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New population projections for Australia and the States and Territories, with a particular focus on population ageing

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Abstract
The recent release of preliminary rebased Estimated Resident Populations for 2021 by the Australian Bureau of Statistics (ABS) provides updated populations on which to base new population projections for Australia. New projections are necessary because of the disruption to demographic trends caused by Covid, rendering even quite recently produced projections out-of-date. This paper presents new population projections for Australia and the states and territories for the period 2021-2041. The paper describes the input data used, projection assumptions made, and an outline of the projection model. Key features of projected population ageing are presented, followed by brief projection profiles of Australia and the states and territories. Population projections data is available at the Centre of Excellence in Population Ageing Research (CEPAR) Population Ageing Futures Data Archive (https://cepar.edu.au/cepar-population-ageing-projections)

Key words
Population projections; population ageing; Australia; States and Territories

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Contents

Abbreviations

ABS	Australian Bureau of Statistics
ERP	Estimated Resident Population
NASSPOPP	National, State & Sub-state Population Projection Program
NIM	Net Interstate Migration
NOM	Net Overseas Migration
PRP	Projected Resident Population
TFR	Total Fertility Rate

1. Introduction

The Covid pandemic has caused – and continues to cause – substantial disruption to Australia's demographic trends. Fertility, mortality and migration have all been affected. The closure of Australia's international border from March 2020 until late 2021 (for Australian residents) or early 2022 (for overseas visitors) not surprisingly resulted in an abrupt decline in net overseas migration (NOM). In the 2018-19 financial year net overseas migration totalled 241,000; by 2020-21 it had fallen dramatically to -88,000 (i.e., there were more people emigrating than immigrating) (ABS 2022a). This was the first negative NOM balance recorded since the 1940s. In terms of mortality, Australia's death toll from Covid over the first two years of the pandemic was limited, in contrast to the devastating rise in mortality in many other countries. In fact, the available data indicates that Australian mortality during the 2020 calendar year was lower than expected (Canudas-Romo et al. 2022). However, recent preliminary mortality data show above-average numbers of deaths during much of 2021 and a big surge in deaths in early 2022 (ABS 2022b). The effect of Covid on fertility occurred against a backdrop of over a decade of gradually declining fertility rates and cannot be easily disentangled from that longer-term trend. However, the incomplete data available to date indicates a temporary dip in conceptions at the start of the pandemic and therefore lower fertility in late 2020, followed by a modest and short-term recovery, and then a resumption of lower fertility most recently (Gray et al. 2022).

The ongoing impacts of Covid on fertility, mortality, and migration present considerable challenges for the preparation of population projections. Because global pandemics are not a common occurrence, we have little past data and theory with which to inform assumptions about the future of fertility, mortality, and migration. The short-term assumptions for these demographic processes are therefore unavoidably speculative. Nonetheless, there are at least two main reasons why it is useful to prepare new population projections for Australia at this time. First, because demographic trends have been changing relatively quickly over the last two years, the last official population projections, launched from 2017, are now out-of-date (ABS 2018), as are other more recent projections prepared in 2020 in the early days of the pandemic (Wilson et al. 2021; Charles-Edwards et al. 2021). New projections which take into account the emerging demographic realities of Covid are needed for planning and policy purposes. Second, the recent release of 2021 Estimated Resident Populations based on the 2021 Census (ABS 2022a) provide good quality data on which to base new projections.

This working paper summarises population projections for Australia and the states and territories from 2021 to 2041. The projections are launched from the 30th June 2021 preliminary rebased Estimated Resident Populations (ERP) published by the ABS in June 2022 (ABS 2022a). Projections were created for 30th June in each year of the projection horizon by sex and single years of age. Projections data is available for download from the

Centre of Excellence in Population Ageing Research (CEPAR) Population Ageing Futures Data Archive at https://cepar.edu.au/cepar-population-ageing-projections.

Following this introduction, section 2 describes input data, projection assumptions and projection methods. Selected features of the projections related to population ageing are presented in section 3, while section 4 contains summary profiles of projections for Australia and each of the states and territories.

2. Input data and projection methods

2.1. Projection model overview

Projections were calculated using NASSPOPP (National, State & Sub-state Population Projection Program). This incorporates national and state/territory cohort-component models (Wilson and Rees 2021) which divide the population by sex and single years of age up to age 110+, and project the population forward in time in one year increments taking into account births, deaths and migration. The modelling system was designed using a movement population accounts-based framework (Rees 1984).

At both national and state/territory scales, births are projected in the standard way via age-specific fertility rates multiplied by the female population over ages 15 to 49. Deaths are projected using age-specific death rates multiplied by populations. Small constraining adjustments are applied to ensure that state/territory births and deaths sum across jurisdictions to match national births and deaths respectively.

At the national scale, overseas migration is projected using emigration rates and immigration flows, constrained to an overall NOM assumption. At the state/territory scale, overseas migration is modelled in the same way, though constraining is applied to ensure perfect consistency with the national-level projections.

Interstate migration is modelled using a bi-regional approach, in which migration is projected between each state/territory and the rest of the country using migration rates multiplied by origin populations. For example, interstate out-migration from Queensland is projected as the product of out-migration rates and the Queensland population; in-migration is projected as in-migration rates multiplied by the population of all of Australia except Queensland. Projected in- and out-migration flows are constrained to overall net interstate migration (NIM) assumptions. A small adjustment is also applied to ensure in-migration summed over all jurisdictions equals out-migration from all jurisdictions.

2.2. Input data and projection assumptions

2.2.1. Jump-off populations

The projections start from the preliminary rebased 2021 Estimated Resident Populations published by the ABS in June 2022 (ABS 2022a). The 100+ ERP was disaggregated to single years of age from 101 to 109 and 110+ using an extinct generations and survivor ratio method (Wilson and Terblanche 2018). ABS applied the same method to create their ERPs for ages 95 to 99 and 100+ (ABS 2022c).

Fertility, mortality, interstate migration and overseas migration assumptions are described in turn. Figure 1, at the end of this sub-section, illustrates the selected national-level projection assumptions. Table 1 summarises the assumptions for the states and territories. Broadly, NOM is assumed to return to the average levels recorded for the decade prior to the emergence of Covid; NIM is based on a twenty year average; life expectancy is assumed to continue long-run trends (with a small deviation in the short-run); and fertility is expected to remain low.

2.2.2. Fertility assumptions

Fertility assumptions were prepared separately for Total Fertility Rates (TFRs) and age-specific fertility rates (ASFRs). ASFRs for Australia were projected using the parametric model of Peristera and Kostaki (2007). The model was fitted to fertility age profiles from 1981 to 2020; the time series of parameters were extrapolated out to 2041; and then projected age-specific fertility rates were calculated from the extrapolated parameters. The projected age profile of fertility for Australia shows moderate declines in fertility in the teenage years, 20s and early 30s, and small increases at higher ages. Unfortunately, over the long run, this model has the potential to yield implausible TFRs. Therefore, the TFR assumptions were formulated separately and ASFRs scaled appropriately to be consistent with the TFRs. The long-run TFR for Australia was set at 1.60. This was selected based on demographic judgement, taking into account recent fertility rates, short-term projections from the Peristera-Kostaki model, and analyses of possible long-run cohort fertility (McDonald 2020). For 2021-22 the TFR was set at 1.70 due to evidence of a temporary recovery in fertility following the initial pandemic-related drop in 2020 (Gray et al. 2022), with long-run assumptions applying from 2023-24 onwards. National TFR assumptions are shown below in Figure 1a.

State and territory ASFR assumptions were prepared in the same way, with the exception of the Northern Territory due to a poor fit of the Peristera-Kostaki model. For the Territory, the alternative approach involved taking five year age group ASFRs, setting a long-run fertility age profile for 2050 based on a mix of extrapolation from past trends and judgement, and interpolating between 2020 and 2050. Then the projected five year age group ASFRs were disaggregated to single years of age using cubic splines. Projected state and territory TFRs were calculated via ratios of state/territory to national TFRs. The projected TFR of each state/territory was calculated as:

$$\text{National projected TFR} \times \text{TFR ratio}$$

where the TFR ratio from 2025-26 onwards was fixed at the average ratio observed over the decade 2009-10 to 2019-20. For the initial years of the projection, TFR ratios were smoothed in from the most recent values. Although this approach involves state and territory TFR time series moving in parallel with one another, which is clearly an approximation of reality, it does prevent implausible divergence, convergence and crossover of projected TFR trends. Projected ASFRs were scaled to be consistent with projected TFRs. During the running of

NASSPOPP, projected state/territory births by age are adjusted to be consistent with projected national births. This results in small adjustments to the 'assumed' TFRs, and it is these adjusted TFR assumptions which are reported in Table 1.

2.2.3. Mortality assumptions

National death rates by age and sex were projected using a simplified version of Ediev's (2008) extrapolative mortality model. Ediev's approach is based on the simple linear extrapolation of logged death rates, but adds consistency constraints to ensure that long-run projected age profiles of deaths rates remain smooth and plausible, and a smooth join of recent death rates to projected death rates. In an application to Australia, Terblanche (2016) found the Ediev approach to perform well against both more complex and simpler mortality projection models. One modification was made to the mortality projections: a small downward adjustment was made to 2021-22 life expectancy due to the surge in deaths reported in early 2022 (ABS 2022b). National life expectancy at birth assumptions are illustrated in Figure 1b.

State and territory life expectancy at birth assumptions by sex were prepared via life expectancy differences, defined as state/territory life expectancy minus national life expectancy. Projected state/territory life expectancy by sex was then calculated as:

National life expectancy + life expectancy difference

From 2024-25 life expectancy differences were fixed at the average of the decade 2009-11 to 2018-20, with the exception of the Northern Territory. For the initial years of the projections, the life expectancy differences were smoothed in from the most recent values. Because the Northern Territory has experienced gradual long-run (albeit noisy) convergence with national life expectancy trends, this convergence was assumed to continue for the next decade and then remain constant.

For the states and territories, age-specific death rates were created from life expectancy at birth assumptions using a mortality surface of ${}_nL_x$ values (Wilson 2018). For all jurisdictions except the Northern Territory, the mortality surface used was one consisting of past and projected national ${}_nL_x$ values. The projection program selects ${}_nL_x$ values from the mortality surface which correspond to the specified life expectancy at birth assumptions. It is therefore assumed that all jurisdictions follow the national mortality trajectory but from different starting points. The purpose of this approach is to allow life expectancy assumptions to be updated easily without having to prepare a whole new set of age-specific death rates for each geographical area in the projections. It also ensures consistency of mortality projections between geographical areas. A limitation is variations between state/territory mortality death rates and modelled rates, but these are small. Only for the Northern Territory are the discrepancies substantial. This is why a Territory-specific mortality surface was created and is used for this jurisdiction only.

2.2.4. Overseas migration assumptions

NOM is notoriously difficult to predict, and no models of migration do a good job of producing accurate migration forecasts. In Australia, large swings in migration have occurred for decades, with the largest being most recently with the Covid-related closure of the Australian border in 2020 and 2021. The Australian migration system is also heavily influenced by a complex set of migration rules and regulations, which are subject to regular changes. This includes the setting of the annual permanent Migration Program planning level, but also rules affecting many temporary visas. And many permanent migration visas are allocated 'onshore' to people who are already living in Australia. Ideally, we need a model of the Australia's overseas migration system which includes the population divided into visa/citizenship categories, the migration and category change flows between them, and the policy levers which affect them.

In the absence of such a model, a simple approach was taken to preparing NOM assumptions for these projections. Long-run national NOM was set at 216,000 per annum from 2025-26 onwards, the average annual NOM for the decade 2009-10 to 2018-19. This was selected because of the expectation of a return to high levels of overseas migration. Statements by the Federal government appear broadly supportive of high migration[1]. For 2021-22 and 2022-23, NOM assumptions were based on judgement, taking into consideration:

- The latest quarterly NOM estimates in the ABS publication National, State & Territory Population (ABS 2022a)
- The more recent monthly long-term and permanent flows of people in the ABS publication Overseas Arrivals and Departures (ABS 2022d)
- The advice of selected migration experts.

For the intermediate years of 2023-24 and 2024-25 NOM was based on interpolation between the immediate and long-run values.

NOM assumptions for the states and territories were based on the state/territory share of national NOM over the pre-Covid decade 2009-10 to 2018-19. But because of discrepancies over intercensal periods between population growth measured by ERP change and growth implied by the demographic components of change, we decided to adjust the published overseas and interstate migration flows to obtain population accounting consistency. We therefore adjusted all intercensal migration flows using iterative proportional fitting on the assumption that ERPs, births and deaths were accurate. We applied this method to both 2016-

[1] e.g. https://minister.homeaffairs.gov.au/AndrewGiles/Pages/Welcome.aspx; https://ministers.treasury.gov.au/ministers/jim-chalmers-2022/media-releases/jobs-and-skills-summit-be-held-september; https://www.abc.net.au/news/2022-07-12/treasurer-supports-lift-to-skilled-migration-labour-shortages/101229296

21 and 2011-16 periods. For the projections, state/territory NOM assumptions were calculated as:

National NOM assumption × state/territory share of adjusted NOM

The state/territory NOM shares were held constant throughout the projection horizon.

Note that these NOM assumptions constitute the 'headline' overseas migration assumptions. The projection model actually models immigration and emigration separately, which are consistent with the overall NOM assumption. Age-sex profiles of immigration numbers and emigration rates were estimated from pre-Covid census migration data and ABS overseas migration arrivals and departures data, adjusted to be consistent with intercensal ERP change, and then smoothed using model migration schedules (Wilson 2020).

2.2.5. Interstate migration assumptions

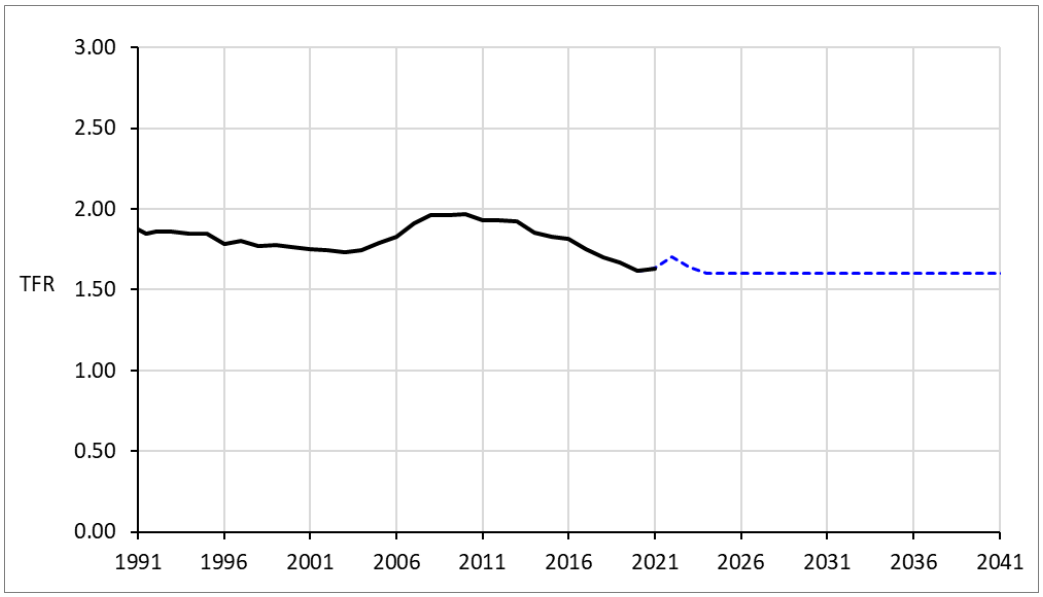
Net Interstate Migration (NIM) is also difficult to predict, given its volatility and the lack of reliable migration models. We take a conservative approach by basing our long-run assumptions on a 20 year average of annual NIM. However, we do not simply use published NIM data in calculating the assumptions. The rebased 2021 ERPs differed by a non-trivial amount from the un-rebased ERPs for some states and territories (ABS 2022c). At the state/territory scale, births, deaths and overseas migration are direct measures of those demographic processes. But interstate migration is measured using proxy data sources and modelling and is likely the least accurate of the estimated demographic components. We therefore used interstate migration estimates obtained from the iterative proportional fitting adjustment (mentioned in the previous sub-section) for both 2016-21 and 2011-16 periods. These adjusted data were included in the 20 year average NIM calculations for 1999-2000 to 2018-19. These adjusted average NIM values were assumed to apply from 2026-27 onwards. NIM values for 2021-22 were estimated based on known data for the first half of the financial year. For the intervening years NIM trends were smoothed in to the long-run assumptions.

Age-sex profiles of in-migration and out-migration rates were based on census migration age profiles but subject to population accounting adjustments. The data was adjusted to obtain consistency with intercensal ERP change, and then smoothed with model migration age schedules.

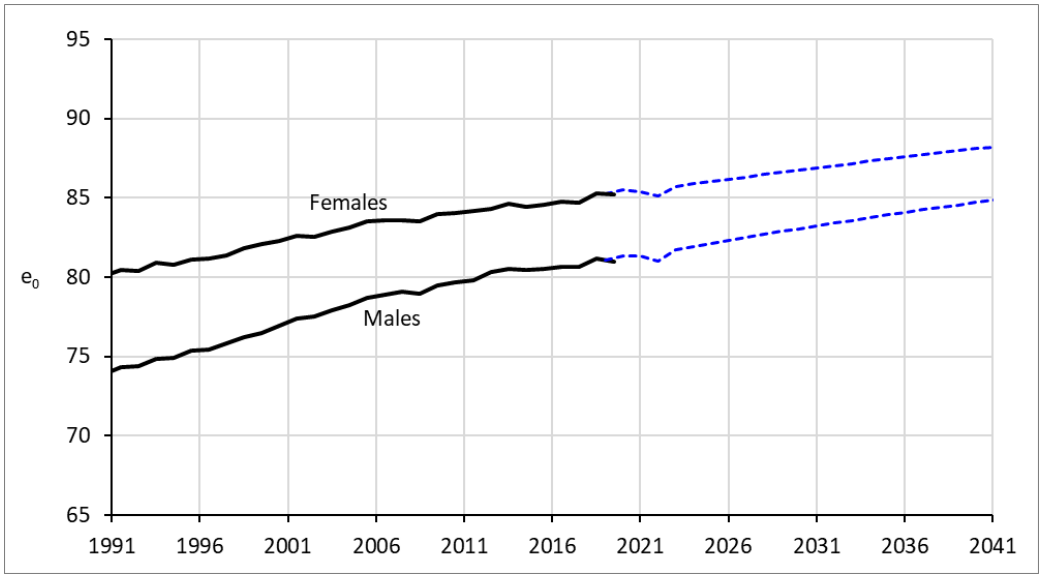
2.2.6. Projection assumption caveats

Projection assumptions tend to consist of smooth trends, whereas in reality demographic trends are noisy and fluctuating. This messiness is relatively modest for life expectancy, but substantial for NOM, which exhibits large peaks and troughs (see Figure 1). Unfortunately, it is not possible to create forecasts of the future direction of fertility, mortality, and migration which include all these fluctuations. Instead, demographers attempt to project the *general* direction of fertility, mortality and migration, while accepting that actual demographic trends

will deviate above and below them. In addition, it is important to stress that these projections reflect the outlook at the time the projections were prepared. Migration policy changes, ongoing Covid effects on mortality, global economic forces, wars, major world disasters, etc. along with demographic data revisions mean that projection assumptions are likely to change in future sets of projections.



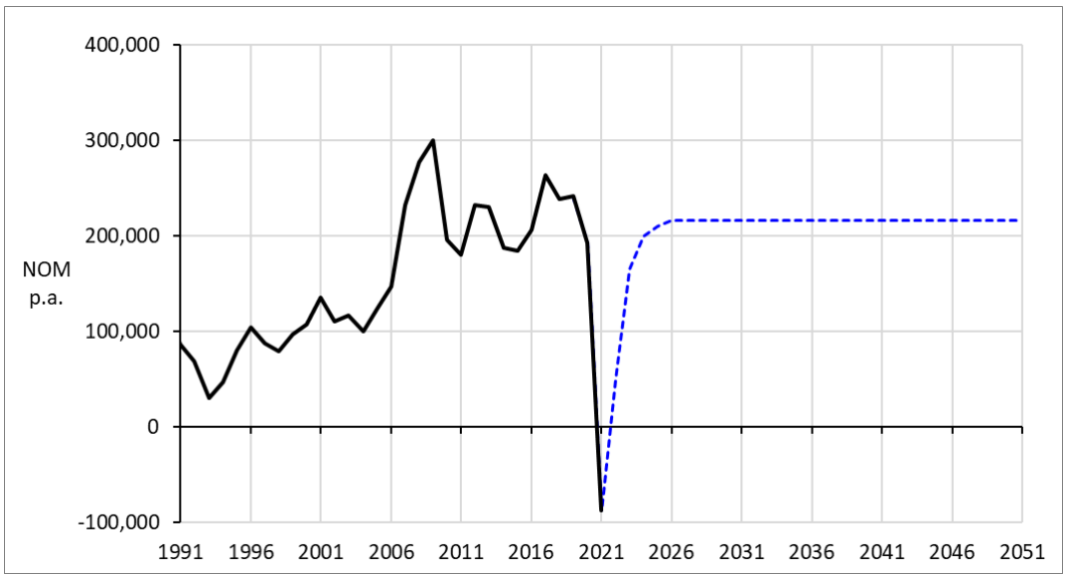
(a) Total Fertility Rate



(b) Life expectancy at birth

Figure 1: National projection assumptions

Sources: Observed TFRs: ABS National, State & Territory Population (many editions). Observed e_0: authors' life table calculations based on ABS deaths (ABS Data Explorer) and populations (ABS National, State & Territory Population)



(c) Net overseas migration

Figure 1 continued

Sources: Observed NOM: ABS National, State & Territory Population (many editions).

Table 1: Summary of state/territory projection assumptions

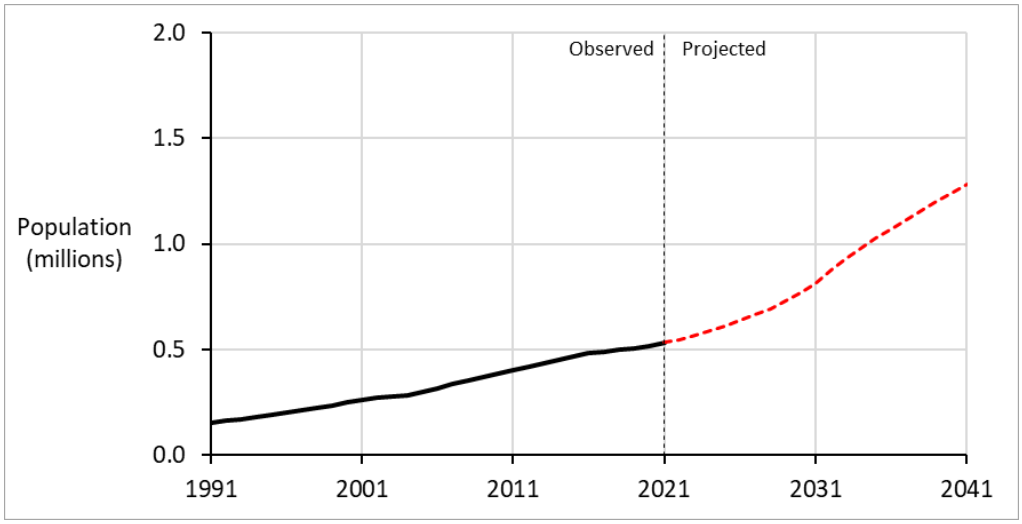
	TFR	e_0 (years)	NIM	NOM
NSW	2021-22: 1.75 2023-24: 1.62	2021-22: 85.1 F; 81.0 M 2040-41: 88.2 F; 84.8 M	2021-22: -44,250 2026-27: -20,127	2021-22: 16,037 2025-26: 69,269
Vic	2021-22: 1.55 2023-24: 1.51	2021-22: 85.4 F; 81.7 M 2040-41: 88.5 F; 85.6 M	2021-22: -16,975 2026-27: 4,123	2021-22: 15,162 2025-26: 65,490
Qld	2021-22: 1.78 2023-24: 1.66	2021-22: 84.9 F; 80.5 M 2040-41: 88.0 F; 84.4 M	2021-22: 59,525 2026-27: 19,003	2021-22: 7,582 2025-26: 32,747
SA	2021-22: 1.68 2023-24: 1.57	2021-22: 85.0 F; 80.7 M 2040-41: 88.1 F; 84.6 M	2021-22: 50 2026-27: -2,894	2021-22: 3,221 2025-26: 13,910
WA	2021-22: 1.78 2023-24: 1.65	2021-22: 85.5 F; 81.1 M 2040-41: 88.6 F; 84.9 M	2021-22: 8,749 2026-27: 290	2021-22: 6,222 2025-26: 26,876
Tas	2021-22: 1.71 2023-24: 1.65	2021-22: 83.6 F; 79.6 M 2040-41: 86.6 F; 83.4 M	2021-22: -1,082 2026-27: 406	2021-22: 529 2025-26: 2,283
NT	2021-22: 1.87 2023-24: 1.75	2021-22: 80.5 F; 76.5 M 2040-41: 83.9 F; 81.1 M	2021-22: -3,367 2026-27: -1,456	2021-22: 428 2025-26: 1,848
ACT	2021-22: 1.54 2023-24: 1.48	2021-22: 85.7 F; 81.9 M 2040-41: 88.9 F; 85.8 M	2021-22: -2,830 2026-27: 591	2021-22: 805 2025-26: 3,479
Australia	*2021-22: 1.70* *2023-24: 1.60*	*2021-22: 85.1 F; 81.0 M* *2040-41: 88.2 F; 84.9 M*	*Not applicable*	*2021-22: 50,000* *2025-26: 215,966*

Note: e_0 = life expectancy at birth; M = males; F = females

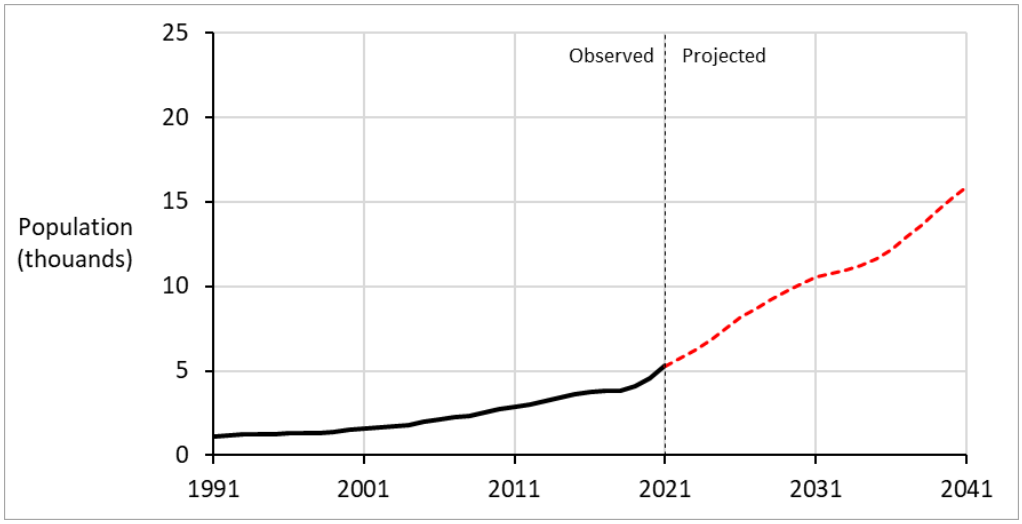
3. Projected population ageing

3.1. Numerical population ageing

The population of Australia aged 65+ is projected to grow to 6.66 million by 2041, an increase of 2.35 million (or 54%) over the 2021 population of 4.31 million. Figure 2 below illustrates the projected growth of two subgroups of the 65+ population, those aged 85+ and those in their centenarian years (100+). The 85+ population is projected to rise from 534,000 in 2021 to 1.28 million by 2041 (an increase of 747,000 or 140%). The rapid growth of the 85+ population from the early 2030s is partly due to the baby boom generation reaching age 85 from 2031 onwards. The centenarian population is projected to increase from 5,300 in 2021 to 15,900 by 2041 (an increase of 10,600 or 200%).



(a) Population aged 85+



(b) Population aged 100+

Figure 2: The past and projected population of Australia aged 85+ and 100+, 1991-2041
Source of observed data: age 85+: ABS; age 100+: own estimates for 1991-2020, ABS for 2021.

Numerical population ageing across the states and territories is summarised in Table 2 below. As would be expected, the greatest amount of population ageing is projected for the states/territories with the largest populations. However, the NT and ACT, with relatively small oldest old populations at present, are projected to experience large percentage increases in their 85+ populations over the 2021-41 period.

Table 2: Numerical population ageing across the states and territories, selected years

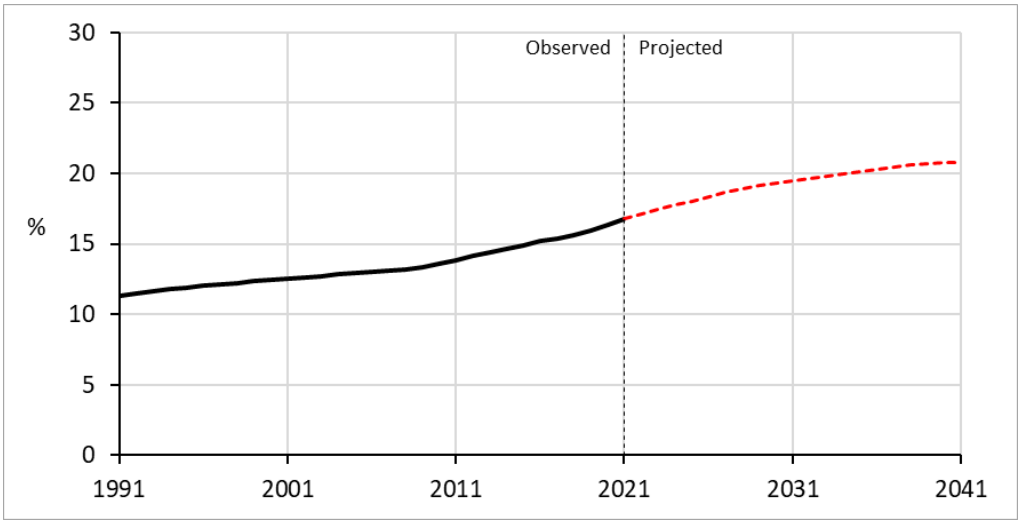
	Populations			Change 2021-41	
	2021	2031	2041	No.	%
			Population aged 65+		
NSW	1,393,400	1,745,400	2,016,500	623,000	44.7
Vic	1,072,600	1,417,000	1,733,100	660,600	61.6
Qld	864,400	1,179,500	1,442,500	578,100	66.9
SA	352,500	442,000	498,300	145,900	41.4
WA	431,900	566,300	671,200	239,300	55.4
Tas	116,000	146,200	162,500	46,500	40.1
NT	21,600	30,600	36,900	15,300	70.9
ACT	60,500	81,800	100,400	40,000	66.1
			Population aged 85+		
NSW	180,000	258,000	389,000	209,000	116.1
Vic	139,800	210,700	335,700	195,900	140.1
Qld	95,800	161,600	266,700	170,900	178.3
SA	46,900	66,200	102,200	55,200	117.6
WA	50,500	79,000	128,900	78,400	155.3
Tas	12,900	19,800	32,100	19,200	148.1
NT	1,200	3,000	5,900	4,700	394.7
ACT	7,000	12,300	20,800	13,800	198.1
			Population aged 100+		
NSW	1,830	3,510	4,990	3,160	172.5
Vic	1,340	2,900	4,340	2,990	223.1
Qld	910	1,850	3,040	2,130	233.4
SA	550	930	1,280	730	132.5
WA	500	1,000	1,580	1,080	217.4
Tas	100	180	350	250	263.4
NT	10	30	90	80	992.4
ACT	60	150	250	190	311.1

Source of 2021 ERPs: ABS

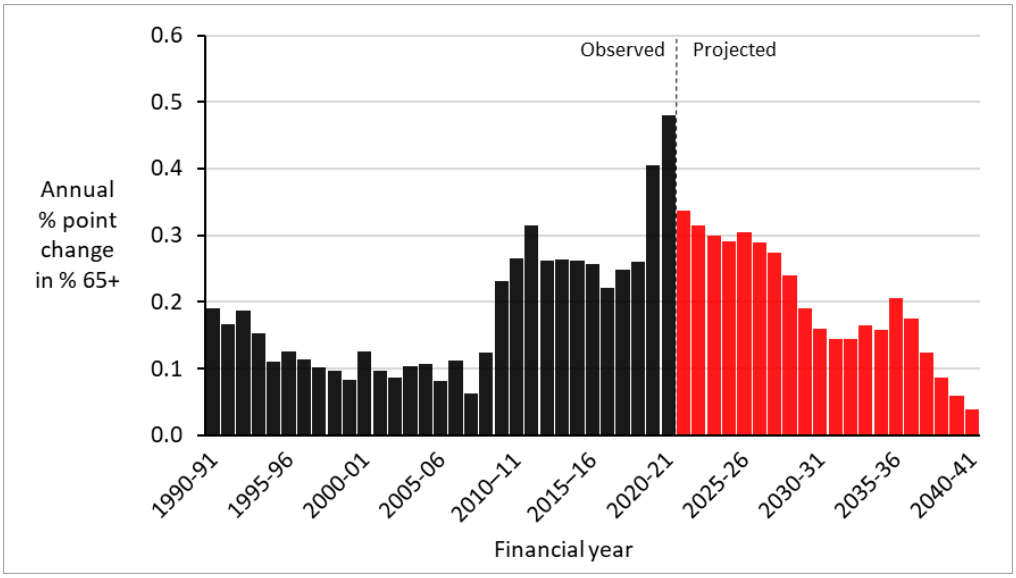
Note: Populations have been rounded to the nearest 100 for populations aged 65+ and 85+ and the nearest 10 for centenarian populations.

3.2. Structural population ageing

Structural population ageing (an increase in the share of the population aged 65+) is projected to continue (Figure 3). The share of the population aged 65+ in 2021 of 16.8% is projected to gradually rise to 20.8% by 2041 (top graph). The lower graph depicts the percentage point increase in the share of the population aged 65+ from year to year – the speed of population ageing.



(a) Percentage aged 65+



(b) Annual percentage point increase in % aged 65+ (speed of ageing)

Figure 3: Past and projected structural population ageing in Australia, 1991-2041
Source of observed data: ABS

The acceleration of ageing in the second decade of the 21st century was primarily due to the baby boomers starting to enter the 65+ age group. The first of the baby boomers, born in 1946, turned age 65 in 2011, while the last of the boomers, born in 1965, will turn 65 in 2030

– hence the projected slowdown in the speed of population ageing about then. The further deceleration of ageing in the late 2030s is due to the slowing growth of the 65+ age group but little change in the growth of the 0-64 age group. This is due to smaller birth cohorts, created by the fall in fertility rates in the early 1970s, reaching age 65.

The short-term acceleration of ageing in 2019-20 and 2020-21 is Covid-related. There was very little disruption in the growth of the population aged 65+ between 2019 and 2021, but the closure of Australia's border for much of 2020 and 2021 led to a huge drop in NOM (Figure 1c earlier). The drop in NOM temporarily stopped the growth of the young adult population, leading to very little change in the size of the overall population aged 0-64 between 2019 and 2021.

At the state/territory scale, projected structural population ageing is summarised in Table 3. The two jurisdictions with the oldest populations in 2021, Tasmania and South Australia, are projected to remain the oldest by 2041. Tasmania is projected to experience the fastest rate of ageing, with its share of population aged 65+ increasing from 20.4% in 2021 to 26.3% by 2041 (a percentage point rise of 5.8%).

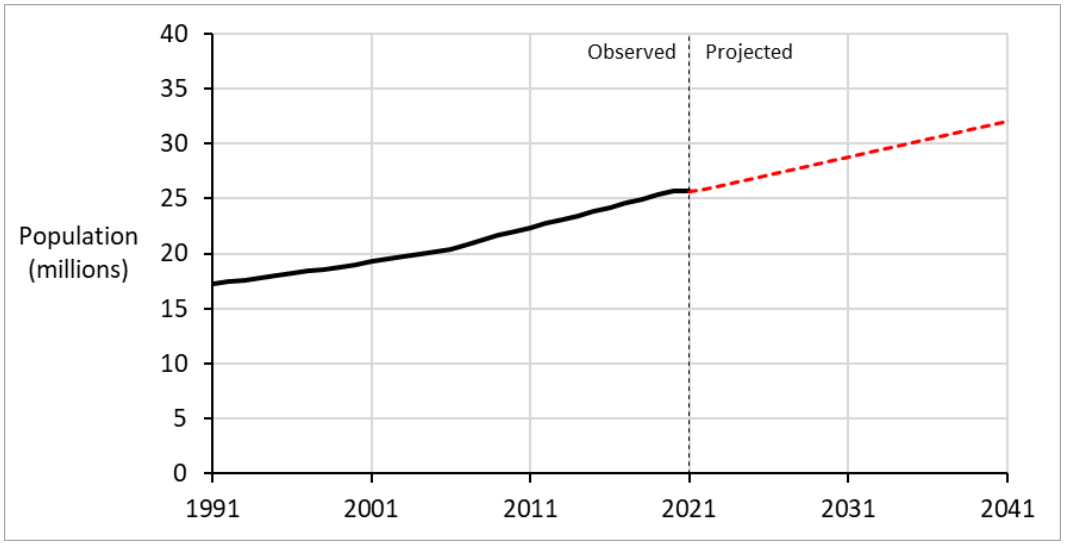
Table 3: Share of the population aged 65+ across the states and territories, selected years

	Populations			Change 2021-41
	2021	2031	2041	% point
	Percentage of population aged 65+			
NSW	17.2	19.8	20.9	3.6
Vic	16.4	19.1	20.6	4.2
Qld	16.6	19.5	21.3	4.7
SA	19.5	22.8	24.1	4.6
WA	15.7	17.9	18.7	3.0
Tas	20.4	24.5	26.3	5.8
NT	8.7	11.3	12.3	3.6
ACT	13.3	15.9	17.1	3.8

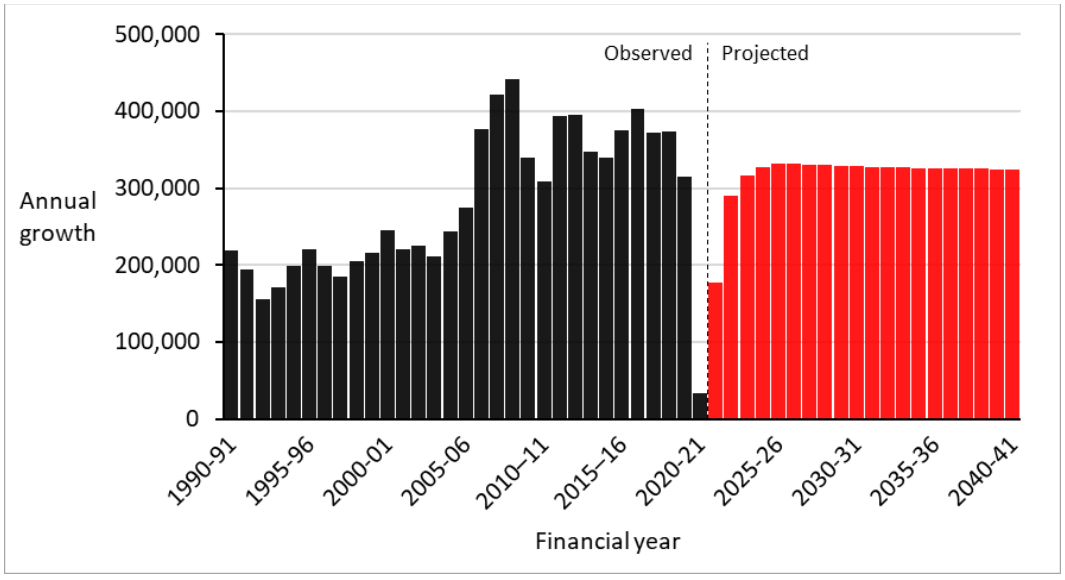
4. Population projection profiles

4.1. Australia

The total population of Australia is projected to increase from 25.7 million in 2021 to 32.0 million by 2041 (Figure 4). In the absence of Covid, the 2021 population would likely have been about 26.1 million (Wilson and Temple 2021) and the projected 2041 population about 1 million higher than the current 2041 projection. Annual growth is projected to increase rapidly from the Covid-related slow growth of 2020-21 to exceed 300,000 from 2023-24 onwards.



(a) Observed and projected population of Australia, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 4: The past and projected population of Australia, 1991-2041
Source of observed data: ABS

Table 4 presents the demographic components of change for selected years of the projection horizon. For most of the projection horizon, NOM is contributing about two-thirds of growth and natural change about one third.

Table 4: Projected demographic components of change, Australia, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	25,688,100	26,797,900	28,452,200	30,089,600	31,716,800
Births	309,500	297,700	311,300	329,800	350,300
Deaths	182,700	181,300	198,600	219,700	241,700
Natural change	126,700	116,300	112,700	110,100	108,600
Immigration	326,500	565,000	590,000	615,000	640,000
Emigration	276,500	349,000	374,000	399,000	424,000
Net overseas migration	50,000	216,000	216,000	216,000	216,000
Total population change	176,700	332,300	328,700	326,100	324,600
End-of-interval population	25,864,800	27,130,200	28,780,900	30,415,600	32,041,400

Note: Values have been rounded to the nearest 100.

Table 5 contains projected population and growth for summary age groups for selected years. All age groups are expected to grow, but the largest proportional growth is expected at the oldest ages.

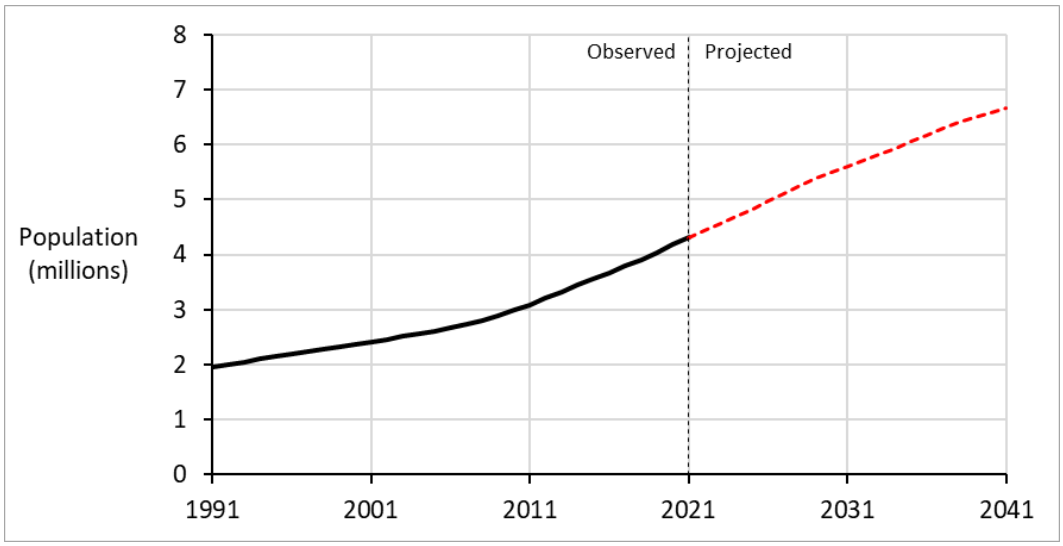
Table 5: Projected population growth by broad age group, Australia, selected years

	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	4,750,600	4,895,200	5,323,900	573,300	12.1
15-24	3,103,000	3,714,200	3,864,400	761,400	24.5
25-64	13,520,700	14,561,300	16,190,100	2,669,400	19.7
65-84	3,779,500	4,799,400	5,381,300	1,601,800	42.4
85-99	529,000	800,300	1,265,700	736,700	139.3
100+	5,300	10,500	15,900	10,600	200.4

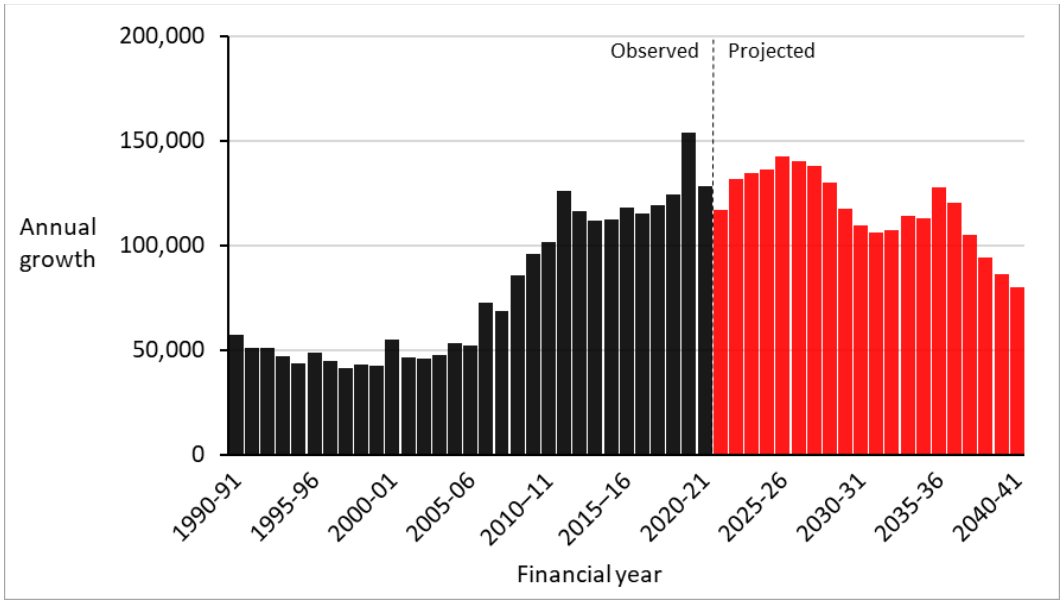
Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100.

The projected growth of the population aged 65+ is illustrated in Figure 5. The population in 2021 was estimated to be 4.31 million and by 2041 is projected to have grown to 6.66 million (Figure 5a). The projection for this age group is very similar to the projected population number for 2041 which would have been produced had the Covid pandemic not occurred (because Covid largely affected overseas migration and births, reducing population numbers in the young adult and childhood ages, respectively). The annual growth of the 65+ population is expected to remain high for the next few years before declining (Figure 5b). It then increases a little as the large 1971 birth cohort reaches age 65, and then declines further due to annual birth cohort sizes declining in the early 1970s.



(a) Observed and projected population of Australia aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 5: The past and projected population of Australia aged 65+, 1991-2041
Source of observed data: ABS

The projected age-sex structure of Australia's population is shown in Figure 6 below. The blue shaded bars represent the projected population in 2041 while the 2021 population is shown by the outline black line. The median age increases slowly from 38.4 years in 2021 to 40.5 years by 2041.

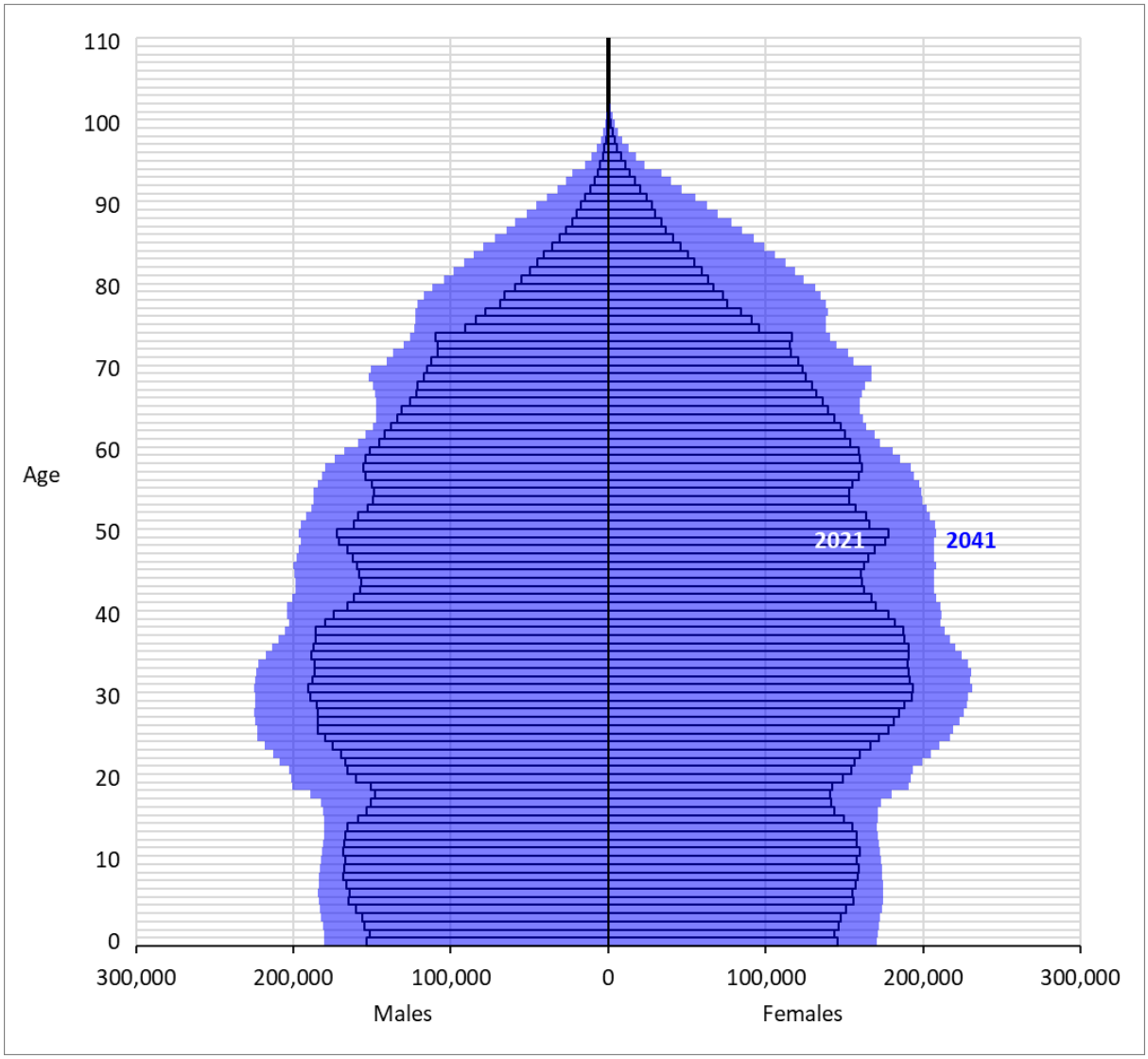
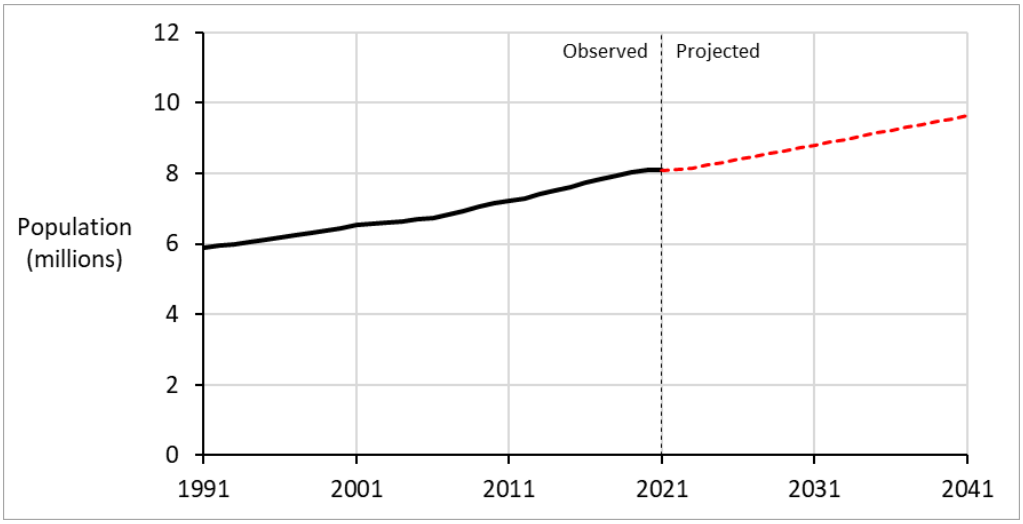


Figure 6: The age-sex structure of Australia's population in 2021 (black outline) and projected in 2041 (blue shading)

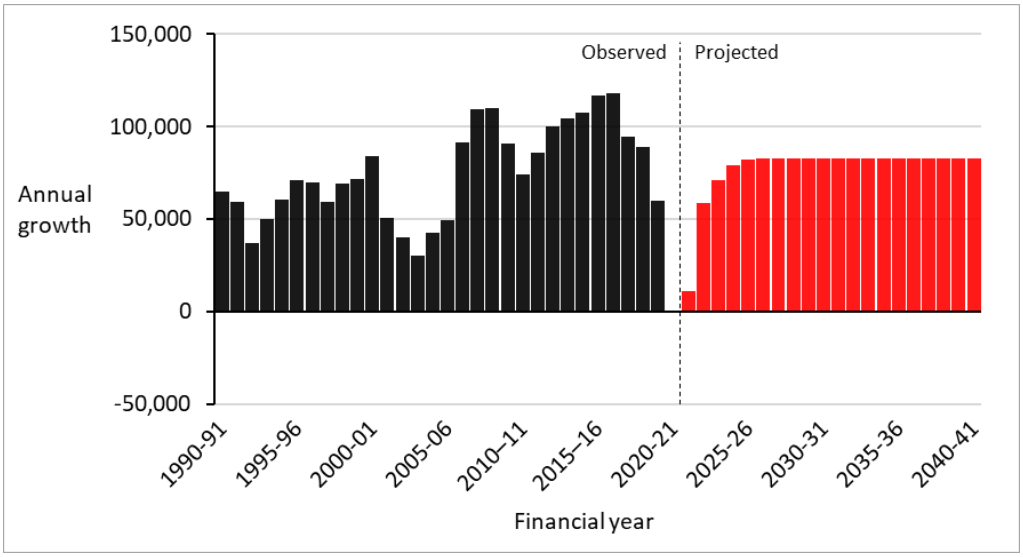
Source of 2021 ERPs: ABS

4.2. New South Wales

The total population of New South Wales is projected to increase from 8.09 million in 2021 to 9.64 million by 2041 (Figure 7). Annual growth is projected to increase rapidly from the Covid-related slow growth of 2020-21 to about 82,000 from 2024-25 onwards.



(a) Observed and projected population of New South Wales, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 7: The past and projected population of New South Wales, 1991-2041
Source of observed data: ABS

Table 6: Projected demographic components of change, New South Wales, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	8,093,800	8,313,300	8,726,800	9,139,900	9,553,400
Births	99,200	92,300	96,200	101,500	107,300
Deaths	60,000	58,300	62,600	68,000	73,600
Natural change	39,200	34,000	33,500	33,500	33,600
Net interstate migration	-44,200	-21,300	-20,100	-20,100	-20,100
Net overseas migration	16,000	69,300	69,300	69,300	69,300
Net total migration	-28,200	47,900	49,100	49,100	49,100
Total population change	11,000	82,000	82,700	82,700	82,800
End-of-interval population	8,104,800	8,395,300	8,809,500	9,222,500	9,636,200

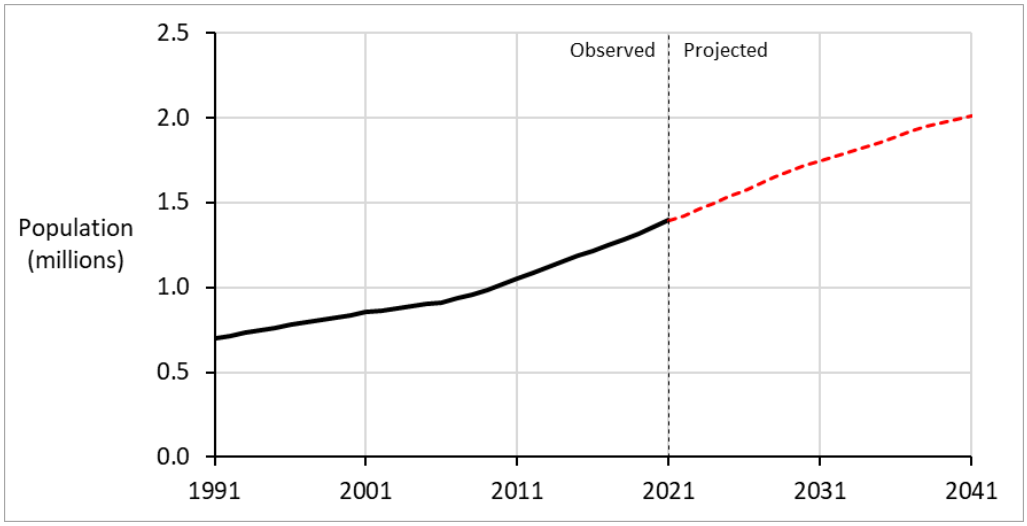
Note: Values have been rounded to the nearest 100.

Table 7: Projected population growth by broad age group, New South Wales, selected years

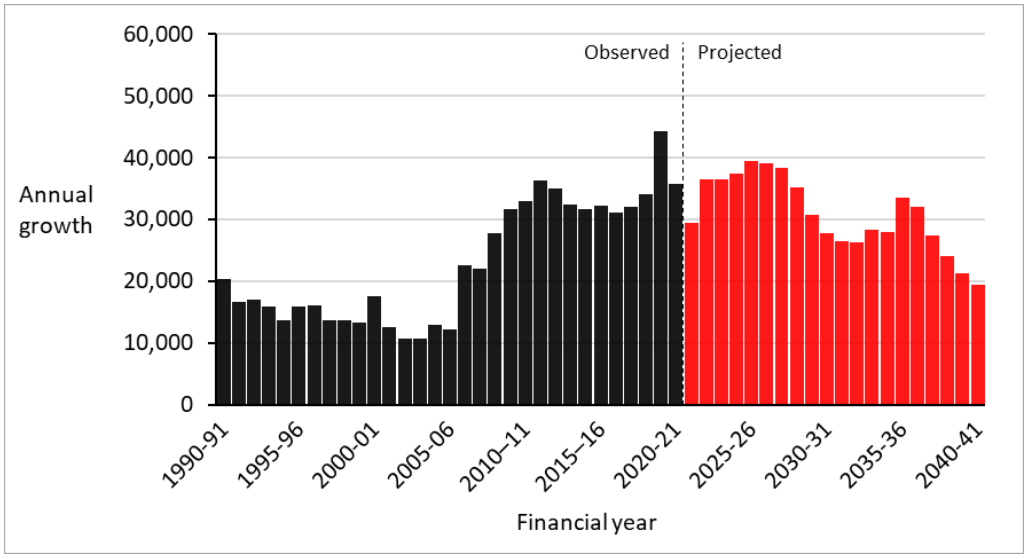
	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	1,493,200	1,497,300	1,605,500	112,300	7.5
15-24	967,700	1,124,400	1,151,200	183,500	19.0
25-64	4,239,500	4,444,100	4,869,100	629,600	14.9
65-84	1,213,400	1,485,700	1,621,900	408,500	33.7
85-99	178,100	254,400	383,500	205,300	115.2
100+	1,830	3,510	4,990	3,150	172.3

Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100, except for the centenarian population which has been rounded to the nearest 10



(a) Observed and projected population of New South Wales aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 8: The past and projected population of New South Wales aged 65+, 1991-2041
Source of observed data: ABS

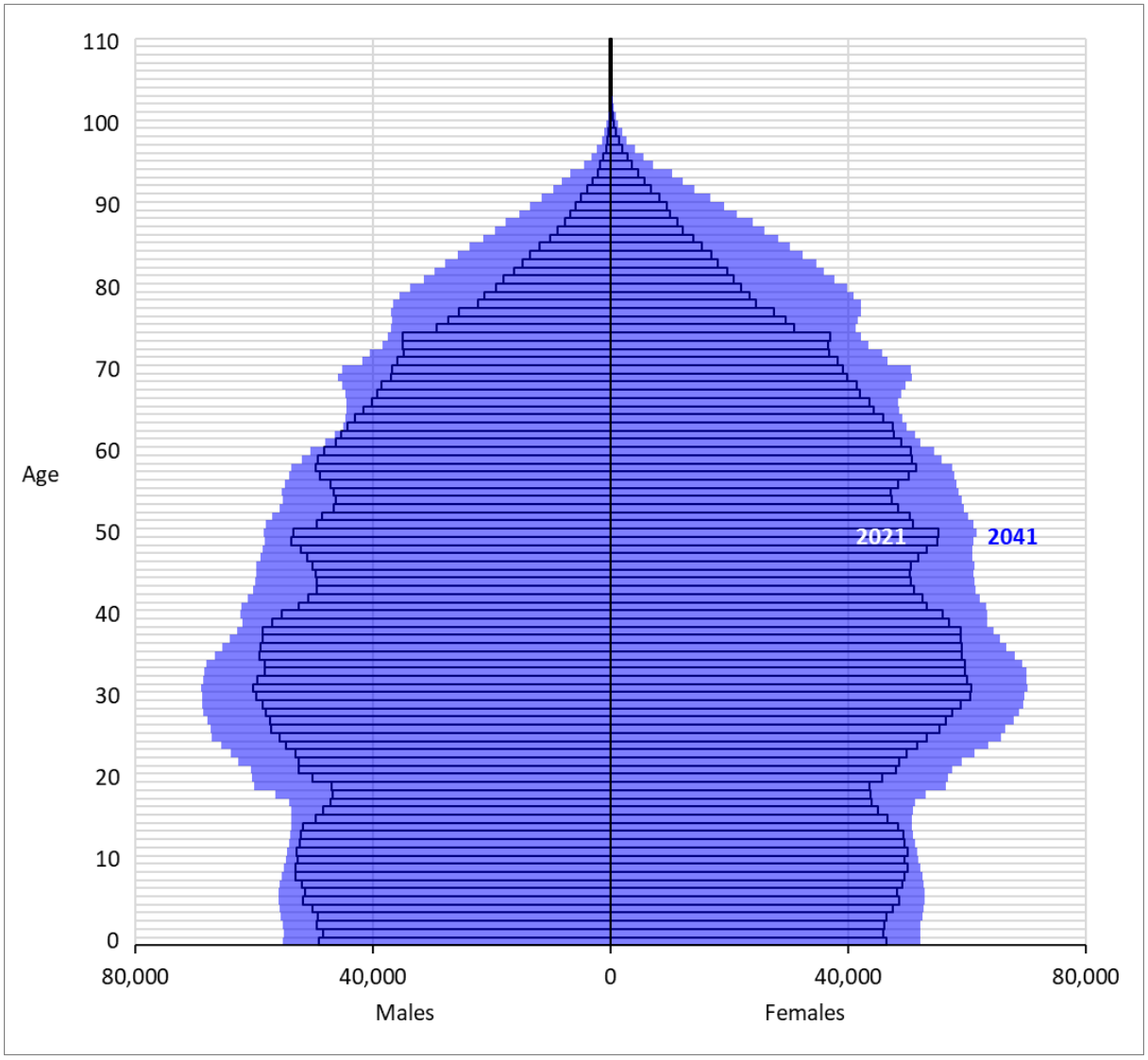
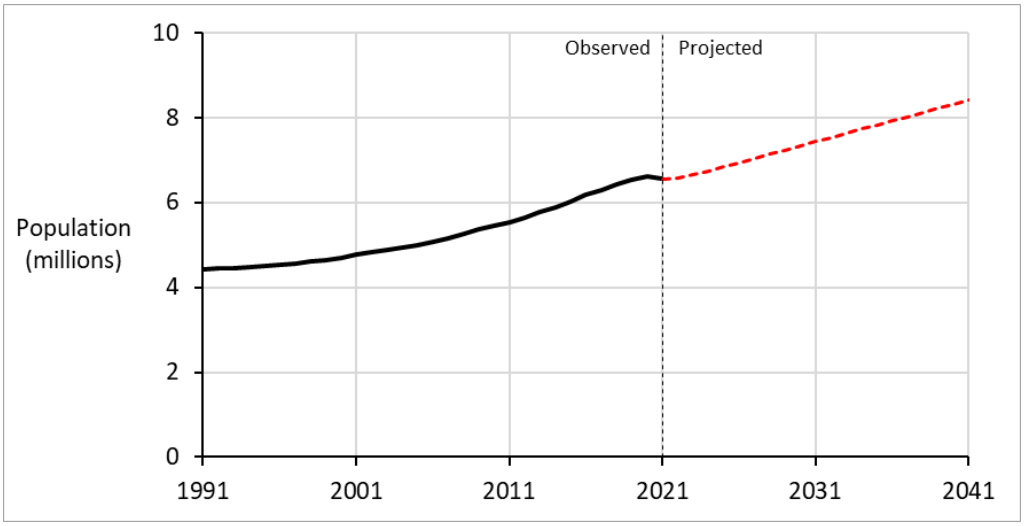


Figure 9: The age-sex structure of the New South Wales population in 2021 (black outline) and projected in 2041 (blue shading)

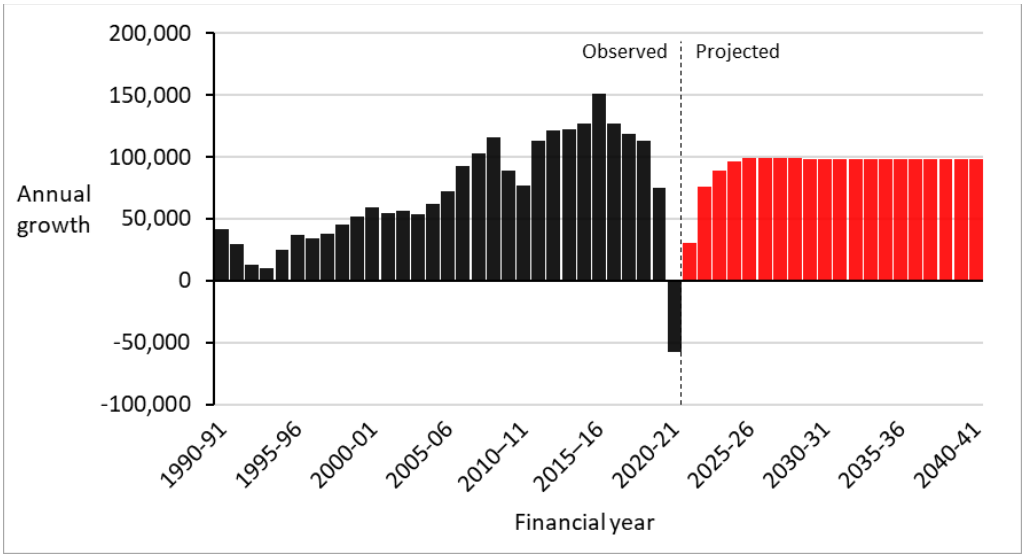
Source of 2021 ERPs: ABS

4.3. Victoria

The total population of Victoria is projected to increase from 6.55 million in 2021 to 8.41 million by 2041 (Figure 10). Annual growth is projected to increase rapidly from the Covid-related population decline of 2020-21 to nearly 100,000 from 2025-26 onwards.



(a) Observed and projected population of Victoria, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 10: The past and projected population of Victoria, 1991-2041
Source of observed data: ABS

Table 8: Projected demographic components of change, Victoria, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	6,548,000	6,839,100	7,334,400	7,824,400	8,313,600
Births	75,800	74,700	77,500	82,500	88,700
Deaths	43,900	44,200	48,800	54,400	60,400
Natural change	31,800	30,400	28,700	28,200	28,300
Net interstate migration	-16,800	3,100	4,100	4,100	4,100
Net overseas migration	15,200	65,500	65,500	65,500	65,500
Net total migration	-1,600	68,600	69,600	69,600	69,600
Total population change	30,200	99,000	98,300	97,800	98,000
End-of-interval population	6,578,200	6,938,100	7,432,700	7,922,200	8,411,600

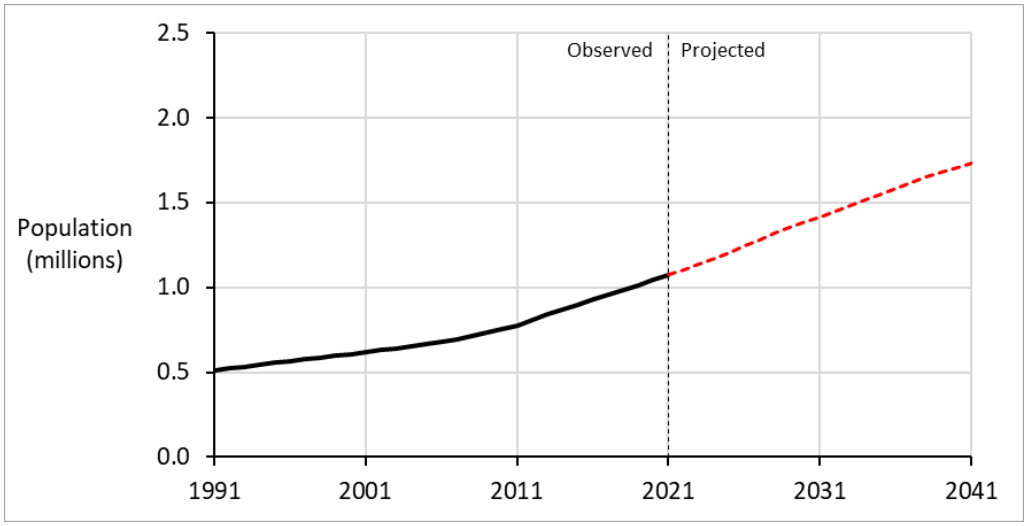
Note: Values have been rounded to the nearest 100.

Table 9: Projected population growth by broad age group, Victoria, selected years

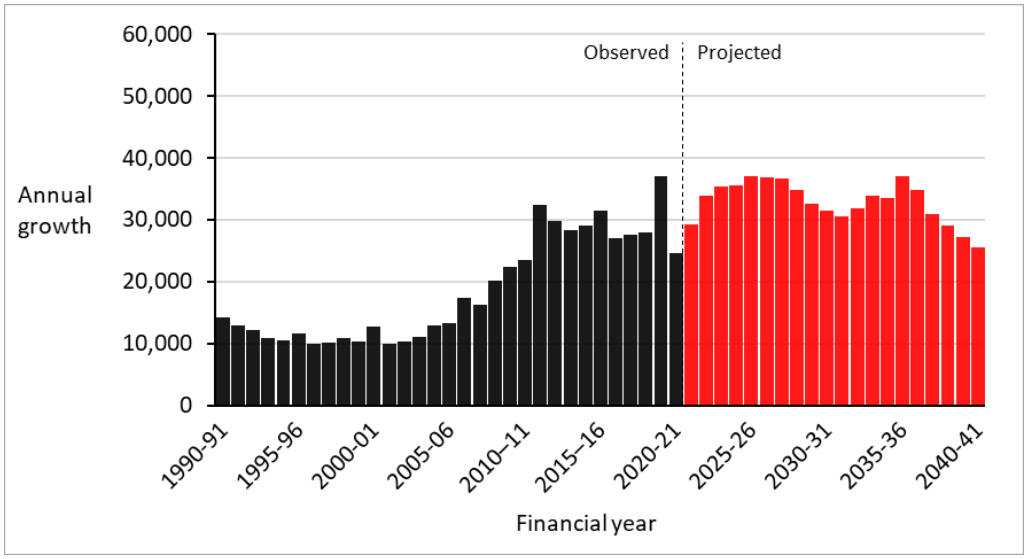
	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	1,193,200	1,245,100	1,359,000	165,800	13.9
15-24	788,300	987,700	1,053,200	264,900	33.6
25-64	3,494,000	3,783,700	4,268,700	774,600	22.2
65-84	932,700	1,205,500	1,395,300	462,500	49.6
85-99	138,500	207,800	331,100	192,600	139.1
100+	1,340	2,900	4,330	2,990	223.0

Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100, except for the centenarian population which has been rounded to the nearest 10



(a) Observed and projected population of Victoria aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 11: The past and projected population of Victoria aged 65+, 1991-2041

Source of observed data: ABS

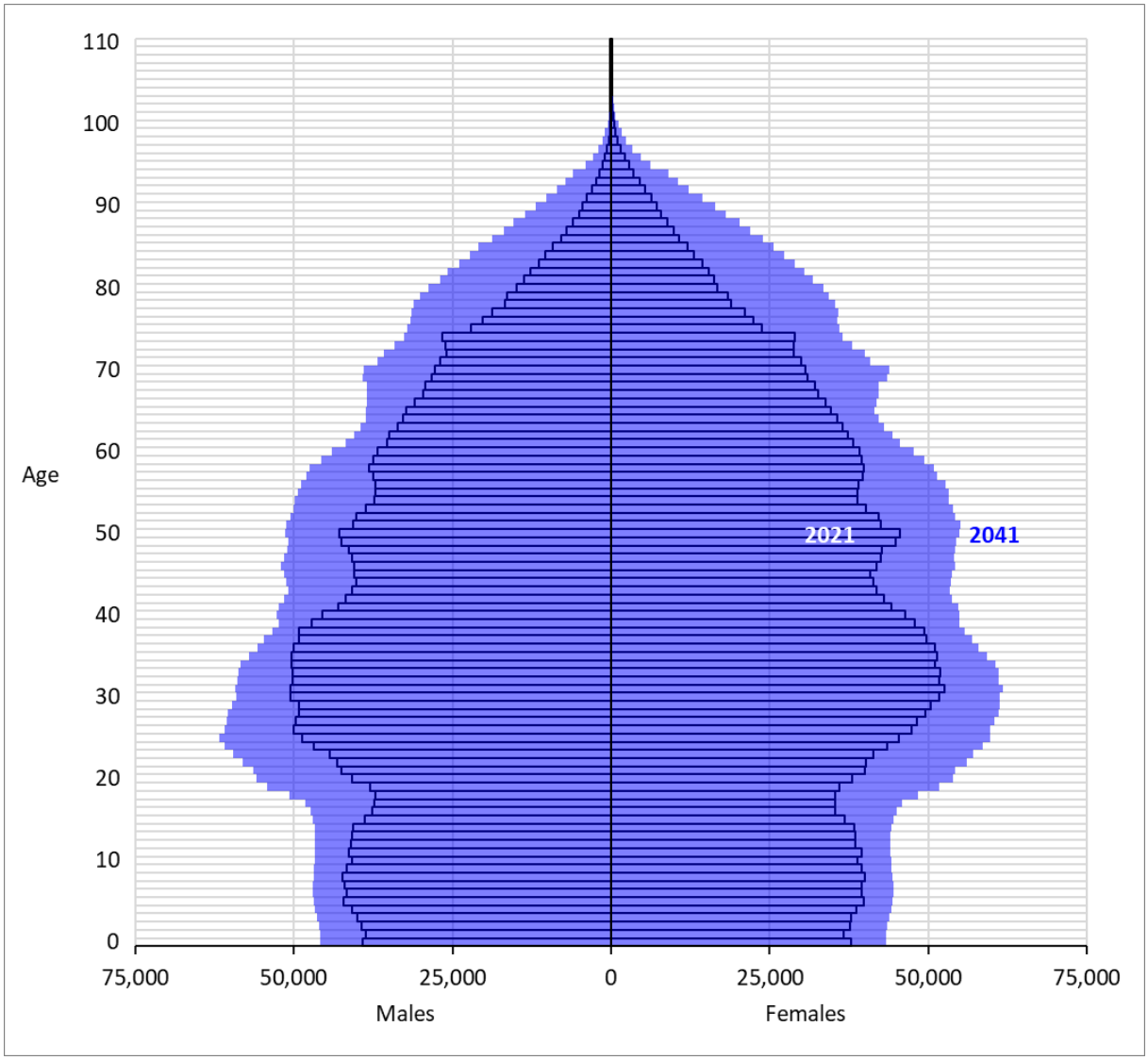
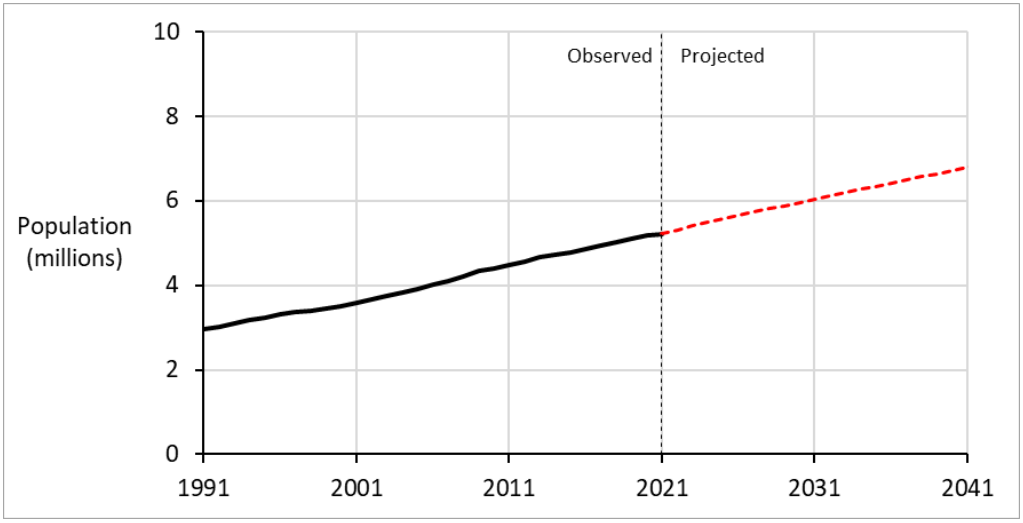


Figure 12: The age-sex structure of Victoria's population in 2021 (black outline) and projected in 2041 (blue shading)

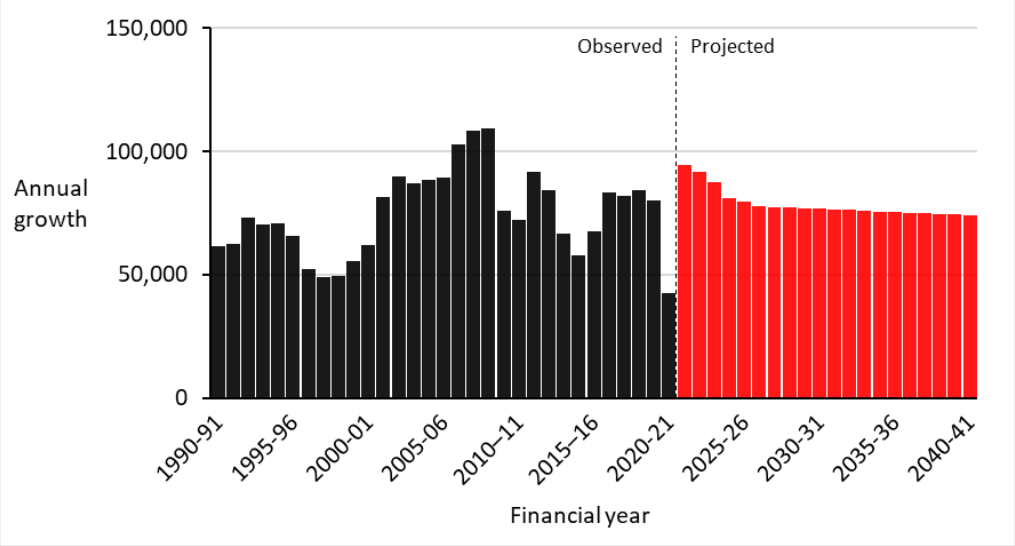
Source of 2021 ERPs: ABS

4.4. Queensland

The total population of Queensland is projected to increase from 5.22 million in 2021 to 6.79 million by 2041 (Figure 13). Annual growth is projected to be high initially (94,000 in 2021-22) due to interstate migration before declining to between 70,000 and 80,000 for the rest of the projection horizon.



(a) Observed and projected population of Queensland, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 13: The past and projected population of Queensland, 1991-2041
Source of observed data: ABS

Table 10: Projected demographic components of change, Queensland, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	5,217,700	5,571,800	5,960,600	6,341,300	6,715,300
Births	63,900	63,000	66,500	70,500	74,600
Deaths	36,600	37,100	41,600	47,000	52,300
Natural change	27,300	25,900	24,900	23,600	22,300
Net interstate migration	59,500	21,000	19,000	19,000	19,000
Net overseas migration	7,600	32,700	32,700	32,700	32,700
Net total migration	67,100	53,800	51,800	51,800	51,800
Total population change	94,400	79,700	76,700	75,300	74,100
End-of-interval population	5,312,100	5,651,400	6,037,300	6,416,600	6,789,300

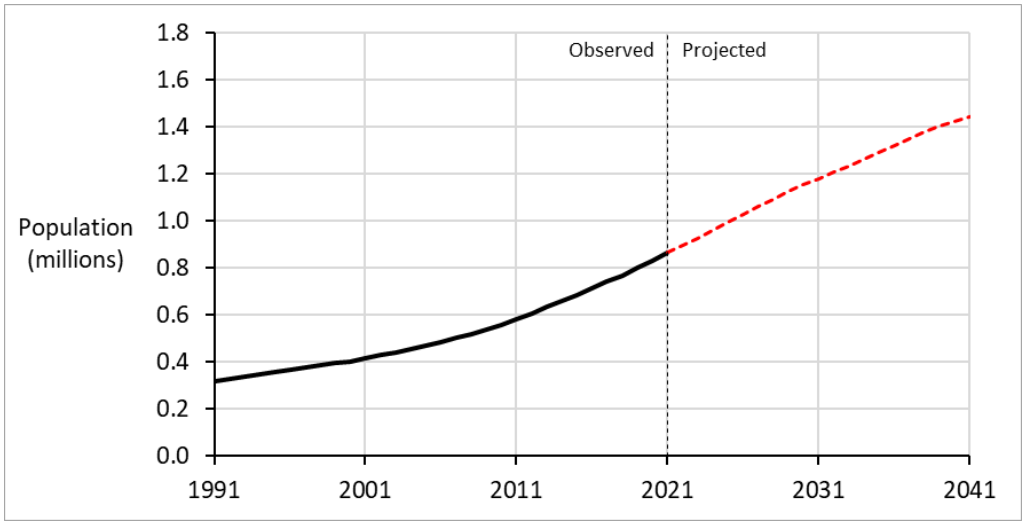
Note: Values have been rounded to the nearest 100.

Table 11: Projected population growth by broad age group, Queensland, selected years

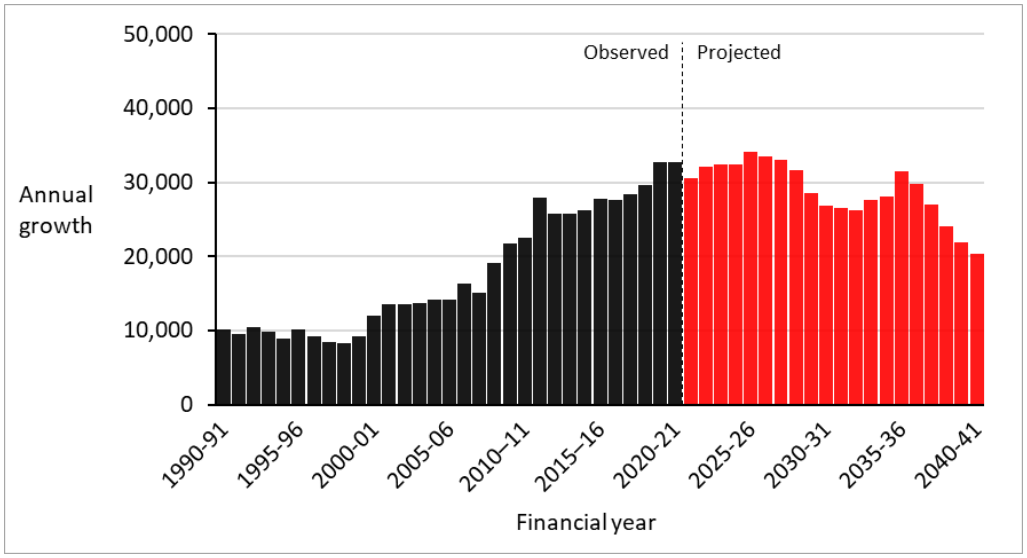
	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	989,500	1,052,100	1,163,900	174,400	17.6
15-24	651,100	783,100	813,300	162,200	24.9
25-64	2,712,600	3,022,500	3,369,300	656,700	24.2
65-84	768,600	1,017,900	1,176,100	407,500	53.0
85-99	94,900	159,800	263,700	168,800	177.8
100+	910	1,850	3,040	2,130	233.5

Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100, except for the centenarian population which has been rounded to the nearest 10



(a) Observed and projected population of Queensland aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 14: The past and projected population of Queensland aged 65+, 1991-2041

Source of observed data: ABS

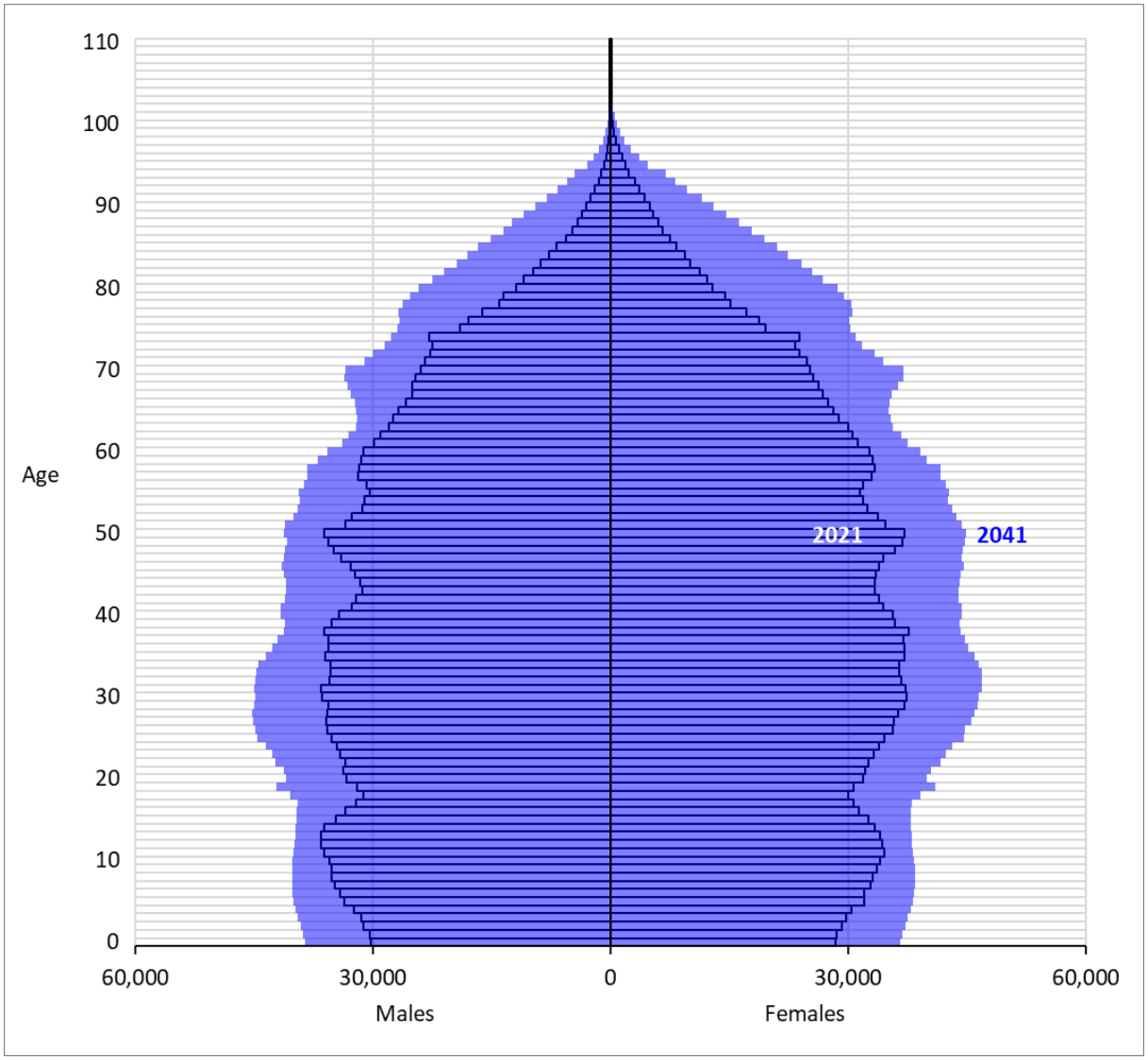
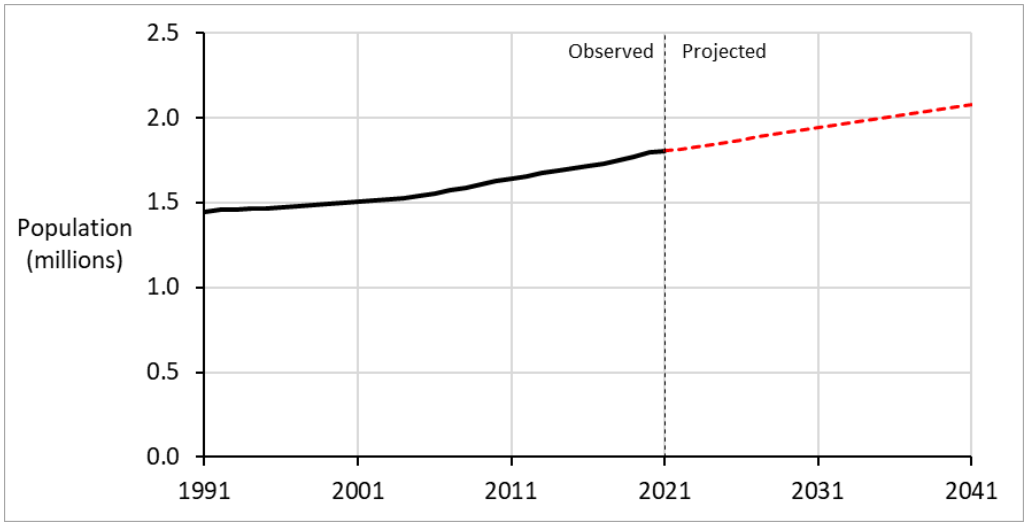


Figure 15: The age-sex structure of Queensland's population in 2021 (black outline) and projected in 2041 (blue shading)

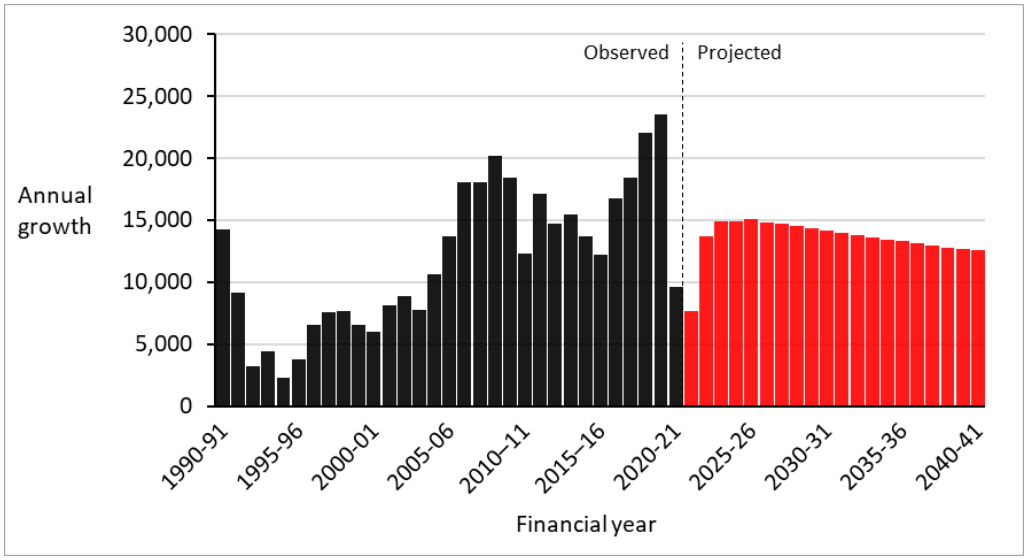
Source of 2021 ERPs: ABS

4.5. South Australia

The total population of South Australia is projected to increase from 1.80 million in 2021 to 2.07 million by 2041 (Figure 16). Annual growth is projected to recover moderately from recent slow growth to around 15,000 over the next few years before gradually declining as projected natural change declines.



(a) Observed and projected population of South Australia, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 16: The past and projected population of South Australia, 1991-2041
Source of observed data: ABS

Table 12: Projected demographic components of change, South Australia, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	1,803,200	1,854,400	1,927,900	1,997,100	2,061,900
Births	19,900	18,800	19,200	19,800	20,600
Deaths	15,600	14,900	16,000	17,500	19,000
Natural change	4,400	3,900	3,200	2,300	1,500
Net interstate migration	0	-2,700	-2,900	-2,900	-2,900
Net overseas migration	3,200	13,900	13,900	13,900	13,900
Net total migration	3,300	11,200	11,000	11,000	11,000
Total population change	7,600	15,100	14,200	13,300	12,600
End-of-interval population	1,810,800	1,869,500	1,942,100	2,010,400	2,074,500

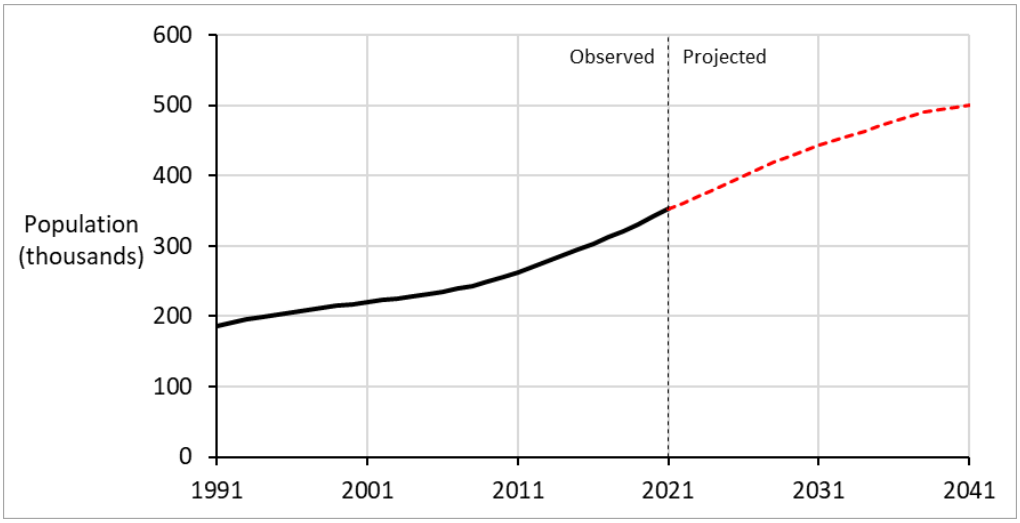
Note: Values have been rounded to the nearest 100.

Table 13: Projected population growth by broad age group, South Australia, selected years

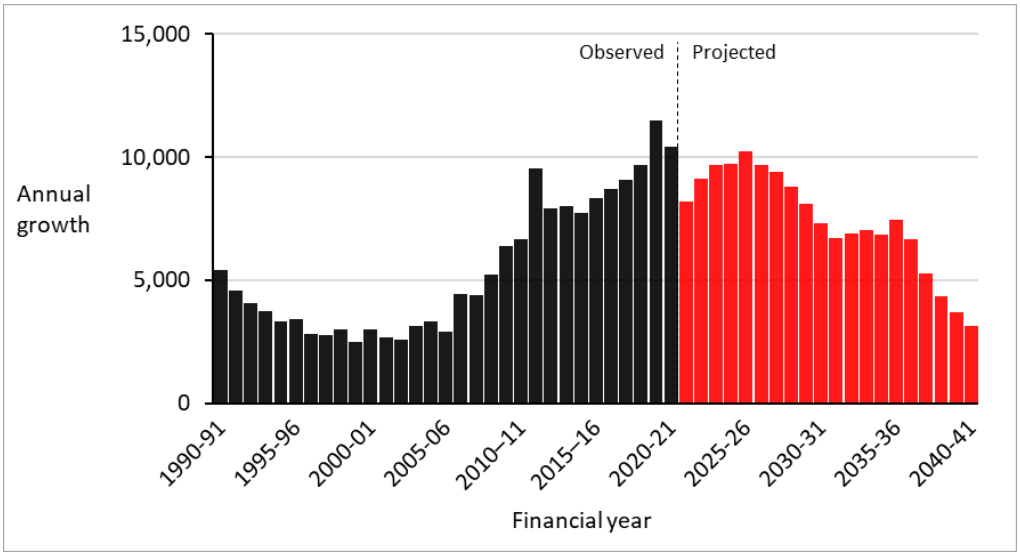
	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	311,500	312,300	325,100	13,700	4.4
15-24	213,300	243,800	247,300	34,000	15.9
25-64	926,000	943,300	1,001,300	75,300	8.1
65-84	305,500	376,400	398,400	92,900	30.4
85-99	46,400	65,300	101,100	54,700	117.9
100+	550	930	1,280	730	132.6

Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100, except for the centenarian population which has been rounded to the nearest 10



(a) Observed and projected population of South Australia aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 17: The past and projected population of South Australia aged 65+, 1991-2041

Source of observed data: ABS

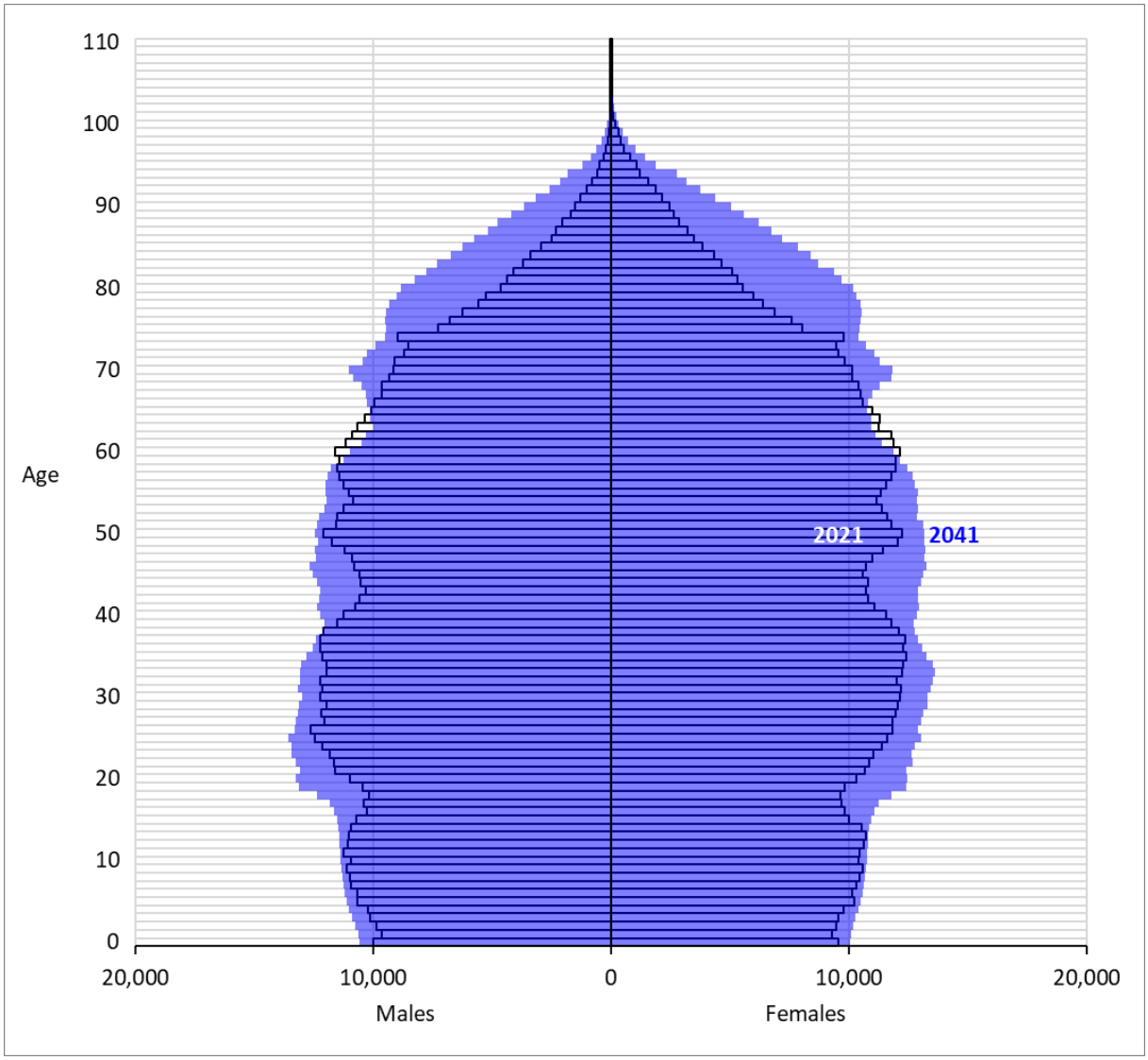
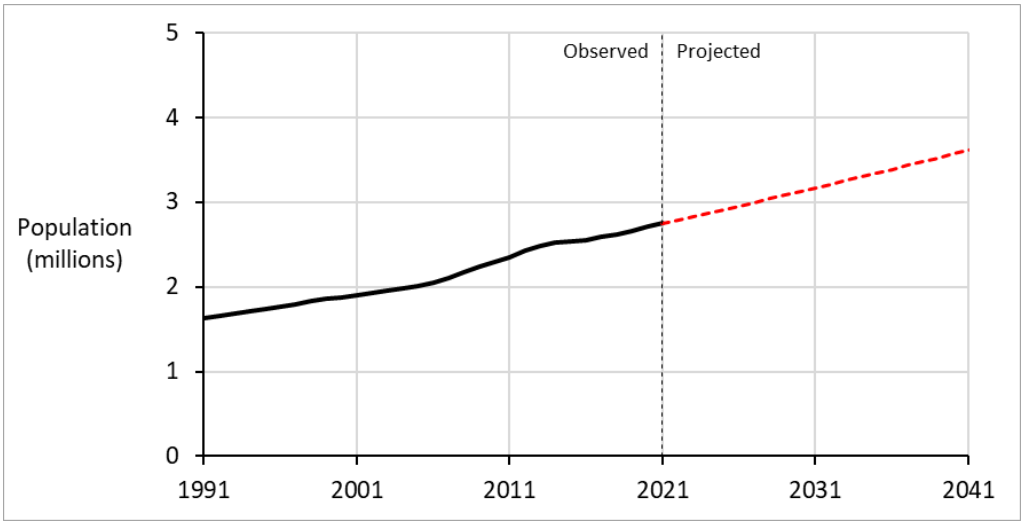


Figure 18: The age-sex structure of South Australia's population in 2021 (black outline) and projected in 2041 (blue shading)

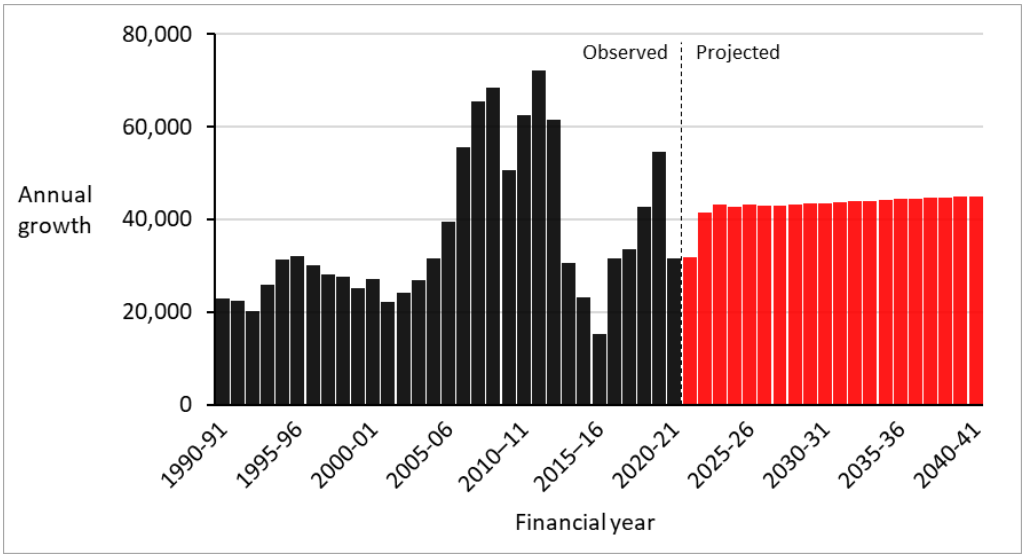
Source of 2021 ERPs: ABS

4.6. Western Australia

The total population of Western Australia is projected to increase from 2.75 million in 2021 to 3.61 million by 2041 (Figure 19). Annual growth is projected to be 42,000 – 46,000 for most of the projection horizon.



(a) Observed and projected population of Western Australia, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 19: The past and projected population of Western Australia, 1991-2041
Source of observed data: ABS

Table 14: Projected demographic components of change, Western Australia, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	2,749,900	2,909,000	3,124,700	3,344,000	3,567,000
Births	34,600	33,400	36,000	39,000	41,900
Deaths	17,700	17,800	19,600	21,800	24,100
Natural change	16,900	15,600	16,400	17,200	17,800
Net interstate migration	8,700	700	300	300	300
Net overseas migration	6,200	26,900	26,900	26,900	26,900
Net total migration	15,000	27,600	27,200	27,200	27,200
Total population change	31,900	43,200	43,500	44,300	44,900
End-of-interval population	2,781,700	2,952,200	3,168,300	3,388,400	3,611,900

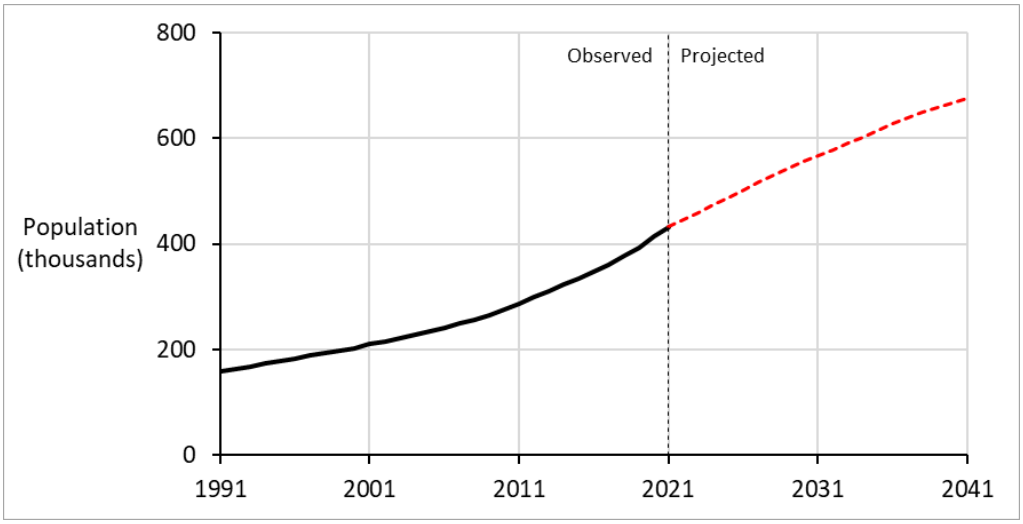
Note: Values have been rounded to the nearest 100.

Table 15: Projected population growth by broad age group, Western Australia, selected years

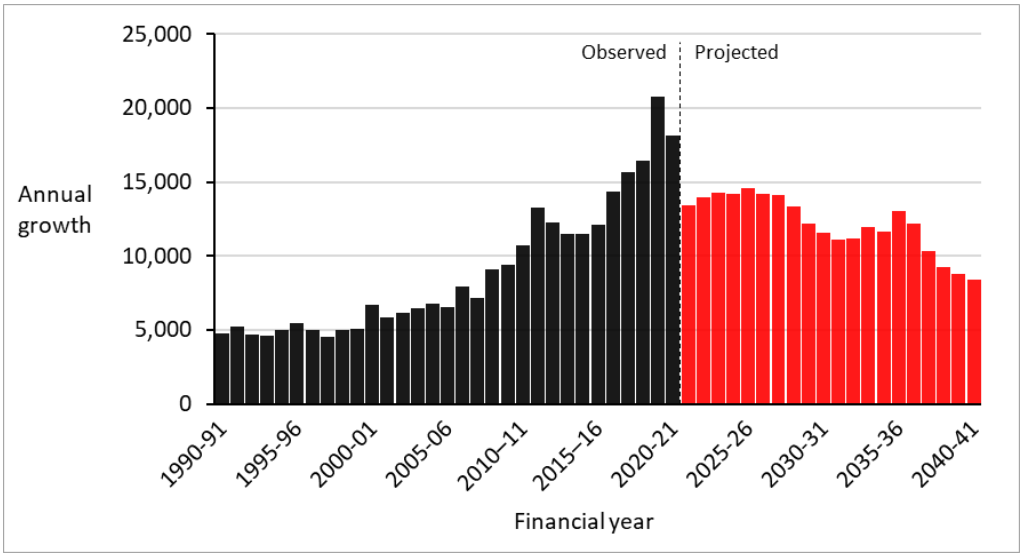
	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	530,100	559,500	627,800	97,700	18.4
15-24	325,500	402,400	427,700	102,200	31.4
25-64	1,462,400	1,638,500	1,880,700	418,300	28.6
65-84	381,400	488,700	546,400	165,000	43.3
85-99	50,000	78,100	127,800	77,800	155.6
100+	500	1,000	1,580	1,080	217.8

Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100, except for the centenarian population which has been rounded to the nearest 10



(a) Observed and projected population of Western Australia aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 20: The past and projected population of Western Australia aged 65+, 1991-2041

Source of observed data: ABS

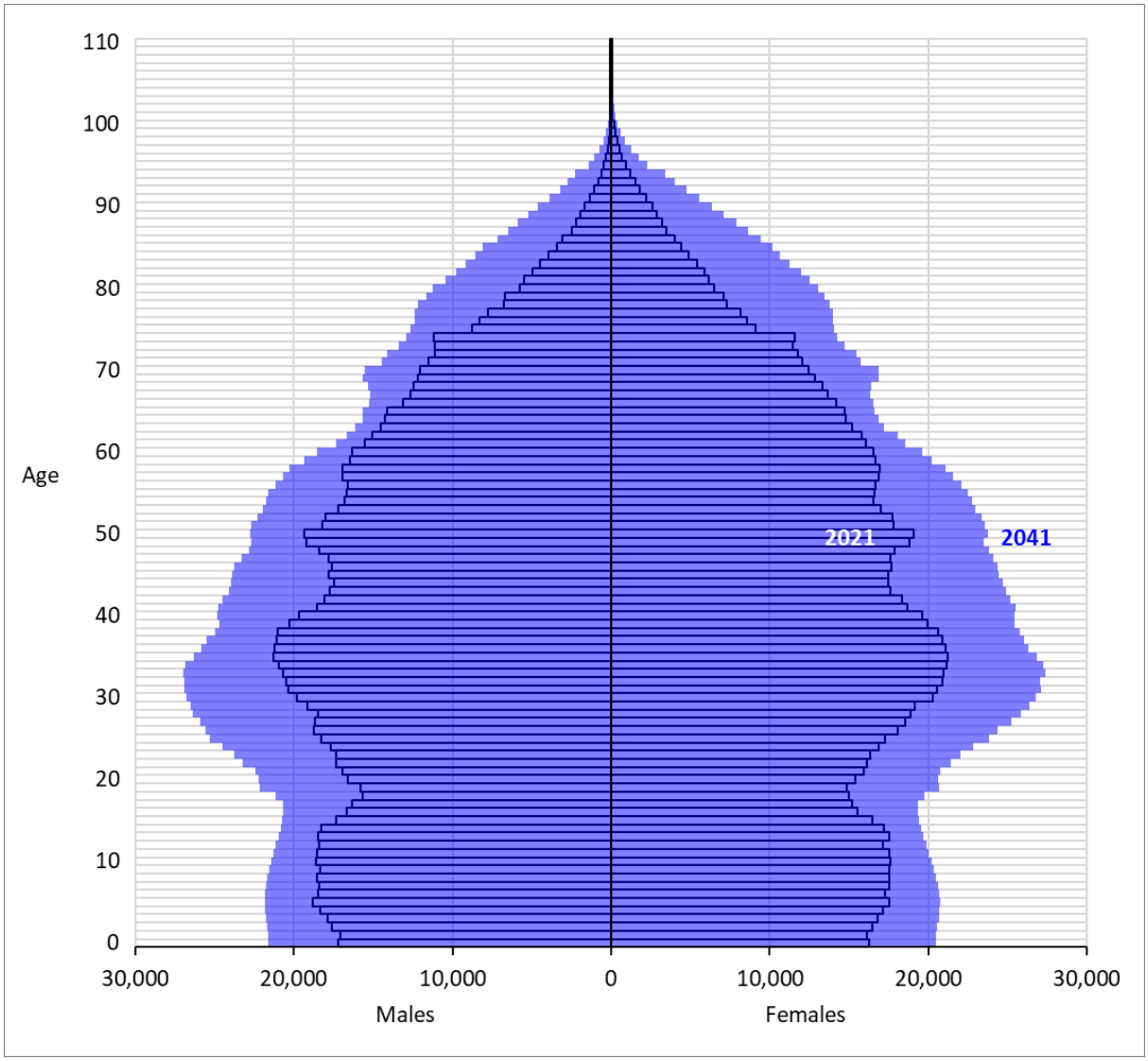
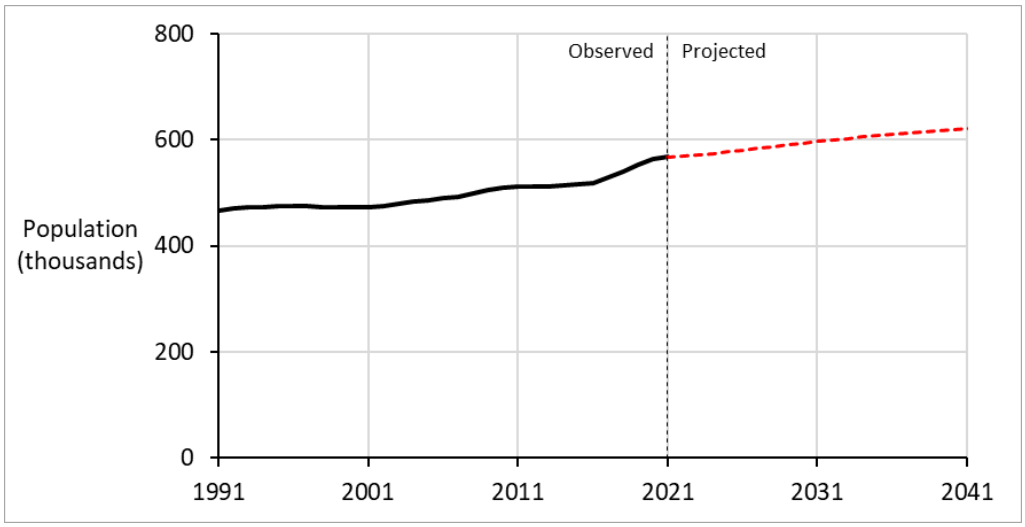


Figure 21: The age-sex structure of Western Australia's population in 2021 (black outline) and projected in 2041 (blue shading)

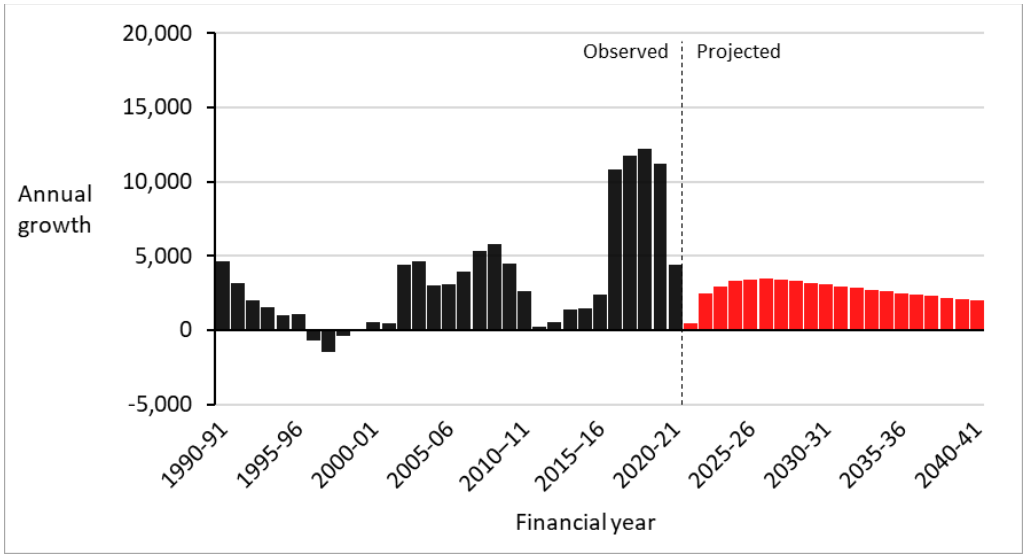
Source of 2021 ERPs: ABS

4.7. Tasmania

The total population of Tasmania is projected to increase from 568,000 in 2021 to 622,000 by 2041 (Figure 22). Annual growth is projected to be relatively modest and will be affected by natural change declining and becoming negative in the future.



(a) Observed and projected population of Tasmania, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 22: The past and projected population of Tasmania, 1991-2041
Source of observed data: ABS

Table 16: Projected demographic components of change, Tasmania, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	567,900	577,100	593,800	608,100	619,600
Births	6,300	6,100	6,100	6,100	6,100
Deaths	5,300	5,300	5,700	6,200	6,800
Natural change	1,000	800	400	-200	-700
Net interstate migration	-1,100	300	400	400	400
Net overseas migration	500	2,300	2,300	2,300	2,300
Net total migration	-600	2,600	2,700	2,700	2,700
Total population change	500	3,400	3,100	2,500	2,000
End-of-interval population	568,400	580,500	596,900	610,600	621,600

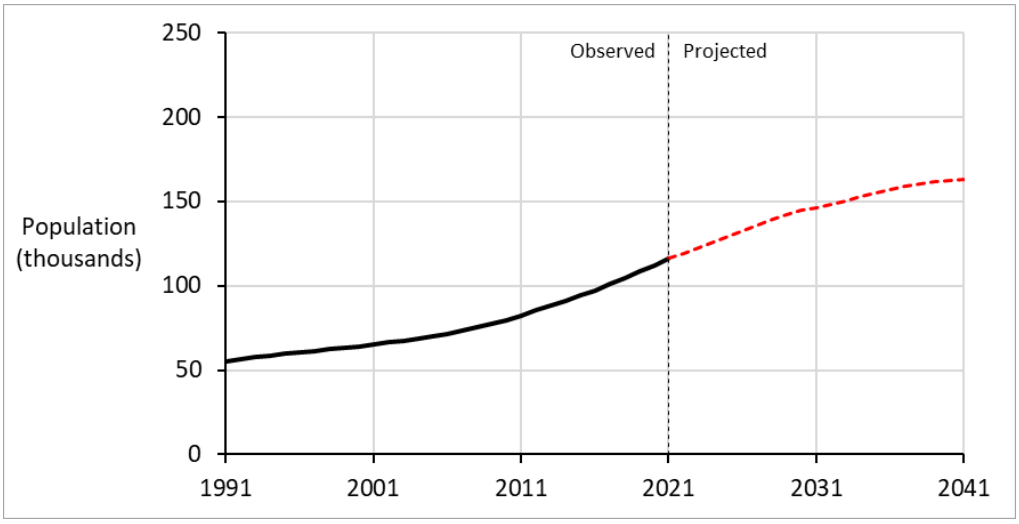
Note: Values have been rounded to the nearest 100.

Table 17: Projected population growth by broad age group, Tasmania, selected years

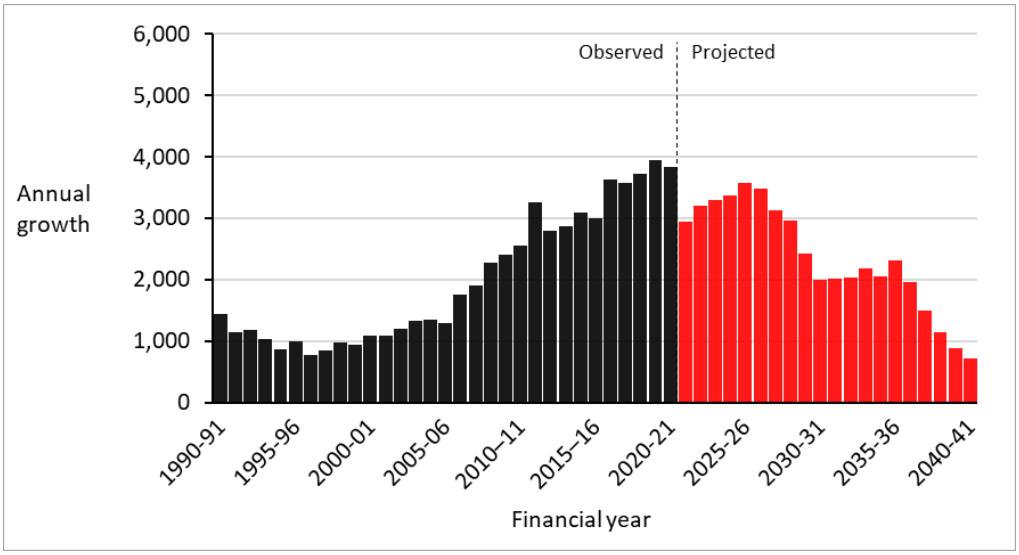
	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	95,900	91,000	91,400	-4,500	-4.7
15-24	62,900	62,700	58,500	-4,500	-7.1
25-64	293,100	296,700	308,600	15,500	5.3
65-84	103,100	126,600	131,000	27,900	27.1
85-99	12,800	19,700	31,800	19,000	147.6
100+	100	180	350	250	263.7

Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100, except for the centenarian population which has been rounded to the nearest 10



(a) Observed and projected population of Tasmania aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 23: The past and projected population of Tasmania aged 65+, 1991-2041

Source of observed data: ABS

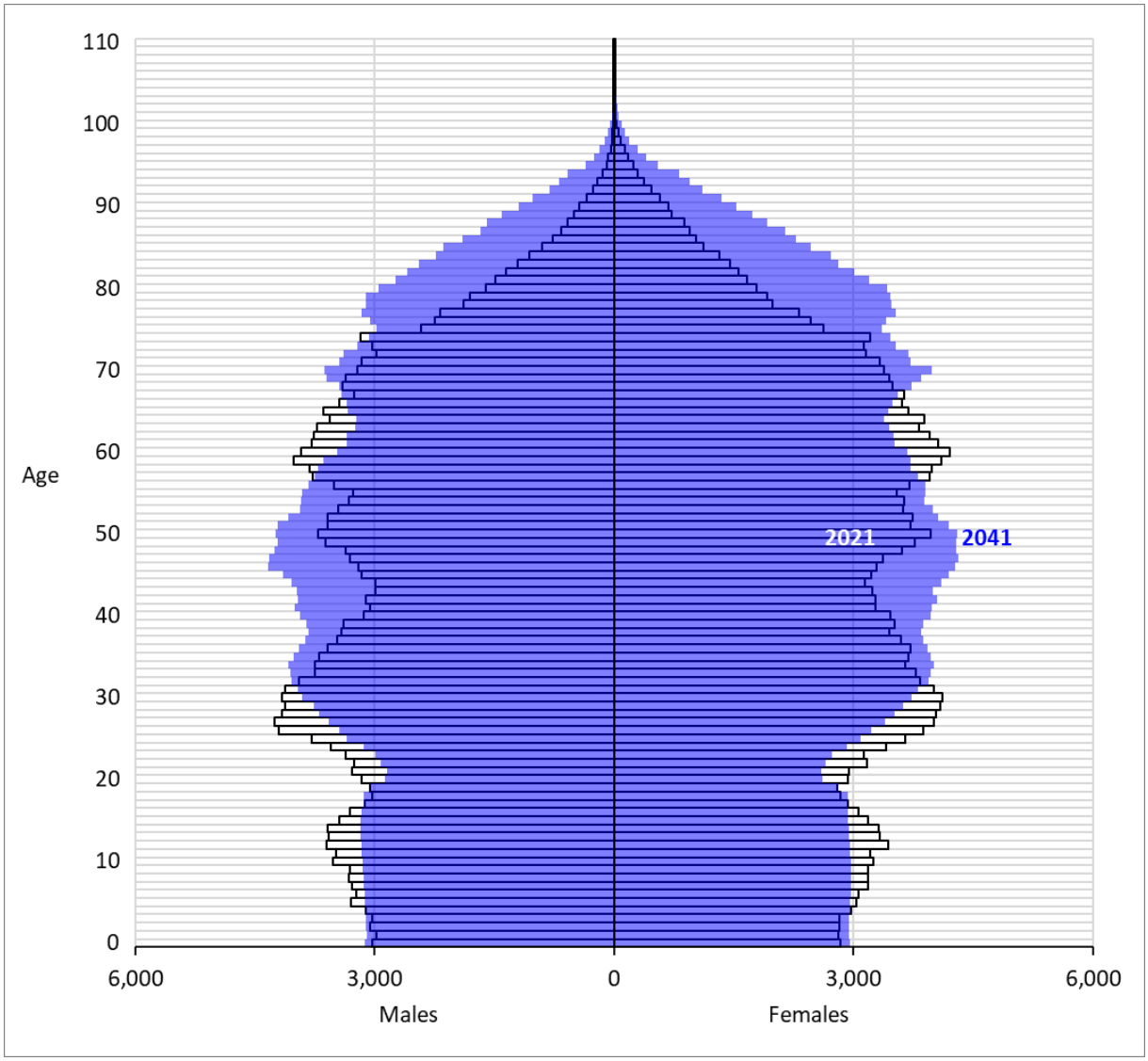
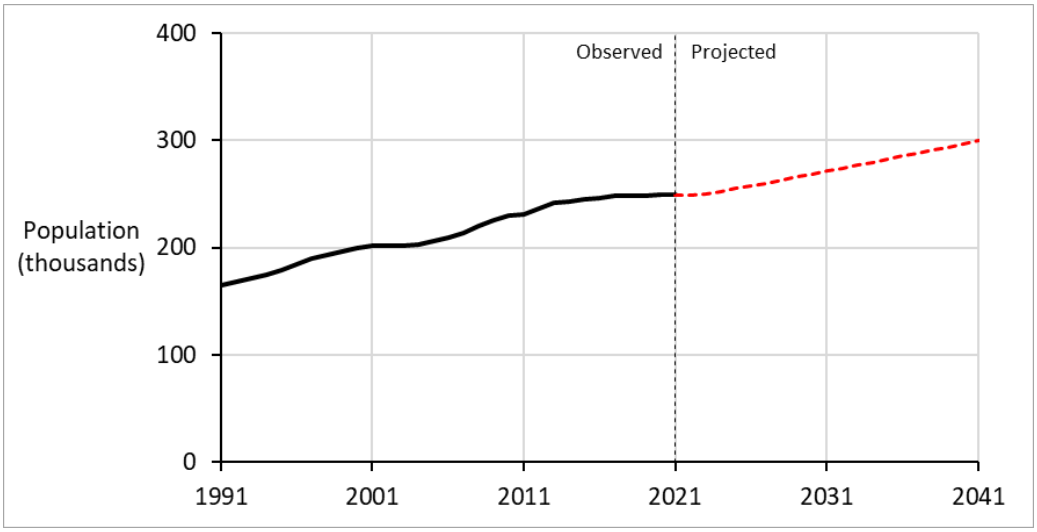


Figure 24: The age-sex structure of Tasmania's population in 2021 (black outline) and projected in 2041 (blue shading)

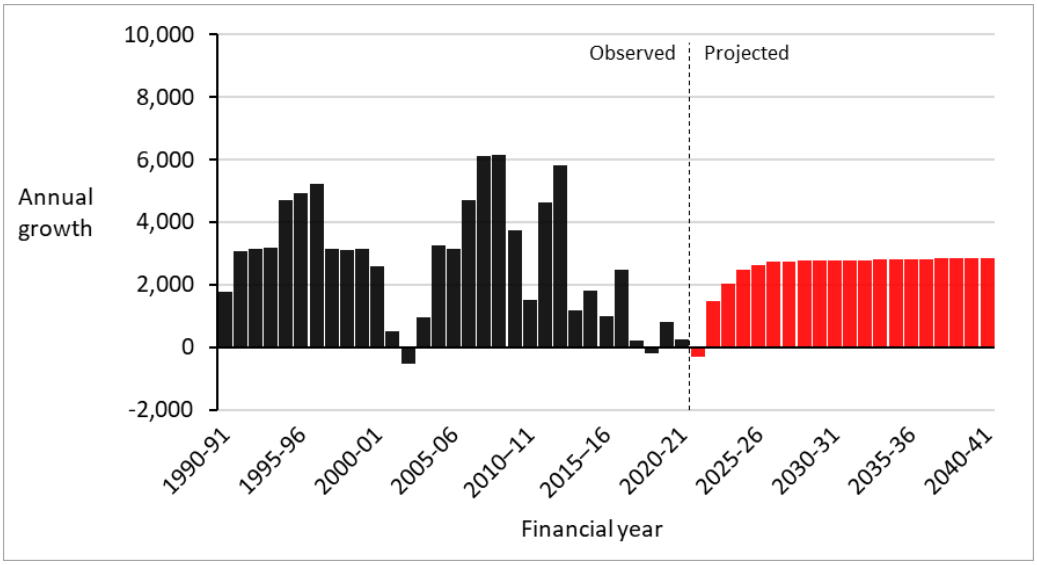
Source of 2021 ERPs: ABS

4.8. Northern Territory

The total population of the Northern Territory is projected to increase from 249,000 in 2021 to 300,000 by 2041 (Figure 25). Annual growth is projected to be a little under 3,000 for much of the projection horizon.



(a) Observed and projected population of the Northern Territory, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 25: The past and projected population of the Northern Territory, 1991-2041
Source of observed data: ABS

Table 18: Projected demographic components of change, Northern Territory, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	249,200	254,900	268,500	282,500	296,700
Births	3,900	3,600	3,800	4,000	4,200
Deaths	1,200	1,300	1,400	1,600	1,700
Natural change	2,600	2,300	2,400	2,400	2,500
Net interstate migration	-3,400	-1,600	-1,500	-1,500	-1,500
Net overseas migration	400	1,800	1,800	1,800	1,800
Net total migration	-2,900	300	400	400	400
Total population change	-300	2,600	2,800	2,800	2,900
End-of-interval population	248,900	257,500	271,300	285,300	299,500

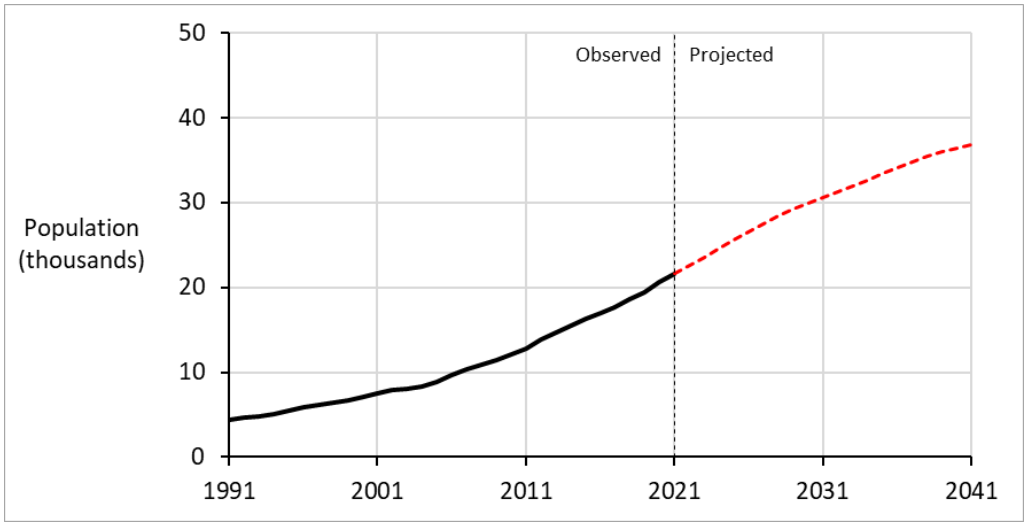
Note: Values have been rounded to the nearest 100.

Table 19: Projected population growth by broad age group, Northern Territory, selected years

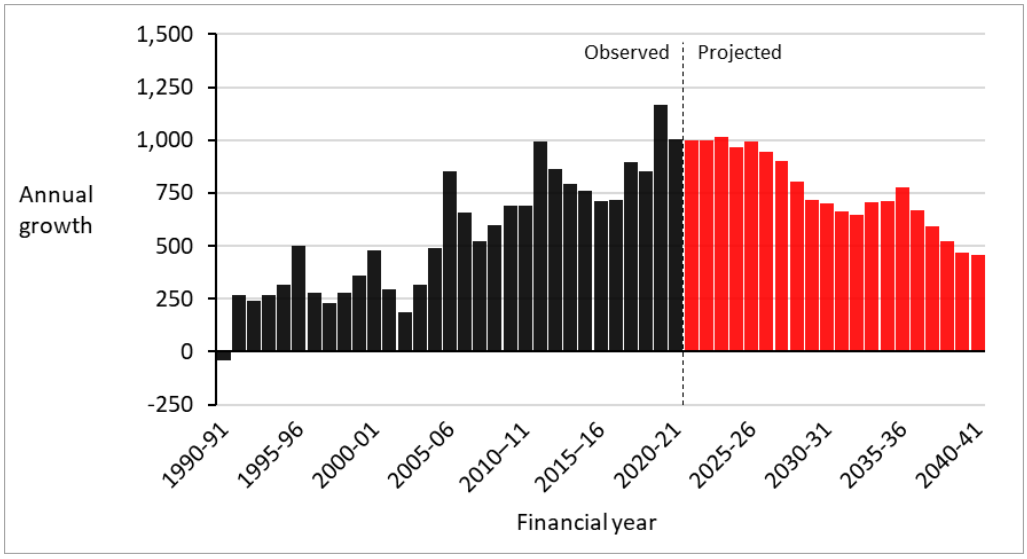
	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	52,800	51,700	55,700	2,900	5.5
15-24	32,500	34,700	34,800	2,300	6.9
25-64	142,300	154,300	172,200	29,900	21.0
65-84	20,400	27,700	30,900	10,500	51.6
85-99	1,200	3,000	5,800	4,700	390.9
100+	10	30	90	80	992.0

Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100, except for the centenarian population which has been rounded to the nearest 10



(a) Observed and projected population of the Northern Territory aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 26: The past and projected population of the Northern Territory aged 65+, 1991-2041
Source of observed data: ABS

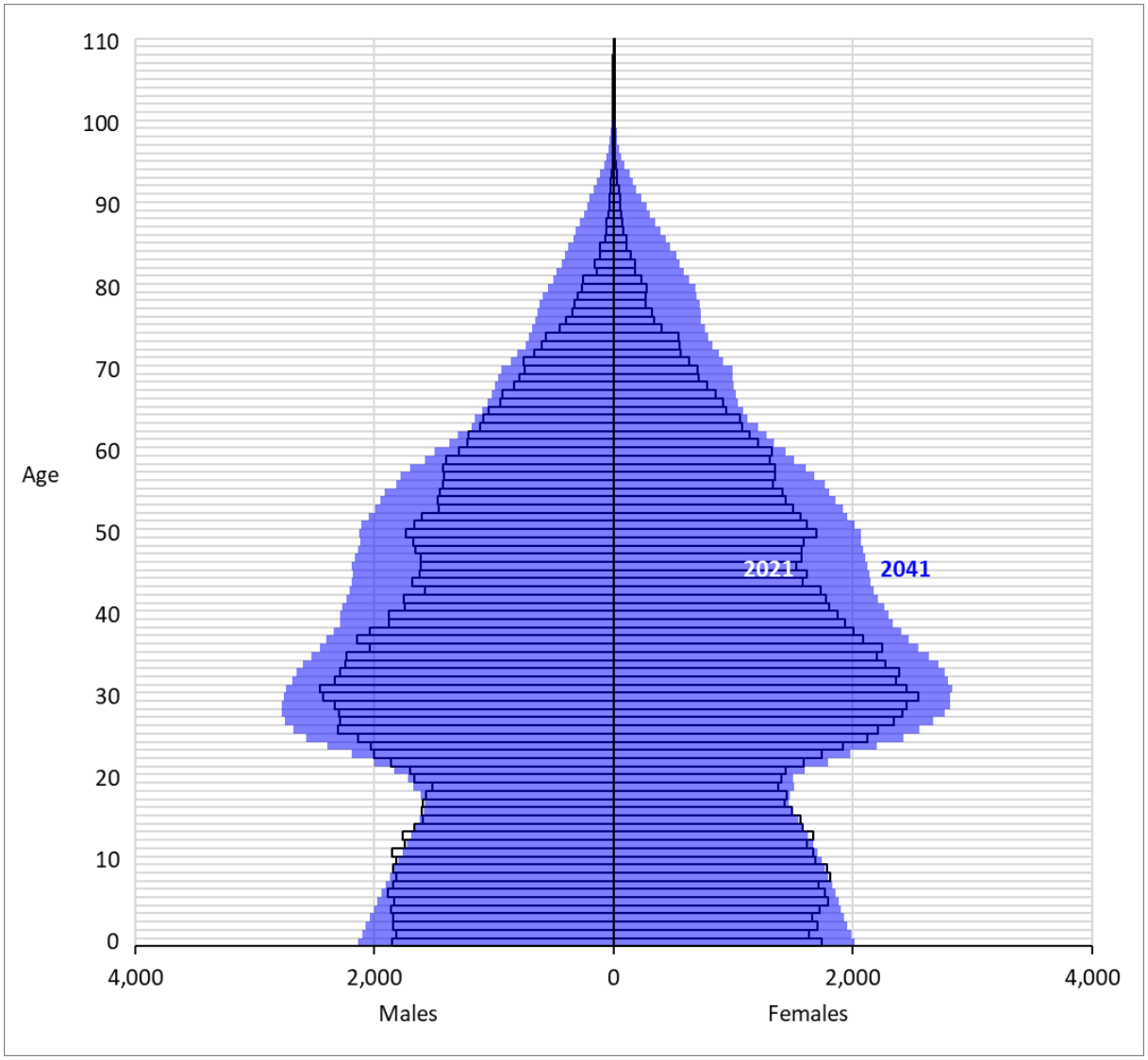
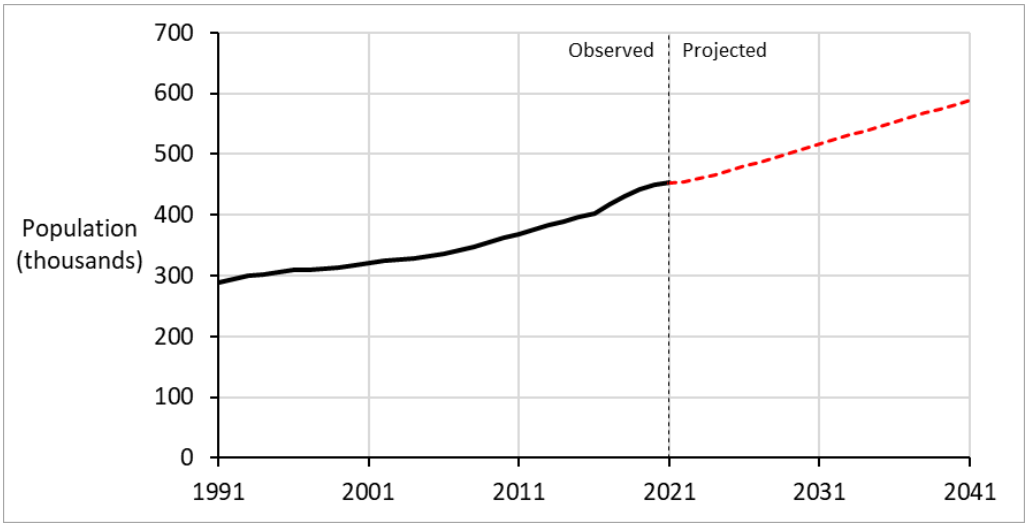


Figure 27: The age-sex structure of the Northern Territory's population in 2021 (black outline) and projected in 2041 (blue shading)

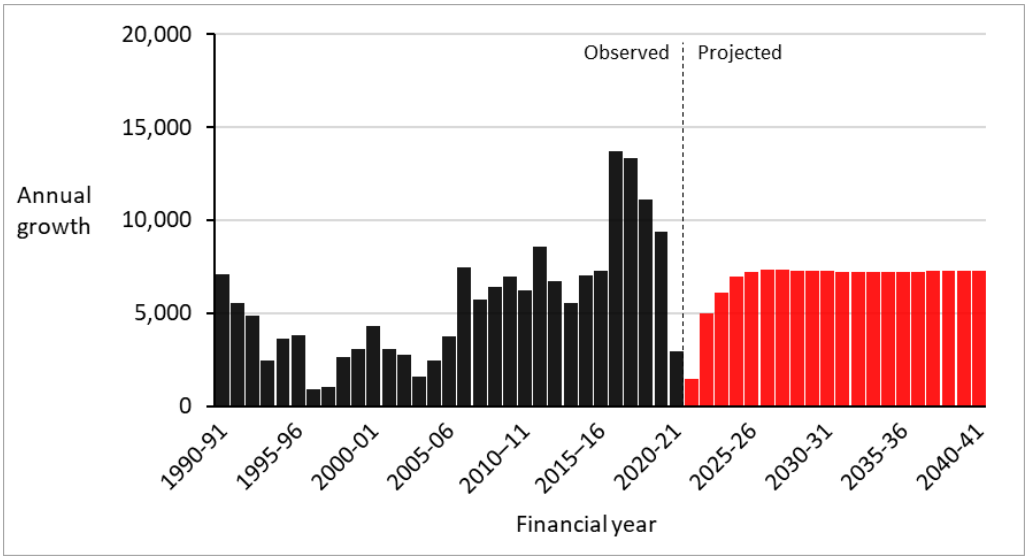
Source of 2021 ERPs: ABS

4.9. Australian Capital Territory

The total population of the ACT is projected to increase from 454,000 in 2021 to 589,000 by 2041 (Figure X). Annual growth is projected to be about 7,000 for most of the projection horizon.



(a) Observed and projected population of the ACT, 1991-2041



(b) Observed and projected annual population growth, 1990-91 to 2040-41

Figure 28: The past and projected population of the ACT, 1991-2041
Source of observed data: ABS

Table 20: Projected demographic components of change, ACT, selected years

	2021-22	2025-26	2030-31	2035-36	2040-41
Start-of-interval population	453,600	473,100	509,500	545,700	582,000
Births	5,900	5,800	6,000	6,400	6,900
Deaths	2,400	2,400	2,800	3,200	3,600
Natural change	3,500	3,300	3,200	3,200	3,200
Net interstate migration	-2,800	400	600	600	600
Net overseas migration	800	3,500	3,500	3,500	3,500
Net total migration	-2,000	3,900	4,100	4,100	4,100
Total population change	1,500	7,200	7,300	7,200	7,300
End-of-interval population	455,000	480,300	516,800	552,900	589,300

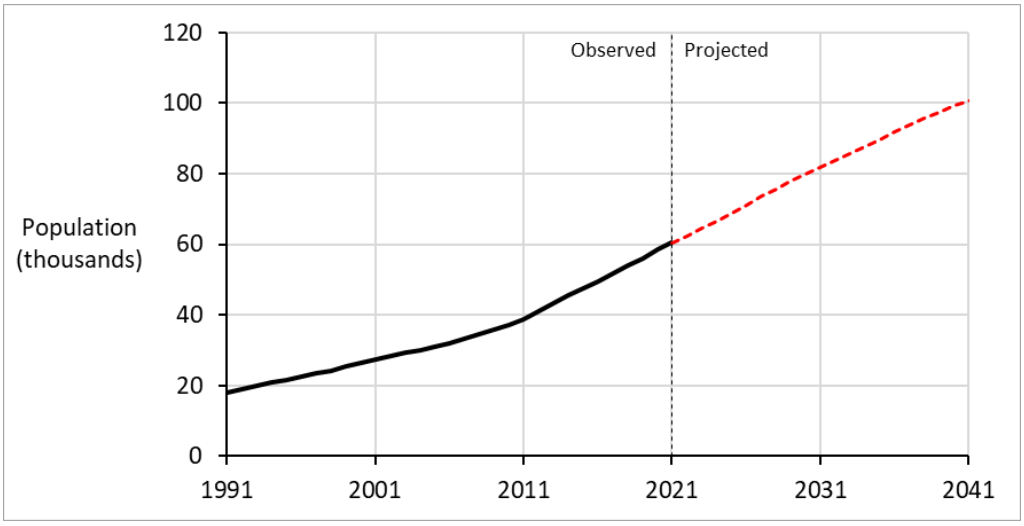
Note: Values have been rounded to the nearest 100.

Table 21: Projected population growth by broad age group, ACT, selected years

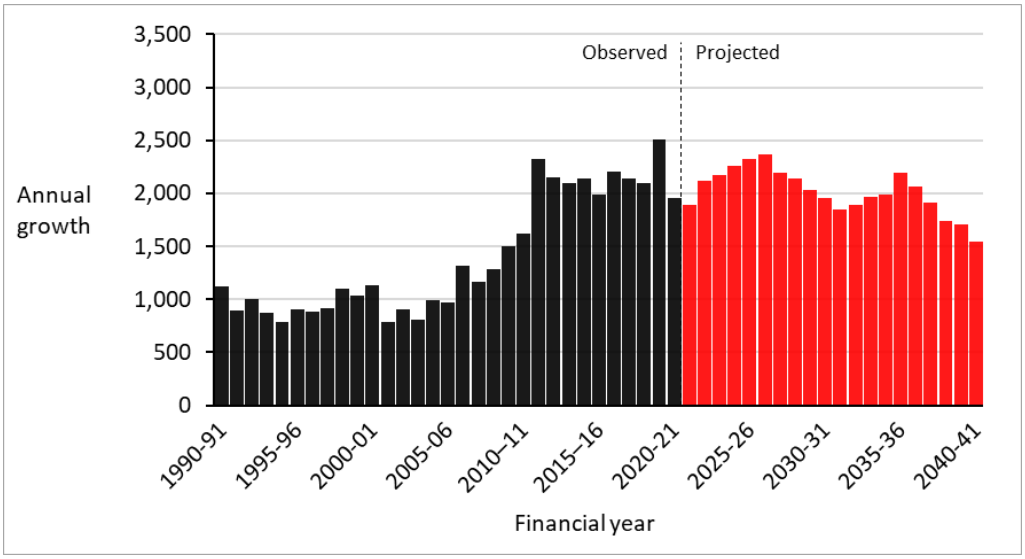
	Population			Change 2021-41	
Age group	2021	2031	2041	No.	%
0-14	83,700	85,400	94,400	10,700	12.8
15-24	61,200	74,600	77,900	16,600	27.1
25-64	248,200	274,900	316,300	68,200	27.5
65-84	53,500	69,600	79,900	26,400	49.4
85-99	6,900	12,100	20,600	13,700	197.5
100+	60	150	260	190	311.7

Source of 2021 ERPs: ABS

Note: Populations have been rounded to the nearest 100, except for the centenarian population which has been rounded to the nearest 10



(a) Observed and projected population of the ACT aged 65+, 1991-2041



(b) Observed and projected annual growth of the 65+ population, 1990-91 to 2040-41

Figure 29: The past and projected population of the ACT aged 65+, 1991-2041

Source of observed data: ABS

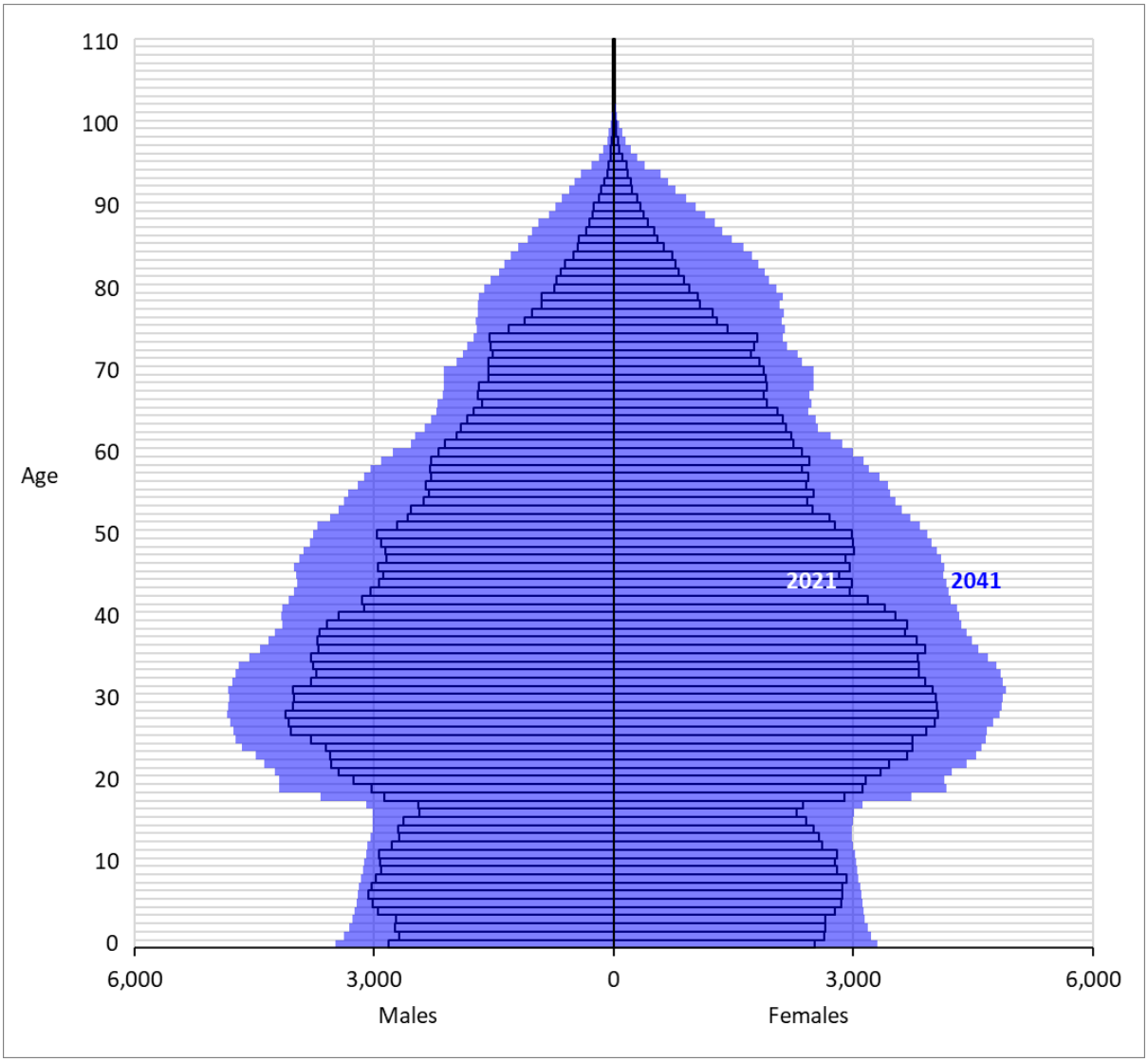


Figure 30: The age-sex structure of the ACT's population in 2021 (black outline) and projected in 2041 (blue shading)

Source of 2021 ERPs: ABS

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