural increase in the first few years of the projection period. Negative natural increase is also projected to occur in the rest-of-state areas of New South Wales by 2029-30.

Over the projection period, fertility rates are assumed to remain lower in all of the capital cities compared with rest-of-state areas. Life expectancies at birth are generally projected to remain higher for individuals living in capital cities across the projection period. The gap between life expectancies between capital cities and rest-of-states is projected to be largest in the Northern Territory and smallest in Queensland and Tasmania. In Queensland, Gold Coast and Sunshine Coast are classified as outside of the capital city, yet are more similar to Brisbane than the rest of Queensland. Given the large population size of these areas, they are likely to influence comparisons between Brisbane and the rest of Queensland.

Net overseas migration

As around 4 out of every 5 migrants settle in Australia's largest cities, the forecast outflow of migrants from Australia is expected to affect the major cities most. The greatest change within capital cities is expected in the inner city and on the urban fringes as this is where migrants tend to settle. The CBD and large universities attract skilled workers and students to the inner city while the availability of housing in new suburbs on the urban fringe attracts migrant families.

While net overseas migration is a smaller component of population growth in the rest-of-state areas, international border restrictions are expected to manifest in a smaller number of temporary migrants arriving into these areas, such as skilled workers and students in regional universities. Migration supports labour needs in regional areas, particularly in seasonal industries. Businesses in regional areas struggle to fill local jobs as working-age Australians move into urban areas for study and work.

Net internal migration

Future internal migration within states at the capital city and rest-of-state area level is assumed to align with assumed future interstate migration trends (see Chart 59 and Chart 60). Within each state, the COVID-19 pandemic is assumed to shift migration away from the capital cities in the short term. This change in pattern is linked to economic differences between capital cities and rest-of-state areas such as unemployment and house prices. Increased prevalence of teleworking may also contribute to migration toward rest-of-state areas (University of Queensland, unpublished).

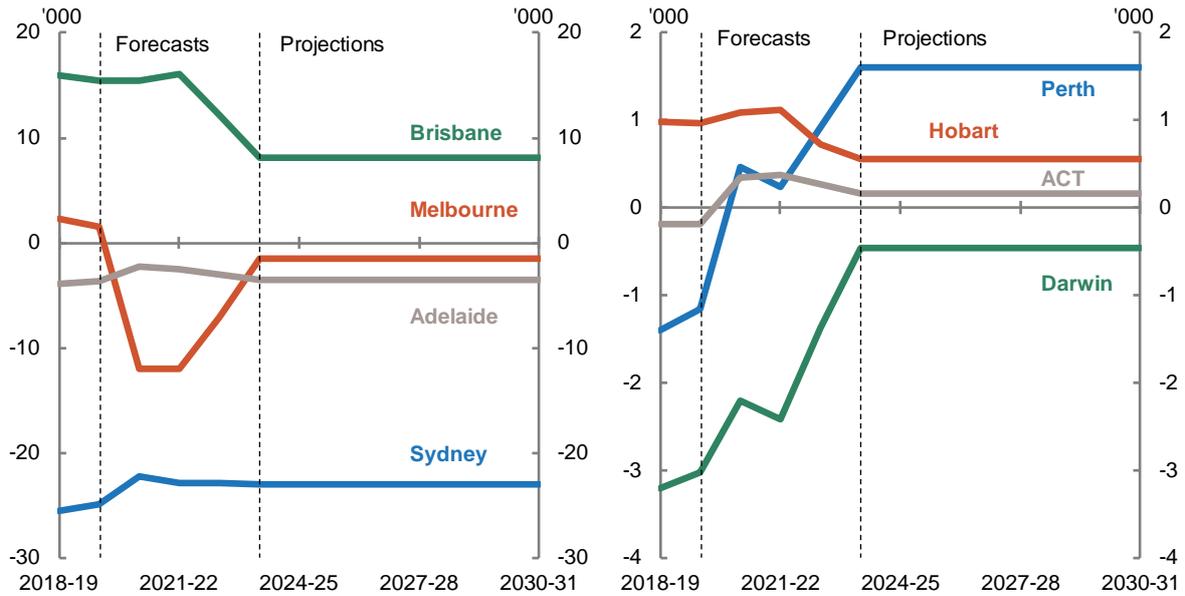
Victoria, and Melbourne in particular, is assumed to see a greater decline in internal migration compared to other states due to the pandemic. The short-term effects in Melbourne are significant, with Melbourne assumed to lose approximately 12,000 people in 2020-21 and in 2021-22. Over the projection period, Melbourne is assumed to lose 31,000 more people than under the pre-COVID-19 scenario.

Compared to the pre-COVID-19 scenario, Sydney, Adelaide, and rest-of-state areas in South Australia, Tasmania and the Northern Territory are assumed to lose fewer people through net internal migration over the projection period. Brisbane, Perth, Hobart, the Australian Capital Territory, and the rest-of-state areas in New

South Wales and Victoria are assumed to gain more people. The rest of Queensland is assumed to gain fewer people. Melbourne, Darwin and the rest of Western Australia are assumed to lose more people through net internal migration over the projection period.

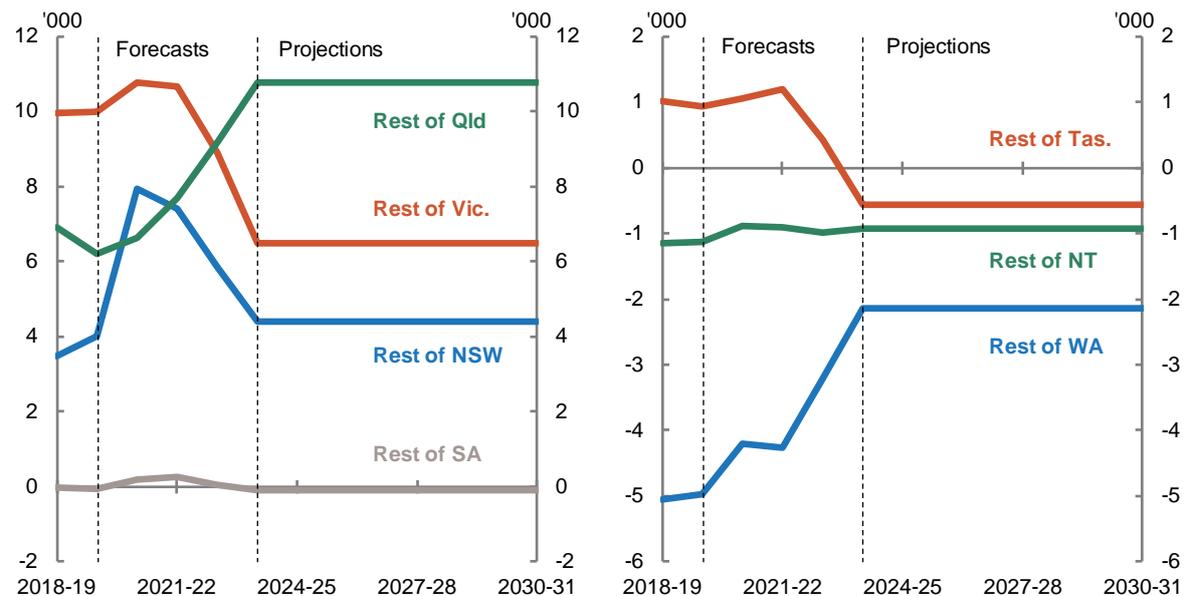
As the economy recovers, internal migration is assumed to return to the 10-year average for each capital city and rest-of-state area. This maintains Sydney as the capital city with the lowest level of net internal migration (-23,000 people per year) and the rest-of-state in Queensland with the highest level of net internal migration (10,800 people per year). Strong net internal migration in the rest-of-state in Queensland has been driven by high growth in coastal areas such as the Gold Coast and the Sunshine Coast.

Chart 59. NET INTERNAL MIGRATION, CENTRAL CASE, CAPITAL CITIES, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020), Centre for Population projections produced by Dr Tom Wilson

Chart 60. NET INTERNAL MIGRATION, CENTRAL CASE, REST-OF-STATES, 2018-19 TO 2030-31



Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020) Centre for Population projections produced by Dr Tom Wilson

PART III — TECHNICAL APPENDIX



3. TECHNICAL APPENDIX

The National Population and Planning Framework tasks the Centre for Population to prepare an annual Population Statement as part of national efforts to increase understanding about populations, population change and the implications for all levels of government.

The best way for the analysis and estimates in the Population Statement to serve the information needs of users is when methodology and assumptions are transparent, and when projections are regularly updated, including by taking account of new data or other information as it becomes available.

Part III details the approach and assumptions used to estimate future population, and the associated limitations, for the central case and the 2 further scenarios. New information has become available as the Statement has been prepared, and we have noted where this has been able to be reflected and where it has not.

3.1 METHODOLOGY

3.1.1 POPULATION PROJECTIONS

The population projections in this Statement are produced at the national, state and territory and capital city and rest-of-state geographic levels. A top-down approach is used to provide consistency across the projections at different geographic levels. That is, the capital city and rest-of-state projections are constrained to the state projections, which are in turn constrained to the national projections.

The national and state and territory ('state'²⁰) level projections are produced by the Centre for Population. The capital city and rest-of-state projections are based on the Greater Capital City Statistical Area (GCCSA) definitions and are produced by Dr Tom Wilson using a specially adapted version of the National, State and Sub-state Population Projection Program (NASPOPP) which constrains to the Centre for Population's projections at the national and state level. The projection frameworks used are bi-regional, meaning they capture internal movements in and out of each jurisdiction (e.g. NSW to all other jurisdictions; all other jurisdictions to NSW), but do not include specific origin-destination migration flows.

The projections are produced on a financial year basis. The starting point for projections is the Estimated Resident Population at 30 June 2019, which provides the most complete detail across the specified geographic levels. The projections are produced out to 30 June 2031. The first year is 2019-20 and the final year is 2030-31.

The projections are produced using the cohort-component method. That is, age-specific inputs for fertility, mortality, net overseas and internal migration are applied to a base population to calculate the next year's population. This process is repeated until the end of the projection horizon. These projections occur for each single year (0-100+) of age and sex.

Births are determined by applying age-specific fertility rate assumptions to the female population aged 15-49. Deaths are determined by applying age and sex-specific mortality rate assumptions to the population at each single year of age and sex. Below the national level, the total number of births and deaths for states and sub-states are constrained to the total number of births and deaths at the national level.

Overseas arrivals and departures are forecast independently of the projection model (see section below) and added to the population as counts of people. The projections assume that the age and sex distribution of

²⁰ Throughout the Statement, references to the 'states' or 'each state' includes the Northern Territory and the Australian Capital Territory.

forecast overseas arrivals and departures reflects the 5-year historical average distribution from 2012-13 to 2017-18.

Assumptions about aggregate internal migration are based on advice from the Queensland Centre of Population Research at University of Queensland. The age and sex of arrivals and departures are determined by applying age- and sex-specific internal migration rates to the base populations of each location, constraining the totals to the aggregate internal migration assumptions.

3.1.2 NET OVERSEAS MIGRATION FORECASTS

The net overseas migration forecasting framework disaggregates the hierarchy in the data according to direction of flow (arrivals or departures), the type of visa and the geographical flows of those visa types. Forecasts are prepared at all levels of the hierarchy — from the lowest level of disaggregation (such as student arrivals into New South Wales) to all student arrivals (and all arrivals in a state) to all migrant arrivals.

Exploiting this hierarchical structure allows forecasts across all levels to be ‘optimally combined’ such that forecasts across the sub-totals and totals match the sum of the components at each level of the hierarchy. At the same time, the optimal combination of forecasts, defined as the smallest adjustments (in a statistical sense) to the independent forecasts necessary to ensure they all add up, is also achieved. This provides the lowest forecast error when compared to other approaches to forecasting hierarchical data (Pangeagiotelis, 2020). In effect, the framework takes account of information regarding flows of components at lower levels, and also reduces volatility by appropriately incorporating the information and the smoothing effect of aggregates further up the hierarchy.

Forecasts are prepared for the period 2019-20 to 2023-24. These then transition to a long-run net overseas migration assumption of 235,000 people by 2028-29, after which net overseas migration remains flat.

The net overseas migration forecasts are produced for a pre-COVID-19 scenario and then adjusted to reflect judgment of likely flows given information available to date (described in Section 3.2.3 Net Overseas Migration assumptions).

3.2 ASSUMPTIONS

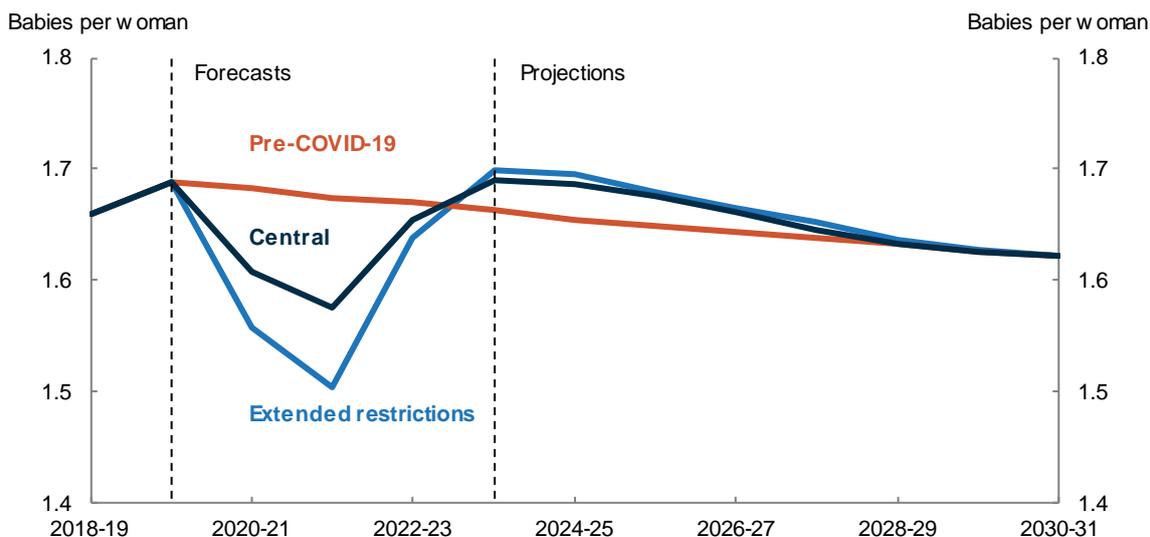
3.2.1 FERTILITY

Future fertility rates by single year of age of mother used in the national and state population projections are taken from projections by Professor Peter McDonald (McDonald, 2020) and are summarised in Table 4 (see also Chart 61).

- The central projections at the national and state level use the ‘likely COVID-19’ fertility projections, while the pre-COVID-19 scenario uses the ‘no COVID-19’ fertility projections. A full description of the approach taken and judgments applied at the national and state level is available in *A Projection of Australia’s Future Fertility Rates (2020)*.
- The central and pre-COVID-19 projections for capital cities and rest-of-state areas assume that the recent ratio (2013 to 2017) of location-specific fertility rates to the national total fertility rate remains constant from 30 June 2023 onwards, and are gradually phased toward these ratios from 30 June 2019. The fertility rates for these areas are also constrained to the state fertility rates.
- The extended restrictions COVID-19 scenario uses the ‘severe COVID-19’ fertility projections from the paper.
- The approach used to develop capital city and rest-of-state assumptions for the pre-COVID-19 and extended restrictions scenarios is the same as in the central scenario.

Table 4. FERTILITY ASSUMPTIONS

CENTRAL CASE	PRE-COVID-19 SCENARIO	EXTENDED RESTRICTIONS SCENARIO
The total fertility rate is assumed to fall from 1.70 babies per woman in 2017-18 to 1.58 in 2021-22 as a result of uncertainty among young people that leads to them deferring when they have children. The total fertility rate is then assumed to temporarily rise to 1.69 babies per woman in 2023-24 as 80 per cent of delayed births are ‘recuperated’, and then decline to and settle at 1.62 from 2030-31 onward.	The total fertility rate is assumed to gradually decline from 1.70 babies in 2017-18 to 1.62 babies per woman in 2030-31. The decline is assumed to occur evenly across the period. State relativities to the national total fertility rate are assumed to remain constant.	The total fertility rate is assumed to fall from 1.70 babies per woman in 2017-18 to 1.50 babies per woman in 2021-22. The total fertility rate is then assumed to temporarily rise to 1.70 in 2023-24, before eventually declining to 1.62 babies per woman, as per the central case.

Chart 61. TOTAL FERTILITY RATE — CENTRAL, PRE-COVID-19 AND EXTENDED RESTRICTIONS SCENARIOS

Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population assumptions based on advice from Prof. Peter McDonald

3.2.2 MORTALITY

For national mortality, the mortality rates from the Australian Bureau of Statistics' 2016-18 national life tables (by single year of age and sex) have been used with allowance for future improvement by applying the Australian Government Actuary's (AGA) improvement factors to these mortality rates.

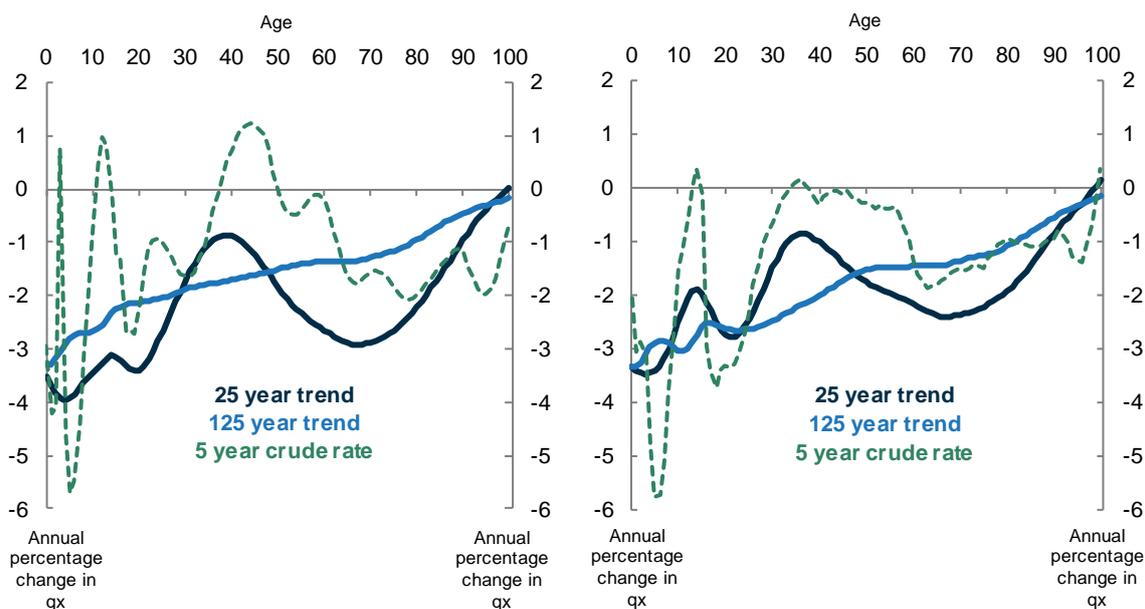
For state mortality, the same approach has been used, but with the Australian Bureau of Statistics 2016-18 state life tables. Projected deaths by state are constrained to projected deaths at the national level.

For GCCSAs, abridged life tables were constructed by Dr Tom Wilson based on Australian Bureau of Statistics deaths and ERP data from 1988 to 2017. The approach for future mortality rates assumes that the average differential between life expectancy at birth for the GCCSA and national life expectancy over the period 1988 to 2017 would apply from 30 June 2027 onwards. For the period between 30 June 2019 and 30 June 2027, the differential is interpolated from recent values to the long-term average.

Future improvements in life expectancy are based on improved age-specific mortality probabilities (or q_x values²¹). The improvement factors are provided by the Australian Government Actuary and assume the trend of the past 3 decades for men and women will persist out to 2030-31 (see Chart 62). In estimating the improvement factors, the Australian Government Actuary applies the following constraints:

- female mortality rates are always lower than those for males (except at very old ages, where they are presently higher)
- no mortality deterioration is assumed at very old ages (although deterioration has been historically observed in the available data, applying this constraint ensures a continuation of the historical trend of improving life expectancies)
- no mortality improvement is assumed for centenarians or supercentenarians (this is based on the very small sample sizes available to assess historical trends).

²¹ q_x refers to the probability of a person aged exactly x dying before reaching age $x + 1$

Chart 62. IMPROVEMENT TO MORTALITY OVER TIME, MALES (LHS) AND FEMALES (RHS)

Source: (Australian Government Actuary, 2019)

The national improvement factors are applied to the state life tables to estimate future mortality probabilities for states and territories. This means the relative differences in mortality outcomes across states and territories will remain constant over the period to 2030-31 — in other words no state or territory will experience convergence to, or divergence from, the national trend.

The same future mortality probabilities are used in all 3 scenarios. Despite the uncertainty around the effects of the pandemic on mortality in Australia, the early indicators to date suggest these effects have not been large enough to warrant a change to already uncertain assumptions.

3.2.3 NET OVERSEAS MIGRATION

Over the forecast period (2019-20 to 2023-24), estimates of future net overseas migration are based on the assumption that international arrivals and departures remain low through to late 2021. Even after international borders reopen, net overseas migration is not expected to return to levels consistent with pre-COVID-19 patterns inside the forecast period, as it is assumed that:

- economic conditions in source countries of international students leads to reduced demand
- a softer labour market in coming years reduces the demand for skilled migrants
- demand for extended travel, such as working holiday experiences, remains low
- departures by Australian citizens and permanent residents to take up jobs abroad is lower, reflecting the reduced labour market opportunities in other countries or concerns over health risks.

Given the uncertainty and upheaval associated with COVID-19 and the nature and duration of measures taken to contain its spread at home and abroad, estimates of future net overseas migration are heavily assumption-based.

Long-run net overseas migration assumption

The long-run net overseas migration assumption at the national level is 235,000 people per year. This reflects the contributions of 4 distinct migration groupings that cover all arrivals and departures through time:

- the contribution of the Government’s planning levels of the permanent and humanitarian migration programs to immigrant arrivals, which accounts for all permanent migrant arrivals — whether they arrive in Australia as a permanent or as temporary migrant who transitions to a permanent resident
- the flows of arriving and departing temporary migrants who reside in Australia for several years but never transition to permanent residents
- the flows of departing and returning Australia citizens
- the number of permanent residents who subsequently emigrate.

A diverse set of factors determines how long immigrants and emigrants stay in or out of Australia, including education and employment opportunities or family connections. Since 2003-04, 7.8 million people have been counted into or out of the population as immigrants or emigrants. Some 70 per cent have done this only once, and 27 per cent twice. A relatively small number have done this 3 or more times.

After accounting for the flow of temporary migrants who transition to permanent residents, it is estimated that there is an average annual net inward flow of temporary migrants of 66,000 people since 2004-05. This represents students, temporary skilled workers, working holiday makers and New Zealanders who often spend between 1 and 8 years in Australia (and longer in some cases) before permanently departing Australia.

Australian citizens are usually net emigrants, with an average of around 15,000 more departures than there are arrivals since 2004-05. It is estimated that some 20,000 permanent residents emigrate each year on average over the same period.

The permanent and humanitarian components of the long-run net overseas migration assumption are determined by planning levels set by the Australian Government. Between 2020-21 and 2022-23, the planning level for the permanent program is 160,000 and from 2023-24 it is 190,000.²² From 2020-21, the humanitarian program level is set at an ongoing level of 13,750 places.²³ Consistent with Government decision-making processes to date, planning levels and the composition of the future migration program are expected to continue to be reviewed annually.

The long-run net overseas migration assumption is the summation of those components — the planning levels, temporary flows, along with Australian and permanent resident emigrants — to be 235,000. With government planning levels accounting for the largest component to the long-run assumption, it is highly sensitive to any future decisions by the Australian Government to increase or decrease the planning levels for the migration program. This use of the program levels in the assumption also incorporates those migrants who first enter Australia as temporary residents and subsequently transition to permanent residency.

The level of projected long-run arrivals and departures to 2030-31 is determined by adjusting the national trends from the central case reference case from 2023-24 onwards through a steady growth assumption to achieve a level of 235,000 net overseas migration by 2028-29.

State arrivals and departures to 2028-29 reflect trends in the historical and forecast data (from differing visa group compositional effects) that aggregate to a national net overseas migration level of 235,000 by 2028-29. State net overseas migration shares are held constant to 2030-31.

²² This is consistent with the Government’s decision, announced in Budget 2019-20, to cut the permanent program by 120,000 over 4 years.

²³ Announced in Budget 2020-21.

Within states, the contribution to capital city and rest-of-state areas was prepared by using the average share observed from 2016-17 to 2018-19 (the only data available at the GCCSA level is for this limited period). These intra-state shares are assumed to be invariant throughout the forecast and projection horizon.

NET OVERSEAS MIGRATION SCENARIOS

Pre-COVID-19 scenario

The pre-COVID-19 scenario uses the forecasting framework described above to produce forecasts commencing 31 December 2018, drawing on unpublished Home Affairs net overseas migration data provided in June 2020. This is to avoid the revisions to Australian Bureau of Statistics net overseas migration data relating to 2019. These revisions are increasingly reflecting impacts of COVID-19 on previous preliminary net overseas migration estimates. In aggregate, the pre-COVID-19 scenario forecasts that net overseas migration will decline slowly to 237,000 by 2023-24, primarily driven by a slow decline in student and temporary skilled migration arrivals. That decline is extended to the long-run net overseas migration assumption described above. Although aggregate net overseas migration is relatively stable, forecasts at the state or individual visa level show much larger variation. Net overseas migration levels under the 3 scenarios are compared in Chart 63.

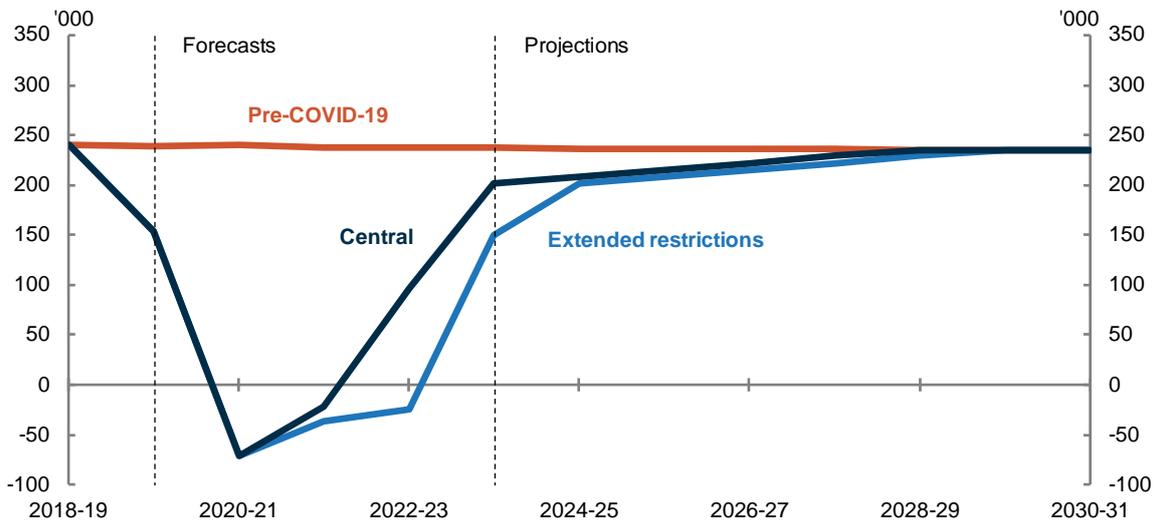
Central case assumptions

The central case applies assumptions to the pre-COVID-19 scenario case reflecting travel restrictions and assumed behaviours discussed earlier. Table 3 in Part II reflects these assumptions by migrant type.

Extended restrictions scenario assumptions

Under the extended restrictions scenario, international borders are assumed to remain effectively closed until the end of 2022. The migration assumptions relative to the pre-COVID-19 scenario for 2020-21 are extended for an extra year to 2021-22, with recovery beginning in 2022-23. As a result, the proportion of net overseas migration is expected to converge with the reference case one year delayed, hitting the long-run net overseas migration assumption by 2029-30. Table 5 reflects these assumptions by migrant type.

Chart 63. NET OVERSEAS MIGRATION — CENTRAL, PRE-COVID-19 AND EXTENDED RESTRICTIONS SCENARIOS



Source: (Australian Bureau of Statistics, National, state and territory population, March 2020, 2020), Centre for Population forecasts and projections

Table 5. LEVEL OF OVERSEAS ARRIVALS AND DEPARTURES IN THE EXTENDED RESTRICTIONS SCENARIO RELATIVE TO PRE-COVID-19 SCENARIO (%)

FINANCIAL YEAR	ALL TEMPORARY ARRIVALS	NZ ARRIVALS	PERM. ARRIVALS	PERM. DEPARTURES
2020–21	4	25	0	20
2021–22	4	25	0	20
2022–23	20	100	50	50
2023–24	61	100	75	65
2024–25	91	100	100	100

Note: Australian citizen departures are included in permanent departures. Australian citizen arrivals are not included in permanent arrivals as these are assumed to be the same as in the pre-COVID-19 scenario. Similarly, departures by temporary migrants are assumed to be the same as in the pre-COVID-19 scenario.

Source: Centre for Population forecasts and projections

3.2.4 NET INTERNAL MIGRATION

Assumptions for internal migration at the state, capital city and rest-of-state levels were developed based on historical trends, modelling and expert analysis of COVID-19 effects. More detail on the assumptions will be provided in a Centre for Population research paper prepared by the Queensland Centre for Population Research at the University of Queensland (University of Queensland, unpublished).

Assumptions were formed for the 3 main dimensions of internal migration:

- Level: how many people move
- Patterns: where people move to and from
- Composition: who is moving (including their basic demographic characteristics such as age).

A summary of the internal migration assumptions is provided in Table 6.

Table 6. SUMMARY OF INTERNAL MIGRATION ASSUMPTIONS FOR CENTRAL CASE

DIMENSION	2019-20	2020-21	2021-22 AND BEYOND
Level	Decline of 5 per cent from the previous year	Decline of 15 per cent from the previous year	Increase of 8 per cent from the previous year, followed by a recovery to the 20-year average by 2023-24.
Patterns			
Interstate migration	The direction of net flows are in line with recent trends.	All in and out flows to decline by 15 per cent from the previous year, except Victorian migration which	Convergence to baseline spatial pattern (20-year average) by 2023-24.

	remains unchanged (more people are leaving Victoria compared with other states). Migration out of Victoria to follow the average allocation over the last 20 years.
Interstate GCCSA migration	Interstate GCCSA flows follow interstate migration assumptions (see above).
Intrastate GCCSA migration	In 2020-21, net intrastate GCCSA flows shift by 5 per cent in favour of rest-of-state areas except in the Northern Territory where the pattern is held stable. This pattern holds until flows converge to the 10-year average in 2023-24.

Level

The COVID-19 pandemic and resulting economic recession are expected to reduce the level of internal migration in the short term. In previous recessions in Australia, the level of internal migration has fallen in response to national and state-specific economic conditions. The projected fall in interstate migration due to the virus in 2020-21, at 12 per cent nationally, is the largest year-on-year decrease in around 40 years. However, previous recessions have shown that interstate migration recovers quickly in line with economic trends. The level of interstate migration is expected to recover to the long-term average by 2023-24.

This assumption is supported by economic modelling that found that gross domestic product per capita is a significant factor in explaining the annual net interstate migration rate (University of Queensland, unpublished). Based on this advice from the University of Queensland, the level of interstate migration is assumed to follow the same trends as current gross domestic product forecasts produced by the Reserve Bank of Australia.

Between states and territories, the level of capital city internal migration is assumed to follow the same trend as for interstate migration. Within states and territories, the effect of the pandemic on the level of capital city internal migration is assumed to be smaller. This is largely due to the lower impact of state border closures on intrastate migration (notwithstanding hotspot border closures). The counteracting effects of decreasing internal migration is due to national and state economic conditions, while the increasing internal migration is due to differences in economic conditions between capital cities and rest-of-state areas (such as differing unemployment levels and house prices).

Patterns

Internal migration patterns respond to relative socio-economic conditions across states (University of Queensland, unpublished). Given the greater effects of the COVID-19 pandemic in Victoria, it is assumed that interstate migration out of Victoria will increase relative to other states. Within each state, there is assumed to be a short-term shift in net flows out of capital cities and towards rest-of-state areas, except for the Northern Territory. There are 3 main reasons for this assumption.

- While intrastate migration is not as affected by states and territory border closures, the predominance of COVID-19 hotspots in cities and current efforts by governments to coordinate responses in these hotspots mean that parts of capital cities are more likely to be in lockdown than rest-of-state areas in the future

- Labour market conditions as measured by the unemployment rate are currently less favourable in the capital cities in most states (University of Queensland, unpublished)
- The combined effect of young adults returning home and increased teleworking may support migration out of capital cities to rest-of-state areas (University of Queensland, unpublished).

This shift in patterns is assumed to occur in all states with the exception of the Northern Territory, where patterns are expected to remain stable due to its unique settlement system and demography.

For the pre-COVID-19 scenario, the level and patterns of internal migration are assumed to converge within 5 years to the 20-year average at state level, and to the 10-year average at the capital city and rest-of-state level.

Composition

As in most countries, Australia's internal migration follows a well-established pattern of peaking at young adult ages and declining thereafter. This pattern has persisted for at least 20 years. There has, however, been a gradual increase over time in the age at which migration peaks. While it is reasonable to assume that the age distribution of migrants would increase in future (University of Queensland, unpublished), no such assumption has been applied to the projections, given that the projection period for the Statement is only for a decade.

Future net internal migration data

The Centre funded the Australian Bureau of Statistics to release quarterly provisional Regional Internal Migration Estimates for the first time from November 2020. This release and future releases will enable more timely insights and analysis into the immediate impacts of restrictions and economic uncertainty on people's decisions to move between states, and between cities and rest-of-state areas. Although these estimates are not included in the internal migration assumptions of this paper, they will inform future internal migration analysis and insights by the Centre.

The first release of the provisional Regional Internal Migration Estimates, published on 2 November 2020, included data up until the June quarter 2020. The data has shown a drop in overall interstate migration in the financial year to June 2020 compared to the financial year ending June 2019, and a decrease in the number of people moving to capital cities from rest-of-state areas. These findings are consistent with assumptions that the Centre has made about future levels and patterns of internal migration. As the reference period for this data is up to June 2020, the second wave of COVID-19 cases in Victoria and the hard lockdown in Melbourne are not covered. The data is provisional and may be updated in future publications by the Australian Bureau of Statistics.

3.3 LIMITATIONS AND UNCERTAINTY

Population projections are uncertain under normal conditions and are more uncertain during unprecedented shocks such as COVID-19. There is significant uncertainty about the path of the virus and the nature and timing of easing containment measures, as well as the behavioural response of individuals. The understanding of the drivers of demographic components and processes have limitations due to their dependence on human decisions.

Given such uncertainty, this Statement includes the extended restrictions scenario and pre-COVID-19 scenario (see Box 6) to demonstrate outcomes under alternative assumptions. A Population Statement will be produced annually and the projections will be revisited regularly as new information becomes available about how the pandemic affects Australia's population.

Population projections depend on the availability and quality of input data, assumptions based on historical trends and expert judgment, as well as the methodology used to bring these elements together. The uncertainty of population projections increases as the projection horizon extends and the smaller the size of the population they cover. For example, smaller geographies are more difficult to project than larger ones, as is the projection of particular age groups compared to the total population.

The projections in this Statement are based on preliminary June 2019 estimated resident population from the Australian Bureau of Statistics. These will be revised when more complete information becomes available and will eventually be rebased following the 2021 Census. The preliminary data depend on more timely administrative information and predictive modelling techniques to capture expected behaviour. The smaller the geography the less timely and more uncertain the data is and, for this reason, the 2019 estimated resident populations at the GCCSA geography used in the projections were reconciled with state estimated resident populations first.

The projection assumptions depend on historical trends and expert judgments. Given the nature of the pandemic, historical data and experience useful for developing assumptions is limited, placing a greater reliance on judgment. The components of change are uncertain and this reflects the uncertain path of the virus and the nature and timing of easing containment measures, both in terms of the restrictions on the movement of people (on net internal migration and net overseas migration) and the associated economic impact (on fertility).

Estimates of future net overseas migration are based on current government policy and assumptions about the nature and duration of future policies to contain the spread of COVID-19 at home and abroad — which are highly uncertain. Additionally, while forecasts and projections depend on historical trends and expert judgment regarding the future, they do not take into account current or planned policy changes (including at a state government level) which may affect population growth rates, unless they have already demonstrated an effect in the historical data.

The projections are based on an annual model that does not provide quarterly results nor account for within-year seasonality. Thus, the projections do not focus on aligning the first year of the projection period (2019-20) with the incomplete estimated resident population data released for that year (released up to March 2020). The preliminary data are uncertain, as are the projections, and the estimated resident population data for June 2020 will be released in December making the preliminary outcome for 2019-20 available. As a result, effort was devoted to developing the 2 alternative scenarios than varying assumptions for 2019-20 to take account of the three-quarters of estimated resident population data published.

The population projections use a top-down approach which constrains lower level geographies to the national projections by component of change. This approach effectively adjusts state/territory and capital city/rest-of-state specific assumptions but it prioritises more robust national level trends over trends at the

state/territory and capital city/rest-of-state levels. The alternative is a bottom-up approach that places greater weight on dynamics at lower geographic scales.

Not only are sub-national geographies constrained to national totals, but the economic impact on population is only accounted for at a national level. For example, the economic uncertainty associated with the pandemic means there is lower net interstate migration overall.

BOX 9. COMPARING PAST PROJECTIONS TO OUTCOMES

Population projections incorporate assumptions and judgments based on information available at the time of their preparation. Understanding the size and source of differences in projections improves the understanding of uncertainty and how projections are used to inform policy.

Population projections differ from outcomes for reasons including changes in behaviour compared to expectations, changes in government policy and revisions of the base data. Differences in the projected size and age profile of the population relate to differences in components. Differences for the population aged around 15-64 are mostly explained by migration, whereas differences at the oldest ages are explained by deaths, and at the younger ages are explained by births.

In general, net overseas and interstate migration are the most difficult to predict (Wilson, *Forecast Accuracy and Uncertainty of Australian Bureau of Statistics State and Territory Population Projections, 2012*). Natural increase is generally more stable. However, it can be difficult to disentangle changes in natural increase, which are also a second-order effect of differences in migration, which alter the size of the population.

Table 7 compares the 2015 Intergenerational Report projections produced by the Treasury in early 2015 and the projections produced by the Australian Bureau of Statistics in late 2018 against the available actual outcomes to date. Projections produced more recently have smaller differences than those produced earlier, and smaller states and territories are more difficult to project than larger ones.

The 2015 Intergenerational Report over-projected Australia's population for June 2019 by around 206,000 people (or 0.8 per cent). The Australian Bureau of Statistics' projections, published in late 2018, over-projected Australia's population for June 2019 by around 80,000 people (or 0.3 per cent). The Australian Bureau of Statistics over-projected the population size for all states and territories except South Australia and Tasmania. The largest percentage differences were for the Northern Territory (over-projected by 2.4 per cent) and the Australian Capital Territory (over-projected by 0.8 per cent).

Population forecasts and projections are produced across a range of organisations in Australia. These projections differ in their assumptions, methodology, time periods and detail. Future releases of the Population Statement will focus on comparisons across a range of these projections in finer detail.

Table 7. COMPARISON OF POPULATION PROJECTIONS TO OUTCOMES (% DIFFERENCE OF TOTAL POPULATION PROJECTIONS TO OUTCOME, AT 30 JUNE OF EACH YEAR)

	2015	2016	2017	2018	2019
Intergenerational Report, 2015					
Australia	0.4	0.5	0.6	0.8	0.8
ABS projections (Series B), 2018					
Australia	-	-	-	0.1	0.3
New South Wales	-	-	-	0.3	0.6
Victoria	-	-	-	0.1	0.3
Queensland	-	-	-	0.1	0.1
South Australia	-	-	-	-0.1	-0.3
Western Australia	-	-	-	0.2	0.1
Tasmania				-0.3	-0.6
Northern Territory				1.1	2.4
Australian Capital Territory				0.1	0.8

Source: (Commonwealth Government, 2015; Australian Bureau of Statistics, Population Projections, Australia, 2018; Australian Bureau of Statistics, National, state and territory population, March 2020, 2020)

GLOSSARY AND REFERENCES

GLOSSARY

NOTES

- Figures in tables and generally in the text have been rounded, and transformations (for example, shares or rates of change) are calculated using unrounded numbers. Discrepancies between totals and sums of components are due to rounding.
- In general, the rounding conventions used in the Statement include:
 - most rates are rounded to one decimal place with the exception of total fertility rates which are rounded to 2 decimal places
 - estimates over 1 million are rounded to the nearest thousand
 - estimates over 10,000 are generally rounded to the nearest 100
 - estimates midway between rounding points are rounded up
 - the percentage changes and shares throughout the document and in statistical tables are calculated using unrounded data.
- References to years are all on a financial year basis (1 July to 30 June) unless otherwise stated.
 - Population stocks for a year refer to stocks as at 30 June of that year (eg, 'Australia's population was 25.4 million in 2018-19').
 - Population flows for a year refer to flows for the financial year (eg, 'Australia's natural increase was 142,000 in 2018-19').
- Estimates of future population and components of change referred to in the Statement are either forecasts or projections. This applies to the national and state level projections, for sub-state see Part III.
 - **Forecasts** are predictions about what may happen in the near term based on analysis and modelling in relation to current circumstances, with the application of assumptions based on expert judgment. In the Statement:
 - : the total fertility rate is assumed based on expert advice from Professor McDonald
 - : net overseas migration is forecast for the period between 2019-20 and 2023-24 (inclusive)
 - : net internal migration is assumed based on expert advice from the University of Queensland.
 - **Projections** are based on analysis and modelling of long-term trends when rates or levels are stable. Projections may also include a transition from the last forecast to the assumed stable level or rate. In the Statement:
 - : the total fertility rate is projected to stabilise from 2030-31 onward
 - : mortality probabilities are projected to improve at a stable rate over the entire period

- : the level of net overseas migration is projected to transition to the stable level after 2023-24 and to be stable from 2028-29 onward, and
 - : the level of net internal migration is projected to be stable from 2023-24 onward.
- References to the 'states' or 'each state' includes the Northern Territory and the Australian Capital Territory.

DEFINITIONS

COVID-19

COVID-19 refers to the **coronavirus disease** caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that was first identified in December 2019.

Dependency ratio

The **dependency ratio** refers to the number of people of traditional working-age (15-64) for every person aged under 15, and 65 and over. The **old-age dependency ratio** refers only to the number of people of traditional working-age (15-64) for every person aged 65 and over.

Generation

A **generation** refers to people born and living at about the same time. It roughly aligns with the length of time over which individuals are born, become adults, and then begin to have their own children — on average around 30 years.

Greater Capital City Statistical Areas

Greater Capital City Statistical Areas (GCCSA) represent the socio-economic extent of the capital cities as defined by the Australian Bureau of Statistics. GCCSAs are derived from Statistical Areas Level 4 (SA4).

Source: (Australian Bureau of Statistics, Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, 2016)

Intercensal difference

The **intercensal difference** is caused by differences in population estimates between successive Censuses, post-enumeration surveys, and the administrative data sources used for quarterly updates which cannot be attributed to a particular source.

Source: (Australian Bureau of Statistics, Census of Population and Housing, 2016, 2017)

Internal migration — composition

The **composition of net internal migration** refers to the specific groups of people who migrate. This could be measured by age, sex, ethnicity and place of birth.

Internal migration — internal, interstate, intrastate

Internal migration refers to the movement of people across a specified boundary within Australia involving a change in place of usual residence.

Interstate migration refers to the movement of people over a state or territory boundary involving a change in place of usual residence. Net interstate migration is the difference between arrivals and departures and can be either positive or negative.

Intrastate migration refers to the movement of people across a specified boundary within a state or territory.

Source: (Australian Bureau of Statistics, Regional population, 2018-19, 2020)

Internal migration — level

The **level of net internal migration** refers to the overall number of people moving interstate. This can be measured by the numbers of interstate migrants leaving and entering a state or territory.

Internal migration — patterns

Patterns of net internal migration refer to the origins and destination locations for migration.

Life expectancy

Life expectancy measures how long a person is expected to live if the rest of their life follows the age and sex-specific mortality rates for the relevant year. This is the expectation of the average years that a person lives at a specific age. In the Statement, 'life expectancy' usually refers to 'life expectancy at birth' unless otherwise specified.

Source: (Australian Government Actuary, 2019)

Overseas migrant, permanent resident

For population purposes, an **Australian permanent resident** is a non-citizen who holds an Australian permanent visa and is considered to be usually resident in Australia (see 'overseas migration' definition below). Generally, permanent residents can live, work and study with much fewer restrictions than temporary visa holders in Australia.

Overseas migrant, temporary resident

A **temporary resident** is a non-citizen who holds a temporary visa that grants authority for travel to and from Australia within a specific period for a specific purpose (such as work or study) and is usually resident in Australia (see 'overseas migration' definition below). Temporary visa holders may have other conditions tied to their stay in Australia. Not all temporary visa holders are considered to be residents as they may not meet the 'usually resident in Australia' criterion.

Overseas migration

Overseas migration is defined using a 12/16 month rule. Under this rule, incoming overseas travellers (who are not currently counted in the population) must be resident in Australia for a total period of 12 months or more during the 16 month period to be included in the estimated resident population. Similarly, those travellers departing Australia (who are currently counted in the population) must be absent from Australia for a total of 12 months or more during a 16 month period to then be subtracted from the estimated resident population.

The 12/16 month rule therefore takes account of those people who may have left Australia briefly and returned, while still being resident for 12 months out of 16. Similarly, it takes account of Australian citizens who live most of the time overseas but periodically return to Australia for short periods.

Recuperation (with respect to fertility)

The extent to which cumulated cohort fertility rebounds from a low level after an increase in age at first birth is termed **recuperation**.

Replacement rate

The **replacement rate** is the average number of babies a woman would need to have over her reproductive life span to replace herself and partner. Given the current mortality of women up to age 49 years, replacement fertility is estimated at around 2.1 babies per woman.

Source: (Australian Bureau of Statistics, Births, Australia, 2019)

Rest-of-state area

Within each state, the area not defined as being part of the Greater Capital City is represented by a **rest-of-state region**.

Source: (Australian Bureau of Statistics, Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, 2016)

Total fertility rate (TFR)

The **total fertility rate** is the sum of age-specific fertility rates (divided by 1,000). It represents the number of children a woman would bear during her lifetime if she experienced current age-specific fertility rates at each age of her reproductive life. Age-specific fertility rates are the annual number of babies in a specific age group.

Source: (Australian Bureau of Statistics, Births, Australia, 2019)

Working-age population

Working-age population refers to the population aged 15 and over. The 'traditional working-age population' refers to the population aged 15 to 64 (inclusive).

REFERENCES

- Australian Bureau of Statistics. (1992, October 18). *Australian Economic Indicators*. Retrieved October 23, 2020, from <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/1350.0Feature%20Article101992?opendocument&tabname=Summary&prodno=1350.0&issue=1992&num=&view>
- Australian Bureau of Statistics. (2016, July 12). *Australian Statistical Geography Standard (ASGS): Volume 1 — Main Structure and Greater Capital City Statistical Areas*. Retrieved October 18, 2020, from <https://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.001>
- Australian Bureau of Statistics. (2017, October). *2016 Census QuickStats: Australian Capital Territory*. Retrieved 2020, from https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/8ACTE?opendocument
- Australian Bureau of Statistics. (2017). *Australian Statistical Geography Standard (ASGS): Volume 4 — Significant Urban Areas, Urban Centres and Localities, Section of State, July 2016*. Retrieved November 4, 2020, from [https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.004~July%202016~Main%20Features~Significant%20Urban%20Area%20\(SUA\)~5](https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.004~July%202016~Main%20Features~Significant%20Urban%20Area%20(SUA)~5)
- Australian Bureau of Statistics. (2017). *Census of Population and Housing, 2016*. Retrieved October 17, 2020, from <https://www.abs.gov.au/websitedbs/d3310114.nsf/home/about+tablebuilder>
- Australian Bureau of Statistics. (2017). *Migration Australia, 2015-16 — Technical Note: '12/16Month Rule' Methodology for calculating Net Overseas Migration from September Quarter 2006 onwards*. Canberra: Australian Government.
- Australian Bureau of Statistics. (2018, October 17). *Census of Population and Housing: Understanding the Increase in Aboriginal and Torres Strait Islander Counts*. Retrieved October 28, 2020, from <https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/census-population-and-housing-understanding-increase-aboriginal-and-torres-strait-islander-counts/2016>
- Australian Bureau of Statistics. (2018, August 31). *Estimates of Aboriginal and Torres Strait Islander Australians*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/estimates-aboriginal-and-torres-strait-islander-australians/latest-release>
- Australian Bureau of Statistics. (2018, November 29). *Life Tables for Aboriginal and Torres Strait Islander Australians, 2015-17*. Retrieved October 29, 2020, from <https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/life-tables-aboriginal-and-torres-strait-islander-australians/latest-release>
- Australian Bureau of Statistics. (2018, November 22). *Population Projections, Australia*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/people/population/population-projections-australia/latest-release>
- Australian Bureau of Statistics. (2018, May 22). *Population Shift: Understanding Internal Migration in Australia*. Retrieved October 19, 2020, from <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2071.0~2016~Main%20Features~Population%20Shift:%20Understanding%20Internal%20Migration%20in%20Australia~69>

Glossary and References

- Australian Bureau of Statistics. (2018, May 22). *Reflecting Australia — Stories from the Census, 2016*. Retrieved October 28, 2020, from <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2071.0~2016~Main%20Features~Population%20Shift:%20Understanding%20Internal%20Migration%20in%20Australia~69>
- Australian Bureau of Statistics. (2019, October 30). *2016-18 Life Tables*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/people/population/life-tables/latest-release>
- Australian Bureau of Statistics. (2019, December 11). *Births, Australia*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/people/population/births-australia/latest-release>
- Australian Bureau of Statistics. (2019, July 11). *Estimates and Projections, Aboriginal and Torres Strait Islander Australian*. Retrieved October 19, 2020, from <https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/estimates-and-projections-aboriginal-and-torres-strait-islander-australians/latest-release>
- Australian Bureau of Statistics. (2019, April 18). *Historical population, 2016*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/people/population/historical-population/latest-release>
- Australian Bureau of Statistics. (2020, October 23). *Causes of Death, Australia*. Retrieved October 28, 2020, from <https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/latest-release>
- Australian Bureau of Statistics. (2020, September 24). *Deaths, Australia*. Retrieved October 24, 2020, from <https://www.abs.gov.au/statistics/people/population/deaths-australia/latest-release>
- Australian Bureau of Statistics. (2020, October 15). *Labour Force, Australia*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release>
- Australian Bureau of Statistics. (2020, April 28). *Migration, Australia 2018-19*. Retrieved October 29, 2020, from <https://www.abs.gov.au/statistics/people/population/migration-australia/latest-release>
- Australian Bureau of Statistics. (2020, April 28). *Migration, Australia methodology*. Retrieved October 29, 2020, from <https://www.abs.gov.au/methodologies/migration-australia-methodology/2018-19>
- Australian Bureau of Statistics. (2020, September 24). *National, state and territory population, March 2020*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/latest-release>
- Australian Bureau of Statistics. (2020). *Net internal and overseas migration estimates by region (SA2 and above) and age, 2016-17 onwards*. Retrieved September 17, 2020, from http://stat.data.abs.gov.au/OECDStat_Metadata/ShowMetadata.ashx?Dataset=ABS_REGIONAL_MIGRATION&ShowOnWeb=true&Lang=en
- Australian Bureau of Statistics. (2020, October 1). *Provisional Mortality Statistics*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/health/causes-death/provisional-mortality-statistics/latest-release#data-download>
- Australian Bureau of Statistics. (2020, October 28). *Provisional Mortality Statistics Jan-July*. Retrieved October 28, 2020, from <https://www.abs.gov.au/statistics/health/causes-death/provisional-mortality-statistics/latest-release>

- Australian Bureau of Statistics. (2020, August 28). *Regional population by age and sex*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/people/population/regional-population-age-and-sex/latest-release>
- Australian Bureau of Statistics. (2020, March 25). *Regional population, 2018-19*. Retrieved October 17, 2020, from <https://www.abs.gov.au/statistics/people/population/regional-population/2018-19>
- Australian Bureau of Statistics. (2020, July 28). *Regional Statistics, ASGS 2016, 2011-2019*. Retrieved October 17, 2020, from http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ABS_REGIONAL_ASGS2016
- Australian Bureau of Statistics. (2020, September 15). *Residential Property Price Indexes: Eight Capital Cities*. Retrieved October 28, 2020, from <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/residential-property-price-indexes-eight-capital-cities/latest-release>
- Australian Bureau of Statistics. (n.d.). *Regional Internal Migration Estimates by Region (SA3 and above), Age and Sex, 2006-07 to 2015-16*. Retrieved June 10, 2020, from http://stat.data.abs.gov.au/index.aspx?DatasetCode=RIN_SA34_GCCSA_STE
- Australian Bureau of Statistics. (n.d.). *Regional Internal Migration Estimates by Region (SA3 and above), Age and Sex, 2006-07 to 2015-16; Regional Internal Migration Estimates by Region (SA2 and above) 2016-17 onwards*. Retrieved June 10, 2020, from http://stat.data.abs.gov.au/index.aspx?DatasetCode=RIN_SA34_GCCSA_STE
- Australian Bureau of Statistics. (n.d.). *Regional Internal Migration Estimates by Region (SA3 and above), Age and Sex, 2006-07 to 2015-16; Regional Internal Migration Estimates by region (SA2 and above) and age, 2016-17 onwards*. Retrieved June 10, 2020, from http://stat.data.abs.gov.au/index.aspx?DatasetCode=RIN_SA34_GCCSA_STE
- Australian Government Actuary. (2019). *Australian Life Tables 2015-17*. Retrieved October 17, 2020, from http://www.aga.gov.au/publications/life_table_2015-17/downloads/Australian%20Life%20Tables%202015-17%20v5.pdf
- Australian Institute of Health and Welfare. (2019, September 11). *Profile of Indigenous Australians*. Retrieved October 22, 2020, from <https://www.aihw.gov.au/reports/australias-welfare/profile-of-indigenous-australians>
- Australian Institute of Health and Welfare. (2020). *Australia's Health 2020 Data Insights*. Canberra. doi:10.25816/5f05371c539f3
- Australian Institute of Health and Welfare. (2020, August 7). *Deaths in Australia*. Retrieved October 17, 2020, from <https://www.aihw.gov.au/reports/life-expectancy-death/deaths-in-australia/contents/summary>
- Australian Institute of Health and Welfare. (2020). *General Record of Incidence of Mortality Books 2018*. Canberra: Australian Government.
- Australian Institute of Health and Welfare. (2020, August 7). *General Record of Incidence of Mortality Excel workbooks*. Retrieved October 17, 2020, from <https://www.aihw.gov.au/reports/life-expectancy-deaths/grim-books/contents/grim-excel-workbooks>
- Australian National Audit Office. (2011). *Management of Student Visas*. ANAO audit report, no. 46, 2010-11, Canberra.

Glossary and References

- Bourne, K., Houghton, K., How, G., Achurch, H., & Beaton, R. (2020). *The Big Movers: Understanding Population Mobility in Regional Australia*. Canberra: Regional Australia Institute.
- Bureau of Infrastructure, Transport and Regional Economics. (2011). *Spatial trends in Australian population growth and movement*. Canberra.
- Bureau of Infrastructure, Transport and Regional Economics. (2014). *The evolution of Australian towns*. Canberra: Commonwealth of Australia. Retrieved from https://www.bitre.gov.au/sites/default/files/report_136.pdf
- Centre for Population. (2020). *Historical single year of age fertility rates, for Australia and by state/territory, by financial year*. Canberra: Australian Government.
- Chomik, R., Piggott, J., & McDonald, P. (2017). The Impact of Demographic Change on Labour Supply and Economic Growth: Can APEC Meet the Challenges Ahead? *CEPAR*.
- City of Wanneroo. (2019). *Local Area Plan: Yanchep & Two Rocks*. Retrieved October 17, 2020, from <https://www.wanneroo.wa.gov.au/consultations/downloads/5dc271d5b1ac0.pdf>
- Commonwealth Government. (2015). *2015 Intergenerational Report, Australia in 2055*. Canberra: Australian Government.
- Department of Education, Skills and Employment. (2020, October). *International student data: August 2020*. Retrieved October 27, 2020, from International education online: <https://internationaleducation.gov.au/Pages/default.aspx>
- Department of Health. (2020, October 17). *Coronavirus (COVID-19) current situation and case numbers*. Retrieved October 17, 2020, from <https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-current-situation-and-case-numbers#cases-and-deaths-by-age-and-sex>
- Department of Treasury and Finance, Western Australia. (2006, October). *Migration in Western Australia: A recent economic history*. Retrieved from <https://www.wa.gov.au/sites/default/files/2020-01/economic-research-papers-migration-in-western-australia.pdf>
- Government of South Australia. (2004). *Prosperity through people: A population plan for South Australia*. Adelaide: Government of South Australia.
- Gray, M., Qu, L., & Weston, R. (2008, February). Fertility and Family Policy in Australia. *AIFS Research Paper No. 41*.
- Hugo, G. (2008). Australia's state-specific and regional migration scheme: An assessment of its impacts in South Australia. *Journal of international migration and integration*, 125-145.
- Kalemba, S. V., Bernard, A., Charles-Edwards, E., & Corcoran, J. (2020). Decline in internal migration levels in Australia: Compositional or behavioural effect? *Population, Space and Place*, 26(4).
- Lattimore, R., & Pobke, C. (2008, July). Recent Trends in Australian Fertility. *Productivity Commission Staff Working Paper*.
- McDonald, P. (2020). *A Projection of Australia's Future Fertility*. Canberra: Centre for Population.

- National Skills Commission. (2020, October 30). *Small Area Labour Markets (SALM), June Quarter 2020*. Retrieved November 19, 2020, from Labour Market Information Portal: <https://lmip.gov.au/default.aspx?LMIP/Downloads/SmallAreaLabourMarketsSALM>
- O'Neil, M., & Kaye, L. (2016). The Aged Structure of Population and Economic Growth — Does It Matter? *Economic Issues*, 47.
- Pangeagiotelis, A. A. (2020). Forecast reconciliation: A geometric view with new insights on bias correction. *International Journal of Forecasting*, 6(4). doi:<https://doi.org/10.1016/j.ijforecast.2020.06.004>
- Productivity Commission. (2016). *Migrant Intake into Australia*. Canberra: Australian Government.
- Regional Australia Institute. (2020, June). *The Big Movers: Understanding Population Mobility in Regional Australia*. Retrieved October 17, 2020, from http://www.regionalaustralia.org.au/home/wp-content/uploads/2020/06/RAI_2020_The_Big_Movers_Population_Mobility_Report_vFinal3.pdf
- Reserve Bank of Australia. (1998). *Labour Market Adjustment: Evidence on Interstate Labour Mobility*. Retrieved from <https://www.rba.gov.au/publications/rdp/1998/pdf/rdp9801.pdf>
- Sánchez, A. C., & Andrews, D. (2011). Residential Mobility and Public Policy in OECD Countries. *OECD Journal: Economic Studies*, 2011(1), 185-206.
- The Treasury and the Department of Home Affairs. (2018). *Shaping the Nation*.
- The World Bank. (2020). *World Bank Open Data*. Retrieved October 17, 2020, from <https://data.worldbank.org/>
- The World Bank. (2020). *World Development Indicators*. Retrieved October 17, 2020, from <https://databank.worldbank.org/source/world-development-indicators>
- United Nations. (2019). *World Population Prospects 2019*. New York.
- University of Queensland. (unpublished). *Anticipating the impact of COVID-19 on internal migration*. Canberra: Centre for Population.
- Wilson, T. (2012). Forecast Accuracy and Uncertainty of Australian Bureau of Statistics State and Territory Population Projections. *International Journal of Population Research*. doi:10.1155/2012/419824
- Wilson, T., Temple, J., & Charles-Edwards, E. (2020). *Will the COVID-19 pandemic affect population ageing in Australia?*