



Australian Government



National
Skills
Commission

The shape of Australia's post COVID-19 workforce



7 December 2020

ISBN 978-1-76051-938-4 (PDF)

ISBN 978-1-76051-939-1 (PRINT)



With the exception of the Commonwealth Coat of Arms, the Department's logo, any material protected by a trade mark and where otherwise noted all material presented in this document is provided under a Creative Commons Attribution 4.0 International (<https://creativecommons.org/licenses/by/4.0/>) licence.

The details of the relevant licence conditions are available on the Creative Commons website (accessible using the links provided) as is the full legal code for the CC BY 4.0 International (<https://creativecommons.org/licenses/by/4.0/legalcode>)

The document must be attributed as *The shape of Australia's post COVID-19 workforce*.



Australian Government



National
Skills
Commission

The shape of Australia's post COVID-19 workforce



Contents



Commissioner's foreword	5
Executive summary	6
Part 1 Labour market update	9
1.1 Impact of COVID-19 on the Australian labour market	9
1.2 Demographic impacts	13
1.3 State and territory impact	18
1.4 Industry employment through 2020	20
1.5 The Internet Vacancy Index	22
1.6 Outlook	24
Part 2 Resilient occupations	25
2.1 Impact of COVID-19 on occupations	25
2.2 Top 20 resilient occupations	31
2.3 Rebounding occupations	32
2.4 Case study	33
Part 3 Modelling of economic recovery scenarios	37
3.1 The importance of scenario modelling	37
3.2 Key findings from the central Economic Restoration scenario	39
3.3 Insights from the other scenarios examined by the NSC	45
3.4 Education and training implications	50
Conclusion	53



Commissioner's foreword



This second major report from the National Skills Commission (NSC) explores the nature of Australia's labour market and skills recovery from the pandemic.

COVID-19 has had an unprecedented impact on Australia's labour market. That said, there are signs of recovery with the most recent Australian Bureau of Statistics (ABS) *Labour Force Survey* figures showing employment rebounded strongly in October, increasing by 178,800 over the month (and by 648,500 since the trough in May). Despite that recovery, employment remains 223,100 below the level recorded in March (when Australia recorded its 100th case of COVID-19).

The NSC's monitoring of internet vacancies and our employer surveys support the signs of recovery. However, recovery is uneven across age groups, industries and regions. For example, the jobs recovery in capital cities has tended to lag behind regional areas and young people remain disproportionately impacted.

To help understand the nature of the jobs recovery and what may lie ahead, the NSC has developed a framework that ranks occupations according to their resilience during COVID-19 and their likely recovery prospects. We have done this by combining data on employment growth expectations before COVID-19 with data relating to the employment experience of occupations during the pandemic and early indications of recovery. In this report, we show the top 20 most resilient occupations. We will also publish and update the full list on the Labour Market Information Portal website at: lmi.gov.au.

The NSC has also undertaken modelling to further help understand the nature of the jobs and skills recovery from COVID-19. The purpose of this modelling is to examine the impact on occupations, industries and skills as we move further through recovery. By examining a range of scenarios, we can see what might be common across different recovery paths and where the differences might lie.

Of course, the very nature of 2020 and the shock to the economy and labour market means that these exercises are undertaken in conditions of uncertainty. That uncertainty and the volatility in the data means that everything might not neatly align. Yet, it is precisely the volatility in the economy and the uncertainty about the skills needs of the economy as we move through recovery that make these sorts of exercises essential. It also means that forecasts, data and modelling must co-exist with judgement that turns data into knowledge and advice.

Ultimately, Australia's recovery will depend on a range of factors like accessing a vaccine and avoiding additional waves of infection, as well as how the rest of the world responds to the pandemic. While some of these factors are out of our control, there is cause for cautious optimism – reflected in the recovery in employment. By understanding the strengths and weaknesses of the Australian labour market – and opportunities for effective policy responses – we stand the best chance of getting more people back to work.

Adam Boyton
National Skills Commissioner

Executive summary



Labour market hard hit by COVID-19, but starting to recover

The COVID-19 pandemic has radically affected the Australian labour market. Employment fell sharply, by 871,600 (or 6.7%) between March (when Australia recorded its 100th case of COVID-19) and May.

Against the backdrop of declining COVID-19 cases and easing restrictions, however, employment has rebounded strongly, increasing by 648,500 (or 5.3%) between May and October, although it remains 223,100 (or 1.7%) below the level recorded in March. Youth have accounted for almost half of the total decline in employment since March.

Reflecting the unprecedented hit to the labour market from the pandemic, the unemployment rate has drifted much higher, from 5.2% in March, to 7.0% in October (or an additional 245,100) while the youth unemployment rate has risen from 11.6%, to 15.6% over the period. Hours worked remain 3.8% lower than in March, while underemployment is now 217,300 above its pre-COVID-19 level.

Nationally, online job advertisements fell sharply in early 2020, with the Internet Vacancy Index hitting a series low in April 2020. Since then, there has been a steady recovery with the number of newly advertised jobs increasing.

There are notable differences in recruitment activity across jurisdictions, due mainly to the variation in COVID-19 case numbers and related restrictions. Importantly, all are now on the path to recovering to pre-COVID-19 levels. Pronounced differences have also been apparent at the regional level, with online job advertisements falling more sharply in the capital cities than in regional areas. Overall, however, both have experienced growth over the past few months.

Occupational trends show that demand for workers is increasing. Overall, job advertisements increased for 41 of the 48 detailed occupational groups in October, while job advertisements now exceed pre-COVID levels for 23 of the 48 occupations.

[Details are in Part 1.](#)

Insights about resilient occupations

Insights into future job opportunities are vital to support Australia's economic recovery from the impacts of COVID-19.

To help support policy responses, such as the Australian Government's JobTrainer initiative, and to assess broader impacts on occupations as a result of COVID-19, the NSC has developed an occupational resilience framework that ranks the relative strength of 358 occupations and their likely prospects as the economy recovers from the initial impact of the pandemic. More than half of the employment in the top third of resilient occupations is in three industries: Health Care and Social Assistance; Construction; and Education and Training.

There are also indications that some occupations hard hit in the early stages of the pandemic are starting to see signs of recovery. Around one-third of the 358 occupations recorded an increase in employment in the August quarter 2020 after experiencing a decline in the May quarter 2020. However, more than half (56.6%) of these occupations still recorded an overall decline in employment in the 6 months to August 2020, outlining that, for many of the rebounding occupations, further employment growth is required to reach pre-COVID-19 levels of employment.

[Details are in Part 2.](#)

Looking forward with scenario modelling

Scenario modelling is important when labour market conditions involve considerable uncertainty. It improves understanding of plausible possibilities and enables comparison of the impact on labour market outcomes in the short- and medium-term.

The NSC partnered with the Centre of Policy Studies (Victoria University) and AlphaBeta Advisors to model four economic scenarios using a computable general equilibrium model of the Australian economy, as well as a 'no COVID-19 base' scenario benchmark.

The central scenario, Economic Restoration, suggests that with social distancing measures wound back and borders re-opening, domestic and international activity resumes, similar to pre COVID-19 levels and patterns. Under this scenario the impacts of COVID-19 are stark in the short-term, but many occupations will recover over time.

The other three scenarios are Fortress Australia, which assumes borders remain closed until 2022; Impeded Recovery where business confidence is dampened; and Accelerated Digitisation which sees widespread adoption of digital technologies and processes.

[Details are in Part 3.](#)



The significant decline in COVID-19 cases and restrictions saw employment rebound strongly (by 5.3%) from May to October.

In addition, while the unemployment rate has fallen slightly since May, it remains higher than it was in March, at 7.0% in October.



Part 1

Labour market update

1.1 Impact of COVID-19 on the Australian labour market

Employment and unemployment

While COVID-19 has had a significant negative impact on the Australian labour market, there are now definitive signs of improvement.

Against the backdrop of the shutdown of non-essential services and trading restrictions, employment initially contracted sharply – by 871,600 (or 6.7%) between March 2020 (when Australia recorded its 100th COVID-19 case) and the trough in the labour market in May 2020.

Part-time employment accounted for 61.2% of the decline in employment between March and May, falling by 533,700 (or 12.9%), while full-time employment decreased by 337,900 (or 3.8%) over the period.

However, reflecting the significant decline in coronavirus cases and the subsequent easing in restrictions, employment has rebounded strongly, by 648,500 (or 5.3%) since May, to stand at 12,773,900 in October 2020, although it remains 223,100 (or 1.7%) below the level recorded in March.

Encouragingly, employment surged by 178,800 in October, with Victoria accounting for almost half (81,600) of the increase, as COVID-19 was brought under control and restrictions in the state began to ease.

Since May, part-time employment has recovered strongly (up by 538,200 or 15.0%) and is now 4,600 (or 0.1%) above the level recorded in March 2020. Over the same period, full-time employment rose by a more modest 110,200 (or 1.3%) but remains 227,700 (or 2.6%) below the level recorded in March 2020. It is worth noting that full-time employment rose by 97,000 (or 1.1%) in October, the largest monthly increase on record.

While trading restrictions, as well as school closures, had a negative impact on employment, they also resulted in 665,100 people leaving the labour force between March and May, pushing the participation rate down by 3.3 percentage points, to 62.7% in May 2020. So, while the unemployment rate rose from 5.2% in March 2020, to 7.1% in May 2020, the significant decline in employment did not translate into a similar increase in unemployment, due to the large number of people who left the labour force over the period.

Table 1: Labour market indicators, October 2020

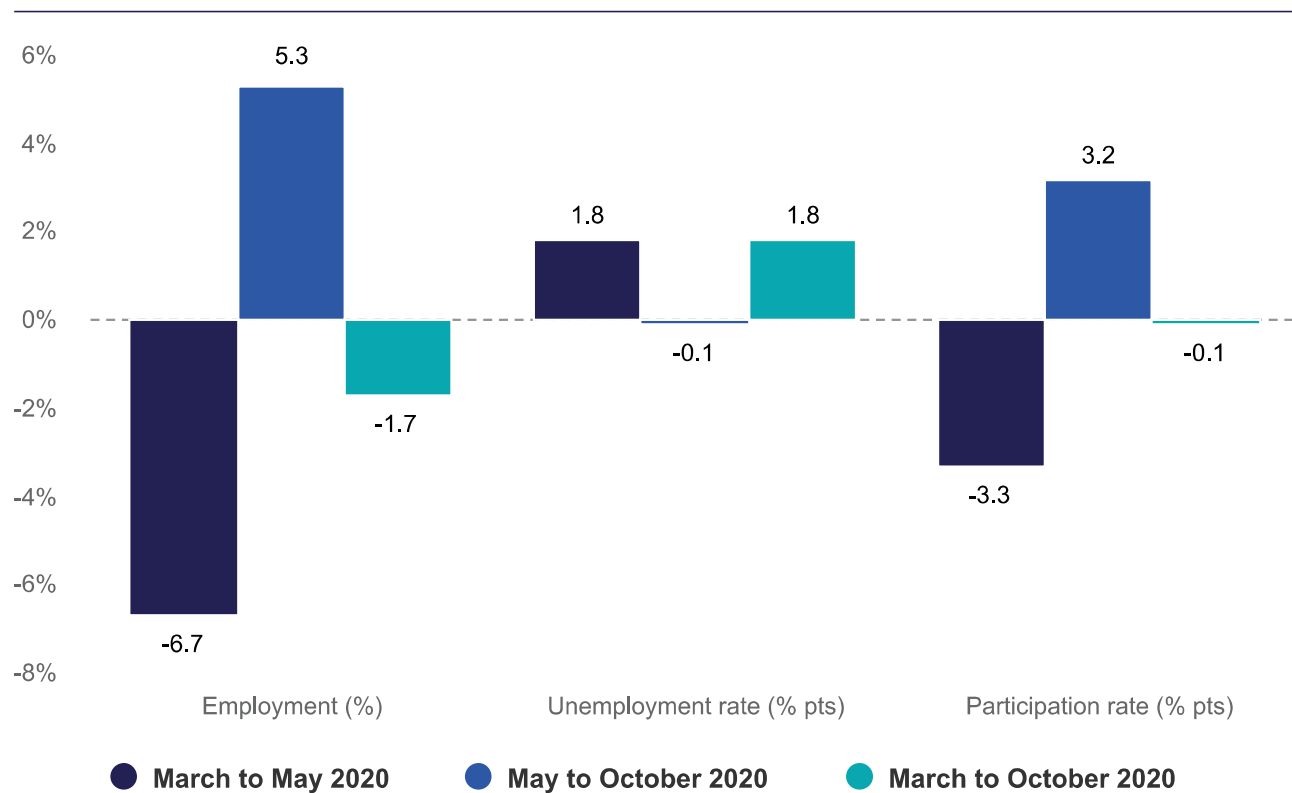
	October	Change between March and May 2020		Change between May and October 2020		Change between March and October 2020	
		('000)	(%)	('000)	(%)	('000)	(%)
Employment ('000)	12,773.9	-871.6	-6.7	648.5	5.3	-223.1	-1.7
Full-time employment ('000)	8,643.7	-337.9	-3.8	110.2	1.3	-227.7	-2.6
Part-time employment ('000)	4,130.2	-533.7	12.9	538.2	15.0	4.6	0.1
Unemployment ('000)	960.9	206.5	28.9	38.5	4.2	245.1	34.2
Unemployment rate (%)	7.0	-	1.8 pts	-	-0.1pts	-	1.8 pts
Participation rate (%)	65.8	-	-3.3 pts	-	3.2 pts	-	-0.1 pts
Underemployment rate (%)	10.4	-	4.3 pts	-	-2.7 pts	-	1.6 pts

Source: ABS, Labour Force, Australia, October 2020 seasonally adjusted data.

Note that changes in the table are calculated from more detailed data and may not match changes calculated manually from the figures.

Since May the labour force has risen by 687,000, which has pushed the participation rate up by 3.2 percentage points (to 65.8% in October), with fewer COVID-19 cases and eased restrictions lifting confidence and encouraging people to enter the labour force in search of work. The increase in labour force participation, together with only a partial recovery in employment, means the unemployment rate has fallen by just 0.1 percentage point since May, to 7.0% in October 2020.

Figure 1: Change in key labour market indicators



Source: ABS, Labour Force, Australia, October 2020, seasonally adjusted data.

In summary, while labour market conditions in Australia have improved significantly since May 2020, most key labour market indicators have not returned to their pre-COVID-19 levels. In particular, employment remains 223,100 (or 1.7%) below the level recorded in March 2020, with full-time employment 227,700 (or 2.6%) lower over the period, while the unemployment rate remains 1.8 percentage points above the 5.2% recorded in March. Moreover, 960,900 Australians remain unemployed, 245,100 (or 34.2%) more than there were prior to the onset of the pandemic in March.

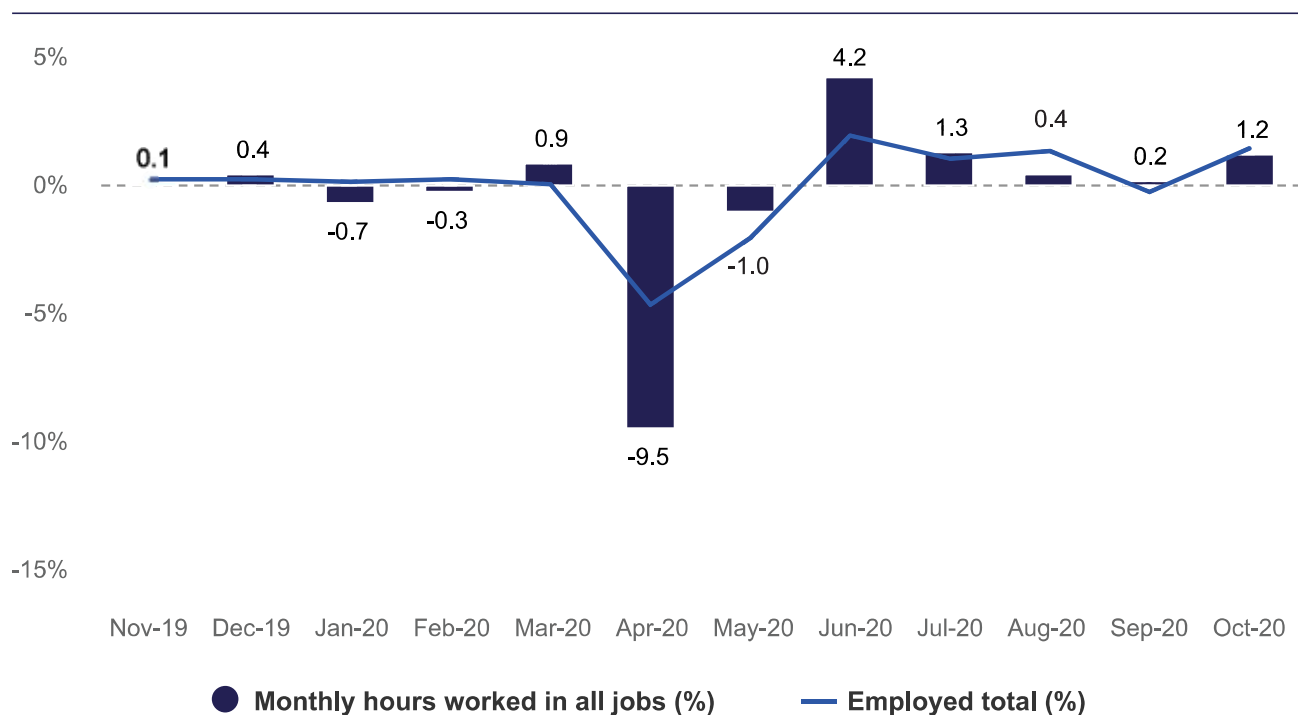
Hours worked

Given that businesses often reduce the hours of their workers as an early response to a labour market shock, it is not surprising that the number of monthly hours worked in all jobs declined significantly, by 185.5 million hours (or 10.4%) between March and May 2020 (see Figure 2).

As COVID-19 cases have abated and restrictions eased, however, monthly hours worked have recovered somewhat, increasing by 117.6 million hours (or 7.4%) between May and October 2020 to 1,711.0 million hours. However, monthly hours worked remain 3.8% below the pre-COVID-19 level.

The number of people who worked zero hours due to economic reasons (defined as people who were either stood down, had insufficient work or no work available) rose from 76,500 in March 2020, to a peak of 766,900 in April 2020, but has since declined to 133,800 in October 2020.

Figure 2: Monthly change in employment and hours worked, year to October 2020



Source: ABS, Labour Force, Australia, October 2020, seasonally adjusted data.

Underemployment

In line with the significant reduction in hours worked, the level of underemployment increased by 500,400 (or 41.4%) between March and May. Since May, however, underemployment has fallen by 283,100 (or 16.6%), to 1,424,800 in October, although it remains well above the 1,207,500 recorded in March.

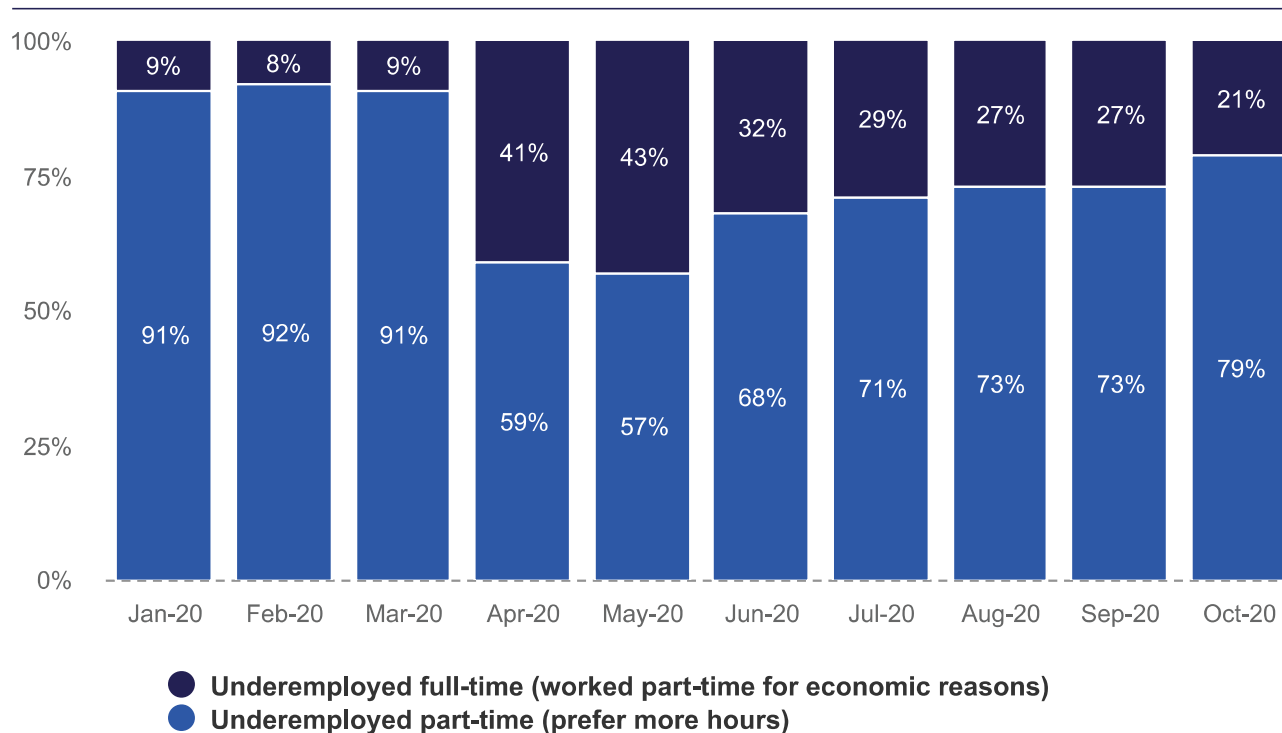
Similarly, the underemployment rate increased significantly at the onset of COVID-19, rising from 8.8% in March to a record high of 13.8% in April. While the underemployment rate has since declined to 10.4% in October, it is still 1.6 percentage points above the rate recorded in March.

The increase in underemployment between March and October was entirely due to an increase in the number of underemployed full-time workers who worked part-time hours for economic reasons¹ (up by 177,900, or 160.5%, to 288,700). The number of underemployed part-time workers actually contracted by 2,900 (or 0.3%) over the period, to 1,067,800 in October.

Reflecting the impact of COVID-19 on hours worked, the share of total underemployment accounted for by underemployed full-time workers rose from 9.4% in March, to a peak of 42.9% in May, before declining to 21.3% in October.

Prior to April, underemployed part-time workers had routinely comprised at least 90% of total underemployment each month since monthly underemployment data became available in July 2014.

Figure 3: Share of full-time and part-time underemployment



Source: ABS, Labour Force, Australia, October 2020, original data.

¹ Henceforth referred to as 'underemployed full-time workers'.

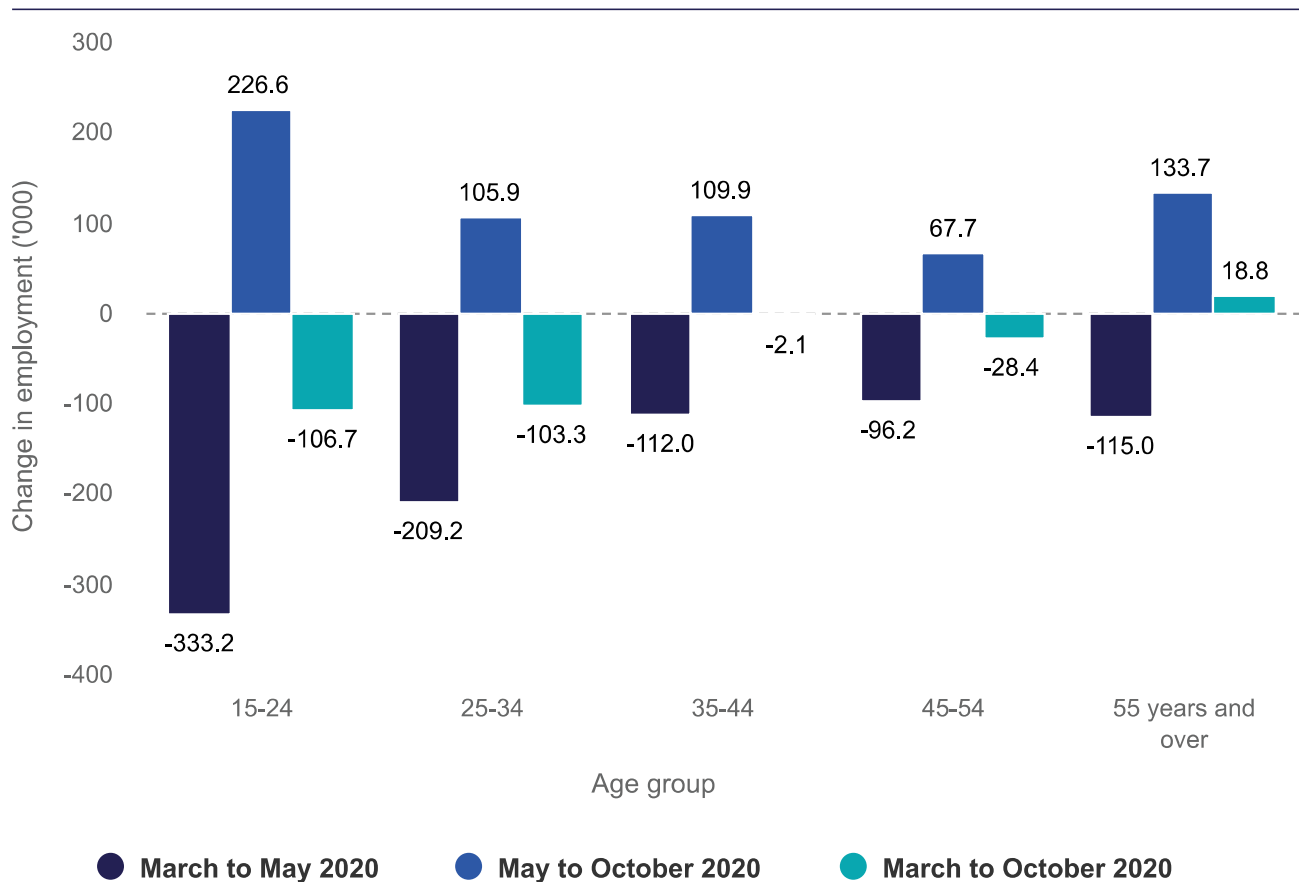
1.2 Demographic impacts

Youth

Young people are particularly vulnerable during large economic and labour market shocks, as they tend to have fewer skills and less experience than their prime-age counterparts. They are often the first to be retrenched and may face particular challenges regaining employment, like those who have never worked before, as they are often competing with more highly skilled job seekers.

While all cohorts were negatively affected by the pandemic, the youth cohort (persons aged 15–24) has been particularly hard-hit, as this age group is overrepresented in industries that have been most severely affected by the impact of COVID-19.

Figure 4: Change in employment by age



Source: ABS, Labour Force, Australia, October 2020, seasonally adjusted data.

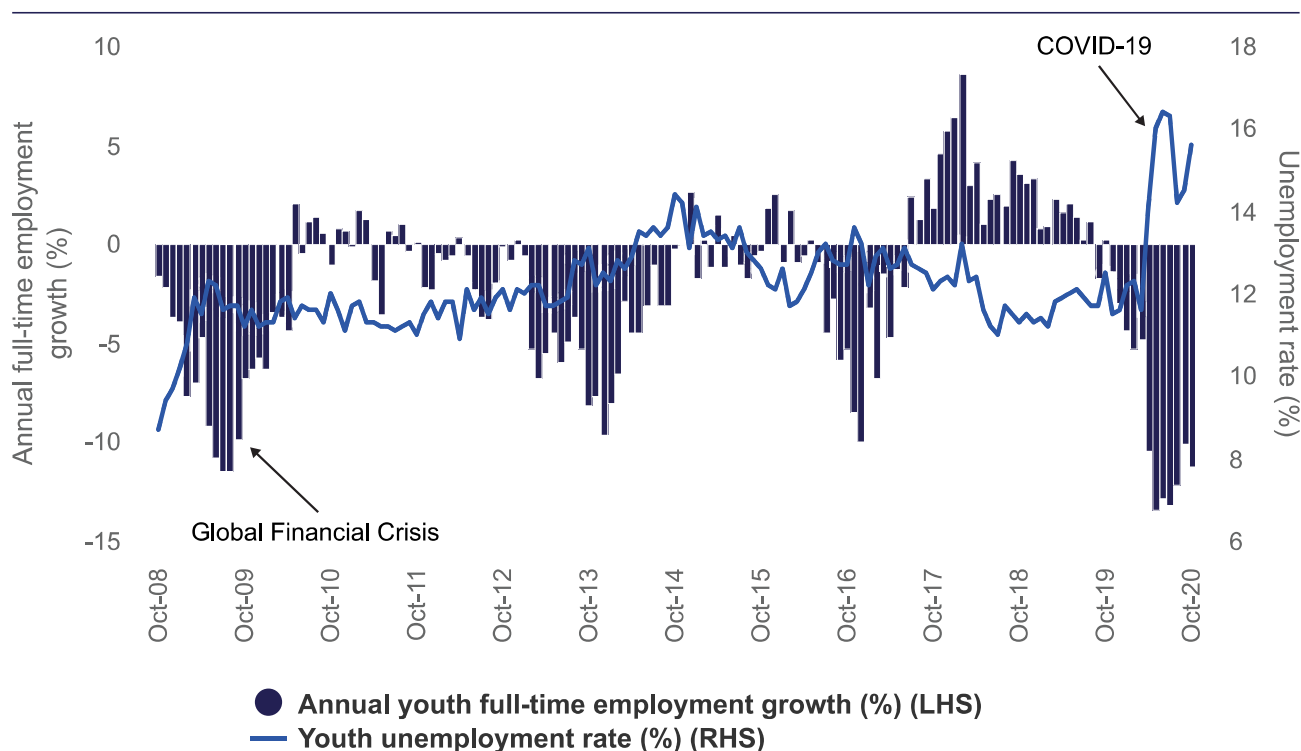
Youth employment contracted sharply in the initial months of the pandemic, declining by 333,200 (or 17.1%) between March and May. Since then, however, youth employment has recovered somewhat, rising by 226,600 (or 14.1%), to 1,838,900 in October, although it is still 106,700 (or 5.5%) below the level recorded in March.

Youth have accounted for around 48% of the total decline in employment between March and October, despite comprising just 15% of the civilian population.

The decrease in youth employment between March and October has been due, in large part, to a fall of 70,400 (or 8.3%) in youth full-time employment, while part-time employment has declined by 37,700 (or 3.4%) over the period.

Along with the contraction in youth employment, the youth unemployment rate has increased from 11.6% in March 2020, to 15.6% in October. However, it remains below the recent peak of 16.4% recorded in June. This equates to an additional 81,900 young people becoming unemployed since March.

Figure 5: Youth unemployment rate and annual youth full-time employment growth, October 2008 to October 2020



Source: NSC, Internet Vacancy Index, seasonally adjusted data, October 2020.

Youth have also recorded the largest fall (in percentage terms) in actual hours worked of all age cohorts between March and October, declining by 11.3% over the period, compared with a fall of 7.3% for those aged 25–34, 5.9% for those aged 35–44, 7.9% for those aged 45–54, and 2.4% for those aged 55 and over.

Reflecting the decline in hours worked for young people, the youth underemployment rate also increased, from 19.1% in March, to a record high of 23.6% in April 2020, before declining to 17.9% in October. By comparison, the underemployment rate for all persons stood at 10.4% in October.

Gender impact

Employment trends by gender are now more mixed than they were in the initial months of the pandemic when women were particularly hard hit (see Table 2). This reflects, in large part, their overrepresentation in industries that were most severely affected by COVID-19, such as Accommodation and Food Services, and the fact that they were more likely to be employed on a casual basis, where job losses have been greater. Indeed, female employment fell sharply, by 470,500 (or 7.7%) between March and May, although male employment also decreased considerably, by 401,100 (or 5.9%).

Since then, female employment has recovered somewhat, increasing by 343,800 (or 6.1%) to 6,022,800 in October. Male employment also rose between May and October, by 304,600 (or 4.7%), to 6,751,100.

The significant increase of 118,800 in male employment in October alone has accounted for almost 40% of the rise in employment for men in the last 5 months.

While females comprised 47.1% of total employment in October, they accounted for 56.8% of the decrease in employment since March.

Full-time employment for women fell by 116,900 (or 3.5%) between March and October, while part-time employment decreased by 9,800 (or 0.3%). Over the same period, full-time employment for men declined by 110,800 (or 2.0%), while part-time employment increased by 14,300 (or 1.1%).

Table 2: Key labour market indicators by gender, October 2020

	October	Change between March and October 2020		Change between March and May 2020		Change between May and October 2020	
		('000)	(%)	('000)	(%)	('000)	(%)
Female							
Employment ('000)	6022.8	-126.7	-2.1	-470.5	-7.7	343.8	6.1
Unemployment ('000)	455.0	122.2	36.7	90.3	27.1	31.9	7.5
Unemployment rate (%)	7.0	-	1.9 pts	-	1.8 pts	-	0.1 pts
Participation rate (%)	61.0	-	-0.2 pts	-	-3.6 pts	-	3.4 pts
Underemployment ('000)	761.2	72.6	10.5	170.7	24.8	-98.1	-11.4
Underemployment rate (%)	11.8	-	1.1 pts	-	3.5 pts	-	-2.3 pts
Male							
Employment ('000)	6751.1	-96.4	-1.4	-401.1	-5.9	304.6	4.7
Unemployment ('000)	505.9	122.9	32.1	116.2	30.3	6.7	1.3
Unemployment rate (%)	7.0	-	1.7 pts	-	1.9 pts	-	-0.2 pts
Participation rate (%)	70.8	-	0.0 pts	-	-2.9 pts	-	2.9 pts
Underemployment ('000)	663.6	144.7	27.9	329.6	63.5	-185.0	-21.8
Underemployment rate (%)	9.1	-	2.0 pts	-	5.0 pts	-	-3.1 pts

Source: ABS, Labour Force, Australia, October 2020, seasonally adjusted data.

Note that changes in the table are calculated from more detailed data and may not match changes calculated manually from the figures.

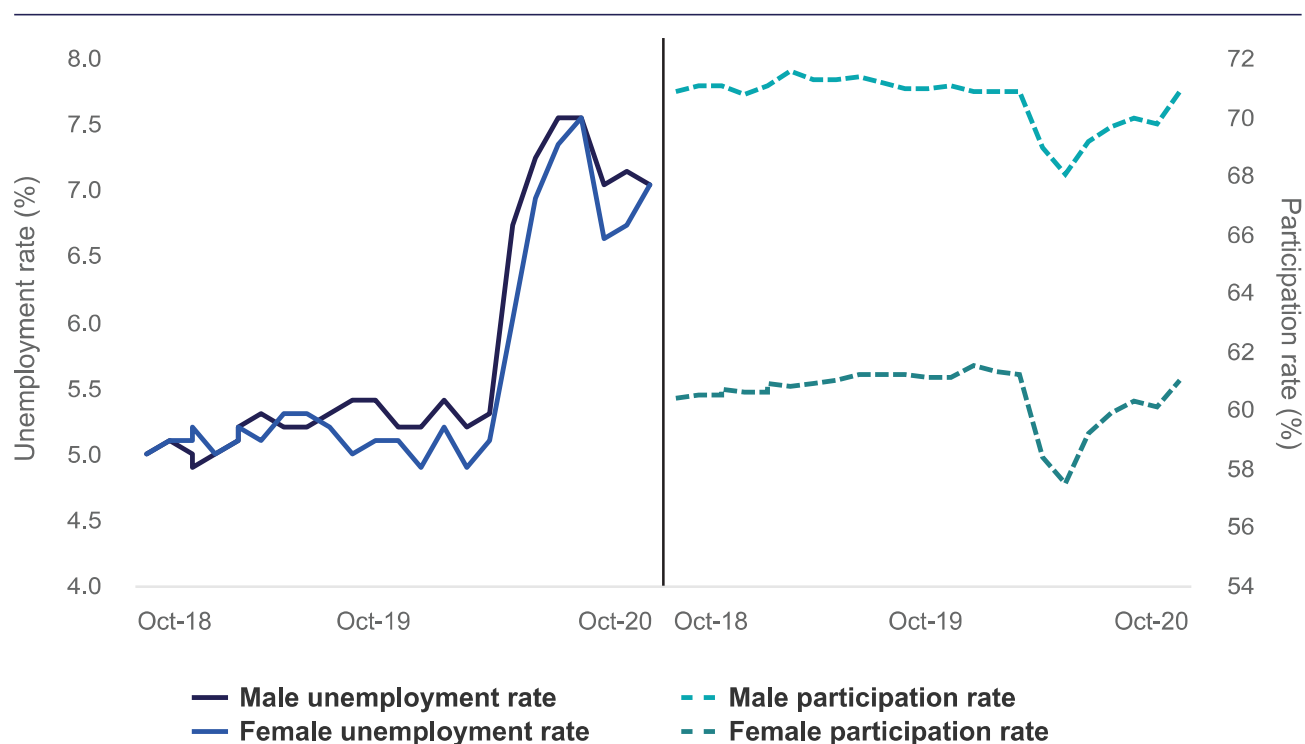
Between March and May, 380,200 women left the labour force, pushing the female participation rate down by 3.6 percentage points, to 57.5% in May 2020, the lowest rate recorded since October 2006.

In line with the easing of restrictions, however, 375,700 women have re-entered the labour force since May, with the female participation rate increasing by 3.4 percentage points, to 61.0% in October, marginally below the 61.2% recorded in March, prior to the pandemic.

The initial decline in the labour force for men was slightly less stark, with 284,800 males leaving the labour force between March and May, resulting in a 2.9 percentage point decline in their participation rate, to 68.0%, the lowest rate on record. Since May, however, the male labour force has increased by 311,300, with the male participation rate rising by 2.9 percentage points to 70.8% in October, equal to the rate recorded in March.

Over the entire COVID-19 period (March to October), and reflecting movements in employment and changes in the participation rate, the female unemployment rate has risen by 1.9 percentage points, to 7.0% in October, while the male unemployment rate has increased by 1.7 percentage points to also stand at 7.0%.

Figure 6: Unemployment rate and participation rate by gender, October 2018 to October 2020



Source: ABS, Labour Force, Australia, October 2020, seasonally adjusted data.

Women recorded a particularly large fall in hours worked between March and April, down by 12.0% (or 88.5 million hours), compared with a decline of 7.7% (or 80.5 million hours) for men.

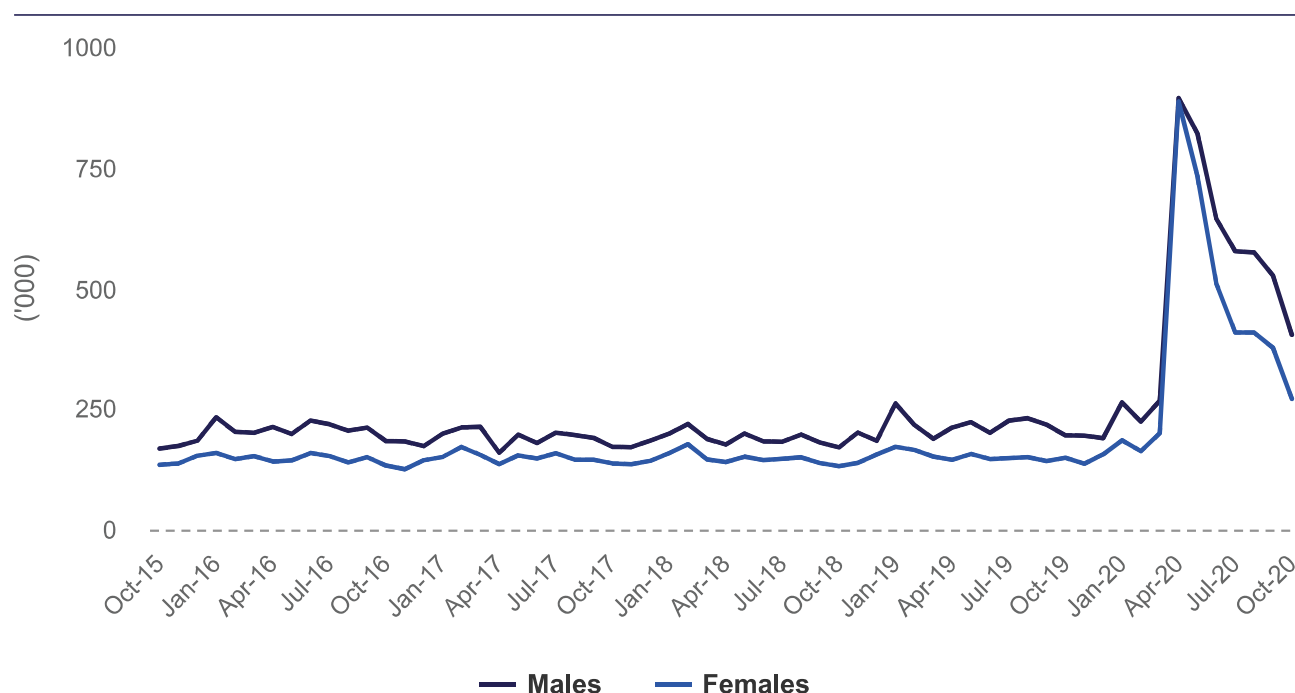
Since April, hours worked for women have increased by 9.0% (or 58.5 million hours), compared with a rise of 4.4% (or 42.6 million hours) for men.

However, hours worked for women in October, remain 4.1% (or 30.0 million hours) lower than the level recorded in March, while hours worked for men are 3.6% (or 37.9 million hours) lower than in March.

There was a large increase in the number of men and women who worked fewer hours than usual (or no hours at all) for economic reasons (that is, there was no work, not enough work available or they were stood down) in the initial months of the pandemic. Indeed, between March and April, the number of women working fewer hours than usual (or no hours at all) for economic reasons increased by 687,400 (or 344.2%) to a record high of 887,100, compared with a rise of 627,500 (or 235.1%) for men, to 894,400, also a record high (see Figure 7).

Since April, however, there has been a greater decline in the number of women who worked fewer than their usual hours (or no hours at all) for economic reasons, down by 616,400 (or 69.5%) to 270,700 in October, compared with a fall of 490,900 (or 54.9%) for men, to 403,500.

Figure 7: People working fewer than their usual hours (or no hours at all) for economic reasons, by gender, October 2015 to October 2020



Source: ABS, Labour Force, Australia, Detailed, October 2020, original data.

Reflecting the significant decline in hours worked in the initial months of COVID-19, female underemployment increased by 243,400 (or 35.3%) between March and April, to a record high of 932,000, while male underemployment increased by 369,800 (or 71.3%), to 888,800, also a record high.

Since April, female underemployment fell by 170,800 (or 18.3%), to 761,200 in October. Male underemployment also declined between April and October, by 225,200 (or 25.3%), to 663,600.

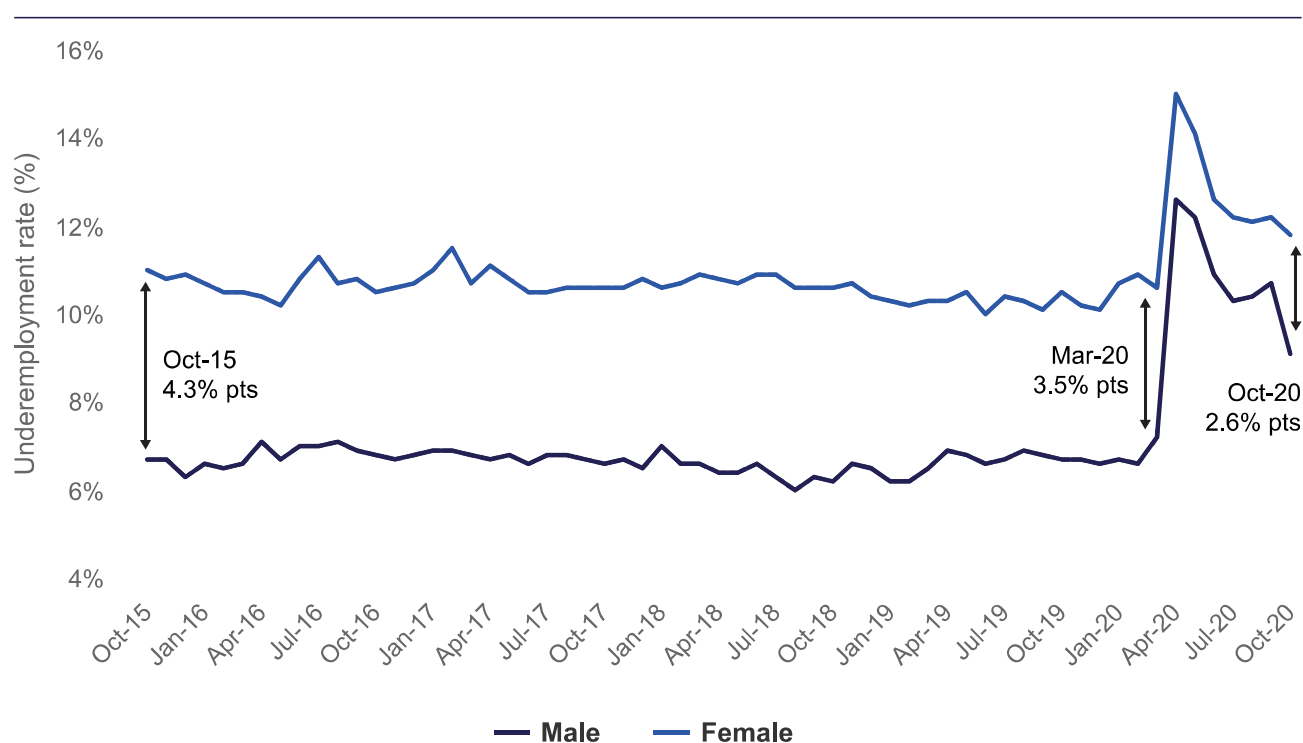
Similarly, the underemployment rate for both women and men surged in the initial stages of the pandemic, to record highs of 15.0% and 12.6% respectively, in April.

Since April, however, the female underemployment rate has fallen to 11.8% in October 2020. The male underemployment rate also declined between April and October, to 9.1%.

The female underemployment rate has consistently tracked higher than the male underemployment rate. Since the onset of COVID-19, however, the gap between the male and female rates has narrowed, due to the significant decline in male full-time employment that occurred between March and September (as males accounted for around two-thirds of the decline in full-time employment over the period).

Full-time employment for males rebounded strongly in October, although it is too early to discern whether this trend will continue and the implications this may have for the size of the underemployment rate gap, going forward.

Figure 8: Underemployment rate by gender, October 2015 to October 2020



Source: ABS, Labour Force, Australia, October 2020, seasonally adjusted data.

1.3 State and territory impact

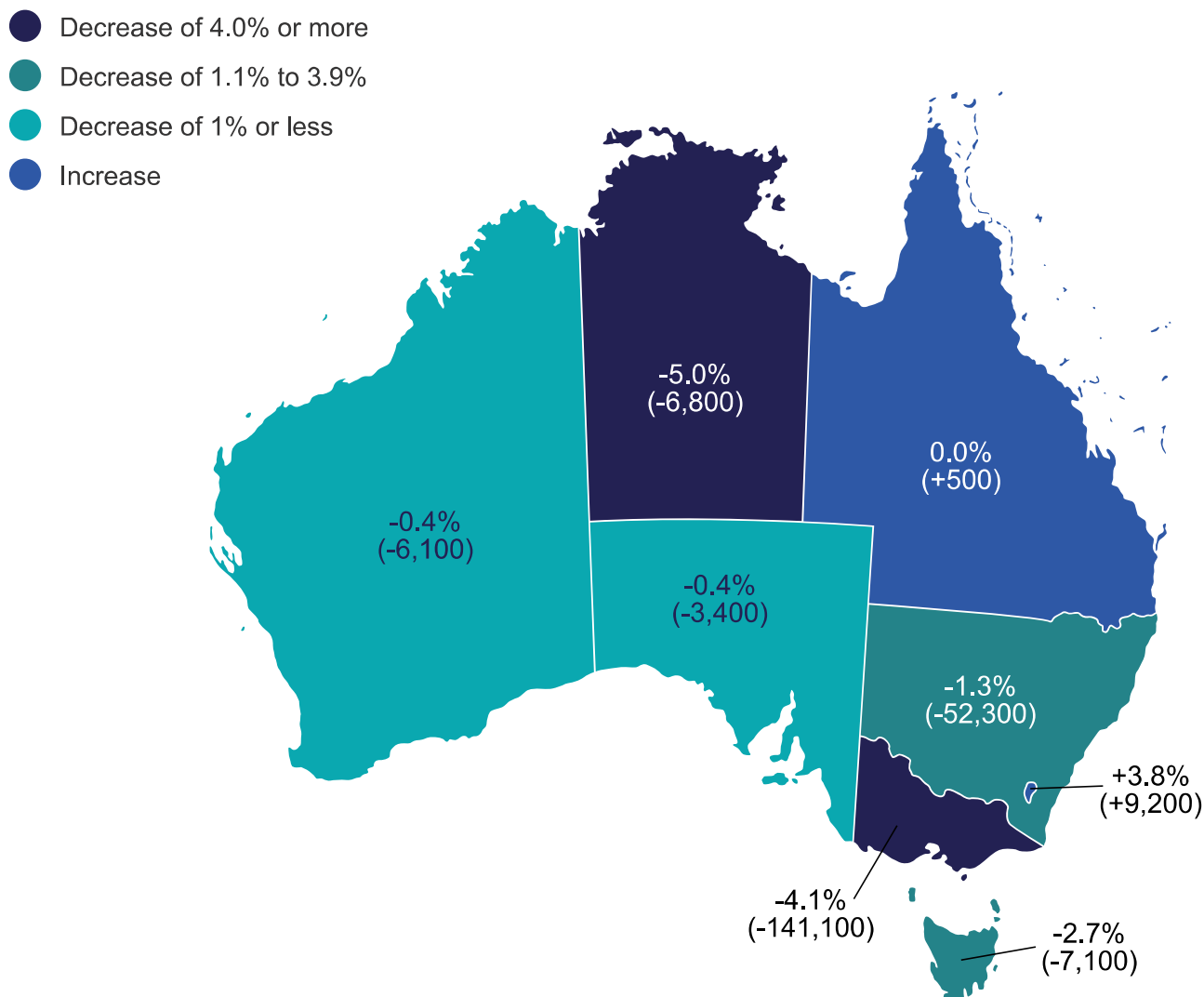
The impact of the COVID-19 pandemic on the Australian labour market at the national level has also been evident across the states and territories. Since March, employment has fallen in the majority of jurisdictions, while the unemployment rate has risen in all states and territories.

Some jurisdictions have been more severely affected than others due to a range of factors, including ongoing COVID-19 cases, each jurisdiction's industry composition, its demographics (population size and age structure) and differences in the way each state and territory has managed the pandemic.

Not surprisingly, reflecting the outbreak of COVID-19 cases in Victoria from late June and the subsequent restrictions, labour market indicators in Victoria remain well below pre-COVID-19 levels and are currently faring more poorly than in other states. For instance, employment in Victoria remains 141,100 below the level recorded in March, while the unemployment rate has risen to 7.4% in October, well above the 5.2% recorded in March.

Encouragingly, employment in Victoria rose by 81,600 in October, the largest monthly increase on record, as restrictions in the state began to ease. Moreover, it is likely that labour market conditions in Victoria will continue to strengthen following a further relaxation of restrictions in November.

Figure 9: Change in employment between March 2020 and October 2020, by state and territory



Source: ABS, Labour Force, Australia, October 2020, seasonally adjusted data.

On the other hand, labour market conditions in Western Australia (where there has been no community transmission since 11 April) have rebounded strongly since the trough in May. Employment in that state has increased by 89,300 (or 7.0%) over the period, after declining by 95,400 (or 7.0%) between March and May.

Against this stronger backdrop, Western Australia's unemployment rate has fallen by 1.5 percentage points since May, to stand at 6.6% in October. This is the second lowest unemployment rate of any state, although still well above the 5.4% recorded in March.

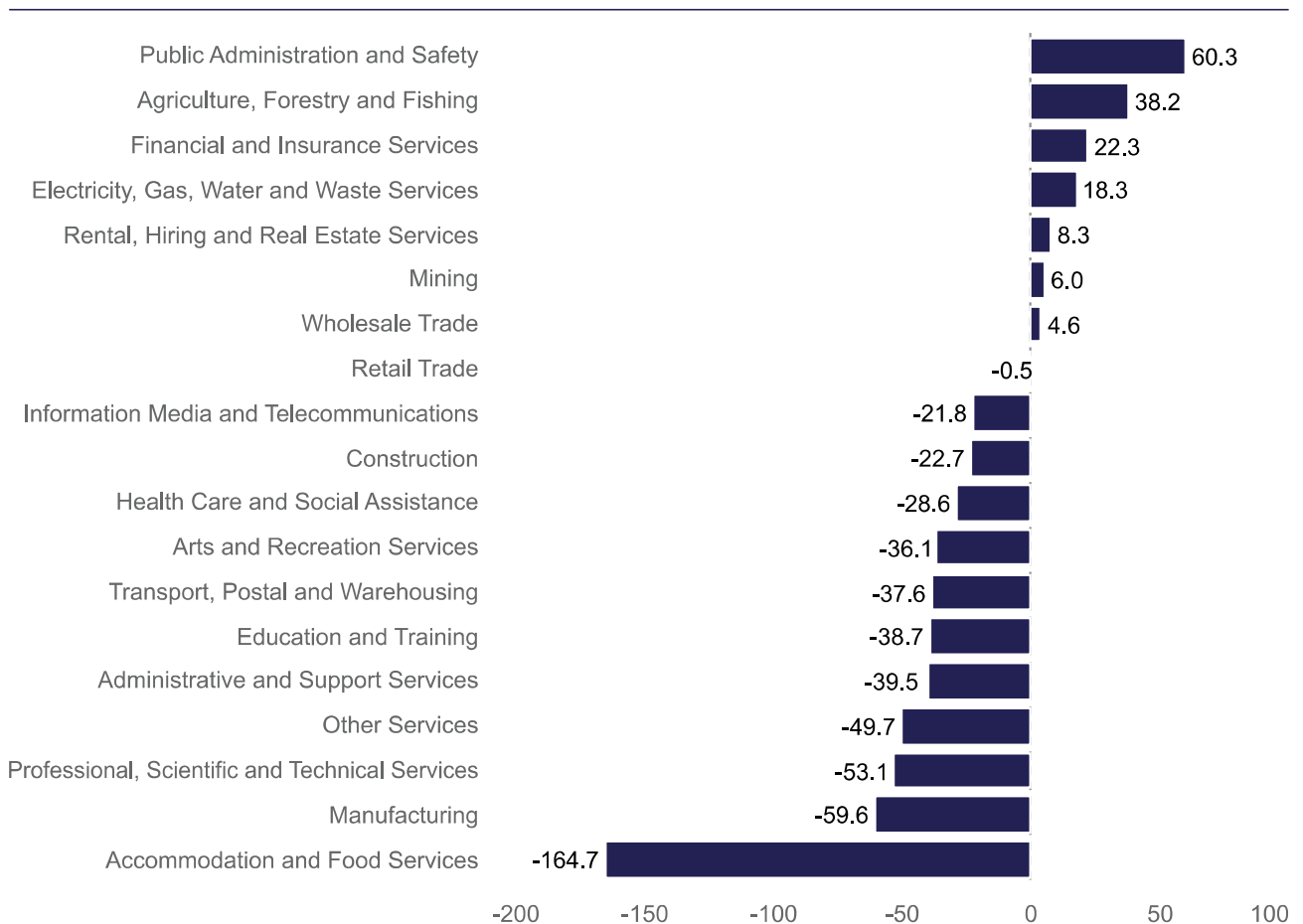
1.4 Industry employment through 2020

The pandemic had a significant impact on employment across all industries between February and August 2020 (latest available data).

The Accommodation and Food Services industry recorded the largest fall in employment over the period (down by 164,700 or 17.6%). Employment in the Manufacturing industry also remains well below the pre-pandemic level (down by 59,600 or 6.5%), followed by Professional, Scientific and Technical Services (down by 53,100 or 4.5%), Other Services (49,700 or 10.2%) and Administrative and Support Services (down by 49,700 or 10.2%).

Positively, employment is now higher than pre-pandemic levels in 7 industries. The Public Administration and Safety industry has recorded the largest increase in employment over the 6 months to August 2020 (up by 60,300 or 7.3%), followed by Agriculture, Forestry and Fishing (up by 38,200 or 11.8%) and Financial and Insurance Services (up by 22,300 or 4.8%), Electricity, Gas, Water and Waste Services (up by 18,300 or 13.8%), Rental Hiring and Real Estate Services (up by 8300 or 3.8%), Mining (up by 6,000 or 2.5%) and Wholesale Trade (up by 4,600 or 1.2%).

Figure 10: Change in employment by industry between February 2020 and August 2020 ('000s)



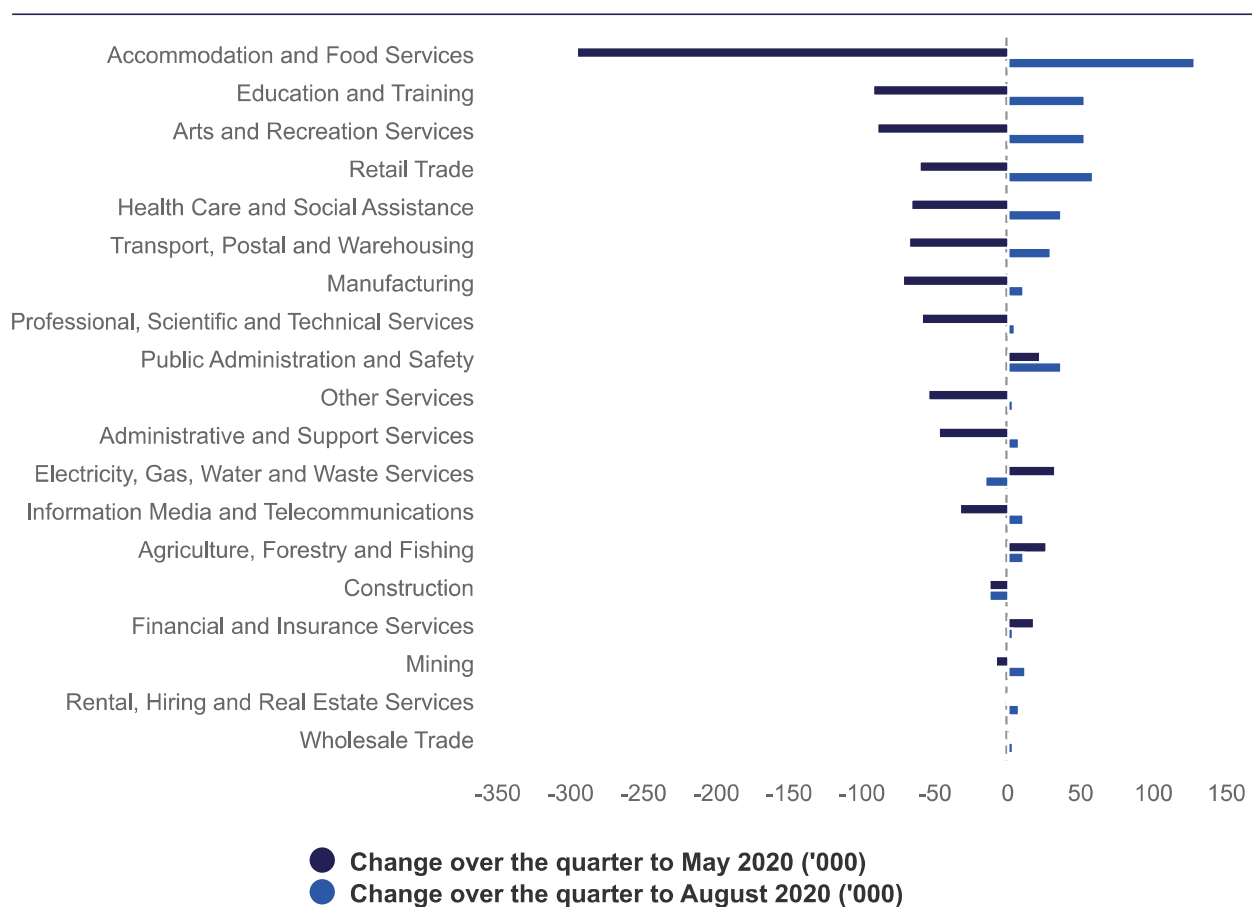
Source: ABS, Labour Force, Australia, Detailed, August 2020, National Skills Commission seasonally adjusted data

These changes over the 6 months to August mask the significant variation in employment dynamics in the two quarters. Between February and May, employment fell in 13 of the 19 industries. Employment has since recovered strongly, increasing in 17 of the 19 industries over the quarter to August.

Accommodation and Food Services was the industry most exposed to COVID-19 related restrictions, and recorded the largest fall in employment over the quarter to May (down by 294,200 or 31.4%). Over the August quarter, however, as restrictions began to ease, this industry recorded the largest increase in employment, of 129,500. Similarly, the Education and Training industry recorded the second largest fall in employment over the initial period (down by 91,500 or 8.1%) and also saw a partial rebound over the 3 months to August. The Arts and Recreation Services, Retail Trade and Health Care and Social Assistance industries also all recorded large falls in employment over the May quarter but, importantly, have all seen a bounce back in employment over the quarter to August.

Despite the pandemic's significant impact on the labour market, 5 industries (Agriculture, Forestry and Fishing; Wholesale Trade; Financial and Insurance Services; Rental, Hiring and Real Estate Services; and Public Administration and Safety) recorded increases in employment in both quarters. Construction is the only industry in which employment fell in both the May and August quarters.

Figure 11: Change in employment by industry, May and August 2020 quarters



Source: ABS, Labour Force, Australia, Detailed, August 2020, National Skills Commission seasonally adjusted data

1.5 The Internet Vacancy Index

The NSC's monthly Internet Vacancy Index (IVI) is the only data source that provides a consistent monthly time series of online job advertisements at detailed levels of occupations and regions in Australia. The IVI is based on a count of online job advertisements newly lodged on SEEK, CareerOne and Australian JobSearch during the month. The IVI does not reflect the total number of job advertisements in the labour market as it does not include jobs advertised through other online job boards, employer websites, or in newspapers. Nor does it take account of vacancies filled using informal methods such as word of mouth.

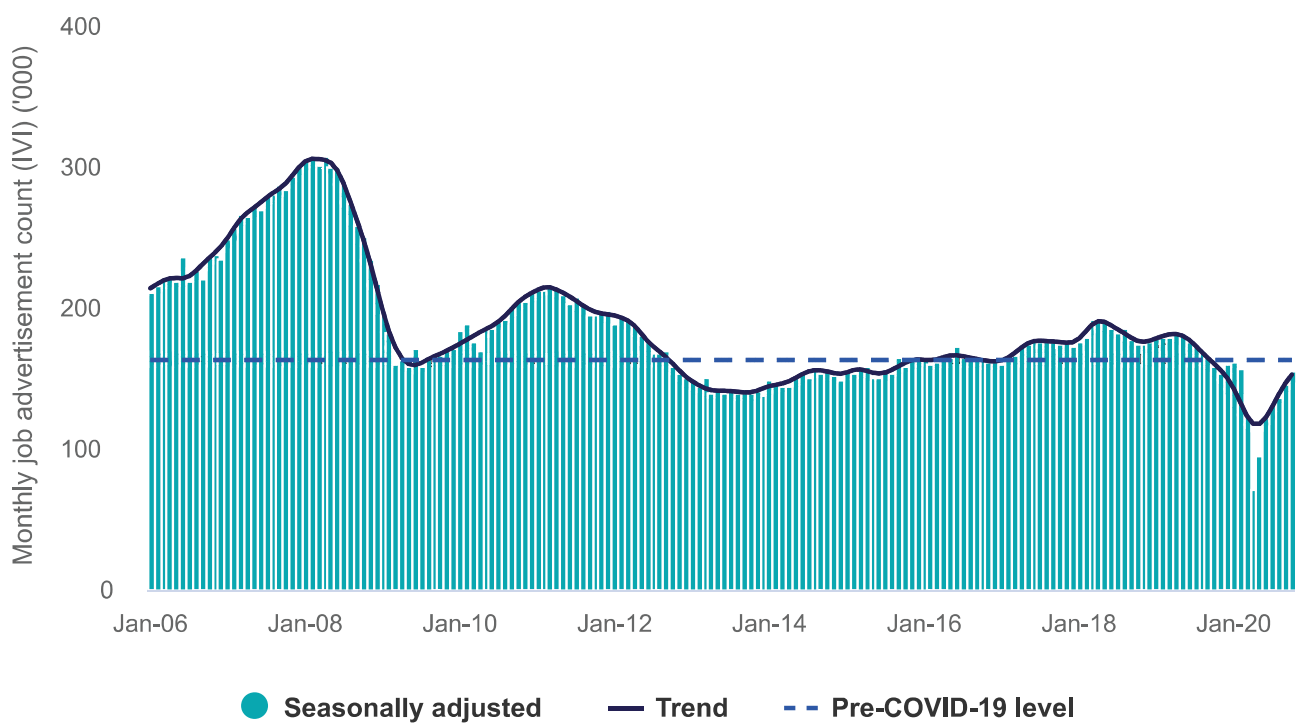
Key trends

Nationally, online recruitment activity fell sharply in early 2020, as a result of rising COVID-19 cases and the subsequent shutdown of non-essential services and the imposition of trading restrictions. The IVI reached a series low point of newly advertised jobs in April, declining by 56.0% (or 91,100 job advertisements) in the 2 months from its pre-pandemic level².

Since then, there has been steady recovery in recruitment activity. The number of newly advertised jobs has now increased for 6 consecutive months and has more than doubled from the April series low point (up by 83,300 job advertisements). In October (the latest available data at the time of writing), job advertisements increased by 6.2% (or 9,100 job advertisements).

The level of job advertisements now stands at 95.2% of pre-pandemic levels (down by 7,800 job advertisements). Over the year to October, recruitment activity has only fallen by 2.3% (or 3,600 job advertisements).

Figure 12: Internet Vacancy Index, January 2006 to October 2020



Source: NSC, Internet Vacancy Index

² Pre-pandemic levels are defined as unrevised February 2020 trend job advertisements levels (that is, the February 2020 trend job advertisement level as published in the February 2020 release of the IVI).

State and territory job advertisement differences

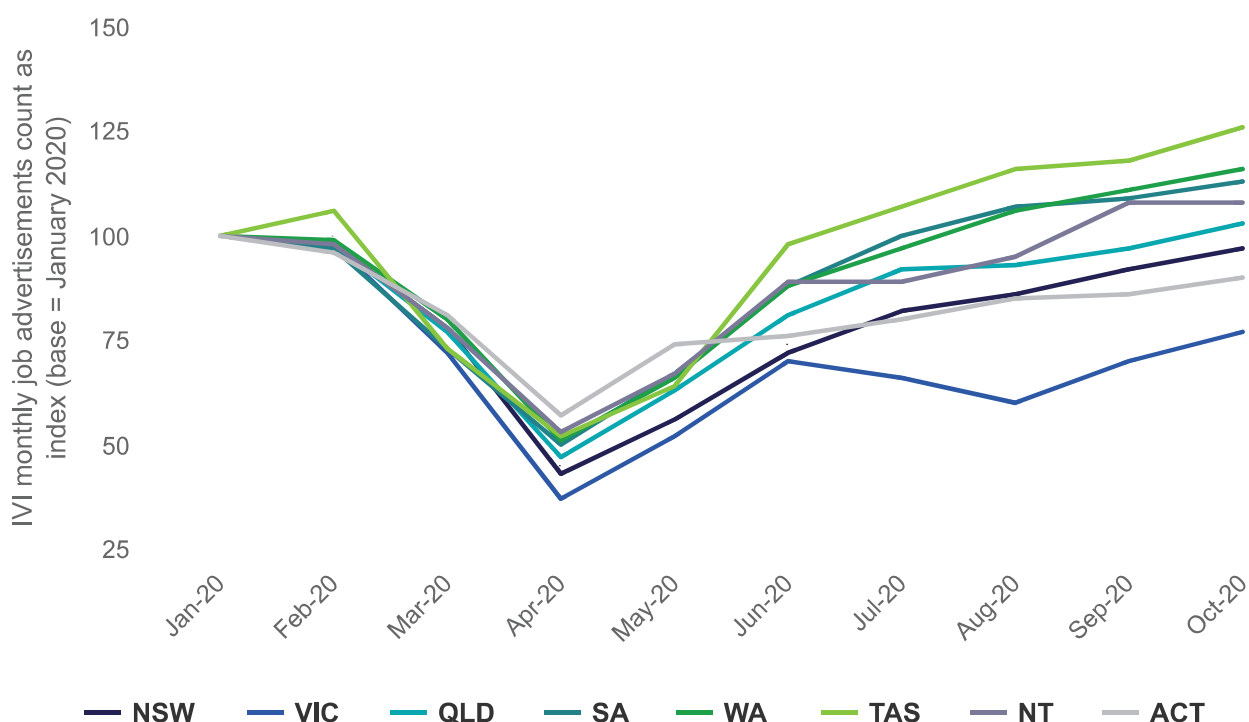
Since the onset of the pandemic, there have been some notable differences in recruitment activity at the state/territory level. This is mainly due to the significant variation in COVID-19 case numbers in each jurisdiction and the subsequent restrictions to limit the spread of cases.

After an initial period of recovery, consistent with the other states/territories, Victoria's second wave of COVID-19 and subsequent economic restrictions saw job advertisements again decline between June and August. However, recruitment activity proved more resilient during Victoria's second shutdown, declining to a low point of 25,700 job advertisements in August, compared with the low of 15,700 job advertisements in April. Further, in line with other jurisdictions, the lifting of COVID-19 restrictions has seen recruitment activity in Victoria begin to recover, with October representing the second consecutive month of increasing job advertisements in the state.

While the pace of recovery differs between jurisdictions, all are now on the path to fully recovering to pre-COVID-19 levels. Recruitment activity during October increased across all states and the Australian Capital Territory, and remained steady in the Northern Territory. Victoria had the strongest increase (up by 10.2% or 3,100 job advertisements), followed by Tasmania (up by 7.5% or 130 job advertisements), Queensland (up by 6.5% or 1,900 job advertisements), the Australian Capital Territory (up by 5.2% or 260 job advertisements) and New South Wales (up by 5.1% or 2,500 job advertisements).

Importantly, job advertisements in October exceeded pre-pandemic levels in Tasmania, Western Australia, South Australia, Queensland and the Northern Territory, although this level of labour demand will need to remain elevated for some time to see employment return to its pre-COVID-19 level.

Figure 13: Recruitment activity by state/territory, January to October 2020



Source: NSC, Internet Vacancy Index, seasonally adjusted data.

Regional and capital city job advertisement trends

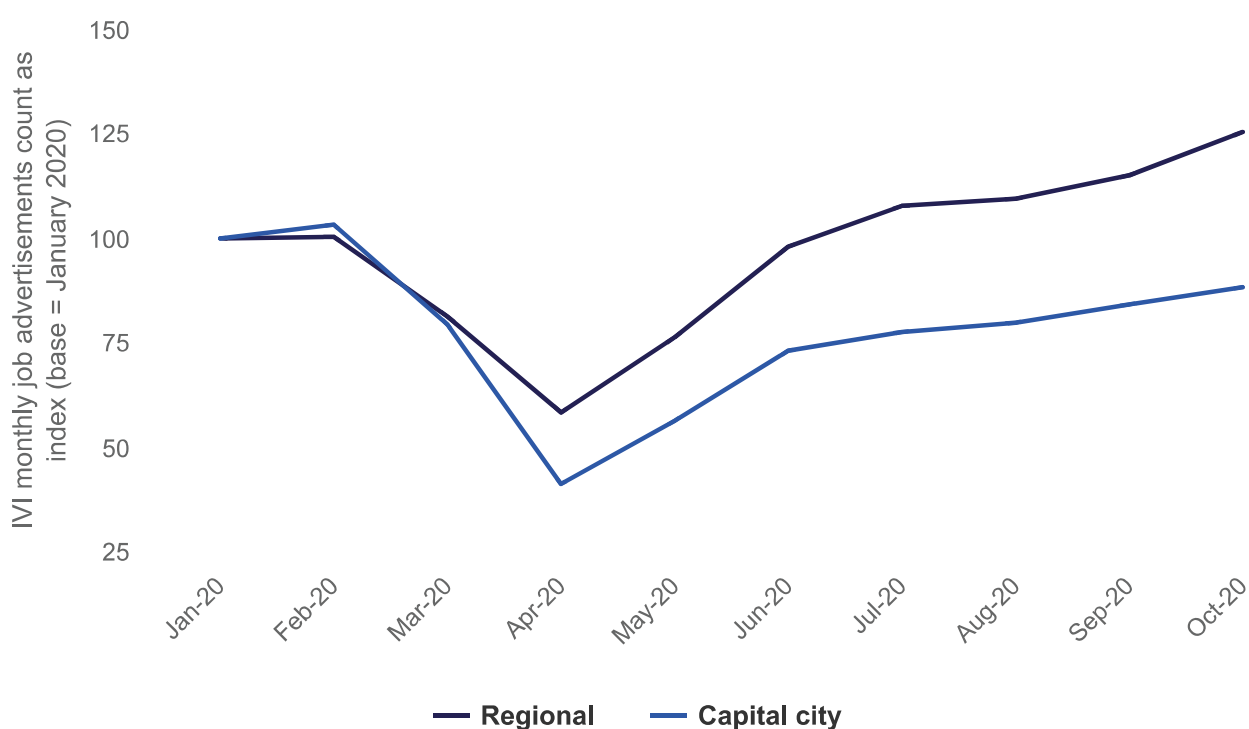
Pronounced differences have also been apparent at the regional level.

For instance, in 3-month average of original data terms, 5 of the 8 capital city regions recorded declines in recruitment activity over the year to October.

Overall, capital city regions recorded an average fall in job advertisements of 20.0% (or 27,800 job advertisements) over the year to October. By comparison, job advertisements in regional areas increased by an average of 17.6% (job advertisements) over the same period.

Despite these falls, recruitment activity is recovering in capital city regions. Overall, capital city regions have experienced continuous month-on-month growth in job advertisements since June, with job advertisements increasing 74.6% from the series low point.

Figure 14: Recruitment activity by capital city/regional areas, January to October 2020



Source: NSC, Internet Vacancy Index, seasonally adjusted data, October 2020.

1.6 Outlook

Labour market data were stronger than expected in October and the easing of restrictions has lifted spirits, as well as consumer and business confidence. Recent positive news around the apparent effectiveness of COVID-19 vaccines has also boosted confidence, although production and distribution challenges, as well as the ultimate uptake rate of the vaccines, may pose some downside risk to the outlook.

Nevertheless, there is considerable stimulus in the system, as well as incentives for firms to employ and invest. That said, considerable uncertainty continues to surround the labour market outlook. The 2020-21 Budget forecast the unemployment rate to peak at 8.0% in the December quarter 2020, before declining to 7.25% in the June quarter 2021 and to 6.5% in the June quarter 2022.

A legacy of this pandemic, however, may be an extended period of unemployment (and indeed long-term unemployment) beyond this horizon that is substantially higher than pre-COVID-19 levels.

Part 2

Resilient occupations

2.1 Impact of COVID-19 on occupations

Insights into future job opportunities can support education policy, career decisions by job seekers and students, course offerings by education providers and broader policy and program design. These insights are vital to supporting Australia's economic recovery from the impacts of COVID-19.

While forecasting is difficult when underlying conditions are highly volatile, the need for data and insights about the performance of occupations in the labour market is often greatest during such periods of volatility (such as the current situation).

As noted in the Australian Government's 2020–21 Budget (6 October 2020), '...the economic outlook has been significantly affected by the COVID-19 pandemic. The pandemic is still evolving and the outlook remains highly uncertain. The range of possible outcomes for gross domestic product and unemployment in particular is substantially wider than normal.'

To support policy responses such as the Australian Government's JobTrainer initiative and broader labour market analysis, the NSC has developed an occupational resilience framework.

The framework ranks the relative employment growth prospects of 358 occupations. It is based on available evidence about labour market dynamics and the ongoing experiences of different occupations through the pandemic. It applies 3 main components – pre-pandemic employment growth expectations, the COVID-19 employment shock, and the COVID-19 recovery so far – to study different occupational effects at the 4-digit level³ of the Australian and New Zealand Standard Classification of Occupations (ANZSCO).



Insights into future job opportunities can support education policy, career decisions by job seekers and students, course offerings by education providers and broader policy and program design.

3 There are 358 occupations at this level of detail in the classification.

The 3 components studied for the occupational resilience framework are:



Pre-pandemic employment growth expectations

This measure captures the extent to which employment in an occupation was expected to grow over the 5 years to May 2024, based on employment projections⁴ developed prior to COVID-19. Occupations with the highest projected employment growth rate are ranked highest (closest to 1), while occupations with the lowest projected employment growth rate are ranked lowest (closest to 358).



The COVID-19 employment shock

This measure captures the extent to which employment in an occupation has been resilient to the impacts of the pandemic and associated policy responses by assessing the negative impact on employment and labour demand since February 2020. It separately ranks occupations from 1 to 358 according to the change in:

- employment between February and the lowest subsequent point observed in the detailed quarterly *ABS Labour Force Survey* data
- hours worked between February and the lowest subsequent point observed in the detailed quarterly *ABS Labour Force Survey* data
- online job advertisements between February and the lowest point in the vacancy series between February and August 2020, as observed by the NSC's IVI.

Occupations that experienced increases or small declines in employment, hours worked and job advertisements are ranked highest (closest to 1), while occupations that experienced the largest declines in employment, hours worked and job advertisements are ranked lowest (closest to 358).⁵



The COVID-19 recovery so far

This measure captures the extent to which employment in an occupation has recovered from, or held its own against, the initial impact of COVID-19. It ranks occupations from 1 to 358 according to the overall change in vacancies between February and August 2020, as measured by the NSC's IVI. Occupations with the highest rate of growth, or lowest rate of decline, in job advertisements are ranked highest (closest to 1), while occupations with the highest rate of decline in job advertisements are ranked lowest (closest to 358). When sufficient data are available, this will be supplemented with an employment change indicator, measuring the change since February 2020 .

These 3 components are then summarised into a single ranking of occupations according to their occupational resilience, or relative employment growth prospects.

Each occupation is ranked by each of the 3 components and assigned a score based on that ranking. The top 20% of occupations are assigned the highest score of 5, while the bottom 20% of occupations are assigned the lowest score of 1.

The overall combined occupation resilience score is an aggregate of the scores for each of the 3 components, and ranges from a lowest score of 3, to the highest score of 15.

⁴ Data are available on the Labour Market Information Portal website: lmip.gov.au/default.aspx?LMIP/GainInsights/EmploymentProjections.

⁵ Data released by the ABS on 24 September 2020 as part of the detailed quarterly *Labour Force Survey* estimates provide only two 'COVID-19' data points. The quarterly ABS data are quite volatile making it difficult to identify 'recovery' at the detailed occupation level.

The JobTrainer Fund and resilient occupations

The JobTrainer Fund will provide up to 340,000 additional training places that are free or low fee, in areas of identified skills need for job seekers and young people.

The NSC has used the resilient occupation framework as the starting point for discussions with the state and territory governments on training courses that could be subsidised under the JobTrainer Fund.

State and territory governments supplemented the NSC's analysis with their own intelligence on local labour market needs and skills requirements.

Information on courses subsidised by each state and territory under the JobTrainer Fund will be published at myskills.gov.au.

Characteristics of the most resilient occupations

The 110 (approximately the top one-third) most resilient occupations as a group are notably different to the remaining occupations, especially in several key characteristics. For example:

- Young people are proportionally less represented in the resilient occupations. The resilient occupations represent 25.4% of youth employment, compared with 33.9% of employment for all ages, again reflecting the greater impact COVID-19 has had on young workers⁶.
- A total of 41.3% of the science, technology, engineering and mathematics (STEM) occupations ⁷are on the resilient occupations list, compared with 30.7% of occupations overall, indicating the importance of these skills to the economy.

Further, skill levels 1 and 4 account for above average shares of resilient occupations and of employment in these occupations, while skill level 3, with close to an average share, has a greater representation than either skill level 2 or 5⁸.

- Skill Level 1 is commensurate with a Bachelor degree or higher qualification.
- Skill Level 2 is commensurate with an Advanced Diploma or Diploma.
- Skill Level 3 is commensurate with a Certificate IV or III (including at least 2 years on-the-job training).
- Skill Level 4 is commensurate with a Certificate II or III.
- Skill Level 5 is commensurate with a Certificate I or secondary education.

These observations reinforce the importance of education beyond school to secure employment and move between jobs.

⁶ Source: ABS, Labour Force, Australia, Detailed, Quarterly, Cat. No. 6291.0.55.003, custom request, 4-quarter average of 2019.

⁷ As classified by the NSC. For more information, the full list can be downloaded from the Labour Market Information Portal: lmi.gov.au/default.aspx?LMIP/GainInsights/SpecialTopicReports.

⁸ Source: ABS, Labour Force, Australia, Detailed, Quarterly, Cat. No. 6291.0.55.003, NSC seasonally adjusted.

Figure 15: Share of resilient occupations by skill level (%)



Source: NSC occupational resilience framework.

Resilient occupations are more likely to be found in the following broad occupational groups:

- Professionals (examples of resilient occupations in this group include Speech Professionals, Audiologists, Other Medical Practitioners and Midwives).
- Community and Personal Service Workers, such as Aged and Disabled Carers and Security Officers and Guards.
- Machinery Operators and Drivers, such as Agricultural, Forestry and Horticultural Plant Operators and Delivery Drivers.

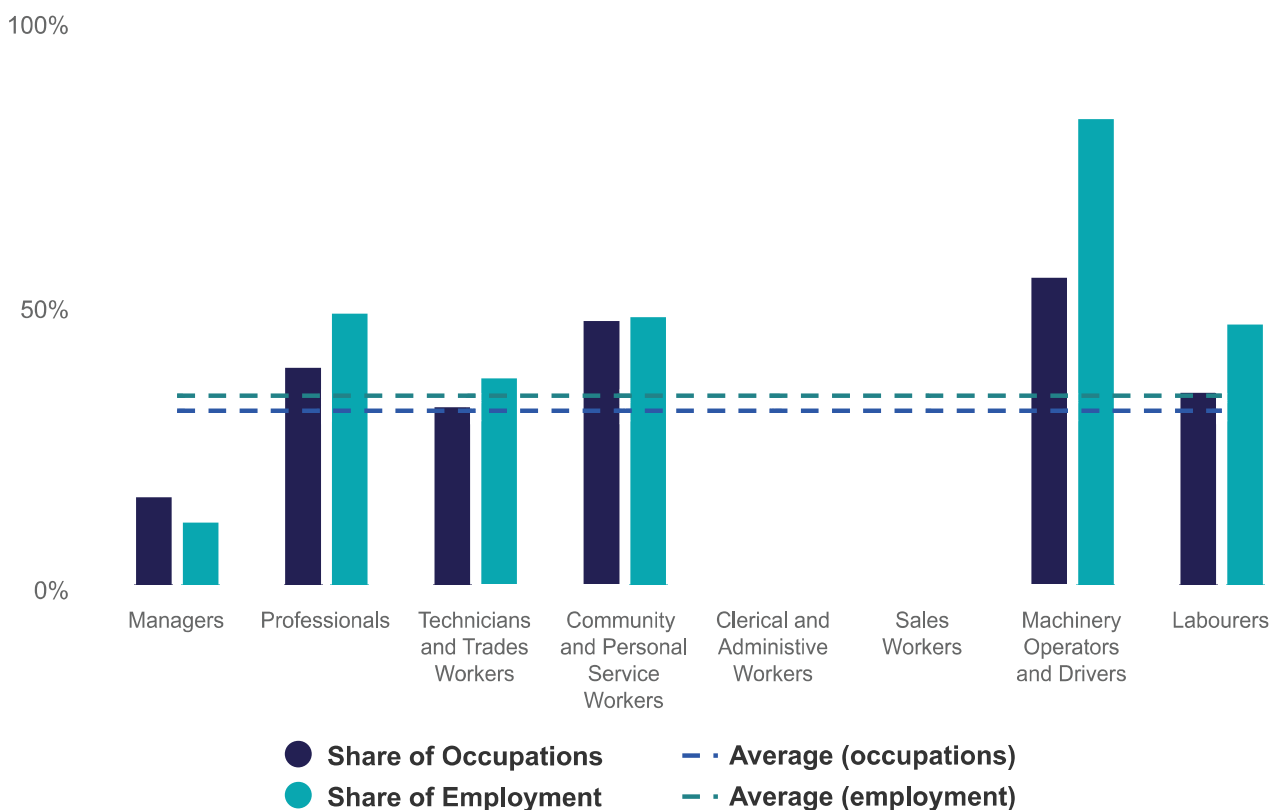
In contrast, no occupations from either the Sales Workers or Clerical and Administrative Workers broad occupation groups met the definition of resilient occupations (that is, with a score of 11 or more on the occupational resilience framework). This is due to the relatively low projected employment growth pre-COVID-19 for occupations in these groups (4.0% and 1.4% respectively over the 5 years to May 2024) and the slower recovery in related online job advertisements.

- Online job advertisements for Clerical and Administrative Workers and Sales Workers were 30.2% and 20.6% lower respectively, compared with an 18.1% drop across all occupations.

Managers are less likely to be found in the resilient occupations. This is because they had below average growth expectations pre-COVID-19 (6.2% compared with the national average of 8.3%) and recorded the largest drop in related online job advertisements, with August online job advertisements for Managers 31.8% below the February level.

It should be noted that occupational resilience is an analysis framework that provides an indication of the relative employment strength of occupations. Jobs growth is not confined to occupations ranked as most resilient and, as the economy continues to recover, more and more occupations are likely to see solid and sustained increases in employment.

Figure 16: Share of resilient occupations by broad occupation group (%)



Source: NSC occupational resilience framework.

The original group of resilient occupations, by definition, exhibited better employment outcomes and dynamics on average, compared with the average of all occupations. However, there is a significant difference across a broad range of labour market indicators between resilient occupations and other occupations.

Between February and August, total employment fell by 438,000 or 3.4%⁹. However, the resilient occupations recorded growth, or smaller reductions, in employment, with 60.0% of resilient occupations recording employment growth over this period (compared with 45.3% on average).

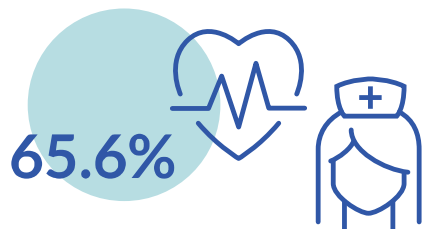
A total of 53.6% of resilient occupations experienced increased hours worked over the 6 months, compared with only 35.9% for other occupations. In addition, a total of 73.6% of resilient occupations recorded higher levels of online job advertisements in August than in February, compared with only 20.6% for other occupations.¹⁰

⁹ Source: ABS, Labour Force, Australia, Detailed, Quarterly, Cat. No. 6291.0.55.003, National Skills Commission seasonally adjusted August 2020 compared against February 2020 trend data taken from the February 2020 release of the ABS Labour Force data.

¹⁰ Source: NSC, IVI, August 2020 seasonally adjusted. Pre-COVID-19 comparison is made against February 2020 trend data taken from the February 2020 Vacancy Report publication.

Industries with resilient occupations

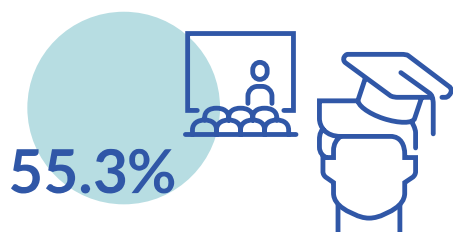
By using ABS *Labour Force Survey* data to explore the distribution of occupations within industries, we can understand the resilience of industry employment to COVID-19 impacts. Six industries have an above average share (33.9%) of employment in resilient occupations. They are:



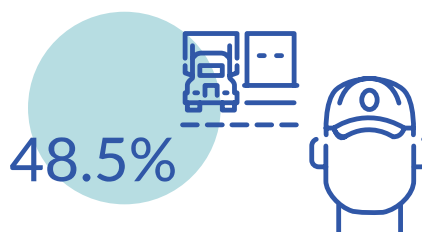
65.6% in the Health Care and Social Assistance industry,



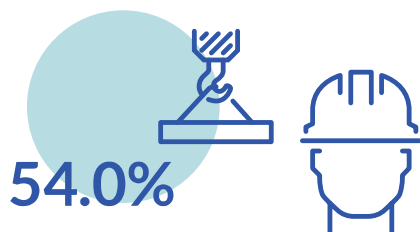
50.5% in Mining,



55.3% in Education and Training,



48.5% in Transport, Postal and Warehousing,



54.0% in Construction,



37.5% in Administrative and Support Services.

This employment snapshot highlights that resilient occupations are concentrated in certain industries. More than half of employment in resilient occupations is accounted for by just 3 industries:

1. Health Care and Social Assistance (26.6%)
2. Construction (14.5%)
3. Education and Training (13.0%).

2.2 Top 20 resilient occupations

Table 3: Top 20 resilient occupations by overall score

ANZSCO code	ANZSCO title	Skill level	Total employed at August 2020 ('000)	Overall score
2539	Other Medical Practitioners	1	17.8	15
2527	Speech Professionals and Audiologists	1	12.2	15
2541	Midwives	1	24.8	15
4231	Aged and Disabled Carers	4	220.9	15
2726	Welfare, Recreation and Community Arts Workers	1	33.8	14
7211	Agricultural, Forestry and Horticultural Plant Operators	4	13.6	14
7321	Delivery Drivers	4	68.3	14
2534	Psychiatrists	1	4.0	14
1342	Health and Welfare Services Managers	1	29.5	14
2721	Counsellors	1	35.2	14
4422	Security Officers and Guards	4	60.4	14
2524	Occupational Therapists	1	24.3	14
2544	Registered Nurses	1	297.1	14
2346	Medical Laboratory Scientists	1	18.2	13
2414	Secondary School Teachers	1	140.7	13
2519	Other Health Diagnostic and Promotion Professionals	1	6.9	13
2531	Generalist Medical Practitioners	1	67.0	13
2543	Nurse Managers	1	33.9	13
3611	Animal Attendants and Trainers	4	21.3	13
4111	Ambulance Officers and Paramedics	2	16.4	13

Source: NSC occupational resilience framework.

New insights on resilient occupations will be available on the NSC's Labour Market Information Portal website at: lmip.gov.au.

2.3 Rebounding occupations

Of the 358 occupations, around one-third (122, or 34.1%) recorded an increase in employment in the August quarter after experiencing a decline in employment in the May quarter. If we consider these occupations to be 'rebounding' from the initial impacts of COVID-19 on the labour market, most of these rebounding occupations (69, or 56.6%) still recorded a decline in employment over the 6 months to August 2020, despite employment growth in the August quarter. This highlights the conceptual difference between the occupational resilience framework and a simpler analysis of quarterly changes to employment data, which in isolation can be volatile.

Not surprisingly, occupations that were directly impacted by trading restrictions and social distancing measures were among those recording a particularly strong 'rebound'. For instance, of all 358 occupations, the 4 that recorded the largest falls in employment in the May quarter 2020 (Waiters, Sales Assistants (General), Bar Attendants and Baristas, and Kitchenhands) were also the 4 occupations that recorded the largest increase in employment in the August quarter 2020. Other rebounding occupations that exhibited large movements in employment over both quarters can be seen in Table 4 below.

Table 4: Top 10 rebounding occupations, ranked by the sum of the absolute change in employment over each quarter

Occupation	Employment August 2020 ('000)	Change in employment over the quarter to August 2020		Change in employment over the quarter to May 2020		Change in employment from February to August 2020	
		('000)	(%)	('000)	(%)	('000)	(%)
Waiters	93.5	56.6	153.8	-104.9	-74.0	-48.2	-34.0
Sales Assistants (General)	472.0	28.8	6.5	-67.9	-13.3	-39.1	-7.7
Bar Attendants and Baristas	92.4	36.4	65.1	-49.4	-46.9	-13.0	-12.3
Kitchenhands	122.4	21.3	21.0	-34.6	-25.5	-13.3	-9.8
Automobile Drivers	48.2	19.7	69.4	-26.0	-47.8	-6.3	-11.6
Retail Managers	230.7	19.9	9.5	-25.8	-10.9	-5.9	-2.5
Chefs	82.1	6.3	8.3	-32.0	-29.7	-25.7	-23.8
Child Carers	125.1	13.2	11.8	-19.4	-14.8	-6.2	-4.7
Sports Coaches, Instructors and Officials	29.5	9.6	48.6	-21.3	-51.8	-11.7	-28.4
Beauty Therapists	32.1	8.6	36.6	-17.0	-42.0	-8.4	-20.7

Source: NSC occupational resilience framework.

The resilient occupations framework helps with our understanding of employment dynamics in a highly volatile labour market. As the partial recovery in the economy continues – albeit uneven – across those occupations most impacted by COVID-19 to May 2020, the extent of structural change around the provision of essential services evident in the early months of the pandemic is likely to diminish, with some occupations that saw large initial declines in employment likely to still offer good employment prospects over the coming years. The resilient occupations framework complements other forward-looking approaches focused on the recovery path the labour market is taking, such as computable general equilibrium modelling discussed later in this report, and will evolve over time as more data become available.

2.4 Case study

Health care and social assistance experiences consistent demand

Throughout the COVID-19 pandemic, demand has been relatively consistent for the essential services provided by the Health Care and Social Assistance industry. Hospitals have experienced a short-term increase in employment. This offsets some decline in areas such as Allied Health Services that were restricted by physical distancing requirements.

Labour force

Employment in the Health Care and Social Assistance industry decreased by 28,600 (or 1.6%) over the 6 months to August. The industry had the second lowest rate of decline of the 12 industries that fell over the period. More recently, employment increased by 36,800 (or 2.1%) over the quarter to August.

Employment in the Other Social Assistance Services sector decreased by 34,700 (or 10.0%), followed by Child Care Services (down by 12,200 or 8.3%) and Residential Care Services (down by 5,000 or 1.9%) between February and August.

The only sector in the industry to see employment fall over both quarters in this period was the Other Social Assistance Services sector.

Employment in the Medical Services sector increased by 12,900 (or 7.1%), followed by Other Health Care Services (up by 5,900 or 20.3%) and Pathology and Diagnostic Imaging Services (up by 4,100 or 8.4%) over the 6 months to August 2020.

Payroll information

According to Australian Taxation Office Single Touch Payroll data, the Health Care and Social Assistance industry was one of only 4 industries to see an increase in employee jobs between March and October.

Employee jobs in this industry increased by 0.3% between 14 March and 17 October. This growth was well above average for all industries over the period (down by 4.4%).

The Hospitals sub-division recorded the largest increase in employee jobs in the industry between 14 March and 17 October (up by 2.5%), followed by Social Assistance Services (up by 2.1%).

Declines were recorded in the Medical and Other Health Care Services (down by 3.4%) and Residential Care Services (down by 1.6%) sub-divisions.

Internet Vacancy Index (IVI)

Of the 51 occupations that primarily operate within the Health Care and Social Assistance industry, job advertisements in 37 (or 72.5%) have now reached their pre-pandemic levels¹¹. This is compared with 53.4% across all occupations.

The Health Care and Social Assistance occupations that have had job advertisements recover most strongly above their pre-pandemic levels include Indigenous Health Workers (210.9%), Nurse Educators and Researchers (181.6%), Other Medical Practitioners (178.6%) and Anaesthetists (168.6%).

11 Pre-pandemic levels are job advertisements for February 2020 in trend terms, as published the February 2020 release of the IVI.

Figure 17: Health Care and Social Assistance occupations exceeding pre-COVID-19 levels of job advertisements (% of pre-pandemic level)



Source: NSC, Internet Vacancy Index, seasonally adjusted data, October 2020

Occupation resilience

Looking ahead, the Health Care and Social Assistance industry is expected to continue to provide a significant share of new jobs. As well as being a vital part of the community response to, and of management of the pandemic, demographic changes underpin long-term growth for services offered by the industry. These changes will continue to provide future employment opportunities in the industry.

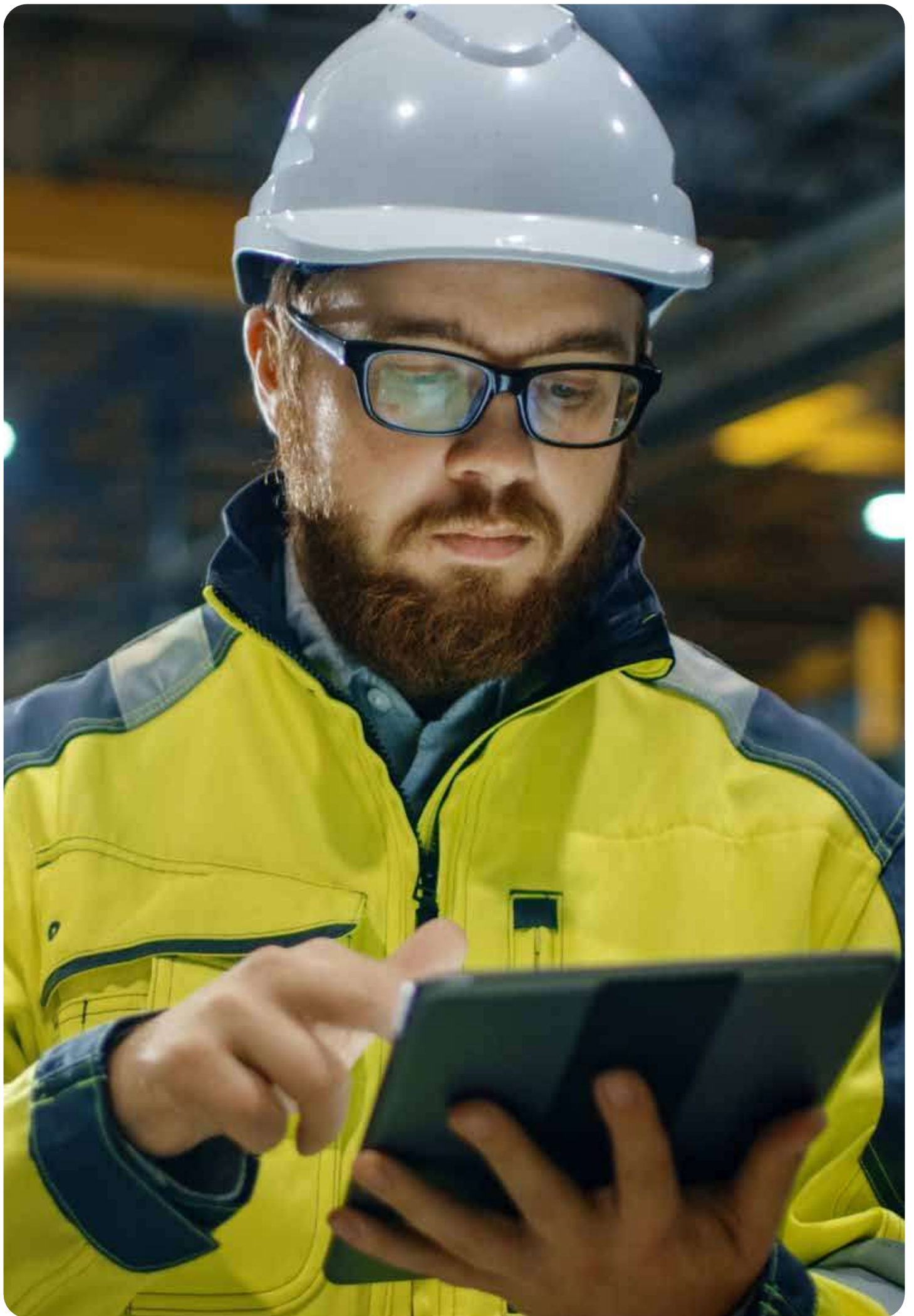
The Health Care and Social Assistance industry was the largest employing industry for 34 of the 110 occupations identified as resilient.

More than a quarter (26.2%) of resilient occupation employment is in the Health Care and Social Assistance industry. This industry has the largest concentration of resilient occupation employment, with 65.4% of employment in the industry considered to be resilient. By comparison, around one-third (33.4%) of employment across all industries was in occupations considered resilient.

The Health Care and Social Assistance industry provides opportunities for both high and low skilled careers. The industry employs 40.9% of higher skilled resilient occupation employment (Diploma or higher education level) and 23.7% of occupations requiring skills commensurate to a Certificate II/III level.

Table 5: Health Care and Social Assistance industry occupation resilience and employment

Occupation	Occupation Resilience Score	Number employed in the Health Care and Social Assistance industry ('000)	Share of occupation employment in the Health Care and Social Assistance industry
Registered Nurses	14	276.3	94.3
Aged and Disabled Carers	15	181.2	95.0
Nursing Support and Personal Care Workers	12	90.1	95.1
General Practitioners and Resident Medical Officers	13	62.5	97.7
Welfare Support Workers	12	39.6	62.6
Physiotherapists	11	30	94.9
Dental Assistants	11	29.2	97.7
Social Workers	12	28	75.9
Enrolled and Mothercraft Nurses	13	23.2	96.7
Psychologists	12	22.3	73.4
Welfare, Recreation and Community Arts Workers	14	21.4	58.5
Medical Technicians	12	20.4	71.1
Midwives	15	19.9	97.1
Other Medical Practitioners	15	19.5	96.5
Ambulance Officers and Paramedics	13	19.3	96.0
Health and Welfare Services Managers	14	18.9	82.5
Nurse Managers	13	18.4	94.4
Medical Imaging Professionals	12	16.3	96.4
Counsellors	14	15.7	51.1
Occupational Therapists	14	15.7	83.5
Medical Laboratory Scientists	13	13.6	49.3
Audiologists and Speech Pathologists / Therapists	15	8.6	92.5
Surgeons	12	7.3	100.0
Specialist Physicians	12	7	95.9
Podiatrists	11	6.8	100.0
Other Health Diagnostic and Promotion Professionals	13	6.3	63.0
Nurse Educators and Researchers	13	6	65.2
Diversional Therapists	11	5.9	92.2
Other Miscellaneous Technicians and Trades Workers	12	5.6	33.1
Nutrition Professionals	12	5.3	81.5
Dental Hygienists, Technicians and Therapists	11	4.6	63.0
Psychiatrists	14	2.8	100.0
Special Care Workers	12	2.4	60.0
Indigenous Health Workers	11	1.2	80.0



Part 3

Modelling of economic recovery scenarios

3.1 The importance of scenario modelling

As we have seen through the development of the resilient occupations framework, it is important to use analytical approaches that are suitable for making sense of labour market trends in times of rapid change and uncertainty.

Scenario modelling is a forward-looking way of examining labour market trends that can help improve our understanding of possible trajectories for recovery from COVID-19. While economic activity is recovering across Australia, this recovery is proceeding at an uneven pace. In uncertain times, scenario modelling can improve understanding of a range of plausible possibilities that may arise, including comparisons of the impact on labour market outcomes.

Method used to examine the scenarios

The NSC partnered with the Centre of Policy Studies (Victoria University) and AlphaBeta Advisors to conduct the scenario modelling using the Victorian University Employment Forecasting (VUEF) model. The VUEF is a family of models centred on a computable general equilibrium (CGE) model of the Australian economy. The VUEF captures dynamic adjustment to a shock and the flow onto employment, industry, occupation and educational attainment.

Scenarios considered

The NSC developed a central Economic Restoration scenario which is broadly consistent with the macro economic outlook in the 2020–21 Budget. From this scenario, the NSC then examined three variations to determine potential different recovery pathways that could emerge.

Figure 18 outlines the major assumptions for each scenario, which were drawn from combinations of health and economic related factors as the main drivers of uncertainty during COVID-19.

These four scenarios were modelled to identify the impact of COVID-19 across industries and occupations from 2020 to 2025 and the associated skilling implications.

A base case scenario, representing a set of assumptions on long-term trends that may have been expected to continue if COVID-19 had not occurred, is used as a comparative benchmark.

Analysing the modelling results

The NSC analysis draws on the modelling results in 4 ways:

1. Net difference or the impact on employment *over time* relative to the pre COVID-19 level.
2. No COVID-19 base or the impacts on employment *at a point in time* compared with what might have happened if COVID-19 had not occurred.
3. Comparative differences between scenarios as a basis for identifying compositional impacts such as by industry, occupation, age, gender and skill level.
4. Time impacts analysis considers different periods from Q1 2020 to Q1 2025, with 1–2 years considered to be short term and 3–5 years considered to be medium term.

Figure 18: Overview of scenarios based on health and economic-related drivers

Scenario		Health impacts	Economic impacts
Variations to the central Economic Restoration scenario	 Economic Restoration	Virus is contained and international borders start to re-open from 2021	With social distancing measures wound back and borders re-opening, domestic and international activity resume, similar to pre-COVID-19 levels and patterns
	 Fortress Australia	Virus is suppressed domestically not suppressed globally with international borders closed until 2022	With international borders closed, declines in tourism and international education are partly offset by increased local manufacturing and a smaller labour force due to lower net overseas migration
	 Impeded Recovery	Virus is contained and international borders start to re-open from 2021	Pandemic dampens household consumption and business investment, impeding the recovery.
	 Accelerated Digitisation	Virus is contained and international borders start to re-open from 2021	Increased rates of working from home and the adoption of digital technologies and processes leads to positive spill-overs

Source: NSC.

Further details on the assumptions and inputs to the 4 scenarios are provided in [Appendix A](#).

3.2 Key findings from the central Economic Restoration scenario

The Economic Restoration scenario outlines a pathway of recovery for Australia

The Economic Restoration scenario is the central scenario examined by the NSC. This scenario is broadly consistent with the macro economic outlook in the 2020–21 Budget and forms the baseline from which all other scenarios are examined.

The Economic Restoration scenario assumes the virus is largely suppressed domestically by 2021 and that it is contained globally by 2022 due to the development of a vaccine or effective quarantine and treatments. This allows borders to re-open and triggers a recovery in travel, migration and global imports and exports. With social distancing measures wound back and borders re-opening, domestic and international activity resumes, similar to pre-COVID-19 levels and patterns.

While the Economic Restoration scenario provides a clear recovery pathway, the shock of COVID-19 is felt across the economy. The level of total employment also remains below where it otherwise would have been if COVID-19 had not occurred – even with the unemployment rate having returned to pre-COVID-19 levels – primarily due to border closures, causing migration and thus population growth to be lower than previously expected.

Importantly, the baseline that underpins the Economic Restoration scenario assumes that long-term trend changes in the structure of the economy continue to play out in the years ahead. This includes the shift towards services, particularly with employment in the Health Care and Social Assistance sector projected to increase strongly with the ageing of the population, as well as the response to the COVID-19 pandemic. The shift towards higher skilled jobs that has occurred in recent decades is also expected to continue. These two key trends dominate much of the expected future path for the Australian labour market and are not disrupted over the medium term by the shock of COVID-19.

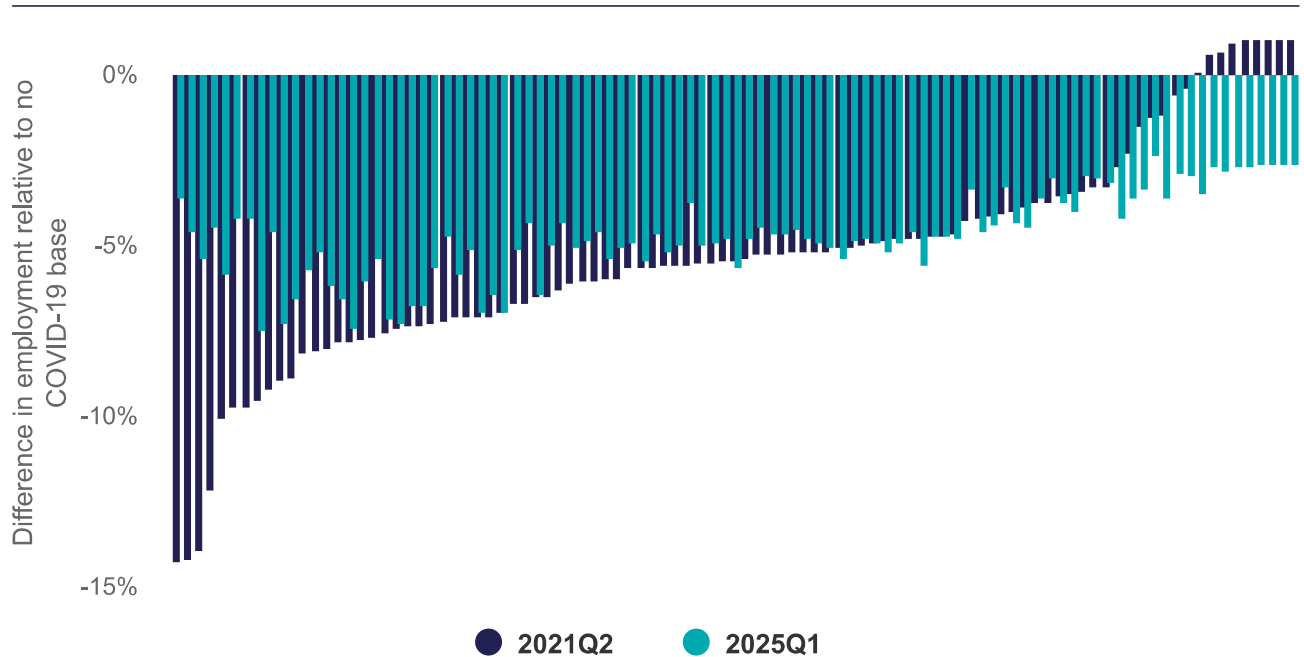
Impacts on occupational employment will flatten out over time

Although the impacts of COVID-19 are stark in the short-term, over time the impacts are likely to be more evenly distributed. This is demonstrated by Figure 19, which shows the change in employment relative to a no-COVID-19 baseline for each occupation examined by the NSC. This figure shows employment growth by occupation in the short term (to 2021Q2, as indicated by the light green bars) and long-term (to 2025Q1, as indicated by the dark blue bars) relative to employment growth in that occupation had COVID-19 not occurred.

This figure shows that although the difference between the worst and best performing occupations is initially large, by 2025 this disparity is less obvious. As expected, the impacts of COVID-19 are initially felt by occupations affected by public health measures including Hospitality, Accommodation and Transport professionals.

As noted above, the level of total employment also remains below where it otherwise would have been if COVID-19 had not occurred – even with the unemployment rate having returned to pre-COVID-19 levels – primarily due to border closures, causing lower migration and population growth and a smaller labour force than previously expected.

Figure 19: Percentage difference in employment by occupation under Economic Restoration scenario compared to no-COVID-19 base, 2021Q2 and 2025Q1



Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors.

Many occupations will recover

While the figure above focuses on comparisons with the no-COVID-19 baseline, it is important to consider the overall net change in employment. While many occupations are severely impacted in the short-term, many of these occupations are expected to have a strong growth trajectory in the longer-term. This means they could see a strong recovery in the coming years.

Figure 20: Percentage (%) change in employment, actual initial impact of COVID-19 and Economic Restoration 2020Q1 to 2025Q1



Source: ABS Labour Force Survey, Oct 2020; NSC Analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta advisers.

Table 6 highlights a number of occupations which have been particularly impacted in the short term but are still expected to have more people employed in 2025 than prior to the onset of COVID-19. For example, although employment for Air Transport Professionals declined by 20.4% between February and May, it is important to remember that this occupation had been growing very strongly prior to COVID-19. As such, under the Economic Restoration scenario this occupation is still expected to grow by 4.8% over the period Q1 2020 to Q1 2025, demonstrating its longer-term resilience even if the near-term outcomes are weaker.

Table 6: Percentage change in employment by selected occupation, actual initial impact compared with projected growth under Economic Restoration scenario for period 2020Q1 to 2025Q1

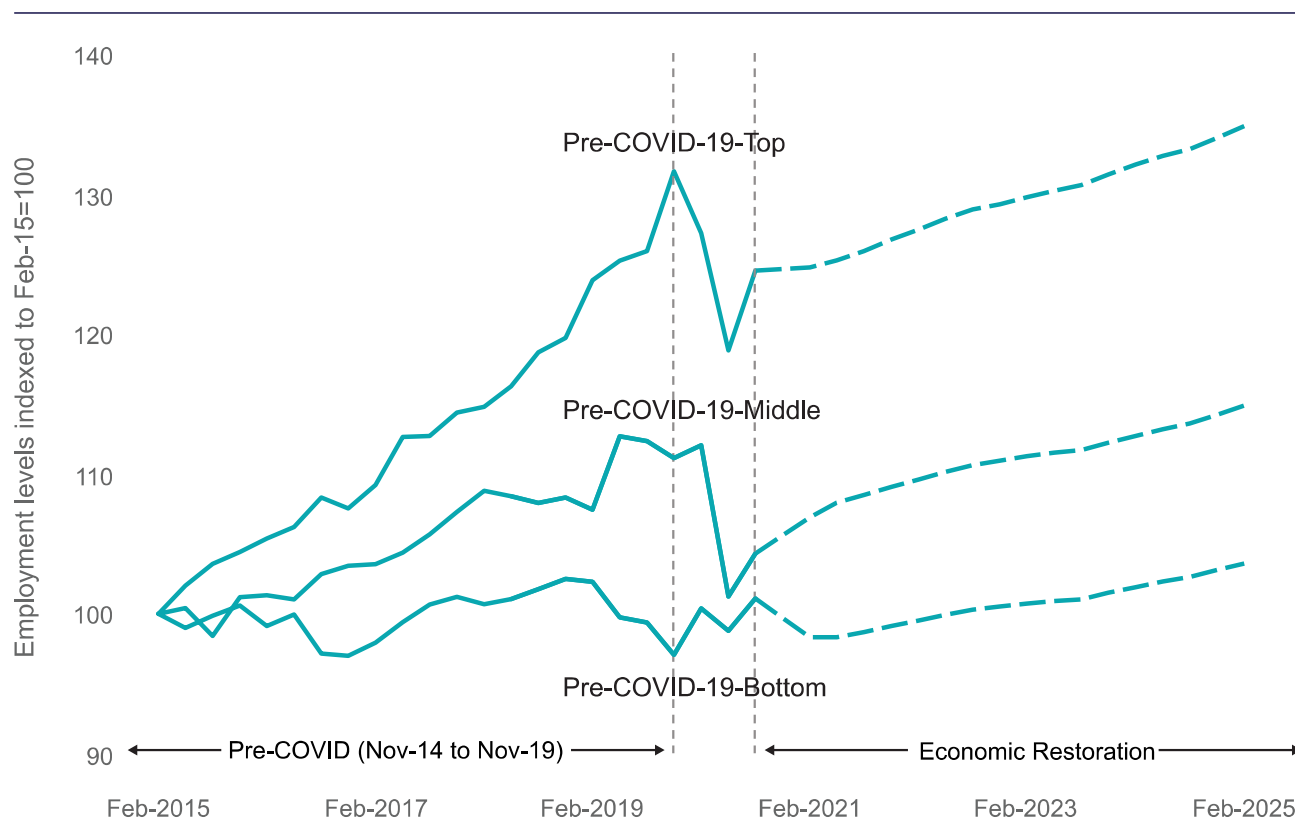
Selected occupation	Change in employment Feb 2020 to May 2020	Total projected employment growth 2020Q1 to 2025Q1 - Economic Restoration Scenario
Air and Marine Transport Professionals	- 20.4 %	+ 4.8 %
Hospitality Workers	- 56.8 %	+ 5.2 %
Accommodation and Hospitality Managers	- 22.8 %	+ 3.2 %

Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors. ABS Labour Force Survey, NSC seasonally adjusted data.

Occupations that were performing well before COVID-19 are expected to grow

Under the Economic Restoration scenario, existing trends in the labour market broadly continue. Figure 21 divides all examined occupations into three groups based on their performance in the five years prior to the onset of pandemic – the top, middle and bottom performing occupations. As demonstrated below, the top third of occupations prior to the onset of COVID-19 are expected to grow the strongest from 2021 to 2025 under the Economic Restoration scenario.

Figure 21: Change in employment by top/middle/bottom occupations pre-COVID-19 (Nov 2014 to Nov 2019) and Economic Restoration Scenario 2021Q2 to 2025Q1

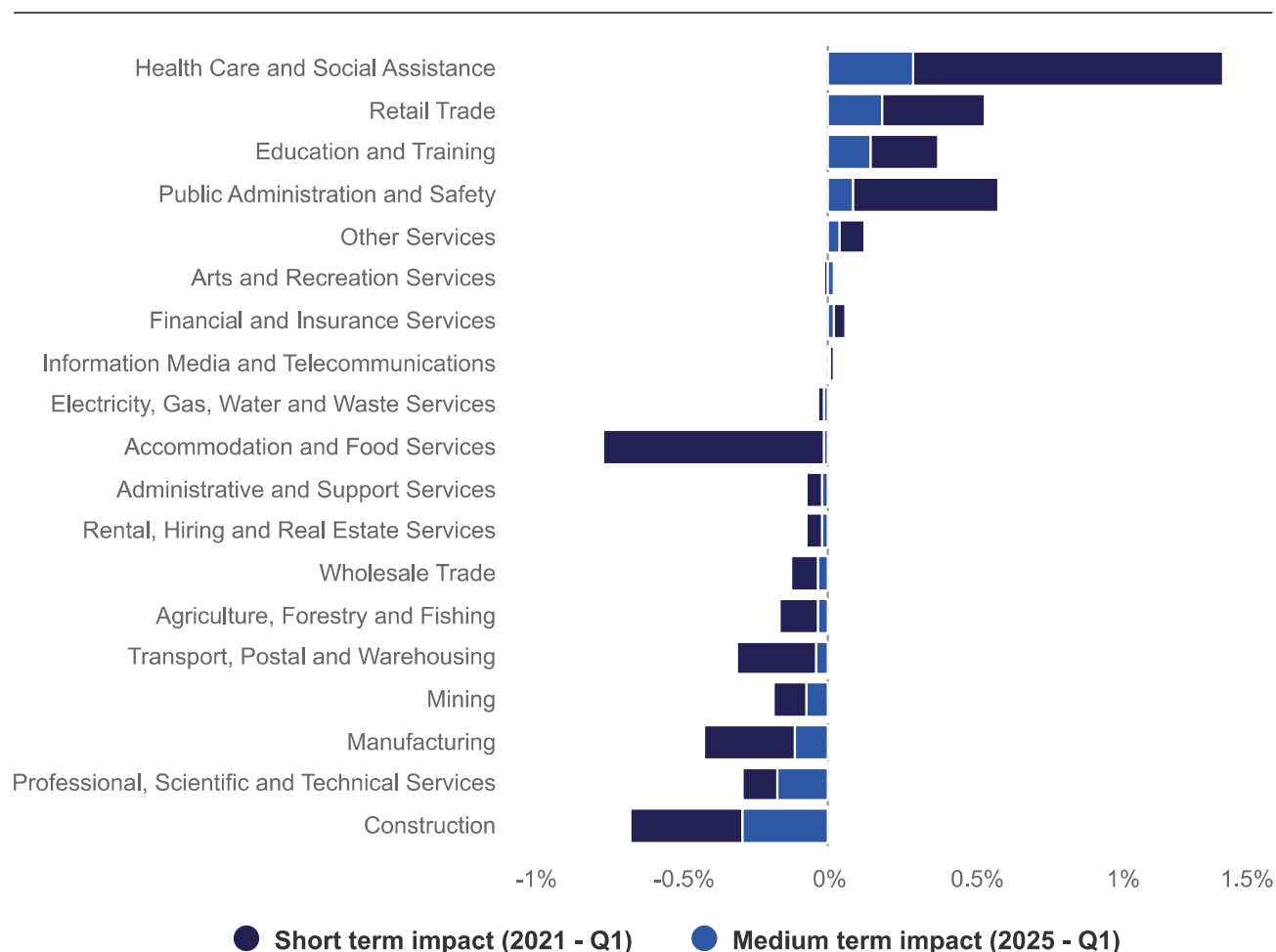


Source: ABS Labour Force Survey, Oct 2020; NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors.

Structure of labour market unlikely to change significantly

Consistent with the impacts at the occupational level, the long-term industry composition of the labour market is not expected to substantially change. Once again, although the impacts of COVID-19 are stark in the short-term, over time the impacts are expected to be more evenly distributed across industries.

Figure 22: Difference between industry employment shares, Economic Restoration Scenario and no-COVID-19 base, 2021Q1 and 2025Q1



Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors.

Health, education and professional services will continue to dominate growth

With the composition of the labour market not expected to significantly change, growth is likely to continue to be led by health, education and professional services related industries.

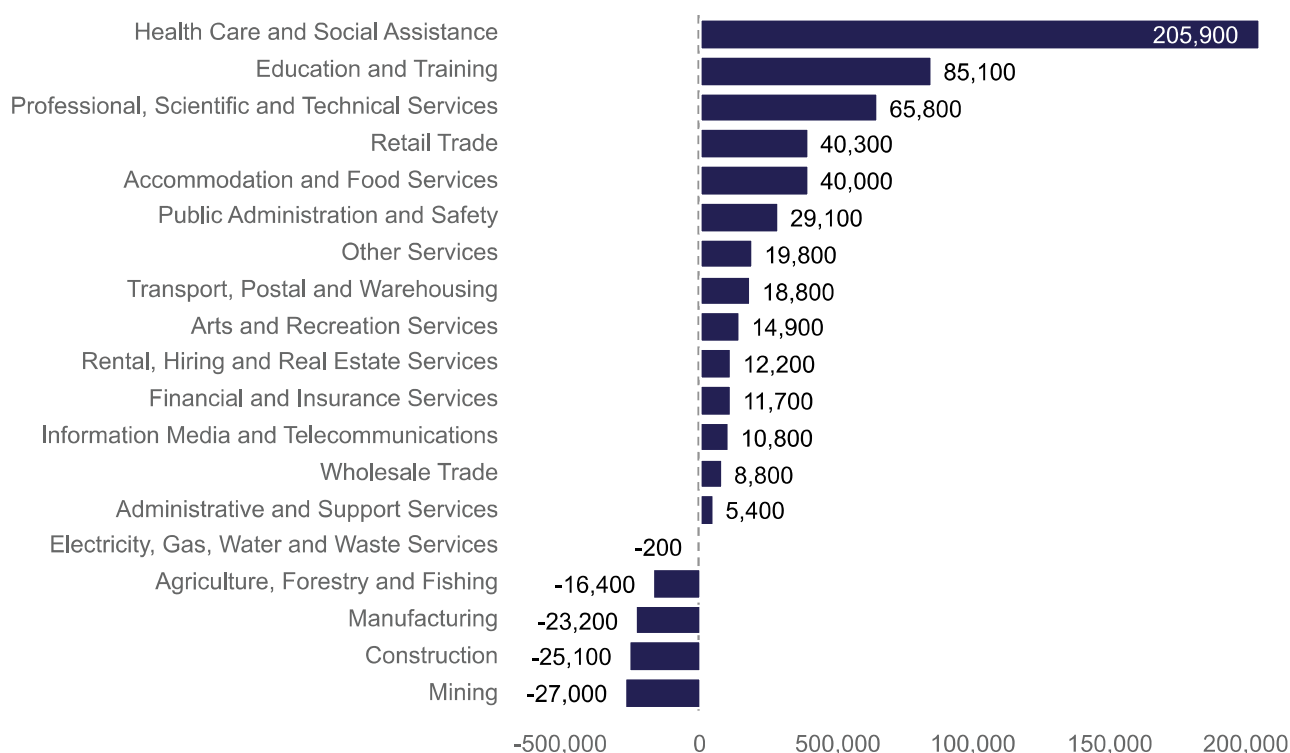
Employment growth is expected to be dominated by Health Care and Social Assistance (up by 205,900 or 11.6%), Education and Training (up by 85,100 or 7.9%) and Professional, Scientific and Technical Services (up by 65,800 or 5.7%) over the 5 years to 2025.

By contrast, employment is expected to be more subdued for Mining (down by 27,000 or 11.2%) and Construction (down by 25,000 or 2.1%, largely driven by lower population growth) as well as Manufacturing (down by 23,200 or 2.5%) and Agriculture, Forestry and Fishing (down by 16,400 or 4.9%).

Of course, this more subdued outlook does not necessarily translate into each occupation within those sectors. As this report has previously noted (see Parts 1 and 2), despite the falls in employment in the Construction industry over the three months to both May and August there are a number of occupations within Construction that rank highly on the resilience framework outlined in Part 2.

Additionally, policy measures could also have a significant impact on individual sectors and see actual outcomes diverge from the modelling results.

Figure 23: Projected industry employment growth from 2020Q1 to 2025Q1 by industry, Economic Restoration scenario



Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors.

As noted above, the modelling sees the Mining sector experiencing the largest decline in employment over the medium-term. This result appears to be at odds with recent labour market data, which indicate the mining sector has been relatively strong despite the disruption to the global economy. This outcome is a function of the underlying assumptions of the modelling. The modelling draws on forecasts from the International Monetary Fund, which project a fall in world economic growth and in turn a dampening impact on export demand. Over time, this weakness can be expected to impact on the mining sector. Further, the relative strength of the Australian economy compared to other countries causes the exchange rate to appreciate in the model, making Australian mining outputs more expensive in foreign currency terms, further reducing demand and employment in the sector. In this context, the projected fall in Mining employment is not unexpected, however further interrogation of data in the coming months will enable us to assess whether this outcome is likely to emerge.

The labour market will continue to shift towards higher skilled jobs

Prior to the onset of COVID-19, the labour market had been continuing to shift towards higher skilled jobs. This was reflected in employment associated with Bachelor degree or higher level qualifications growing strongly prior to the onset of COVID-19 (up by 27.7% over the 10 years to November 2019), while employment for jobs requiring a Certificate I or secondary education had recorded relatively weak employment growth (up by just 6.4% over the 10 years to November 2019).

Looking ahead, this feature of the Australian labour market is expected to continue under the Economic Restoration scenario – consistent with both trends prior to the onset of COVID-19 as well as the no-COVID-19 baseline projections.

Reflecting the overall trend towards higher skilled jobs, the top occupations identified under the Economic Restoration scenario are heavily weighted towards occupations generally requiring high level qualifications. Even so, there will be a high number of opportunities for other jobs such as Personal Carers & Assistants and General Clerks because of the absolute size of these occupations and the projections for future growth.

**Table 7: Top occupations by expected growth, from 2020Q1 to 2025Q1,
Economic Restoration scenario**

Position	Occupation	Expected growth 5 years to 2025Q1 (%)	Expected growth 5 years to 2025Q1 (000s)
Largest percentage increase	Medical Practitioners	16.8	19,100
	Health Therapy Professionals	15.3	14,400
	Social and Welfare Professionals	14.8	25,800
	Midwifery and Nursing Professionals	13.1	45,300
	Information and Organisation Professionals	11.6	22,000
Largest increase in thousands	Midwifery and Nursing Professionals	13.1	45,300
	Personal Carers and Assistants	11.3	37,100
	School Teachers	7.0	30,800
	General Clerks	9.9	26,800
	Social and Welfare Professionals	14.8	25,800

Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors.

3.3 Insights from the other scenarios examined by the NSC

The 3 additional scenarios examined by the NSC enable consideration of alternative pathways for recovery, depending on the interplay of various health, economic and technological factors. These 3 scenarios are:



Fortress Australia: Under this scenario, Australia manages to control the virus domestically through a combination of testing, tracing and isolation by 2021. However, globally the virus is not suppressed, which results in Australia keeping its international borders effectively closed until 2022. This has significant impacts on tourism (both international and domestic), international education and the imports and exports of Australia. There is also an increase in local manufacturing due to pressures on supply chains.



Impeded recovery: This scenario, like the Economic Restoration scenario, assumes that the virus is largely suppressed domestically by 2021 and that it is contained globally by 2022. However, the COVID-19 shock impacts on business and consumer confidence, causing businesses and households to revise their investment and consumption plans, delaying recovery.

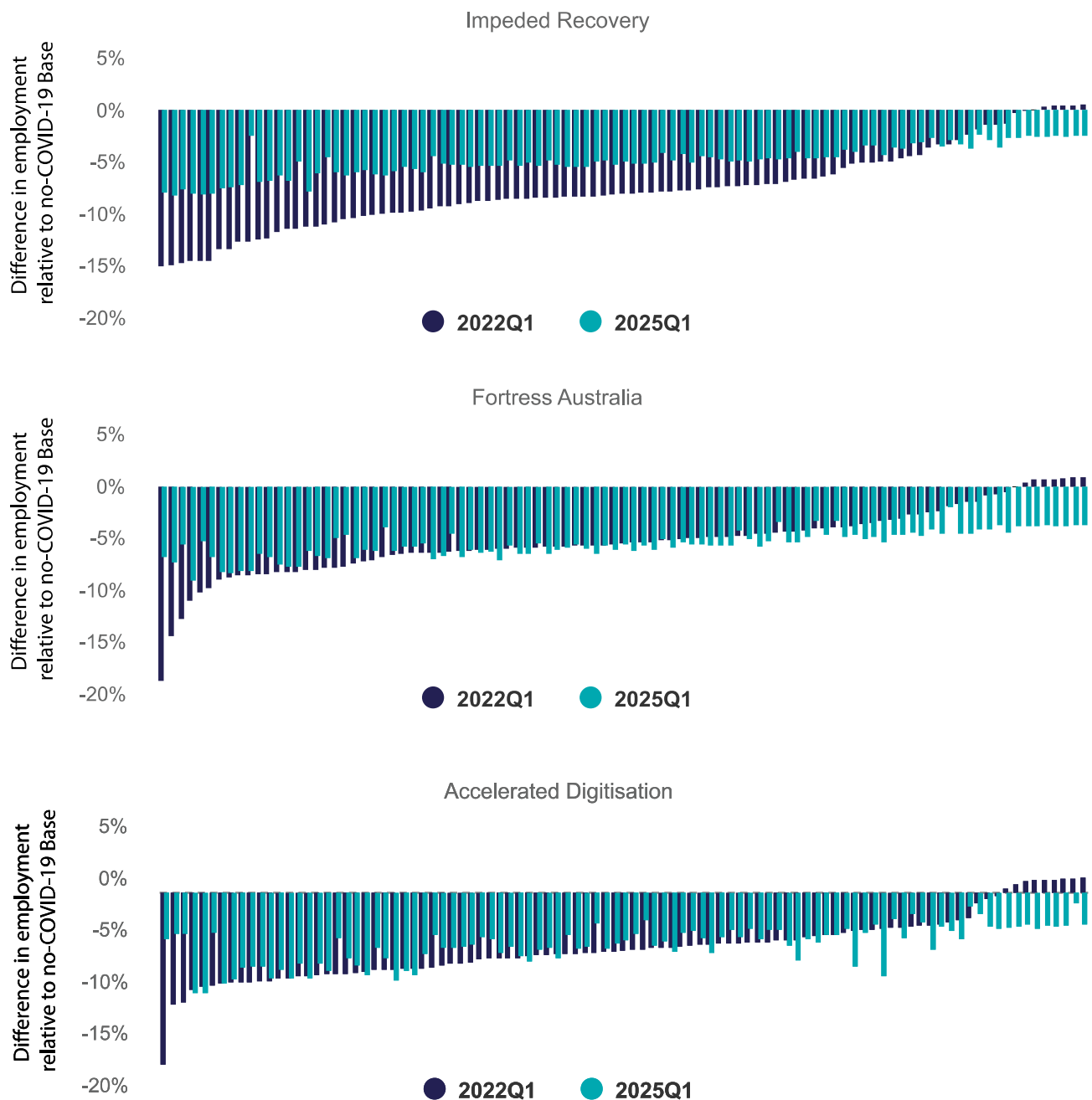


Accelerated Digitisation: Again, similar to the Economic Restoration scenario, this scenario assumes that the virus is largely suppressed domestically by 2021. However, this scenario assumes that there are positive impacts associated with the adoption of digital technologies and processes, and increased working from home for professionals.

Initial impacts flatten out across all scenarios

Similar to the Economic Restoration scenario, although the impacts of COVID-19 are stark in the short-term, over time the impacts are expected to be more evenly distributed under the other scenarios examined by the NSC. This reflects how severe the initial impacts of COVID-19 have been on the labour market.

Figure 24: Percentage change in projected employment by occupation compared to no COVID-19 base, 2022Q1 and 2025Q1



Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors

More substantial structural change likely if digitisation accelerates

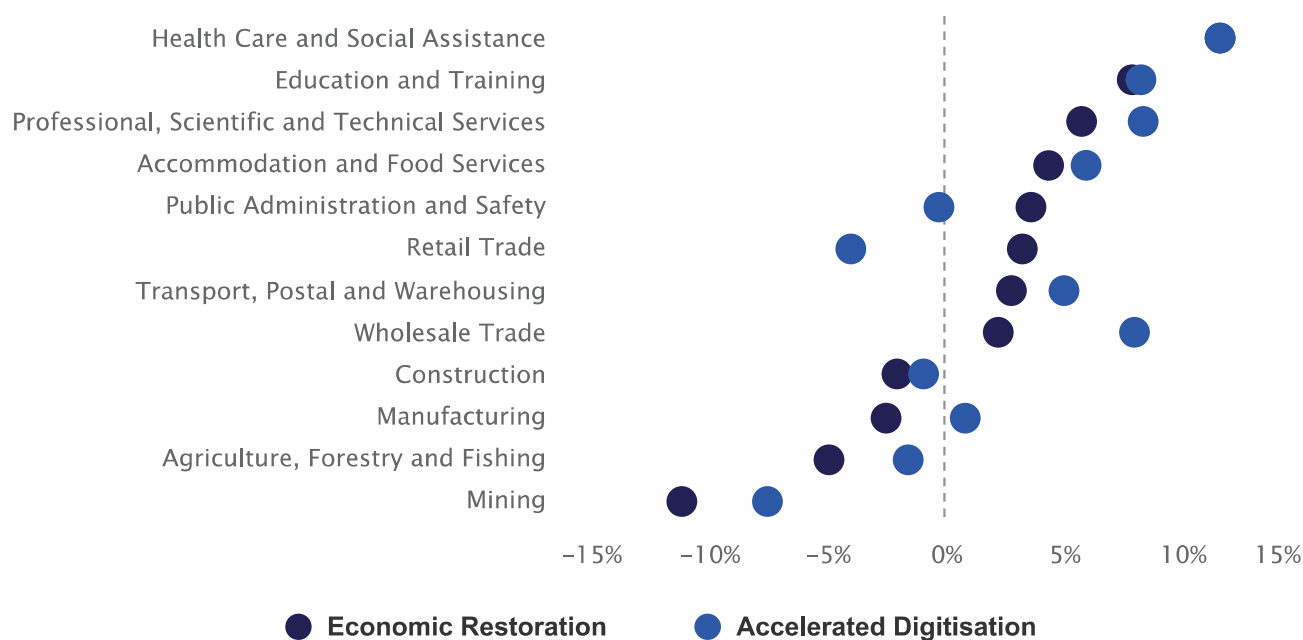
Under the Accelerated Digitisation scenario, there are positive impacts associated with the adoption of digital technologies and processes, and increased working from home for professionals. These trends lead to a number of changes in the structure of the labour market, brought about primarily by changes in how businesses operate, and the way services are delivered. This change is the most significant exhibited in all the scenarios examined by the NSC.

The scenario assumed that some of the behavioural changes that have been adopted during the pandemic will continue, including:

- increased use of digital technologies and IT services
- increased use of online shopping
- increased demand for delivery services, driving growth in transport and logistics
- lower office space requirements, due to more people working from home or remotely.

As demonstrated in Figure 25, employment in Professional Services is forecast to increase under the Accelerated Digitisation scenario due to a shift towards digital services compared to the Economic Restoration scenario. With a stronger shift to online retail and a subsequent increase in warehousing and postal requirements, Retail Trade employment is forecast to fall while employment in the Transport, Postal and Warehousing industry rises. There are also some residual benefits for Manufacturing.

Figure 25: Growth in employment (%), selected industries (2020Q1 to 2025Q1), Economic Restoration and Accelerated Digitisation scenarios



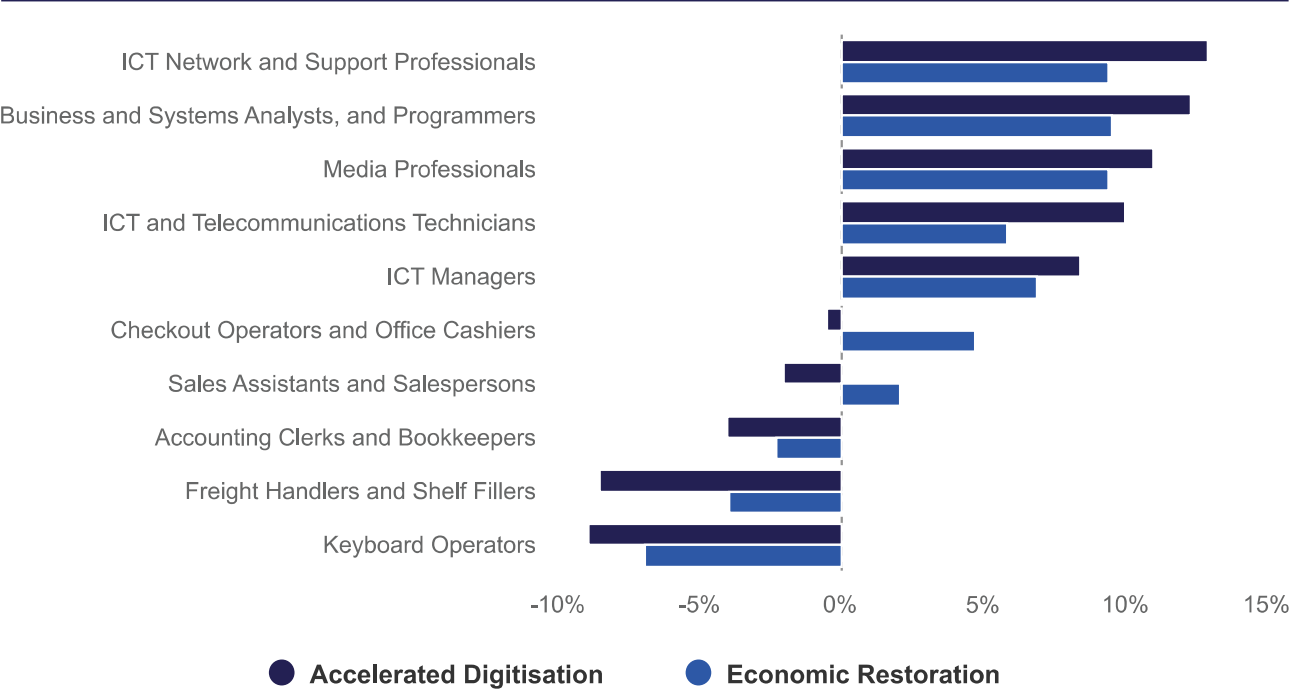
Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors

Trend towards higher skilled jobs to accelerate if digitisation accelerates

Under the Accelerated Digitisation scenario, there are also impacts at an occupational level – particularly evidenced by an increase in the share of employment in higher skilled technology-based occupations. As shown in Figure 26, the number of people employed in occupations that involve technology, computing and media professionals is expected to grow in both the short-term and medium-term.

This employment growth would be offset by a fall in employment in lower skilled occupations (such as Freight Handlers and Shelf Fillers). This reflects the increased automation of routine tasks, and the shift to online retailing and warehousing. For displaced workers, skills and training development will play a crucial role in up-skilling and re-skilling workers to assist them in transitioning into the jobs that are growing.

Figure 26: Employment growth (2020Q1 to 2025Q1), selected occupations, Accelerated Digitisation and Economic Restoration scenarios



Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors

If recovery is impeded, construction may be adversely impacted

Under the Impeded Recovery scenario, the economic downturn is prolonged and recovery delayed. This negatively impacts employment in many construction related occupations in the scenario. Male employment is also more heavily impacted, as men make up a greater proportion of employment in trade-based occupations that are common in construction.

If international borders stay closed, local manufacturing may have to increase its capacity

Under the Fortress Australia scenario, Australia manages to control the virus domestically through a combination of testing, tracing and isolation by 2021. However, globally the virus is not suppressed, resulting in Australia keeping its borders closed until 2022.

Figure 27, shows that under the Fortress Australia scenario, manufacturing performs much better. This is because pressures on supply chains divert resources into locally manufactured goods.

Figure 27: Percentage point change in employment shares (2020 Q1 to 2023 Q2) – selected industries



Source: NSC analysis of scenarios produced in partnership with the Centre of Policy Studies and AlphaBeta Advisors

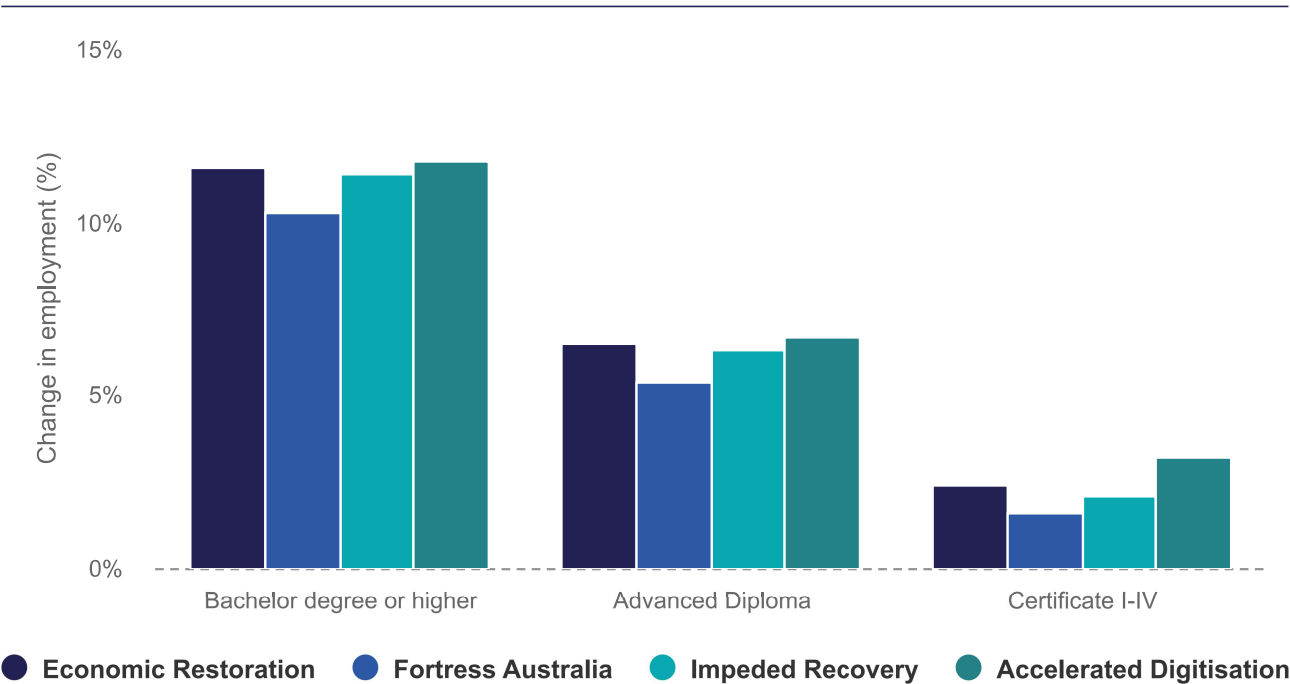


3.4 Education and training implications

Completing an education remains key

The Australian labour market has been progressively shifting towards higher skilled employment over recent decades. This trend seems likely to continue and is reflected across all the scenarios examined by the NSC. This result is consistent with pre-COVID-19 trends and emphasises the importance of post-school qualifications.

Figure 28: Percentage change in employment from 2020Q1 to 2025Q1, by aggregated skill level by scenario



VET provides opportunities for those who are displaced in the short or medium term

The VET sector will be instrumental in supporting the recovery from COVID-19. VET offers an opportunity to gain both the theoretical knowledge and practical skills that are valued by employers. A VET qualification can provide the pathway for displaced workers, or those at risk of being displaced, to either move into higher skilled roles in the same industry or transition to new jobs in sectors with stronger growth potential. There are some VET related occupations that are expected to be more resilient than others, with relatively strong projected growth over both the short and medium term. This is consistent with longer term trends, including personal carers, health and welfare support workers, child carers and education aides.

Others are projected to perform poorly in the short term but are expected to bounce back over time. For example, hospitality workers, food trades workers and ICT telecommunications technicians. These provide potential opportunities for short term reskilling especially for those looking to retrain in a new occupation or upskill in their existing occupation through qualifications lasting 6–18 months.





Conclusion

The impacts of COVID-19 on the Australian labour market have been unprecedented. However, there are now clear signs of recovery. And even in the industries and occupations most impacted by the shutdowns, jobs are returning.

With the unemployment rate remaining high there is, of course, clearly some way to go.

This report outlined different approaches to considering the impact of COVID-19 on the labour market, the impacts on occupations and the likely skill needs as the economy continues to recover.

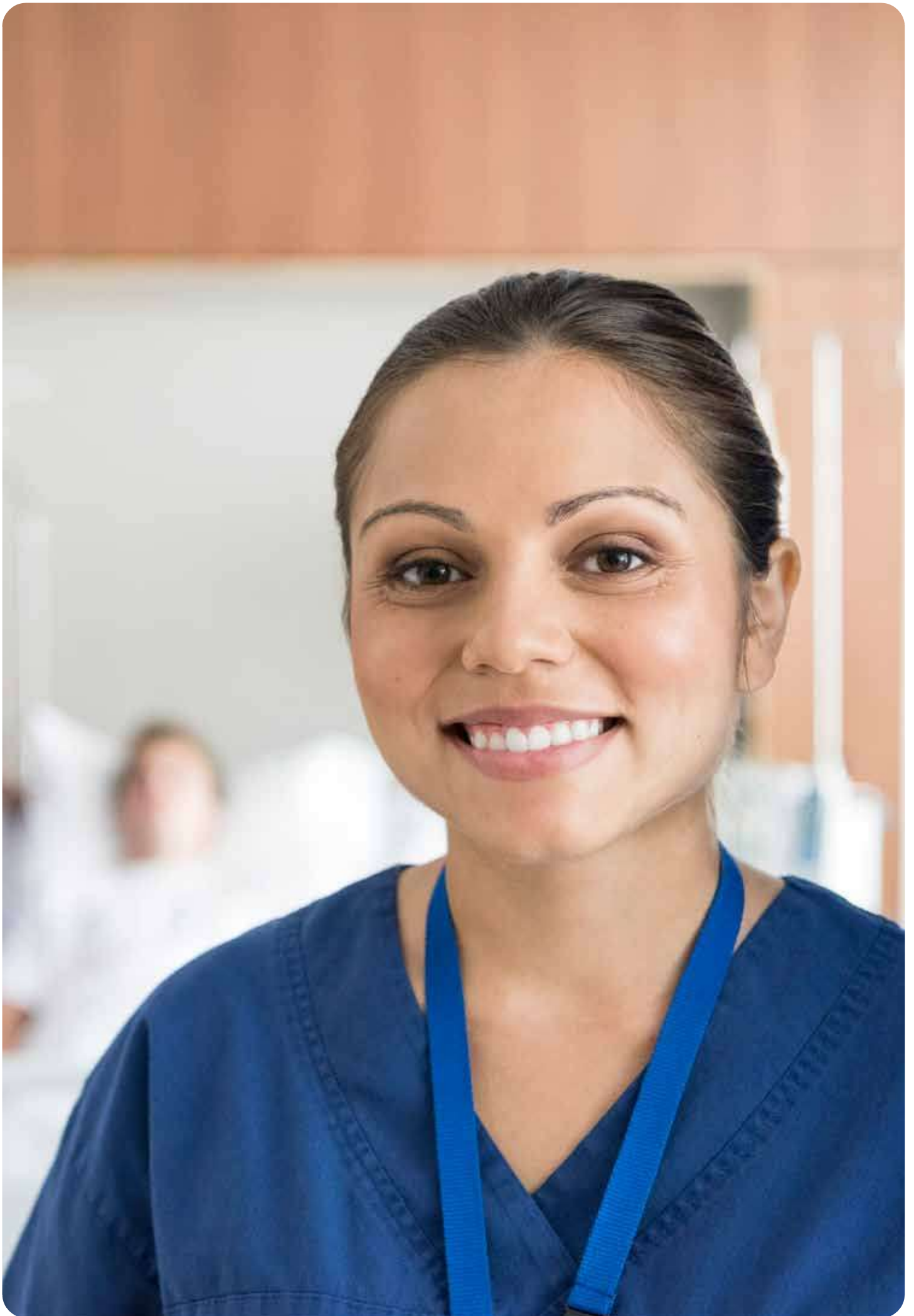
As we noted at the outset, the very nature of 2020 and the shock to the economy and labour market means that these exercises are undertaken in conditions of uncertainty. That uncertainty and the volatility in the data means that everything might not neatly align. Yet it is precisely the volatility in the economy and the uncertainty about the skills needs of the economy as we move through recovery that make these sorts of exercises essential. It also means that forecasts, data and modelling co-exist with a need for judgement that turns data into knowledge and advice.

Ultimately, the message from this report is that while there will undoubtedly be lasting changes as a result of COVID-19, these may not be as dramatic as might have been expected. The broad distribution of occupations across the economy may not, in fact, change that much. What might change, however, is how we do those jobs. Also, where we do see structural change, these are more likely to be changes that were already underway, such as increasing activity online and the ongoing need for post-secondary qualifications.

Finally, the report also underscores the importance of education and training – of all types – in helping to shape Australia's post COVID-19 workforce.



Ultimately, the message from this report is that while there will undoubtedly be lasting changes as a result of COVID-19, these may not be as dramatic as might have been expected



Appendix A

Modelling and scenario assumptions

What are computable general equilibrium (CGE) models?

CGE models are large numerical models that combine real world economic data with economic theory to computationally derive estimates of how an economy may react to a change in policy or external shock. The data in CGE models typically come from national input-output tables, which contain detailed information about the supply and use of products in the Australian economy and the structure of and inter-relationships between Australian industries. The data are fitted to a set of equations that ascribe behavioural rules determining the way firms, governments and households respond to change. CGE models are used to derive measures of an economy before and after a shock with the differences between the two providing projections of the potential impacts.

Which CGE model did the NSC use for the scenario modelling?

The scenario modelling was conducted using the Victoria University Employment Forecasting (VUEF) model. The VUEF is a family of models centred on a CGE model of the Australian economy. The VUEF brings together a large body of demographic, employment and macroeconomic data, as well as forecasts from government and industry bodies. The VUEF captures the dynamic adjustment to a shock by solving for output and price of a detailed set of industries before solving for employment by industry, occupation and educational attainment. It accounts for scarcity of resources and accommodates a variety of taxes, as well as technical change and changes in taste.

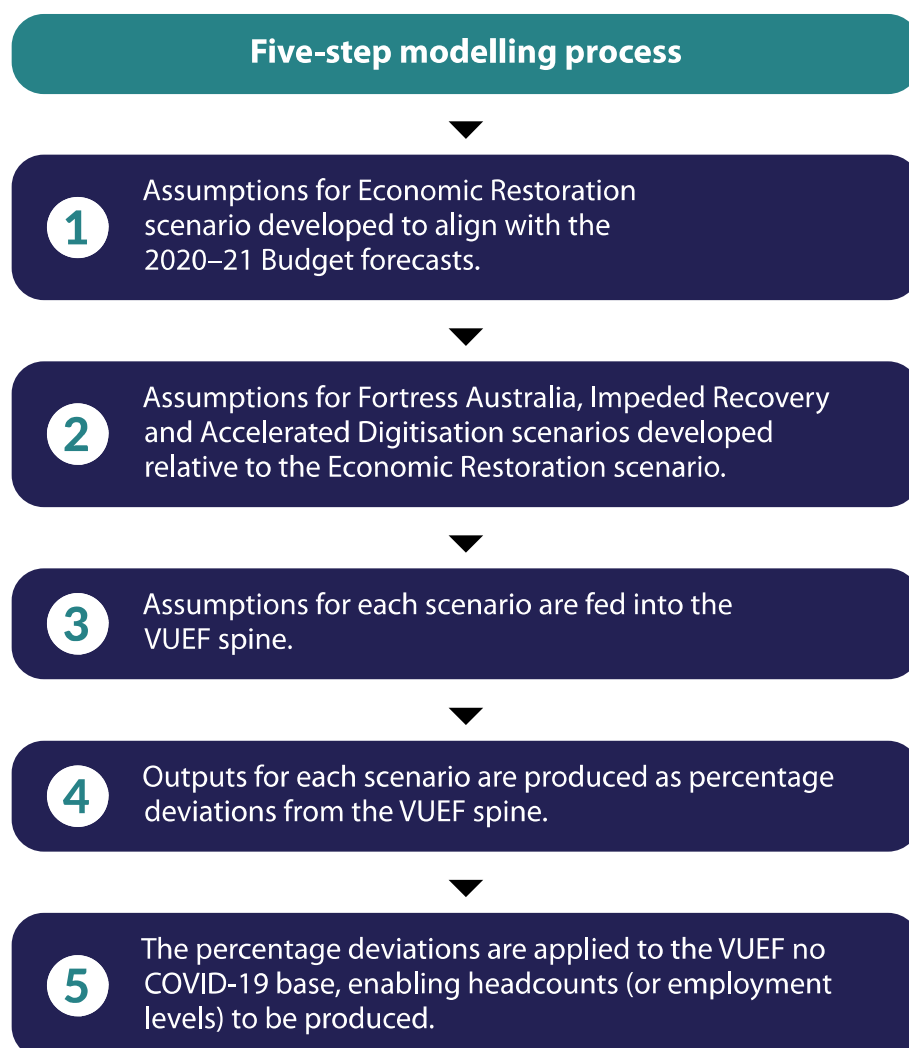
What was the modelling process to develop the scenarios?

The VUEF is used to derive quarterly projections of employment over the period 2020Q1–2027Q2, with initial shocks applied in 2020Q2. Two key components of the VUEF model are used to derive the projections.

Table 8: The VUEF model: Key components

VUEF spine	VUEF no-COVID-19 base
The VUEF spine forms the backbone of the model. It is based on the 3Ps: Population, Productivity and Participation. Shocks are applied to the VUEF spine to simulate the impacts of COVID-19 under a range of scenarios. Some adjustments have been made to the VUEF spine to allow for unusual COVID-19 conditions, such as allowing capital stock to pause and resume production without requiring new investment, to account for the impact of social distancing closures on businesses. It does not include structural changes within industries or occupations by default.	The VUEF no-COVID-19 base contains the 2019 VUEF employment forecasts. These are derived from the VUEF spine but take into account structural changes in the economy, including changes in technology (inputs to production), labour market composition and tastes.

Figure 29: Five-step modelling process



Real-time data improved the model

Real-time data from two sources, Xero and Illion, improved the precision and timeliness of some key assumptions underpinning the model. This was particularly critical given the unprecedented and rapid nature of the downturn as a result of COVID-19.

Data from Illion, a credit rating company, was used to monitor how household expenditure has changed since COVID-19 began. Xero accounting data was used to measure the impacts on small business jobs and revenue and to test the validity of short-term assumptions based on observed monthly effects that were reported during the study.

What are the key assumptions for each scenario?

The central Economic Restoration scenario is simulated as a set of deviations from the VUEF spine. The paths for key macroeconomic variables in the Economic Restoration scenario have been developed to broadly align with the macro-economic outlook depicted in the 2020–21 Budget. While the Economic Restoration scenario is aligned to the 2020-21 Budget forecasts, the sector specific results have not specifically taken account of recent Australian Government policy decisions, such as the Modern Manufacturing Strategy.



Economic Restoration scenario

Description

The **Economic Restoration** scenario assumes the virus is contained domestically by 2021, with international borders starting to re-open from 2021, triggering renewed growth in travel, and global imports and exports.

Shocks



Productivity

Productivity is negatively impacted due to a range of factors including social distancing and COVID-19 restrictions



Domestic demand

Private consumption falls as unemployment rises



International demand

Global demand falls, leading to a fall in exports



Government spending

Fiscal support measures increase



Population

Migration falls due to short-term border closures

Other shocks

Assumptions broadly aligned with 2020–21 Budget.

Results

The sectors most impacted by social distancing and border restrictions are hardest hit in the first 12 months but begin to recover once the virus is contained domestically. Industry changes are not structural and once the economy recovers trends in industry employment are relatively unchanged.



Fortress Australia scenario

Description

The **Fortress Australia** scenario assumes the virus is largely suppressed domestically by 2021. However, globally the virus is not suppressed as there is no vaccine developed, resulting in Australia keeping its international borders closed until 2022.

Shocks



Productivity

↓ Negative (relative to Economic Restoration)



Domestic demand

↓ Negative (relative to Economic Restoration)



International demand

↓ Negative (relative to Economic Restoration)



Government spending

↔ Neutral (relative to Economic Restoration)



Population

↓ Negative (relative to Economic Restoration)

Other shocks

↓ Domestic tourism (relative to Economic Restoration)

↓ International tourism (relative to Economic Restoration)

↑ On-shored industries (relative to Economic Restoration)

Results

Industries with international connections face larger declines, but onshore industry increases due to global supply chain disruptions. There is lower level of employment under the Economic Restoration scenario due to reduced migration.



Impeded Recovery scenario

Description

The **Impeded Recovery** scenario assumes the virus is largely suppressed domestically by 2021. However, household consumption and investment do not begin to rebound until mid-2021.

Shocks



Productivity

↓ Negative (relative to Economic Restoration)



Domestic demand

↓ Negative (relative to Economic Restoration)



International demand

↓ Negative (relative to Economic Restoration)



Government spending

↔ Neutral (as per Economic Restoration)



Population

↔ Neutral (as per Economic Restoration)

Other shocks

↓ Business Investment (relative to Economic Restoration)

↓ Dwelling Investment (relative to Economic Restoration)

↓ Household consumption (relative to Economic Restoration)

Results

There is a greater shock to household demand and business investment, which triggers further macroeconomic effects including higher unemployment and lower GDP per capita.



Accelerated Digitisation scenario

Description

Accelerated Digitisation: scenario assumes the virus is largely suppressed domestically by 2021, and there are positive spill-overs with the adoption of digital technologies and processes and increased rates of working from home for professionals.

Shocks



Productivity

↑ Positive (relative to Economic Restoration)



Domestic demand

↔ Neutral (as per Economic Restoration)



International demand

↔ Neutral (as per Economic Restoration)



Government spending

↔ Neutral (as per Economic Restoration)



Population

↔ Neutral (as per Economic Restoration)

Other shocks

↓ Business travel (relative to Economic Restoration)

↓ Non-residential building (relative to Economic Restoration)

↑ Hours worked (relative to Economic Restoration)

↑ Computer services (relative to Economic Restoration)

Results

A greater use of technology leads to an increase in productivity. There is also less business travel, use of office space and bricks and mortar retail.

