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Shutdown: estimating the COVID-19 employment shock

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Overview

Australia faces an unprecedented economic challenge in the coming weeks and months. Never before has such a large proportion of economic activity come to such a sudden stop. Never before has such a large slowdown been deliberately engineered as a matter of public policy – in this case, to protect public health during a global pandemic.

COVID-19 is already having a big impact on the livelihoods of many Australians. This is visible at Centrelink offices around the country, as people queue to be added to the income support rolls, and visible in the form of closed shopfronts in all Australian cities, suburbs, and towns. But the size of the employment shock from the COVID-19 response is not yet known and will not be known for weeks, even months. In this working paper, we estimate the hit to employment from mandatory and voluntary spatial distancing.

We calculate that between 14 and 26 per cent of Australian workers – 1.9-to-3.4 million people – could be out of work in the coming weeks as a result of spatial distancing measures to contain the spread of COVID-19, if they aren't already. More than half of all workers in the hospitality industry could be off work due to COVID-19. Many workers in retail trade, education and training and the arts are also at risk. Lower-income workers are twice as likely to be out of work as high-income earners. Younger Australians and women are likely to be hit hardest, because they are more likely to be employed in occupations and industries most affected by the response to COVID-19.

Unemployment will rise substantially in the coming months, but the Commonwealth Government's new JobKeeper wage subsidy will obscure much of the impact. Many Australians out of work will still be counted as 'employed' because they will receive JobKeeper payments via their employers. Others that would have lost their jobs will remain employed. And others will leave the labour force entirely and so won't

be counted among the unemployed either. Nonetheless, we expect the unemployment rate could rise to between 10 and 15 per cent.

There is, of course, considerable uncertainty around our estimates of the job losses from COVID-19. Real-time data on the extent to which different occupations and industries are being hit by spatial distancing is limited. The degree to which many jobs can be adapted to be done remotely is unclear. We do not factor in the impact that policy responses to date will have in boosting demand, although these measures are unlikely to maintain work in directly affected sectors. But if our estimates are even close to accurate, Australia is facing either the worst or one of the worst economic downturns in its history.

The second-round impacts of the COVID-19 crisis on employment, and economic activity, will also be severe. Firms and households not initially affected by public health measures will scale back their spending to preserve cash flow in the face of an extended downturn. Meanwhile Australia faces a synchronised slowdown among our major trading partners, adding to the economic hit from COVID-19.

History tells us that recovery from periods of high unemployment is rarely fast. This time may be different: recession has been deliberately engineered as a matter of public health, and substantial economic support is in place. But the longer the downturn goes, and the worse it gets, the less likely the labour market can spring back afterwards.

The economic challenge of COVID-19 underscores the importance of getting the virus under control. Resolving the public health crisis is a critical first step on any path to sustained economic recovery. Policy makers have rightly taken unprecedented steps to households and businesses weather this storm. But given the size of the economic shock from COVID-19, more support will be needed in time.

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1   How big should we expect the employment shock to be?

It is clear that the employment effects of social or spatial distancing are large and widespread. But exactly how many Australians will lose their jobs is still unclear. It will be several weeks – even months – before the extent of the employment shock can be measured using publicly-available data. Policy makers require informed estimates of the size of the downturn in employment to guide their response to the crisis.

This chapter reviews the available data on the state of the Australian economy, and collects various estimates, including from overseas, of the shock to employment and economic activity.

The evidence and estimates released so far suggest three things. First, the employment downturn in Australia and elsewhere is likely to be very large. Estimates vary, but all suggest that Australia is facing one of the largest drops in economic activity – perhaps the largest – in its history. Second, the precise size of the shock, both in Australia and overseas, remains unclear. Third, most estimates of the size of the shock to employment and output have grown over time – more recent estimates are more pessimistic than earlier views.[1]

Australia's governments have already announced substantial support for households and businesses, and the Reserve Bank has loosened monetary policy.[2] They will need to closely monitor the data to ascertain whether more support is needed.

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1.   Some forecasts of the unemployment rate have been revised down a little. This reflects expectations about the effect the JobKeeper Payment will have on the number of people who are not working but are nevertheless considered 'employed', an issue discussed further in Section 3.5.
2.   For a summary of the Commonwealth Government's fiscal response to COVID-19, see: Wood et al (2020b). For a summary of state responses see: Wood et al (2020a).

Figure 1.1: Consumer confidence has hit its lowest level on record
Net consumer confidence: difference between the percentage of positive survey respondents and negative respondents (percentage points)
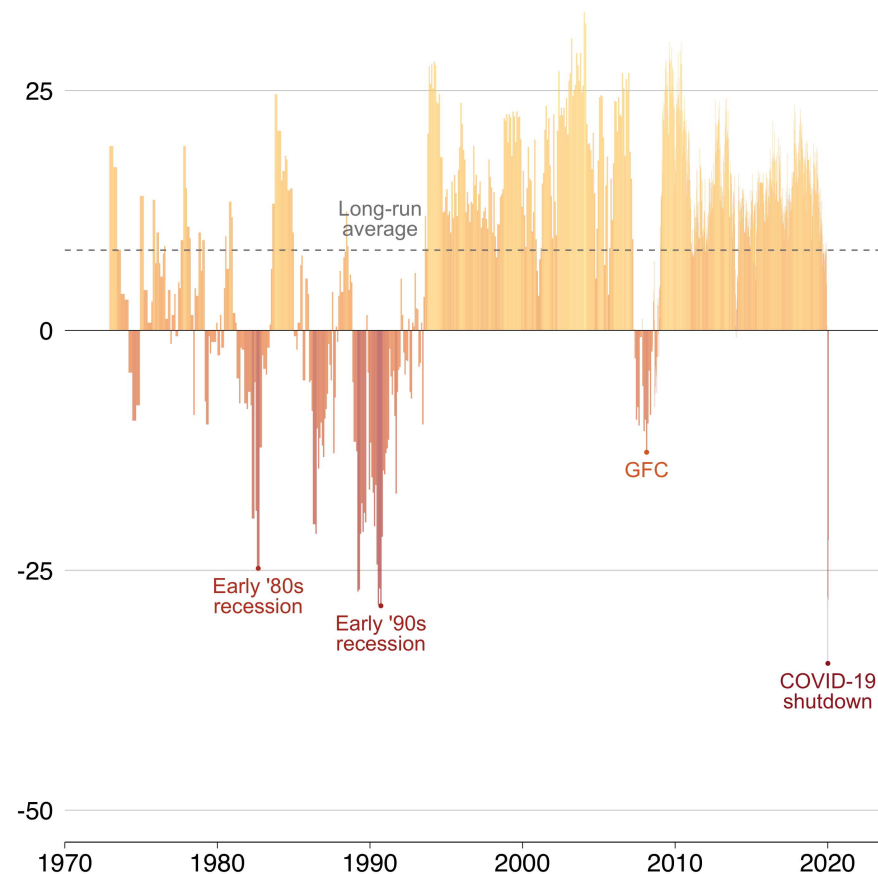
Note: The ANZ-Roy Morgan Consumer Confidence Rating is the unweighted average of the difference between the percentage of respondents who give positive or negative answers to five questions about economic conditions and their household finances.

Source: ANZ-Roy Morgan Consumer Confidence index. Grattan Institute is grateful to ANZ for providing the full time series of this data.

1.1 Up-to-date Australian data is scarce, but points to a large downturn

The latest ABS labour force survey results were released on 16 April.[3] The survey was conducted in mid-March, and respondents were asked about their employment situation in the first two weeks of March, a period before widespread spatial distancing and mandatory shutdowns. So these data do not help us to ascertain the size of the COVID-19 employment shock. As outlined in Box 2, it will be several weeks before we have labour force survey data on how employment has fared since the shutdown. To gauge the likely size of the employment shock, we need therefore to look at other data.

The ABS surveyed businesses between 30 March and 3 April and asked them a series of questions about the impact of COVID-19 on their business.[4] It found that 47 per cent of businesses made changes to their workforce in the previous two weeks, in response to COVID-19. A small proportion of businesses increased work hours, but most did not. About a quarter reduced the work hours of their staff, and 9 per cent stood staff down or sent them on unpaid leave. These figures may understate the proportion of businesses facing difficulty, as businesses that have closed down may have been less likely to respond to the survey.

The consumer confidence data released on 29 March were the worst ever recorded in the nearly 50-year history of the ANZ-Roy Morgan Consumer Confidence series, as shown in Figure 1.1 on the preceding page. Confidence plunged materially lower than in the deep recessions of the early 1980s and early 1990s, or during the Global Financial Crisis. The index from a week earlier, 22 March, was the third-worst ever recorded, behind only the figures recorded at the end of 1990. Confidence bounced back a bit on 5 April and again on 12 April, after

3. ABS (2020a).
4. ABS (2020b).

Figure 1.2: Searches for unemployment-related terms spiked in March
Google searches in Australia for phrase, as a percentage of the most-ever searches for the phrase
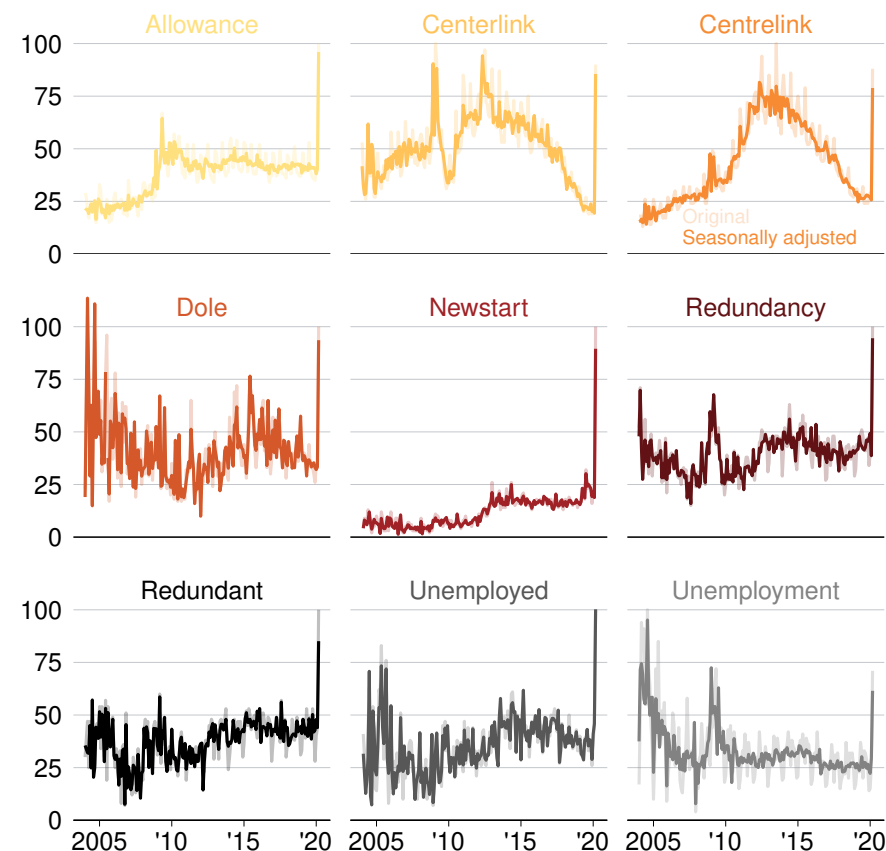
Notes: Data normalised by Google: the number of searches for a given term in a month is divided by all searches in Australia for all terms in that month; the result is then re-scaled so 100 is the maximum normalised search volume for the term observed over the whole period since 2004. Seasonally adjusted by Grattan Institute using X11.

Sources: Google Trends and Grattan analysis.

the announcement of the JobKeeper payment and other fiscal support, but remained at one of its lowest-ever levels.

Westpac's consumer sentiment survey released on 15 April asked people about their employment prospects. They found that 7 per cent of those surveyed lost their jobs in the last month, while an additional 14 per cent were stood down without pay.[5]

The words and phrases that Australians search for on Google can also provide up-to-date information about what is happening in the economy.[6] Searches for unemployment-related terms spiked in March 2020, as shown in Figure 1.2 on the previous page. Most of these search terms recorded their largest-ever search volumes in March. There were about four times as many searches for words such as 'Newstart' and 'Centrelink' in March compared to February 2020.

The number of online job posts also provides real-time data on labour demand from firms. After all, firms are more likely to stop hiring new workers before they fire existing ones. The number of average weekly job posts on the hiring website Indeed significantly declined in the second half of March. Job posts at the start of April were 50 per cent below where they were at the same time in 2019.[7] Postings have fallen further from last year's trend in Australia than in most other countries recorded by Indeed – including Italy and France, which both went into shutdown earlier than Australia (Figure 1.4).

Fewer postings may be an indication that firms are cutting back on hiring, in expectation of hard times ahead. The employment effects of

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5. Wright (2020a).
6. Google Trends data has been used to get up-to-date information on the state of the economy – 'now-cast' – by a number of researchers; for example, see: Choi and Varian (2012). RBA researchers have demonstrated that searches for unemployment-related search terms are correlated with the unemployment rate in Australia: Gill et al (2012). Others have used Google Trends data to directly study job-search activity; see: Baker and Fradkin (2017).
7. Pickering (2020).

Box 1: How is consumer confidence measured?

The ANZ-Roy Morgan Consumer Confidence Index is based on randomly-selected survey respondents' answers to a series of five questions about their family's finances, the state of the economy, and their expectations about the coming year.

The questions are:

- Would you say you and your family are better-off financially or worse off than you were at this time last year?;

- This time next year, do you and your family expect to be better-off financially or worse off than you are now?;

- Thinking of economic conditions in Australia as a whole. In the next 12 months, do you expect we'll have good times financially, bad times, or some good and some bad?;

- Looking ahead, what would you say is more likely, that in Australia as a whole, we'll have continuous good times during the next five years or so – or we'll have bad times – or some good and some bad?; and

- Generally, do you think now is a good time – or a bad time – for people to buy major household items?.[a]

The overall consumer confidence number reflects the balance between positive or optimistic responses and negative or pessimistic responses.

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a. Roy Morgan Research (2020).

COVID-19 are apparent not only in a much higher than usual rate of job loss, but also a slower rate of new hiring.

1.2   International data

As at mid-April 2020, few countries had released labour force data that revealed the full effects of COVID-19 and the associated shutdowns. But the data that is available presents an extremely worrying picture for Australia.

The unemployment rate has risen sharply in a range of advanced economies:

- Employment in Canada fell by 5.3 per cent in March, compared to February; the unemployment rate rose from 5.6 to 7.8 per cent.[8]

- In Norway, the March unemployment rate was 10.9 per cent, almost five times what it was at the end of February.[9]

- In Austria, the unemployment rate reached 12.2 per cent.[10]

- The Israeli unemployment rate, which was less than 4 per cent a month ago, has increased to a record high of 24.1 per cent.[11]

- Spain suffered the biggest jump in unemployment in its history in March, with 800,000 people becoming unemployed.[12]

Data on the number of workers claiming unemployment benefits tells a similar story. In France, about 4 million people applied for unemployment benefits in the second half of March.[13] In Canada, half a million workers applied for unemployment benefits during the week

starting 16 March – a record high.[14] During the same week in the US, more than 3.2 million workers submitted a claim for unemployment insurance. And the number of US workers submitting claims more than doubled the following week, to more than 6.6 million. This magnitude of claims is unprecedented in the US over the past 50 years, including during the GFC, the deep recession of the early-1980s, and the 'stagflation' period of the 1970s (Figure 1.5).[15]

These data paint a clear picture: large numbers of people all around the world are being thrown out of work by COVID-19 and the public health response to it. And these data come from the early days of the COVID-19 crisis. The unemployment peak is yet to come.

1.3   Labour market forecasts

The data to date confirms that Australia and many other countries are facing sharp and severe downturns in economic activity and employment. But this data is limited. Economic forecasts can help shed more light on the expected size of the downturns.

1.3.1   Forecasts for Australia

The minutes of the Reserve Bank of Australia's board meeting on 18 March state that there is 'likely to be significant job losses over the months ahead, although the extent of this would depend on the capacity of businesses to retain employees during this period'.[16] The RBA Governor's statement after the 7 April board meeting was even more stark:

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8.   Statistics Canada (2020).
9.   Solsvik (2020).
10. Murphy and King (2020).
11. Staff (2020).
12. Badka et al (2020).
13. Ibid.

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14. Hagan and Bolongaro (2020).
15. Mongey (2020) points out the first two weeks of the COVID-19 shutdown period had more unemployment claims in excess of the previous 12-month average, than the entire first year of the GFC.
16. RBA (2020a).

Box 2: When will we have actual data on the employment shock?

Unfortunately, administrative data on the number of people claiming unemployment benefits in Australia is released only after a long and variable lag. As at mid-April 2020, the most recently-released data on the number of people claiming Newstart and Youth Allowance (Other), the payments for jobseekers, relates to December 2019.[a] The Department of Social Services also releases information on the demographics of payment recipients; the latest data are from the September quarter of 2019.[b] It may be many months before data are released on the number of benefit recipients in March and April 2020.

The ABS released the results of the March labour force survey on 16 April, with more detailed data to follow on 23 April. But this data reflects the state of the labour market before many of the current restrictions were imposed. The survey was conducted between 8 and 21 March, with respondents asked about their labour force status the week before – from 1 to 14 March. The restrictions on pubs, cafes, restaurants, gyms, and other businesses did not take effect until midday on 23 March. Daily data from Google Trends shows that the number of Australians searching for 'Centrelink' was only mildly elevated during early-to-mid March, when the ABS labour force survey was conducted. Searches for 'Centrelink' soared on 22 March (Figure 1.3).

The April labour force survey will reflect the effect of the shutdown and spatial distancing – but the results will not be released until mid-May. Nevertheless, the ABS has responded extremely quickly to the crisis. It has announced a range of special data collections related to COVID-19, including a survey of households on the impact of COVID-19, and a new weekly release of jobs and wages information sourced from payroll data.[c] These are very welcome initiatives that

will provide important information about the size of the employment shock. The full extent may not be apparent until subsequent labour force releases.

Figure 1.3: The ABS labour force survey data was collected before searches for 'Centrelink' surged
Google searches in Australia for 'Centrelink' per day, as a percentage of the most searches since 1 January 2020
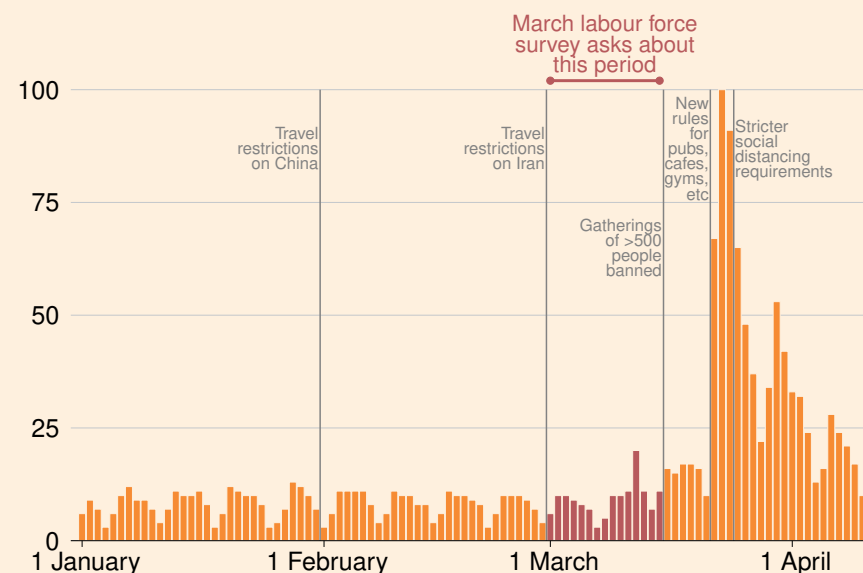
Notes: Data normalised by Google: the number of searches for a given term in a day is divided by all searches in Australia on that day; the result is re-scaled so 100 is the maximum normalised search volume over the period. Not seasonally adjusted.
Source: Google Trends.

a. Department of Social Services (2020).
b. Department of Social Services (2019).
c. Gruen (2020a); and Gruen (2020b).

Figure 1.4: Job postings in Australia have fallen further from last year's trend, than in most other nations

Percentage decrease in job postings on Indeed relative to one year ago, as at 10 April 2020
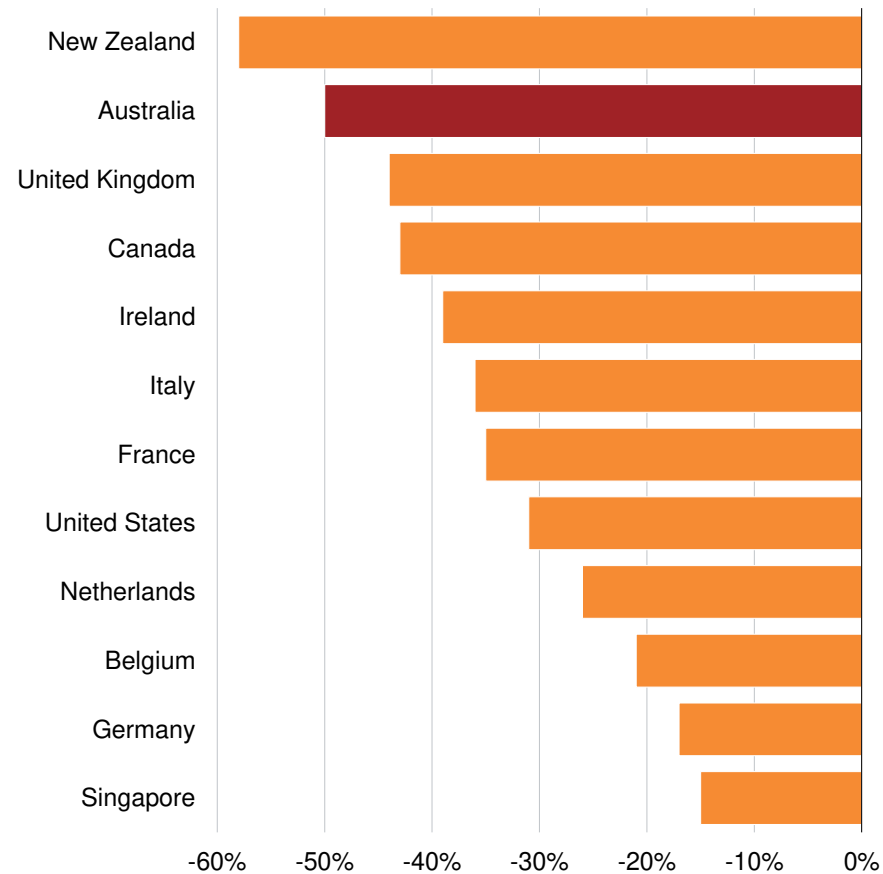
Source: Pickering (2020).

Figure 1.5: Unemployment insurance claims in the US have hit a record high

Number of unemployment insurance claims per week in the United States
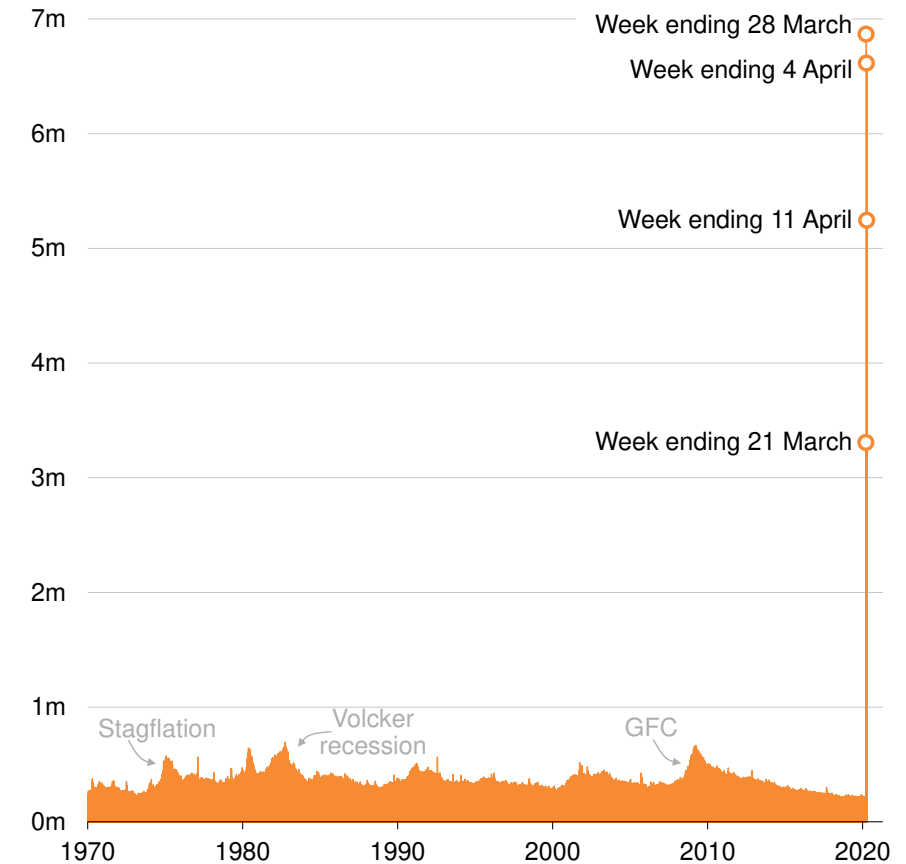
Note: Seasonally adjusted data.

Source: FRED (2020).

There is considerable uncertainty about the near-term outlook for the Australian economy. Much will depend on the success of the efforts to contain the virus and how long the social distancing measures need to remain in place. A very large economic contraction is, however, expected to be recorded in the June quarter and the unemployment rate is expected to increase to its highest level for many years.[17]

The RBA hasn't yet released updated macroeconomic forecasts since the COVID-19 response took hold. The next edition of the RBA's *Statement on Monetary Policy* is due in mid-May.

Treasury forecasts that the unemployment rate will reach 10 per cent in the June quarter, according to a statement issued by the Treasurer on 14 April.[18] The Treasurer's statement indicates that Treasury predicted that the unemployment rate would have reached 15 per cent if not for the JobKeeper program.[19]

Several researchers have estimated the labour force shock in Australia using a 'bottom-up' approach. They use their judgement to assess which industries are at particular risk of contracting due to spatial distancing and mandated shutdowns, and count the number of workers in those industries, thereby arriving at an estimate of the number of jobs that could be lost.

Borland (2020a) uses this method and finds that 1.4 million workers are likely to be directly affected by spatial distancing closures, with more at risk if households tighten their spending. The most exposed industry, unsurprisingly, is hospitality. Cassells et al (2020) use a similar method, and project that 1.1 million workers will lose their job – with most of the job losses to occur in the next three months.

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17. Lowe (2020a).
18. Frydenberg (2020).
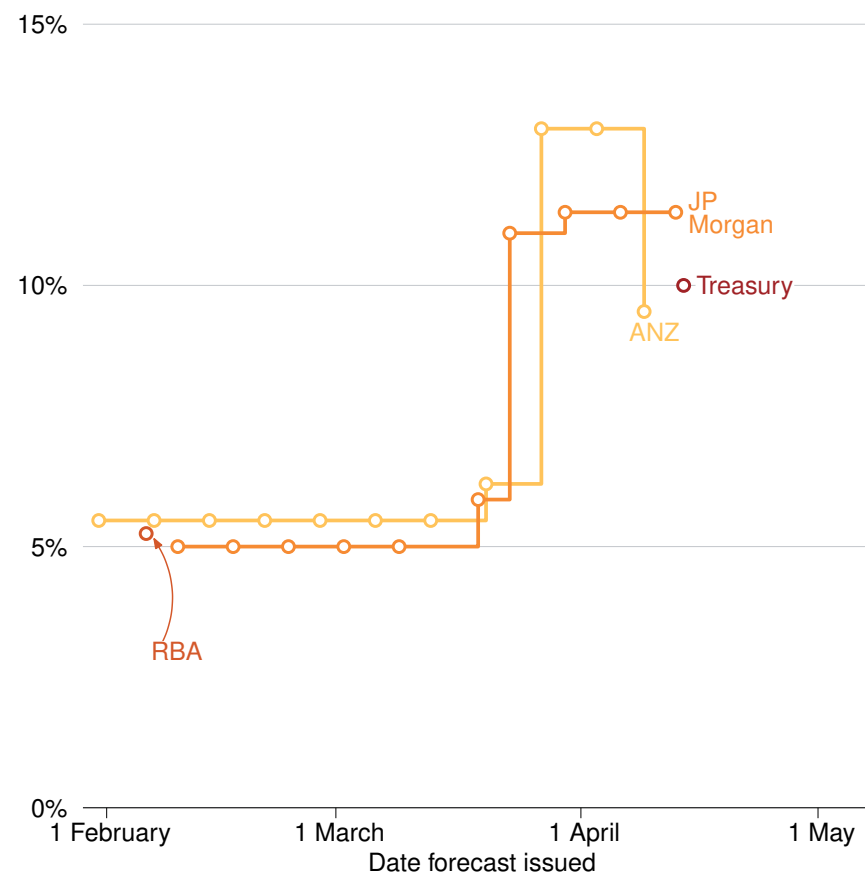19. The impact of JobKeeper on the labour force statistics is discussed further in Section 3.5.

Figure 1.6: Unemployment is expected to top 10 per cent in the June quarter and forecasts have been revised up
Forecasts of Australia's unemployment rate in June quarter 2020

Sources: RBA Statement on Monetary Policy; JP Morgan Australia and New Zealand Weekly Prospects; ANZ Macro Weekly.

Financial market economists have come up with a range of forecasts for the Australian unemployment rate. Most now expect a rate in low-double digits in the June quarter of 2020. These estimates were revised upwards very rapidly and to a striking extent through March. Two representative forecasts from financial institutions are shown in Figure 1.6 on the preceding page, along with the latest public forecasts from the RBA and Treasury. ANZ now expects the unemployment rate to reach 9.5 per cent in the June quarter – it had previously forecast a 13 per cent rate, prior to the announcement of the JobKeeper program. JP Morgan still expects unemployment to reach 11.4 per cent. Both institutions – and others – revised up their forecasts dramatically through March. Forecasts from other financial institutions are broadly similar. Westpac is forecasting a peak unemployment rate of 9 per cent, and states that it would have expected unemployment to reach 17 per cent if not for the JobKeeper Payment.[20]

1.3.2 Estimates for other advanced economies

Researchers from government departments and think tanks in other advanced economies have predicted the employment effects of spatial distancing in their own countries using a range of methods (Table 1.1). Some use a 'bottom-up' approach, as per Borland (2020a) and Cassells et al (2020), while others use a 'top-down' approach. A 'top-down' approach generally involves making a prediction about the pace of GDP growth, and then using the historical relationship between GDP and unemployment to predict the unemployment rate.[21] But the nature of the COVID-19 downturn means that the historical GDP-unemployment relationship may not hold in 2020, so a 'bottom-up' approach may yield more realistic estimates of job losses. The COVID-19 shock has hit labour-intensive industries, such as hospitality, hardest of all, which will affect the GDP-unemployment relationship.

20. B. Evans (2020).
21. This relationship is known as 'Okun's Law'.

Box 3: How many jobs can be done from home?

A recent paper by University of Chicago researchers uses O*NET data to count the number of jobs which can be done from home in the US.[a] They find about 37 per cent of US jobs can plausibly be performed at home. The researchers designate whether a job can be done from home by looking at its context and occupational activities. For example, a job where the average respondent says they use email less than once a month, or a job where most respondents say they work outdoors every day, is unlikely to be easily done from home.[b] Mongey and Weinberg (2020) extend this analysis to show that employees who can work from home tend to be better off, on a range of dimensions, than those who can't.

We have taken the 'work from home classifications' for each US occupation from Dingel and Neiman (2020), and applied them to the Australian labour force using the method described in Section 2.2. We find that the Australian results are almost identical: 38.6 per cent of jobs, accounting for 39.7 per cent of hours worked, can be done from home.[c]

Yet this figure cannot be easily translated into an expected number of jobs lost. Not all jobs which have to be done in-person are going to be shut down. People who work in 'essential services' are being implored to continue to report to work if well. Other jobs will be adapted to a remote setting. It nevertheless provides an important fact about the labour market – about 60 per cent of jobs have traditionally needed to be performed in person.

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a. Dingel and Neiman (2020).
b. See the Appendix to Dingel and Neiman (ibid) for their full methodology.
c. Dingle and Neiman also use a second method where they manually code whether a profession can be done at home. Using manual classifications, they estimate that 32 per cent of jobs can be done at home. When applying their manual classifications, we again find a similar result: 33.7 per cent of Australian jobs can be done at home.

Forecasts across countries vary significantly. Several are shown in Table 1.1. In the Netherlands, the Bureau for Economic Policy Analysis (2020) estimates that unemployment will rise to a comparatively low 8.4 per cent, while in the US, Gascon (2020) suggests that up to 46 per cent of workers are at high risk of being laid-off. Researchers from the St Louis Fed estimate that the unemployment rate for the US in the June quarter of 2020 could be anywhere between 10.5 per cent and 40.6 per cent – a range that reflects both the size and uncertainty of the employment shock.[22] Researchers have also estimated that only a minority of jobs can be done from home – meaning that relatively few workers are truly insulated from the COVID-19 shock (see Box 3).

The employment effects of spatial distancing are likely to vary across countries, and Australia's economy is different to those in Table 1.1, with a different contribution to total employment from each industry. However, international analysis still provides an additional reference point for Australian estimates. International findings also underline the fact that all economies around the world are being severely affected by the COVID-19 crisis – regardless of their composition. This in itself is likely to affect the pace of the recovery from the crisis because, unlike in previous recessions, there is no country untouched by the slump.

Table 1.1: Labour market predictions for other advanced economies

Country	Source	Method and assumptions	Prediction
US	Gascon (ibid)	Classifies occupations into those at 'high risk' of layoff	46% of workers are at high risk of layoff
	Leibovici et al (2020)	Uses O*NET to group occupations into low, medium, and high contact-intensity	22% of workers in high-contact occupations, at risk of job loss
	Dingel and Neiman (2020)	Uses O*NET to estimate the share of jobs that cannot be done at home	About 60% of jobs cannot be done at home
	Wolfe and Cooper (2020)	Based on financial economist GDP predictions	20 million jobs lost by July 2020
	Swagel (2020)	Spatial distancing scaled back 75% during the second half of 2020	Unemployment exceeds 10% in Q2 2020
Canada	PBO (2020)	Self-isolation measures end in August. OPEC does not limit oil supply	Unemployment reaches 15% in Q3 2020, recovers to 12.7% in Q4 2020
France	Barrot et al (2020)	Counts the number of workers affected by French administrative closures and confinement policies	Active workforce declines by 52%
Netherlands	Bureau for Economic Policy Analysis (2020)	Physical contact restrictions for 6 months, no direct recovery after restrictions lifted	Unemployment reaches 6.3% in 2020 and 8.4% in 2021
Ireland	McQuinn et al (2020)	12-week shutdown	Unemployment reaches 18% in Q2 2020, then recovers to 11% in Q4 2020

22. Faria-e-Castro (2020).

2 How do we estimate the size of the employment shock?

The economic situation facing Australia and other advanced economies is quite literally unprecedented. The pandemic-induced shutdown does not resemble 'ordinary' recessions, and previous pandemics have not been of the same magnitude, or they occurred so long ago that few relevant economic insights can be gleaned from them. This means that estimating the size of the COVID-19 employment shock is particularly difficult. This working paper represents our best attempt to forecast the size of the shock, under conditions of extreme uncertainty and limited information.

This chapter outlines our methods for estimating the size of the COVID-19 shock to employment in Australia. Our methods are based on either data about occupations' characteristics, or Grattan researchers' judgement about the likelihood of job losses within individual industries, or both.

Our starting point is to assume that the probability a particular job will be lost as a result of COVID-19 depends on whether the job requires physical proximity to other people. In general, we assume jobs that require workers to be near other people – their co-workers or the public – are more likely to be lost than jobs that do not require physical proximity. We translate jobs' physical proximity requirements into a probability that the job will be lost as a result of COVID-19.

We also use a method that does not rely on the physical proximity measure, as a cross-check on the proximity-based measures. For this method, Grattan researchers manually estimated the percentage of jobs that will be lost within each sub-industry. Our preferred method combines the two, giving an estimate of the likelihood that a job will be lost based on both the occupation's physical proximity requirement and our manual estimates of industry-level job risks.

2.1 What we are measuring

We estimate the likely effect of spatial distancing and mandated shutdowns on the number of hours worked and the number of people doing paid work in Australia in the second quarter of 2020.[23] Our results do not easily translate into the numbers found in the ABS labour force survey, such as the number of employed people or the unemployment rate.[24] The translation of our results into standard employment and unemployment figures is considered in Section 3.5 on page 24.

We estimate the direct, immediate effect of the COVID-19 response on the labour market. We assume the restrictions on personal and business activity broadly in place as at early April 2020 will continue for at least another month, and will likely remain in place through June.[25]

Our estimates do not take into account further negative effects from reduced overall spending in the economy – the 'second round' effect. Nor do our figures account for the positive effect of government stimulus, both fiscal and monetary. Some attempt is made to factor in the effect of policy decisions such as the JobKeeper payment when translating the hours worked estimates into estimates of the number of

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23. Estimates of the number of affected workers are 'raw' – they do not refer to 'full-time equivalents'. We include all employed persons in our figures. Our estimates are based on workers' main occupation – where they hold multiple jobs, our estimates pertain only to the main job.
24. We estimate the number of people who will cease working as a result of COVID-19, but it is possible to not be carrying out paid work and still be considered 'employed'.
25. Prime Minister Scott Morrison recently signalled that current restrictions would remain in place for at least four weeks. Hayne (2020). However in practice restrictions, if lifted, will likely only be relaxed gradually over a number of months. Daley and Duckett (2020).

employed people and the unemployment rate, since by its design the JobKeeper payment will obscure some of the effect of job losses on the unemployment rate (Box 4 on page 24).

2.2 The data we use

O*NET data on physical proximity

We begin with data from the Occupational Information Network (O*NET) on the degree of physical proximity required by various occupations in the United States. O*NET, which is sponsored by the US Department of Labour, conducts extensive surveys to understand the 'anatomy of an occupation' – its database is the United States' main source of information on the nature of individual occupations.[26]

Each job demands different knowledge, skills, and abilities – and each job requires workers to perform different tasks and activities. The O*NET database quantifies these characteristics, in the form of hundreds of standardised descriptors about each occupation. The database contains information about almost 1,000 occupations, covering almost the entire US economy.[27] O*NET collects the data for these descriptors by surveying workers in each occupation and asking them about their work and the tasks they perform.[28]

Our analysis uses the 'physical proximity' occupational attribute from O*NET, to identify which occupations are at risk of job loss due to coronavirus-related shutdowns and spatial distancing. These proximity scores are based on a question O*NET asks workers: 'To what extent does this job require the worker to perform job tasks in close physical proximity to other people?' Responses are recorded on a 0-to-100 scale. The higher the score, the closer the proximity.

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26. O*NET Resource Center (2020).
27. Ibid.
28. O*NET (2018).

Figure 2.1: Most jobs require at least some physical proximity to other people
Number of occupations, by the degree to which they require physical proximity to other people
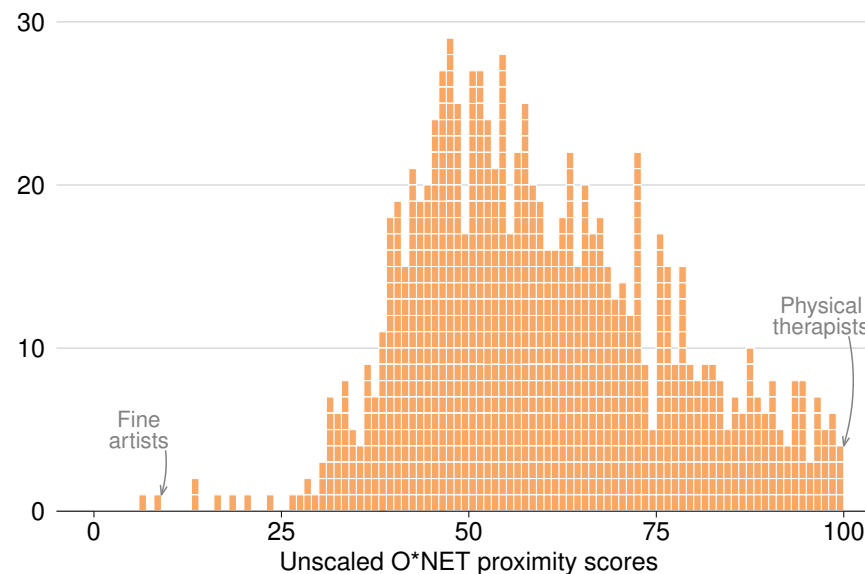
*Source: O*NET occupational characteristics database.*

O*NET provides the following guide for interpreting physical proximity scores:

- Score of 0: I don't work near other people (they are more than 100 feet away)

- Score of 25: I work with others but not closely (e.g., in a private office)

- Score of 50: Slightly close (e.g., in a shared office)

- Score of 75: Moderately close (at arm's length)

- Score of 100: Very close (near touching)[29]

Figure 2.1 on the previous page shows the distribution of these scores for individual US occupations. Very few score less than 25 on this measure. Most are somewhere in the middle. The top of the distribution is dominated by occupations that require workers to touch other people, such as a range of health professions.

We scale and square the O*NET proximity scores.[30]

Converting US occupations to their Australian equivalents

The O*NET data measures the extent to which occupations – such as 'dental hygienists', 'barbers', or 'court clerks' – require physical proximity. Occupations in the US are classified under the US Standard Occupational Classification System (US SOC). Australia uses a different framework, the Australia and New Zealand Standard Classification of Occupations (ANZSCO), but the two frameworks are broadly similar.[31]

We use a 'SOC-ANZSCO correspondence table' to translate the American occupations into their Australian equivalents.[32] The matches

are not always perfect. In some cases a US occupation matches with multiple Australian occupations; in these cases, the CSIRO researchers have identified, and we use, a 'primary' match.

We assume that an occupation in the US and its equivalent in Australia require the same degree of physical proximity to other people.

Data on the number of people in different occupations and industries

We use the 2016 Census to obtain the number of employees in each industry-occupation combination, and the number of hours that they work.[33] There are 17,680 unique occupation-industry combinations in Australia. People with occupations or industries recorded as 'not stated' or 'inadequately described' were excluded. To align our figures with the scope of the ABS labour force survey, we restrict the Census data to civilians (i.e. excluding Defence Force personnel) aged 15 and older. The Census gives us a reliable measure of the number of people in each occupation, within each industry.[34]

The drawback with using Census data is that it is now several years old. The workforce has grown since 2016. The number of people in each individual occupation and industry may have grown or contracted. We need to scale up the Census numbers. We use the labour force survey to do so.

We use the February 2020 release of the quarterly detailed labour force survey to scale up or down the number of people in each occupation.[35] We use a four-quarter rolling average of the labour force

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29. O*NET Online (2020).
30. We scale so that the occupation that requires the highest degree of physical proximity has a value of 1, and the lowest has a value of 0. We then square those scaled values, which has the effect of leaving high-proximity occupations' scores relatively unaffected while dragging down those in the middle of the distribution. This transformation – scaling and squaring the proximity scores – is crucial to some of our estimates of job loss. We have a limited basis on which to judge whether this transformation of the raw proximity scores is the appropriate one. We produce job-loss estimates that do not rely on the proximity scores as a cross-check that this approach produces plausible results. In Appendix A we also examine the validity of the transformation.
31. Both are aligned with the International Standard Classification of Occupations, created by the International Labour Organization.
32. The table was provided to Grattan by CSIRO researchers Andrew Reeson and Gavin Walker. We are very grateful for their assistance.

33. We examine 4-digit occupations and 2-digit industries.
34. Sample surveys are not well-equipped to do this, because the sample size within any occupation-industry cell is too small – or even non-existent. We examine 17,680 occupation-industry cells, whereas the monthly labour force survey is of only about 26,000 dwellings (housing about 66,000 civilians aged 15+).
35. ABS (2020c).

figures to smooth spikes in numbers. This is especially important for occupations with small numbers of people employed.

Job loss probabilities by industry

The probability that a particular job will be lost is determined not only by the nature of the occupation, but also the nature of the industry. People working in most occupations in the health industry, for example, will be relatively safe from job losses: a cleaner at a hospital is unlikely to lose their job, but a cleaner of a pub might. We therefore need to take industry as well as occupation into account in estimating how much each job is at risk of being lost. We use two data sources to quantify the risk to each industry.

The first approach is based on the occupational physical proximity scores. We calculate *industry* physical proximity scores as the weighted average of physical proximity scores of the occupations in the industry.[36] We manually specify industry proximity scores for the healthcare and social assistance industry, and the public administration and safety industry, so that these industries contain zero job loss risk.[37]

Industries that rely on physical proximity – such as hospitality – will be more at risk than those that do not. We assume that all occupations within a high-risk industry are at greater risk of job loss than the same occupations in a low-risk industry.

The second approach to quantifying industries' job-loss probabilities is entirely separate from the proximity-based approach. Grattan researchers manually estimated what they judged to be the likely effect on employment in each of 88 industries.[38] The median of researchers' estimates was used as the industry-level job loss probability.

2.3   Our methods

We use three methods for combining this information on occupations and industries to arrive at estimates of the impact of the COVID-19 crisis on employment and hours worked in Australia.[39]

Our **preferred method** uses both the occupation-level proximity scores and Grattan researchers' manually-estimated probabilities of job loss in each of the 88 industries. In this method, each job has a probability of job loss given by the (arithmetic) mean of the scaled-and-squared occupational physical proximity scores and the manually-assigned industry job loss probabilities. We prefer this method because it incorporates more information. Combining the proximity-based occupational scores with judgement-based industry estimates provides a way to incorporate a broader range of information about the likely labour market impacts of COVID-19 than using one data source only.

Alternative method one uses the occupation- and industry-level proximity scores to estimate the likelihood of job loss. It does not use Grattan researchers' manually-estimated job loss probabilities. For this method, we assume each job has a probability of job loss equal to the harmonic mean of the scaled-and-squared occupational and industry

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36. The occupational proximity scores are scaled and squared before calculating the industry-level weighted averages.
37. Physical proximity scores classify the health industry and occupations within it as high risk due to their requirement for close human contact. But we expect the health industry as a whole to be safe from job losses during this period. Individual occupations, such as physiotherapists or dental hygienists, may suffer job loss, while others, such as nurses, may experience an increase in employment and hours worked. We assume the net effect is zero.

38. Grattan staff gave each of the 88 2-digit ANZSIC codes a rating of -100 per cent (complete job loss), -75 per cent, -50 per cent, -25 per cent, 0 (no job loss), or +10 per cent (job gains). Estimates were collected in these rough bins to avoid giving the impression of false precision.
39. Note that by 'employment' here we mean the number of people actually carrying out paid work, as opposed to being stood down. The difficulty of translating these figures into estimates of employment that align with the ABS labour force survey measurement framework is discussed in Section 3.5.

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physical proximity scores. We set the industry scores to zero for jobs in the public administration industry and the hospitals sub-industry.

Alternative method two does not use the proximity scores at all. Instead, it uses Grattan researchers' manually-estimated probabilities of job loss in each of the 88 sub-industries.[40] For this method, we do not distinguish between different occupations in an industry.

2.4   Limitations

We assume that, broadly speaking, the level of restrictions in place in early April remain in place through the second quarter of 2020.[41] This was the basis on which our manual industry-level estimates of the probability of job loss were constructed. If the level of restrictions is changed, this would obviously affect the number of people who will lose their jobs.

Our approach does not enable us to estimate these effects with any precision – such as quantifying the employment consequences of moving up from Stage Three to Stage Four restrictions, or moving from Stage Three back to Stage Two, although this may be the focus of future work. One difficulty is that the employment effects of COVID-19 are affected not only by government policy; voluntary spatial distancing over and above that mandated by government can affect the number of businesses that are open, and the number of people they employ.[42]

The figures we obtain using these methods are approximate and indicative. There is a high degree of uncertainty around these

estimates, and it is not possible to quantify that uncertainty. We present results using the three methods outlined above, but these results do not represent upper and lower bounds on the plausible range of outcomes. Australia – indeed, the world – is facing a situation without modern precedent. Forecasting the effect on the labour market is fraught with difficulty.

Our methods do not account for the prospect that firms adjust their operations in response to social distancing directives, altering the need for proximity in jobs compared to the O*NET data upon which our estimates are based. For example, many restaurants have shifted from in-house dining to take away and delivery only. Our estimates may therefore overestimate the degree to which jobs continue to require physical proximity today, inflating our estimates of the jobs lost as a result of COVID-19. Similarly, some workers may instead find themselves on reduced hours rather than being out of work entirely.

On the other hand, our methods do not factor in any additional job loss caused by deficient aggregate demand, over and above the direct effects of spatial distancing and shutdowns. Nor do they factor in the boost to aggregate demand from fiscal and monetary stimulus. although such stimulus in unlikely to materially affect the hit to employment in those occupations and industries directly affected by spatial distancing. We attempt to factor in the JobKeeper program when translating our results to an estimate of the change in employment, as measured by the ABS (see Section 3.5).

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40. 'Sub-industries' here refers to two-digit industries in the ANZSIC framework.
41. While the Federal Government has flagged some restrictions may be relaxed, starting in late May, restrictions are likely to only be relaxed very gradually to prevent the re-emergence of COVID-19. Hayne (2020).
42. For example, restaurant reservations in many countries had already declined sharply well before before public health authorities required them to close. *The state of the restaurant industry* (2020).

3   Our estimates of the employment shock

Using the methods outlined in Chapter 2, we estimate that between 14 and 26 per cent of workers will be out of work as a result of the COVID-19 shutdown and spatial distancing (Figure 3.1). Our preferred method gives results at the top end of that range. These estimates are approximate, indicative, and subject to a high level of uncertainty.

Each of our methods yields slightly different results, but all are in broad agreement: somewhere around a fifth to a quarter of workers are likely to be out of work as a result of the COVID-19 policy response. Our preferred method suggests about 26 per cent of workers will be out of work. In February 2020, 13.01 million people in Australia were employed – so 3.43 million Australians could lose work. Some may quickly return as spatial distancing measures are relaxed, but a shock to employment of this size and speed is unprecedented in Australia.

We find, unsurprisingly, that the hospitality industry is likely to be the hardest hit, with more than half of workers in that industry thrown out of work. Younger workers are more likely to be affected than older workers. Lower-income workers are twice as likely to be out of work than the highest income-earners. Women appear to be slightly more likely to be out of work than men. But we expect the hit to employment will be large in most industries, all age groups, and for men and women.

Our estimates relate to the June quarter of 2020. They refer to the number of people actually doing paid work – as opposed to people who are technically 'employed' but are not working. The distinction is discussed in Section 3.5. Our estimates also only to jobs or hours likely to be lost as a result of shutdowns and spatial distancing – they do not incorporate any further negative effects from lower aggregate demand, nor any offsetting boost to employment from fiscal or monetary stimulus.

Figure 3.1: About a fifth to a quarter of Australians are likely to be out of work due to COVID-19
Estimated proportion of jobs and hours worked likely to be lost due to spatial distancing and shutdown

Reduction in hours worked or people working
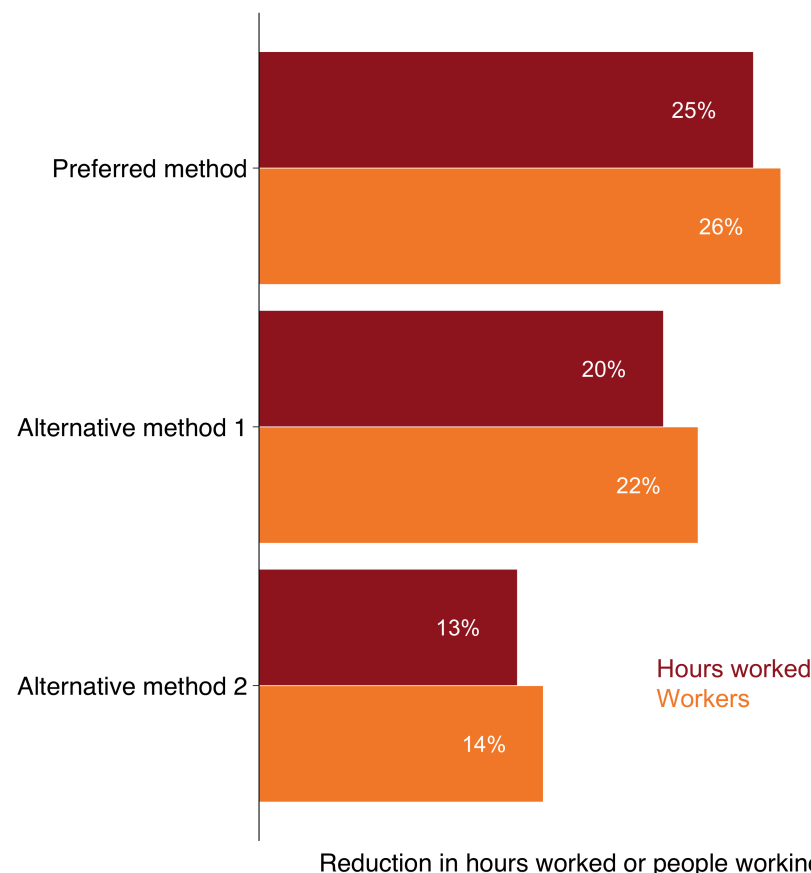
Notes: See Chapter 2 for description of methods. 'Workers' or 'jobs' refers to people doing paid work.
*Sources: Grattan analysis of O*NET Online (2020), ABS (2016) and ABS (2020c).*

3.1 Many will lose work in hospitality and the arts

Unsurprisingly, we expect that the hospitality industry – 'accommodation and food services' – will be the hardest hit (Figure 3.2). Most jobs in this industry require a high degree of proximity to other people, and the industry has been hit hard by government-mandated shutdowns. Our preferred method suggests about two-thirds of hospitality workers could be off work. Nearly 40 per cent of workers in this industry are short-term casual workers who will be ineligible for the JobKeeper program.[43] The 'arts and recreation services' industry follows closely behind hospitality.

The situation is less clear when it comes to 'health care and social assistance'. This industry is large and diverse, encompassing nurses in public hospitals, who are very unlikely to lose their jobs during this crisis, as well as workers who are more vulnerable to job loss. For example, allied health workers in private practice and a range of social care occupations are more at risk of being out of work. Our preferred method suggests about a quarter of jobs in this industry are at risk.

Some industries are expected to be less affected by the response to COVID-19. Jobs that don't require proximity to other people – and which can be performed from home – are much less likely to be lost.

Our estimates should be regarded as approximate. In some industries, the 'preferred method' yields results that are likely an over-estimate of the proportion of people who will lose work, such as in the finance and mining industries. In others, such as hospitality, the 'preferred method' figures may be too low. But on the whole, our estimates broadly align with ABS figures on the proportion of firms that report reducing working hours in response to COVID-19 (Section 3.4).

Figure 3.2: Hospitality and the arts will be hardest hit
Estimated percentage of workers who will be out of work, by industry

Proportion of workers who will lose work
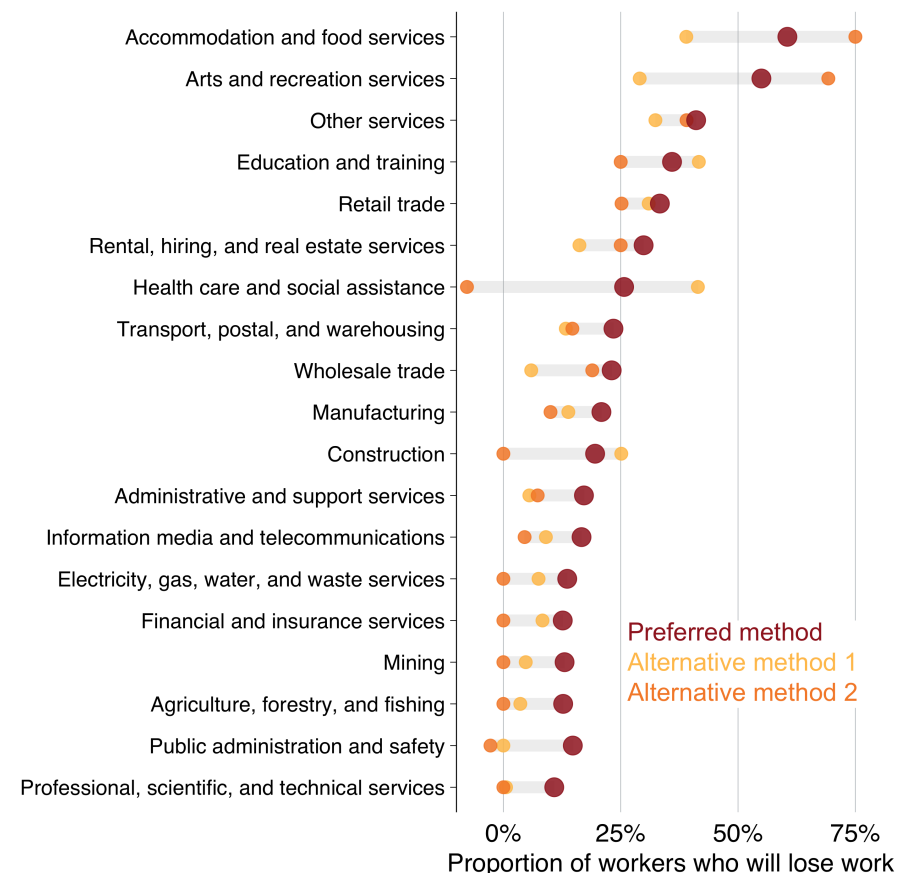
Notes: See Figure 3.1.

Sources: Grattan analysis based on O*NET Online (2020), ABS (2016) and ABS (2020c).

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43. Employees without paid leave entitlements with less than 12 months continuous service with their employers comprised 38 per cent of all workers in accommodation and food services: Grattan analysis of ABS (2019a).

3.2 Lower-income workers are likely to be worst affected

The effects of the COVID-19 response will not be felt evenly across the community. People with lower incomes are much more likely to lose work as a result of this crisis than people on higher incomes. This is shown in Figure 3.3.

Using our preferred method, we find that about 40 per cent of workers in the lowest income group are likely to off work during this crisis. This group includes workers who make less than $150 per week in personal income. By contrast, people earning more than $3,000 per week have less than half the risk of losing work.

We find that the lower a person's income, the more likely it is that their job is at risk as a result of COVID-19 and the public health response to the virus.

This is predictable, given the nature of the crisis. People who work in occupations that require them to be near other people are more likely to be thrown out of work. Industries like hospitality and retail are heavily affected, as shown in Figure 3.2. The most-heavily affected industries tend to have lower wages than industries like professional services, where fewer jobs require proximity to other people and more can be done from home.

People on lower incomes are less likely to have enough money in the bank to see them through a period of unemployment.[44] This means that financial support from government will be essential to see these workers through the pandemic, as discussed further in Chapter 5.

Figure 3.3: The lower your income, the higher the probability of losing work

Estimated percentage of workers who will lose work, by weekly personal income

Notes: See Figure 3.1. Excludes people with no personal income, or negative income.

Sources: Grattan analysis based on O*NET Online (2020), ABS (2016) and ABS (2020c).

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44. See Coates and Cowgill (2020a).

3.3 Younger workers and women will be hit hardest – but plenty of older workers and men will lose their jobs, too

Given that the hospitality industry is expected to suffer the biggest loss of jobs (Figure 3.2), it is perhaps unsurprising that young people will be hardest hit.

We estimate that about 40 per cent of employed teenagers will lose work due to the COVID-19 shutdown and spatial distancing. People in their 20s are the next most-likely to lose work. All other age groups have a broadly-similar prospect of losing work, as shown in Figure 3.4. The proportion of workers who will be thrown out of work by the COVID-19 response is high for all age groups – around a quarter of workers even in the older age groups.

Women are disproportionately likely to be employed in the occupations and industries most affected by the response to COVID-19. We find that they face a higher probability of losing their jobs than men (see Figure 3.4).

3.4 How plausible are our results?

Since the Australian economy has never previously experienced the kind of shutdown and labour force shock resulting from COVID-19, we don't have a way to directly test the validity of our method and results. As indicated earlier in this chapter, our results should be regarded as approximate and indicative.

To roughly gauge the plausibility of our results, we compare our estimates of the proportion of jobs lost in each industry with ABS survey data on recent firm behaviour. The ABS has asked businesses a series of questions about the impact of COVID-19, as a supplement to its regular 'business indicators' survey.[45] Randomly-selected businesses were asked in the week commencing 30 March 2020

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45. ABS (2020b).

Figure 3.4: Younger workers and women will be hit hardest
Estimated percentage of workers who will be out of work, by age

Estimated percentage of workers who will lose their jobs, by gender
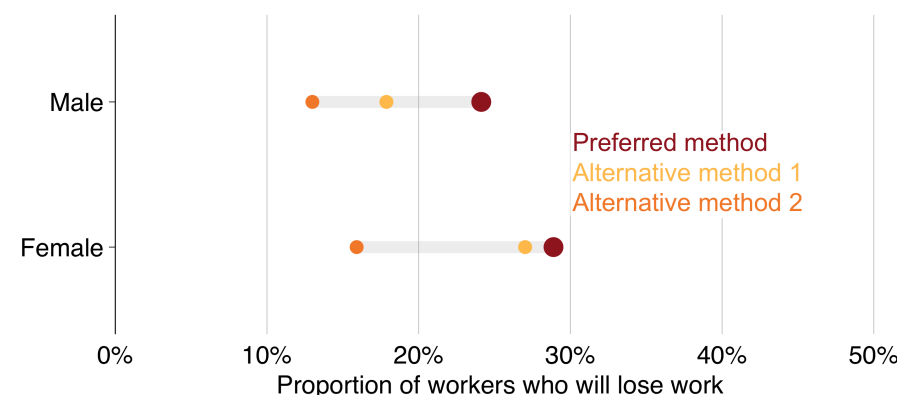
Notes: See Figure 3.1. Workers aged 70 and older are not shown on these charts, but are included in our analysis.

Sources: Grattan analysis based on O*NET Online (2020), ABS (2016) and ABS (2020c).

whether they have taken a range of actions in response to COVID-19, including reducing workers' hours or standing down staff. The ABS found that 26 per cent of businesses had reduced staff work hours, and 9 per cent had placed staff on unpaid leave, including 'stood down' workers.[46] The figures are not weighted by businesses size. Larger businesses are more likely to have stood down staff, or placed them on unpaid leave – 24 per cent of businesses with 20 to 199 employees and 20 per cent of businesses with 200 or more employees had done so.

These figures are not directly comparable to our estimates. The ABS figures pertain to the proportion of businesses that have reduced hours or employment, rather than the share of workers who have lost work. The share of firms reducing workers' hours also may not be an exact measure of how badly an industry is affected by shutdowns – an industry which sees lots of firms cut workers' hours by a small amount would appear to be badly affected under this measure, but in reality could be performing relatively well. Nevertheless, the comparison with the ABS data gives us some confidence that our approach is broadly accurate in capturing the reduction in total work done.

Within each industry, the job loss estimates given by our preferred method strongly correlate with the share of firms which have reduced worker hours in response to COVID-19 (Figure 3.5).[47] For example, our estimates predict that the 'Mining' and 'Financial and insurance' industries will be less affected than others. The ABS data confirms that relatively few firms in these industries have had to reduce worker hours – although the ABS numbers still suggest a non-trivial number of employers in those industries have cut hours. Our preferred method

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46. The figures may understate the impact of COVID-19, as businesses that have ceased trading may have been less likely to respond to the survey. Workers stood down since 4 April will also not be included in the survey results.
47. The correlation coefficient between the two variables is +0.65. The correlation coefficient between our preferred method and the proportion of firms reporting having places workers on 'unpaid leave' is 0.52.

Figure 3.5: Our industry-level job loss estimates are broadly in line with the share of firms cutting workers' hours
Comparison of ABS survey data on the proportion of firms that have reduced worker hours and Grattan's industry-level estimates of the proportion of Australians out of work
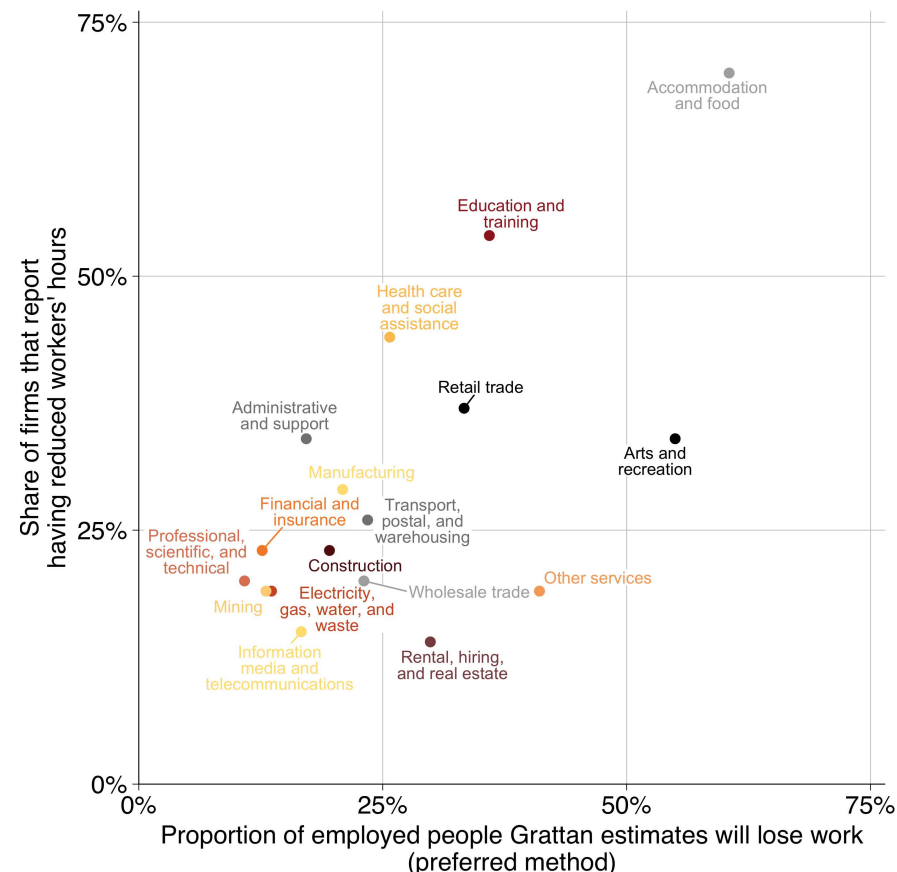
Notes: Data was collected during the week commencing 30 March 2020. Excludes the 'agriculture, forestry and fishing' and 'public administration' industries. The ABS notes that the survey results may be subject to sampling error, as well as non-response bias.

Sources: ABS (2020b) and Grattan analysis. Grattan Institute is grateful to the ABS for providing the custom industry-level data.

predicts 60 per cent of workers in the 'accommodation and food services' industry could be out of work; the ABS data shows that 70 per cent of actively trading businesses in that industry have reduced workers' hours. The figures do not perfectly align, but the broad correlation between them provides some reassurance.

3.5 Unemployment will rise a lot, but JobKeeper will disguise the impact

Using our preferred method of estimating the job shock, we estimate that about 3.43 million Australians could be out of work as a result of the response to COVID-19. If all of these people were classified as 'unemployed', the unemployment rate would rise to 30.2 per cent.[48]

But not all the people who lose work as a result of COVID-19 will be classed as unemployed. Some who lose work will continue to be regarded as 'employed', because they will carry on receiving pay from their employer via the JobKeeper program even if they're not at work. Others that would have lost their jobs will remain employed, either in adapted roles or on reduced hours since Government is subsidising their wages. Some may quickly find work with another employer. And others will drop out of the labour force entirely, and will therefore not be counted in the unemployment rate.

Of all the measures reported in the labour force survey, the change in hours worked is likely to give the clearest picture of the impact of the COVID-19 response on the labour market.

Some people will still count as 'employed' even if they're not working

On our preferred approach we estimate that 26 per cent of people who were working in the first quarter of 2020 will not be doing paid work in

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48. The number of unemployed people would rise to 4.15 million and the number employed would fall to 9.58 million, giving a 30.2 per cent unemployment rate. This simple calculation does not factor in new entrants to the labour market.

Box 4: The JobKeeper Payment

The $130 billion JobKeeper program, announced on 30 March, provides a wage subsidy to encourage and assist employers to retain their workers. The program will pay $1,500 a fortnight in wage subsidy to employers for each eligible employee, who must in turn pay their employees at least $1,500, even if their ordinary wage is less than this amount. The scheme is expected to cover 6 million Australians for 6 months from 30 March. This will include people who are still carrying out paid work for their employer, as well as employees who have been stood down.

To be eligible, a business must have have suffered a revenue drop of at least 30 per cent; or 50 per cent if it has annual turnover greater than $1 billion. The threshold for not-for-profits is 15 per cent. Major banks are ineligible, as are public sector employers.[a]

Full-time and part-time staff are eligible. Casuals will be eligible if they have worked for their employee for at least 12 months.[b] Most temporary migrants are ineligible.[c] Workers are only eligible for the subsidy for one job, even if they hold multiple jobs.

Payments won't begin until May, but the scheme will cover employees who have been stood-down or fired any time since 1 March, if they remain with or re-attach to their employer.

The program will increase the number of people counted as 'employed' by the ABS in the labour force survey, and therefore reduce the unemployment rate relative to where it would otherwise have been (see Appendix C).

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a. For the full eligibility criteria, see ATO (2020).
b. Prime Minister of Australia (2020).
c. Holders of a 'special category subclass 444' visa – New Zealand citizens living and working in Australia – are eligible for the scheme.

the second quarter. This does not necessarily mean that the number of employed people as recorded in the labour force survey will fall by 26 per cent. The reason is that it is possible to be considered 'employed' even if you are not actually working, in certain circumstances that are particularly relevant in the current crisis.

If a person is away from work – for example, if they've been 'stood down' – then they're considered to be employed if they've been away for less than four weeks. If they've been away for more than four weeks, but they have received some pay from their employer for the past four weeks, they will also be considered 'employed' (see Appendix C for more on the labour force classification). The JobKeeper wage subsidy, which is expected go to about six million Australians,[49] will mean that a substantial number of people who are not doing paid work nevertheless will continue to receive pay from their employer.[50] This will mean that many people are classified as 'employed' even if they are not actually doing paid work. In the absence of the scheme, they would have been unemployed or not in the labour force. The number of people who will be out of work but still getting paid is unknown.

A number of institutions revised down their forecasts for the unemployment rate after the announcement of the JobKeeper program. ANZ had been forecasting a 13 per cent unemployment rate for the June quarter, but revised this down to 9.5 per cent after the program was announced (see Figure 1.6 on page 11). Westpac now expects the unemployment rate to peak at 9 per cent; it states that this would have been 17 per cent if not for JobKeeper.[51] The Treasurer has stated that

Treasury is forecasting unemployment to reach 10 per cent in June, but would have expected the rate to reach 15 per cent without JobKeeper.[52]

The JobKeeper Payment is a welcome initiative. It will help to ensure more Australians are able to weather the economic storm over the coming months, and will keep workers and employers connected. This should help the recovery, because more businesses will be able to resume trading quicker than they would have if the subsidy was not in place. But JobKeeper will mean that the impact of COVID-19 on the labour market is not as apparent in the unemployment rate.

Some people won't be counted as 'unemployed' even if they're out of work

If people are not employed, their labour force status can either be 'unemployed' or 'not in the labour force'. A person can only be considered 'unemployed' if they are actively seeking work and available to start work (see Appendix C). If someone is not employed, and doesn't satisfy these conditions, they are not considered unemployed and will therefore not count towards the unemployment rate.

A sizeable, but unknown, number of Australians who lose their jobs as a result of COVID-19 are likely to drop out of the labour force. In the US, about half of the 'extra' people who lost their job in March dropped out of the labour force, with half being classified as unemployed.[53] We expect the figure in Australia will be similar.[54]

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49. Frydenberg and Morrison (2020). Note that many of the recipients will still be carrying out paid work activities.
50. The $1500 per fortnight JobKeeper subsidy is paid to employers, who must pay their eligible workers at least that amount.
51. B. Evans (2020).

52. Frydenberg (2020).
53. In February, before COVID-19 had widespread employment effects outside China, 6.1 million Americans ceased being employed. In March, this rose to 8.4 million. Of the 'extra' 2.3 million, 1.1 million became unemployed and 1.2 million left the labour force. Figures are seasonally adjusted. Grattan calculations based on BLS (2020a) and BLS (2020b). See also: Aaronson (2020).
54. JP Morgan also predicts that half the Australians who lose their jobs in the coming months will exit the labour force. Jarman and Kennedy (2020).

Box 5: The unemployment rate doesn't measure the number of people claiming benefits

Australia's unemployment rate – like those of other countries – is measured using a survey, the labour force survey. The criteria used in the labour force survey to determine whether someone is 'unemployed' or not are long-established, and based on guidelines from the International Labour Organization, the UN agency responsible for labour market policy and statistics.

The unemployment rate, as reported by the ABS, reflects how many people are out of work, but are actively looking for work, and would be available to start work if they got a job. Some people who are considered 'unemployed' by the ABS receive unemployment benefits from Centrelink, but many don't. Similarly, many people who receive Centrelink benefits are considered 'unemployed' for the purposes of the labour force survey, but many aren't. In fact, the overlap between the two groups is smaller than many people may imagine (Figure 3.6).[a]

If someone undertakes more than an hour of paid work in a week, they are considered 'employed' for the purposes of the labour force survey. But someone in part-time work can still receive unemployment benefits. Others might receive Newstart, but be recorded as 'not in the labour force' by the ABS. There's a substantial number of people who are 'unemployed' by the ABS definition, but who do not receive benefits. This may be because they do not satisfy the criteria for benefit receipt. For example, if someone is unemployed but they live with a partner who has a job, they may not qualify for Newstart.

a.   See also: ABS (2014a).

Figure 3.6: The overlap between the unemployed and Newstart recipients is smaller than many people think
Number of working-age people, by category
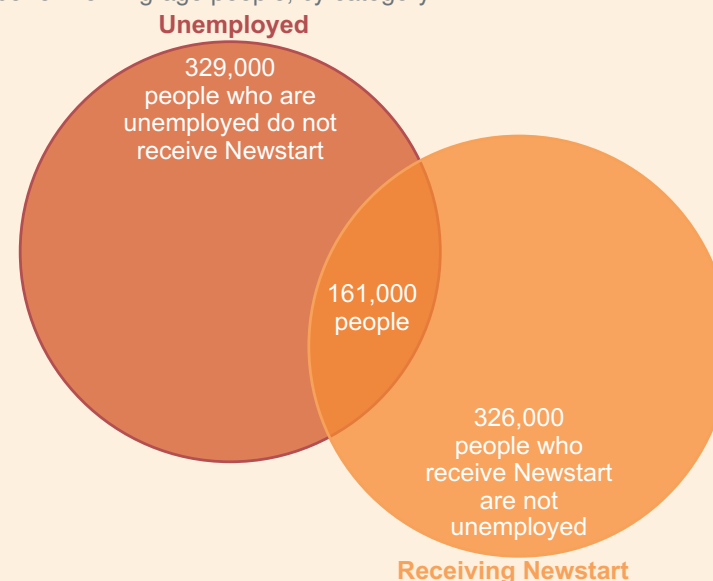
Notes: Working age is defined as 22 and older, for the purposes of this figure, because the data do not allow us to separate recipients of Youth Allowance (Other), the unemployment benefit for people younger than 22, from Youth Allowance (Student). In 2020, the Newstart Allowance was renamed the 'Jobseeker Payment'; the data used for this figure predate this name change.

Source: ABS (2019b).

The proportion of people who drop out of the labour force on leaving employment is likely to rise for a number of reasons. First, the health effects of the pandemic. People who are sick, or who are caring for sick family members, are less likely to actively search for work.[55]

Second, when people don't think they have a realistic prospect of finding work, they are less likely to actively look for a job.[56] As the economy slows, people who were already looking for work, as well as the newly jobless, may give up their search for work.

Third, the eligibility criteria for Newstart Allowance, now re-branded as Jobseeker Payment, have been temporarily loosened. This may reduce the proportion of people on benefits who actively search for a job, which will reduce the number considered by the ABS to be 'unemployed.'

3.6 How high could the unemployment rate could go?

To translate our estimate of the number of people who will lose work into an estimate of the unemployment rate, we need to do two things. First, make an assumption about what proportion of people who lose work will continue to get paid, and therefore how many people lose work and remain 'employed'. Second, make an assumption about what proportion of people who lose work and do *not* remain 'employed' will remain in the labour force and be counted as 'unemployed'. We consider a range of scenarios for each step.[57]

On the first assumption, there will clearly be a sizeable number of people who lose their jobs and will not continue to be paid. Not

everyone who loses work will be eligible for JobKeeper. The program excludes the public sector, higher education, and the big banks. Other employers are not eligible unless their revenue has fallen by a specified amount.[58] It's likely that some firms that have suffered smaller falls in revenue will still shed jobs in the coming months. Some employers who have dismissed workers may choose not to re-hire them despite being eligible for the scheme.[59] And some workers are ineligible for the program even if they work for an eligible employer. These include casual employees who have been with their employer for less than a year, and workers who are not Australian citizens or holders of a permanent or a subclass 444 visa (for New Zealand citizens). Workers whose employers go out of business will also not continue to be paid.

There is no data available that allows us to estimate the proportion of people who will be out of work but nevertheless continue to be paid.[60] Our expectation is that this figure will be around fifty per cent.

Beginning with our estimate that 3.43 million people will be out of work as a result of the COVID-19 response:

- if 60 per cent of them continue being paid by their employer, then the number of employed people will fall by 1.37 million;

- if half continue being paid, the number of employed people will fall by 1.72 million; and

- if 40 per cent continue being paid, the number of employed people will fall by 2.06 million.

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55. A person can be considered 'unemployed' even if they did not actively search for work in the past four weeks, as long as they already had a job they were waiting to start. See Appendix C.
56. Labour force participation is cyclical: R. Evans et al (2018).
57. Typically, an unemployment rate forecast would also need to take account of new entrants to the labour market over the forecast period. We have not done so. This is equivalent to assuming that new entrants to the labour market have, on average, the same probability of being employed as people already in the labour force.

58. 30 per cent for smaller firms; 50 per cent for larger firms.
59. Some examples of this have been reported: Bonyhady (2020).
60. Some 850,000 firms have applied for the JobKeeper program as of mid-April, around one-third of all businesses in Australia Yet no details are available on the share of workers these businesses employ. Hitch (2020).

Table 3.1: The unemployment rate is likely to hit double-digits

		Proportion of those losing work who remain 'employed'		
		40%	50%	60%
Proportion of those put out of work who remain in the labour force	40%	12.3%	11.0%	9.8%
	50%	13.8%	12.2%	10.8%
	60%	15.1%	13.4%	11.7%

Using these three numbers as the range of plausible scenarios for the change in employment, we can then further illustrate some scenarios for labour force participation, as shown in Table 3.1.

In the **mid-range scenario**, half of the people out of work continue getting paid by their employer, and half the remainder drop out of the labour force. In this case, the unemployment rate will hit 12.2 per cent. This would be the worst unemployment rate in Australia since the depths of the Great Depression in the 1930s.

In the **pessimistic scenario**, only a 40 per cent of the people who are thrown out of work will continue getting paid by their employer, and most of those who are no longer 'employed' will stay in the labour force. In this case, the unemployment rate would hit 15.1 per cent.

In the **optimistic scenario**, 60 per cent of the people who are thrown out of work will continue getting paid, and a relatively small proportion (40 per cent) of the rest will stay in the labour force. In this case, the unemployment rate would reach 'only' 9.8 per cent. But even this would be the worst unemployment rate in Australia for nearly three decades.

Figure 3.7 shows the unemployment rate in these three scenarios in the context of Australia's historical unemployment rate.

Figure 3.7: Even with JobKeeper, Australia may face the worst unemployment rate since the Great Depression
Unemployment rate since federation, with our three projected scenarios

Notes: Data are annual prior to 1966; quarterly from 1966-78; and seasonally adjusted monthly data thereafter.
Sources: Butlin (1977), ABS (2007) and ABS (2020a).

4   The broader economic costs of COVID-19 will also be severe

This working paper estimates the potential hit to employment from the COVID-19 crisis. We estimate that between 14 and 26 per cent of Australian workers – 1.9-to-3.4 million people – could be out of work in the coming weeks and months as a result of the spatial distancing measures now in place, if they aren't already. Although the full effect on unemployment will be obscured by the new JobKeeper wage subsidy, it's clear that the initial hit to employment is as large, if not larger, than any recorded in Australia's history, including during the Great Depression.

The second round impacts of COVID-19 on employment and economic activity will also be significant. Firms and households not initially affected by public health measures will scale back their spending to preserve cash flow in the face of an extended downturn. Meanwhile Australia faces a synchronised slowdown among our major trading partners, which will add to the economic hit from COVID-19.

The prospects for a rapid 'V-shaped' economic recovery are remote. The duration of the COVID-19 crisis is uncertain, but the direct economic effects on employment are likely to persist for some time. Even if we manage to eradicate the virus in Australia, most other countries won't be so lucky. And the weakening of the balance sheets of many firms and households as they take on debt to ride out the COVID-19 crisis could constrain business investment and consumer spending on the public health crisis passes.

History tells us that recovery from periods of high unemployment is rarely fast. This time may be different: the recession has been deliberately engineered as a matter of public health, and substantial economic support is in place. But the longer and more severe the downturn, the less likely the labour market can spring back afterwards.

4.1   The direct economic costs are likely to persist for some time

The ultimate hit to employment from COVID-19, and the economy more broadly, will depend on the public health strategy adopted.[61] Even in a best-case scenario, severe restrictions will probably be required for 2-3 months. In worst-case scenarios, serious but less severe restrictions could be imposed for much longer than a year.

In the best-case scenario, COVID-19 would be eradicated from Australia in the coming months.[62] While much is uncertain, the best evidence we have suggests that eradicating COVID-19 would require maintaining Stage Three restrictions for about three months.[63] If COVID-19 is eradicated, most economic activity could return to normal: shops, bars, and restaurants could re-open, as could schools and most public institutions such as libraries, museums, theatres, and sporting arenas. Although international tourism and much migration would remain constrained since strict quarantine would need to be enforced to prevent COVID-19 returning to Australia.

The leading alternative to an elimination strategy is to hold infection rates at close to one – that is, so each infected person on average infects only one other.[64] Under such a strategy some social distancing measures could be loosened, but much economic activity would probably remain curtailed. And whatever is required to keep infection rates close to one would need to remain in place until there is a cure or a vaccine – and that probably means for as long as 18 months,

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61. Daley (2020a).
62. Daley and Duckett (2020).
63. Although there is some prospect that a longer shut down would be required to eliminate COVID-19 from Australia. See: Duckett and Nolan (2020).
64. Budish (2020), Gottlieb et al (2020) and Emanuel et al (2020). Daley and Duckett (2020) describe this as the 'Goldilocks' strategy.

assuming either happens. A third strategy, of achieving herd immunity by allowing the virus to spread through the community, would likely require some form of spatial distancing for at least 12 months.[65] Although this strategy is unlikely to be adopted in Australia.[66]

This paper does not estimate the direct hit to employment of these various strategies, but rather focus on the near-term impacts of relatively severe shutdowns and voluntary spatial distancing. But whatever strategy Australia ultimately adopts, the direct economic costs of COVID-19 shutdowns are likely to persist, albeit to varying degrees, for months or even years.

4.2 The second-round macroeconomic impacts are also likely to be substantial

Our estimates of the job losses from COVID-19 consider the impacts on workers in occupations and sectors that rely on close physical proximity to other people. They align with other estimates of the direct impact on economic activity more broadly, such as those of the OECD.[67]

But our estimates do not directly factor in any 'second-round' effect of COVID-19 on employment in other sectors that will occur as a result of reduced aggregate demand. Nor do they consider the impact of fiscal and monetary policy in cushioning the blow.

Recent work by economists at the Bank of International Settlements suggests that the total impact on GDP from COVID-19 could be as much as twice that implied by the direct initial effects of confinement,

and these effects could drag on for many months.[68] The second-round impacts are likely to be large because of uncertainty about how long lockdowns will last, as well as more traditional hits to global trade and household and business confidence in the event of large-scale defaults by firms and households. However, it is important to note that these estimates precede any economic policy response by governments.

Similarly, McKibbin and Fernando (2020) have estimated the global impacts of COVID-19, under seven mortality and transmission scenarios.[69] Under the worst-case scenario, where the case fatality rate in China is 3 per cent[70] and COVID-19 spreads globally, they forecast that Australia's GDP would fall by 7.9 per cent.

4.2.1 Spending by firms and households will fall sharply

The initial shutdowns to control the spread of COVID-19 have hit consumer and business confidence hard. Even firms and households not initially affected by public health measures will inevitably scale back discretionary spending and investment to preserve cash flow in case of an extended downturn.[71] The more firms and households are forced to rely on own their own balance sheets to weather the costs of an extended shutdown, or repeated shutdowns, the worse these second round impacts will be. And as shown in Section 5.2 on page 37, many households and firms remain at least partly exposed to the economic

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65. Daley and Duckett (2020).
66. Federal Health Minister Greg Hunt has recently ruled out this option Butler (2020).
67. For example, OECD (2020) estimates that lockdowns could result in 22 per cent of Australia's economy being shut down, marginally less than in other major economies.

68. Kohlscheen et al (2020).
69. McKibbin and Fernando apply the 'G-Cubed Multi-Country Model', which is a general equilibrium macroeconomic model.
70. For each country in the G-Cubed model, the authors scale the Chinese case fatality rate assumption based on that country's perceived vulnerability.
71. For example Guerrieri et al (2020) present a model where a pandemic-related supply shock triggers changes in aggregate demand that can be larger than the initial supply shock itself.

costs of an extended shutdown. Declining household wealth will also weigh on people's spending decisions.[72]

Early data suggest these second-round impacts could be large in Australia. Consumer confidence recently fell to its lowest level in the nearly 50-year history of the ANZ-Roy Morgan Consumer Confidence series, before recovering slightly following the announcement of the JobKeeper package, as shown in Figure 1.1 on page 5. Business confidence has also fallen to its lowest level on record.[73] New car sales in March fell by 18 per cent compared with March 2019, making last month the worst for more than a decade.[74] In a recent ABS survey of businesses, two thirds reported a reduction in turnover or cash flow as a result of COVID-19, whereas only 48 per cent said their operations had been restricted by governments' public health responses (Figure 4.2). Although economic stimulus provided to date is providing some support to consumer spending.[75]

Several countries that initiated lockdowns before Australia have recorded even sharper declines in discretionary spending.[76] These

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72. For example, May et al (2019) find that each 1 per cent increase in housing wealth will lead to a 0.16 per cent increase in consumption, and a 1 per cent increase in stock market wealth will lead to a 0.12 per cent increase in consumption.
73. Kehoe (2020).
74. McCowen (2020).
75. For example, high frequency data on consumer spending shows that the arrival of the first stimulus payments of $750 arrested the decline in discretionary spending which was 26 per cent below normal levels last week but bounced back to be just 16 per cent below pre-crisis levels. See: AlphaBeta (2020).
76. For instance, new car sales in China fell by 80 per cent in February, and nearly halved in the UK in March, much sharper falls than even at the peak of the Global Financial Crisis: (Bloomberg News (2020) and Partridge (2020)). Baker et al (2020) find that household spending rose sharply in the US in late February to early March, but fell by about 50 per cent over the second half of March. The French Statistical Service found total consumption dropped 35 per cent (INSEE (2020)).

Figure 4.1: The IMF predicts the Australian economy will face its worst year since the Great Depression
Annual real GDP growth
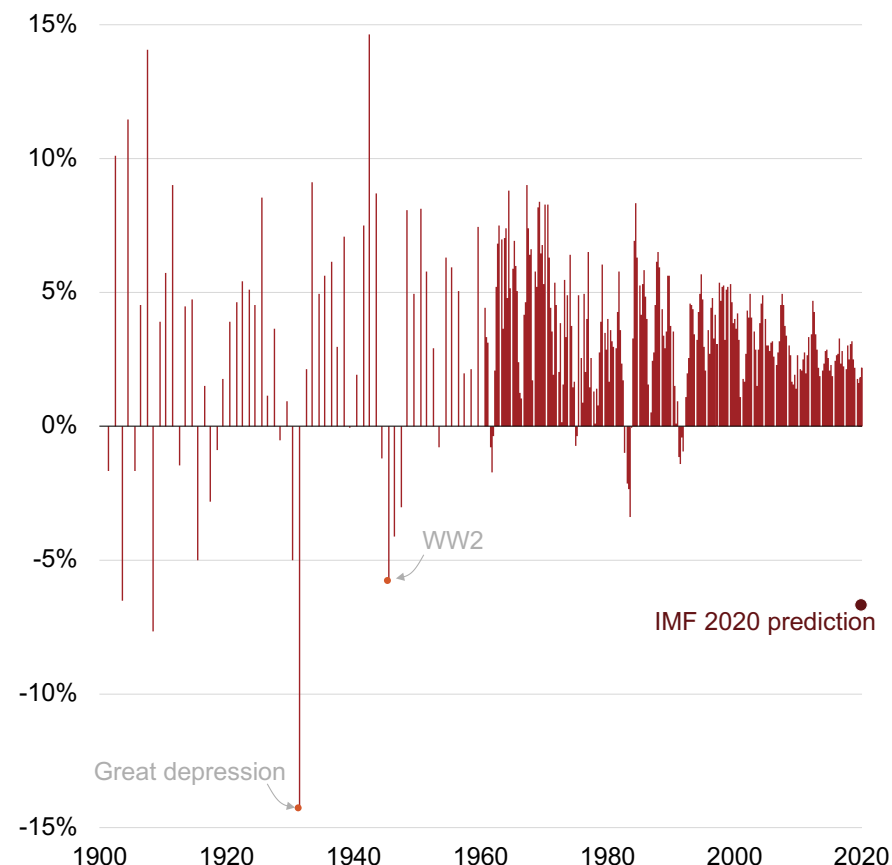
Notes: Prior to 1960, GDP growth is calculated annually for each financial year. From 1960 onward, GDP growth is calculated for the 12 months preceding each quarter. IMF estimate is for the 2020 calendar year.
Sources: Butlin et al (2015), ABS (2020d) and IMF (2020).

spending declines vastly exceed estimates of the share of economic activity directly affected by shutdowns.

4.2.2 A global recession will hit Australia hard

A striking feature of COVID-19 is that it is hitting all major economies almost simultaneously.[77] The OECD estimates that the direct economic impacts of shutdowns will wipe out between 20 and 30 per cent of economic activity in most advanced economies, or roughly 2 percentage points of annual GDP for each month that they remain in force.[78] And world trade is forecast to fall by 11 per cent over the 2020 calendar year.[79]

The latest IMF World Economic Outlook, published on 14 April, forecasts the global economy to contract by 4.2 per cent in 2020, and grow by 4.6 per cent in 2021. Despite the rapid recovery forecast for 2021, which appears optimistic, the global economy would still be smaller in 2021 than expected prior to the COVID-19 crisis. The IMF also expects Australia's economy to contract by 6.7 per cent over 2020, before rebounding to grow by 6.1 per cent in 2021 (Figure 4.1).[80]

Sharp slowdowns in demand among Australia's major trading partners will sharply reduce demand for Australian exports. For example, the Chinese economy contracted by 6.8 per cent in the March quarter of 2020, compared to the same period a year earlier.[81] Economists at the Reserve Bank of Australia have estimated that a 5 percentage point decline in Chinese GDP alone would reduce GDP growth in

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77. Mody (2020).
78. OECD (2020).
79. IMF (2020, p. 7).
80. These baseline forecasts assume that the pandemic fades in the second half of 2020 and containment efforts can be gradually unwound, the global economy is projected to grow by 5.8 percent in 2021 as economic activity normalizes, helped by policy support: IMF (ibid).
81. BBC (2020).
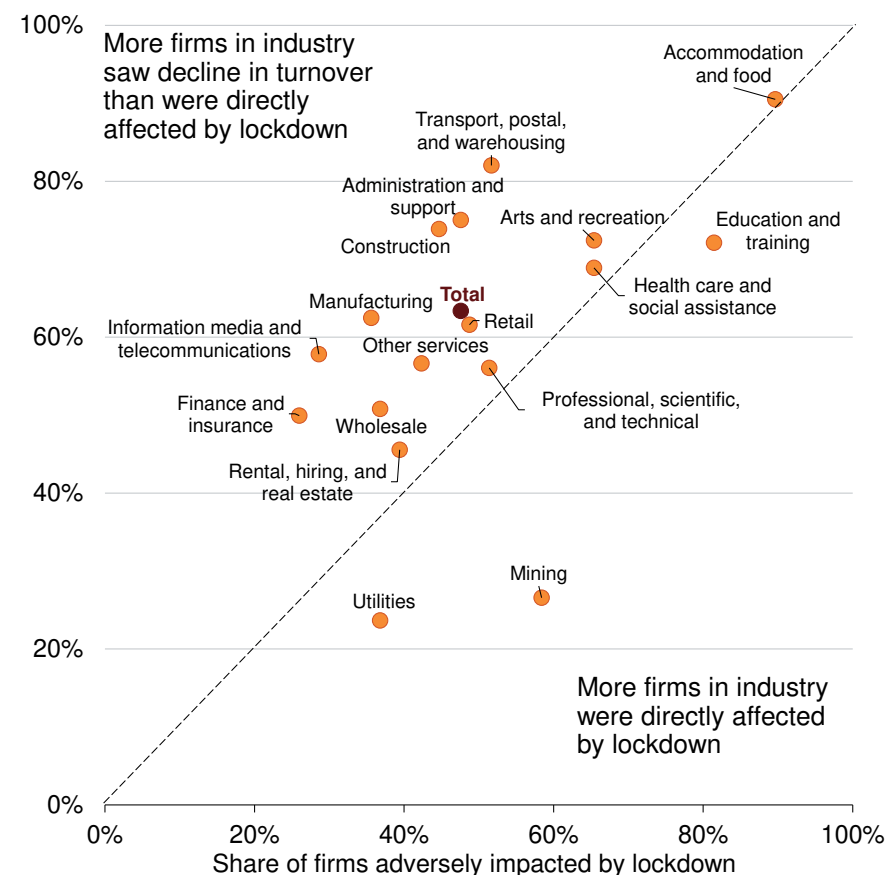
Notes: Firms could select more than one option. There may be selection bias, because the ABS only surveyed firms still trading.

Source: ABS (2020b).

Australia by up to 2.5 per cent.[82] Although China is re-opening after enduring severe shutdowns through much of the first quarter of 2020, its economy continues to operate below full capacity, and COVID-19 cases appear to be rising again.[83] Australia's other major trading partners are likely to record similarly severe economic contractions in the June quarter of 2020.

The pace of any economic recovery may also be constrained by a sharp decline in inbound migration due to COVID-19. Population growth has accounted for a large share of Australia's aggregate GDP growth in recent years.[84] Net overseas migration between 2016 and 2019 was responsible for 63 per cent of Australia's population increase.[85] Yet the prospect of prolonged closure of Australia's borders will likely reduce the flow of inbound migrants for some time, slowing growth in GDP (but not GDP per capita).

4.2.3 Financial stability is at risk

The speed and magnitude of the COVID-19 economic hit also pose big risks for financial stability, although policymakers in Australia have moved quickly to reduce these risks to date.[86]

In the words of economist John Cochrane:

> Shutting down the economy – and more importantly turning it back on again – is not like shutting down and turning on a light bulb. It's

more like shutting down and restarting a nuclear reactor. You need to do it carefully, and make sure the parts survive the shutdown intact.[87]

Big Australian banks' share prices have fallen sharply, reflecting investors' concerns that COVID-19 will substantially reduce banks' profits.[88] Meanwhile corporate debt markets have been volatile amidst a lack of liquidity.[89]

Highly-leveraged households and businesses could face a liquidity crunch as their incomes suddenly decline sharply. Some households will be able to draw on significant financial buffers, including large mortgage prepayments. But many highly indebted households have only small buffers and so are more vulnerable. Repayment deferrals ('holidays') offered by the banks, early access to super and the Federal Government's wage subsidy package, should help avoid large increases in arrears (Section 5.2 on page 37).[90] But banks will face an increase in non-performing loans, even if repayments are deferred for a period, and some households will find it difficult to service loans. Australia's high level of household debt exacerbates these risks.[91]

Heavily indebted firms are arguably even more vulnerable: government assistance to date has largely focused on covering their costs rather than replacing foregone revenues (Section 5.2 on page 37). Little support has been provided to tenants in sectors heavily affected by shutdowns, where rent is likely to account for between 80 and 95 per cent of the costs of severely-affected firms while they are shut down.[92] The new term fund facility established by the Reserve Bank

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82. Guttmann et al (2019).

83. Chinese coal consumption continues to lag 20-25 per cent below the levels of the same time a year ago, and electricity consumption by 10 per cent. Birtles (2020) and Zhu et al (2020).

84. The 2019-20 Budget Papers forecasts Net Overseas Migration (NOM) to remain between 240,000-260,000 in 2018, and hold steadily above 260,000 out to 2022.]Budget2019-20-BP3.

85. Megalogenis (2020).

86. Lowe (2020b).

87. Cochrane (2020).

88. Price-to-book ratios for Australian banks declined to their lowest levels since the early 1990s and, as of early April 2020, are below one for most Australian banks. RBA (2020b, p. 11).

89. RBA (ibid, p. 5).

90. Ibid.

91. Daley et al (2017).

92. Wood (2020).

to give banks access to subsidised credit where they lend small and medium-sized businesses should help.

4.3 These severe economic costs are likely to endure for a long time

Macroeconomics textbooks typically describe recessions as temporary declines in aggregate demand, when actual output drops below potential output, followed by a recovery when output returns to potential. However, a number of studies of deep recessions around the world find that recessions have highly persistent effects on economic growth over the long-term. These effects, sometimes labelled 'hysteresis', could arise because a recession reduces capital accumulation, scars workers who lose their jobs, and disrupts the economic activities that produce technological progress.[93]

History tells us that recovery from periods of high unemployment is rarely fast. Figure 4.3 shows that when the unemployment rate rises in an economic downturn, it typically takes about two or three times as long to recover as it did to reach the worst point. For example, in the 1990s recession, it took a little over three years for the unemployment rate to reach its peak, and then a further 7.6 years to return to its pre-recession level.

This time may be different. This recession has been deliberately engineered to help protect public health.[94] A reduction in economic activity and employment is a necessary feature of the public health response to COVID-19. Australian governments have provided

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93. For example, Ball (2014) finds that after the Great Recession most countries suffered strong hysteresis effects: shortfalls of actual output from pre-recession trends had reduced potential output almost one-for-one. See Rothstein (2019) for a discussion of the literature on labour market scarring from recessions.

94. Yet Correia et al (2020) find that areas more severely affected by the 1918 Spanish Flu suffered a sharp and persistent decline in real economic activity that lasted until 1923.

Figure 4.3: Unemployment rises quickly in recessions, but takes a long time to come down
Rise in the unemployment rate (percentage points)
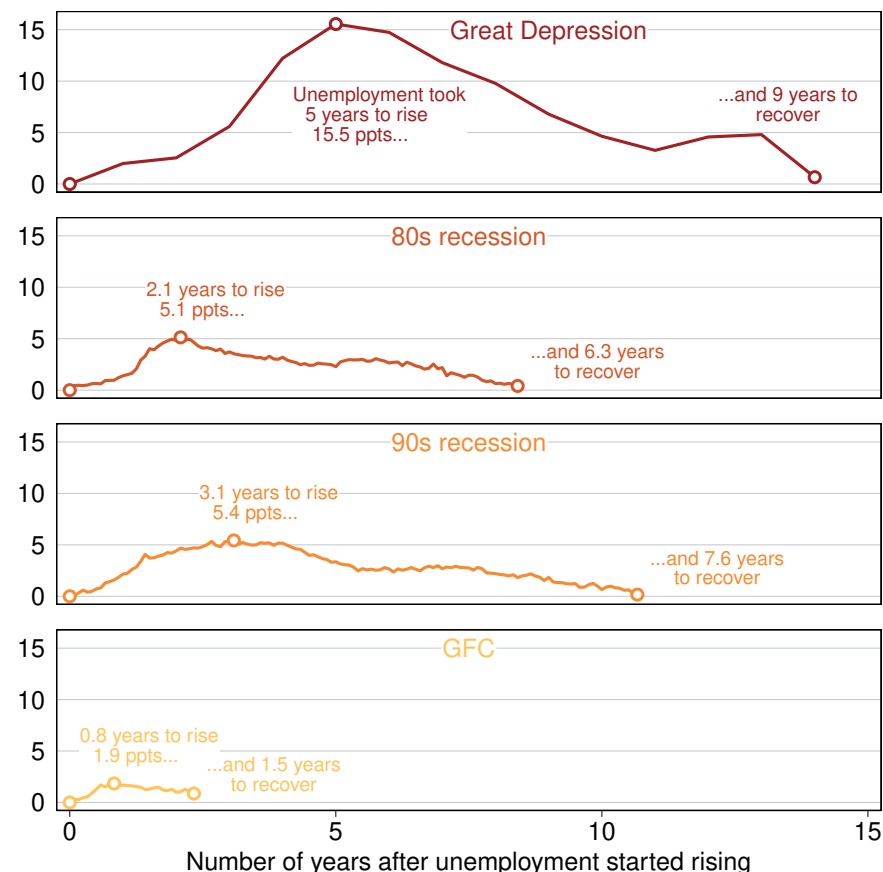
Notes: Data are annual for the Great Depression. Data for the other episodes is seasonally adjusted monthly data.
Sources: Butlin (1977); ABS (2020a).

unprecedented support to firms and households to help them through (Section 5.2 on page 37). Once the shutdown period is over, there may be some pent-up demand from households looking to consume and businesses keen to restock their inventories, which could help restore employment.

But the big risk remains that a sustained shutdown will have long-lasting impacts on the economy and employment. The longer the downturn goes, and the worse it gets, the less likely the labour market, and the economy more broadly, can spring back to a healthy state on the other side.

5   Policy implications

The preceding chapters demonstrate that COVID-19 will have a large impact on the livelihoods of working Australians. Between 1.9 and 3.4 million are likely to be out of work due to COVID-19 and related social distancing measures, and the unemployment rate is likely to spike to between 10 and 15 per cent in the coming months.

Although government policy responses to date will cushion the economic blow, the second round economic impacts could also be severe. Firms and households will pull back on discretionary spending and demand for Australian exports will fall sharply in the face of a rapid, synchronised global recession. It's clear that Australia is facing its deepest recession since the Great Depression of the 1930s. The economic impacts of COVID-19 are likely to be severe, and persist for many months, if not years.

The paper does not provide a comprehensive set of recommendations for dealing with the economic challenges of COVID-19 from here on. These will be the focus of future Grattan Institute reports and papers. Instead, this chapter considers how policy makers have responded to the COVID-19 economic shock to date, and canvasses future policy directions.

The COVID-19 economic crisis is unique: the public health crisis demands shutting down broad swathes of the economy to slow the spread of the virus. Resolving the public health crisis is a critical first step on any path to sustained economic recovery. But when the public health threat eventually declines, policy makers will be left to deal with a more traditional demand-side recession. At that point Australian governments should stand ready to inject substantial fiscal stimulus to boost aggregate demand, as they did so successfully during the Global Financial Crisis.

The budgetary cost of such unprecedented spending naturally raises concerns about the burden rising debt will place on younger generations. But younger generations are also bearing most of the economic costs of the shutdown: they are more likely to have lost their jobs. And if the government refuses to spend more, younger generations will also bear the long-term costs of a severe and prolonged recession.

5.1   The first priority is resolving the public health crisis

COVID-19 is first and foremost a public health crisis. It is sometimes asserted that the public health and economic objectives of managing COVID-19 are in conflict. But resolving the public health crisis is the critical first step on any path to sustained economic recovery. A recent survey of prominent US economists found near universal support for tolerating a very large contraction in economic activity until the spread of infections has dropped significantly.[95]

The least costly strategy – from both a public health and an economic perspective – appears to be eradicating COVID-19 from Australia.[96] There's no doubt this strategy would have big short-term economic costs, and some risks. But there is also enormous economic upside if we eliminate the virus and the economy can more or less return to normal.[97] And eradication is likely to pose fewer economic costs than alternative strategies such as 'flattening the curve'.

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95. IGM Economic Experts Panel (2020).
96. Daley and Duckett (2020) and Daley (2020b).
97. See: Coates and Nolan (2020).

5.2 Governments are insulating most workers from the economic costs of COVID-19, but more help may be needed

COVID-19 has induced an enormous but – we hope – largely temporary hit to the incomes of many Australians. If firms and households were forced to wear that full cost today, many would go broke. Making sure firms and households have enough cash flow to cover their necessities – rent or mortgage, bills, etc. – is critical during a period when many will take a hit to their incomes.

Australian governments and the Reserve Bank of Australia have sensibly rolled out unprecedented fiscal and monetary support to help workers and their employers to get through this crisis. Government spending will defray the short-term economic costs over the longer term, and also share the burden between those directly affected by public health measures and those who are not. Government support will help reduce the threat to financial stability from widespread default, and therefore help reduce long-term damage to the productive capacity of the economy.

5.2.1 COVID-19 is putting enormous strain on many Australian workers and their employers

Shutting down large parts of the Australian economy is putting enormous strain on the livelihoods of many Australians.

Many Australians are poorly placed to support themselves through a substantial period of little or no income. Half of working households had less than $7,000 in the bank before this crisis.[98] Half of working households have 5.6 weeks' income or less in the bank. And a quarter of all working households have less than one weeks' income in the bank. Even at the top, about 40 per cent of the highest fifth of income

earners have less than 4 weeks' income in the bank. In addition, about 25 per cent of Australian employees do not have access to paid leave entitlements, and those who do may not have enough. Low-paid workers are much less likely to have paid sick leave than other workers.[99] And more than 10 per cent of workers are self-employed and therefore have no paid sick leave.

Many businesses are also suffering financial hardship. Recent ABS survey data showed that two thirds of Australian businesses reported a reduction in turnover or cash flow as a result of COVID-19. More than 90 per cent of business in accommodation and food services and more than 60 per cent in retail have suffered a hit to demand (Figure 4.2).[100]

5.2.2 The Federal Government's economic response to COVID-19 has been unprecedented

Over the past month, the Federal Government has announced an unprecedented fiscal injection of almost $200 billion (almost 10 per cent of GDP) to support business and households through the COVID-19 shutdown.[101] Most of this support will be delivered in the next six months, bringing it closer to 20 per cent of pre-crisis GDP over that period.

The JobKeeper wage subsidy program will provide support to workers, via their employers at a cost of $130 billion over six months (see Box 4 for more on this scheme). This welcome initiative is intended to keep workers and employers connected through this period – reducing the likelihood that people will be stood down without pay or dismissed entirely.

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98. Coates and Cowgill (2020a). 'Working households' are defined as those in which at least one person had a paid job. Bank account balances refer to the total value of accounts held at financial institutions, including offset accounts.

99. Among people who earn less than $800 a week, only 46 per cent have paid sick leave. Another 4 per cent are self-employed, and the remaining half are casual workers without paid leave entitlements. Coates and Cowgill (2020b).
100. ABS (2020b).
101. Wood et al (2020b).

A further $39 billion in support will directly boost cash flow for employers. Businesses with less than $50 million in turnover will receive 100 per cent of their salary and wages withheld up to $100,000.

And a further $25 billion is being provided directly to households. This support includes the Coronavirus Supplement – an extra $550 a fortnight to anyone receiving one of a number of income payments – at a cost of $14.1 billion. Two rounds of $750 stimulus payments will be made directly to individuals. The first payment was made from 31 March to 6.6 million people ($4.9 billion) and the second will be made from 13 July to 5 million people ($3.9 billion).[102]

Every state and territory government in Australia has also announced a spending response to the COVID-19 crisis. The measures, including loans, tax deferrals, and health spending, so far total about $15 billion.[103]

Meanwhile the Reserve Bank of Australia reduced the cash rate to 0.25 per cent in March while commencing unconventional monetary policies, such as quantitative easing, to ensure interest rates remain low for the duration of the economic crisis precipitated by COVID-19.[104] The Reserve Bank has also established a term fund facility to support credit to businesses, especially small and medium-sized businesses.[105]

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102. See Wood et al (2020b) for further details.

103. Wood et al (2020a).

104. Quantitative easing involves the central bank outright purchasing assets from the private sector by creating 'central bank reserves'. The Reserve Bank is purchasing Australian government bonds on the secondary market. Its target is a yield of 0.25 per cent on 3-year Australian Government bonds. It expects the target 'to remain in place until progress is being made towards the goals for full employment and inflation': Lowe (2020a).

105. Under this new facility, banks will be able to borrow at least $90 billion from the Reserve Bank at a fixed interest rate of just 0.25 per cent, for lending to businesses. Lowe (2020b).

5.2.3 These policies largely insulate low- and middle-income households

These policies go a long way to insulating low and middle-income households – but not others – from the economic costs of COVID-19.

At about $39,000 a year, the JobKeeper wage subsidy payment is close to 70 per cent of the typical (median) wage in Australia of $58,000. This is equivalent to about half of the median full-time wage (Figure 5.1 on the next page). And every worker who was employed as of 1 March 2020 will receive at least that amount, whether they remain in work or are laid off. In fact many part-time minimum wage workers and many casuals will get a pay rise via the scheme. Cassells and Duncan (2020) estimate that about 80 per cent of part-time workers will receive more than they were previously paid.[106]

The effective boost to the incomes of many low- and middle-income earners will be higher. While the JobSeeker and JobKeeper payments are taxable, they will be taxed at a marginal tax rate of just 19 cents in the dollar for any taxable income above $18,200 a year, compared to 32.5 cents in the dollar for income above $37,500 a year.[107] Many workers will therefore get large refunds of personal income tax at tax time. As their private incomes fall, many low- and middle-income families with children will become eligible for more family tax benefits, and many renters will become eligible for Commonwealth Rent Assistance.[108]

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106. In contrast, the JobKeeper payment is less than the wages of 93 per cent of full-time workers.

107. Excluding the Medicare Levy and the Low Income Tax Offset.

108. Rent Assistance is a non-taxable income supplement, payable fortnightly to income-support recipients in the private rental market. Rent Assistance is paid at 75 cents for every dollar above a minimum rental threshold until a maximum rate (or ceiling) is reached. The minimum threshold and maximum rate vary according to the household or family situation, including the number of children.

5.2.4 But some people need more support

The JobSeeker and JobKeeper payments will replace less of the incomes of middle- to high-income-earners who lose their jobs due to COVID-19. The JobKeeper payment replaces only half of the gross wage of the median full-time worker previously on a gross wage of $78,268 a year (Figure 5.1).[109] For the 20 per cent of Australian workers earning more than $115,000 a year, the JobKeeper payment will replace one-third or less of their gross earnings.[110] While many higher-income Australians will have substantial savings (and can now access up to $20,000 from their superannuation), others don't. About 40 per cent of the highest fifth of income earners have less than 4 weeks' income in the bank.[111] Most people's financial commitments – especially rent and mortgage repayments – match what they earn.[112] The design of the JobKeeper payment leaves many high-income Australians laid off during the COVID-19 crisis exposed to an extended period of reduced income.

Casual workers who have been with their employer for less than a year are ineligible for the JobKeeper payment. This amounts to about 950,000 casual workers, most in the accommodation and food services, retail trade, and health care and social assistance sectors.[113] These workers will have to make do on the lower JobSeeker payment, although this payment will cover a large share of incomes of casuals working in the most affected sectors.[114]

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109. Coates and Cowgill (2019).
110. Coates and Cowgill (ibid).
111. Coates and Cowgill (2020a).
112. The bottom fifth of households by equivalised disposable income spend 23 per cent of their incomes on housing, compared to 18 per cent for the top fifth of households by income. ABS (2019b).
113. Cassells and Duncan (2020).
114. Most workers in the most directly affected sectors work part-time, and the JobSeeker payment exceeds the average income of workers in those sectors. Cassells and Duncan (ibid, Table 1).

Figure 5.1: The new JobKeeper wage subsidy largely insulates low- and middle-income earners from the economic costs of COVID-19
Maximum payment as a share of pre-crisis annual income
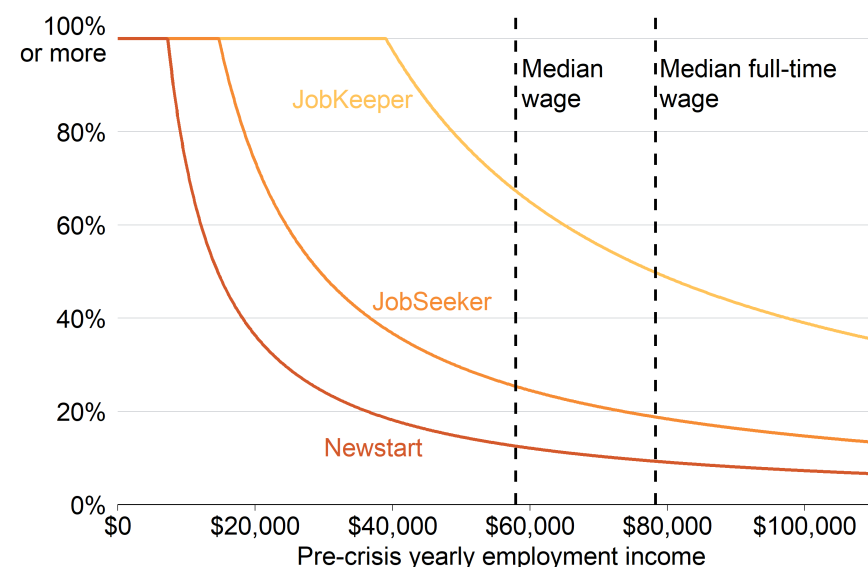
Notes: Assumes that individuals lose their jobs and then receive the maximum payment rate. Maximum fortnightly payment rates are $1500 for JobKeeper, $565.70 for JobSeeker, as announced by the Government. The maximum fortnightly payment rate is $279.50 for Newstart, the rate as at 20 September 2019. Replacement rates greater than 100 per cent are re-coded as 100 per cent. Median wages are for people aged 15+. All values are pre-tax.

Sources: Prime Minister of Australia (2020), Services Australia (n.d.), Department of Social Services (n.d.) and Coates and Cowgill (2019).

And many temporary migrants will not be eligible for either the JobKeeper or JobSeeker payments.[115] Many temporary migrants have little prospect of returning to their country of origin during the crisis. Excluding temporary migrants from these payments puts more pressure on them and their employers. It will also complicate compliance with public health measures if temporary migrants are forced to find work because they otherwise have little or no income.[116] There is therefore a strong case for extending JobKeeper for qualifying temporary migrants at a cost of around $18 billion over six months.[117]

5.2.5 Many firms remain more exposed to the risks of a sustained shutdown

While many households are now largely insulated from the economic costs of COVID-19, many firms remain much more exposed to the risks of prolonged shutdowns.

The Federal Government's new JobKeeper wage subsidy scheme enables businesses to continue to provide an income for workers during the shutdown.[118] Qualifying firms that experience a severe, but not complete, decline in their revenues will benefit from a government subsidies of the wages if their workers. Although firms will still need to borrow to cover the costs of JobKeeper payments to their employees, before government funds start to flow in May.

But unavoidable costs – of which rent is the largest – can't be turned off. The average retailer pays almost $12,000 in rent a month; the average gym, $10,000. Cafes and hairdressers are losing $3000

to $4000 each month in rent.[119] Many commercial landlords have already voluntarily come to the table; about 38 per cent of businesses still trading have renegotiated their rent arrangements.[120] But other landlords have been reluctant to reduce or waive rents, despite the fact that the market rent for most shopfronts right now is probably close to zero.

A new national rental code sets out mandatory principles for landlords and tenants to negotiate an adjusted lease.[121] But the code ultimately falls short of what is required. First, rental relief is negotiated as a combination of waivers and deferrals. Up to half the relief can be via rent deferral. So, if a business's turnover falls by 50 per cent, only 25 per cent of rent needs to be waived – the other 25 per cent can be deferred, with a minimum 24-month payback period. Deferrals can help ease the short-term cashflow crunch. But many businesses run on low margins, so many will not be able to absorb the deferred cost of the rent while trying to rebuild their business. Second, the code excludes tenants with a turnover higher than $50 million. That restriction cannot be justified.

Rent waivers proportionate to lost revenue are needed for all businesses that meet the JobKeeper thresholds. To defray the short-term cost on landlords, state governments should compensate for a proportion – at least 50 per cent – of the lost rent. State governments could recover some of these costs over time as the economy picks up, through higher land tax on all commercial landlords.[122]

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115. New Zealanders in Australia will be eligible for the JobKeeper payment, but other temporary visa holders are not.
116. Tham (2020).
117. Duke and Bagshaw (2020).
118. The benefits of the wage subsidy scheme are expected to largely accrue to workers, not employers. See Hamilton (2020).

119. Wood (2020).
120. ABS (2020b).
121. It requires landlords to negotiate rent waivers and deferrals proportionate to the reduction in turnover for eligible businesses. The mandatory code will be overseen by a binding mediation process in each state and territory for the duration of the JobKeeper program (currently six months).
122. Wood (2020).

Small- and medium-sized firms will be also able to borrow to keep themselves afloat through the COVID-19 crisis thanks to the new term funding facility that will provide low-cost finance to banks than on-lend to these businesses.[123] This is a sensible move. Nonetheless this additional borrowing by firms will have to be repaid in time, or will displace other borrowing in future to finance investment.

5.3 In time, the focus should shift from economic support to economic stimulus

The COVID-19 economic crisis is unique: the public health response demands shutting down broad swathes of the economy to slow the spread of the virus. Economic policy to date has rightly focused on ensuring affected firms and households have sufficient income to weather the storm.

Traditional economic stimulus is unlikely to be effective while severe spatial distancing measures remain.[124] But as the public health threat eventually declines, policy makers will be left to deal with a more traditional demand-side recession. Firms unsure about the demand for their products will be reluctant to hire back workers. Households will be reluctant to spend their income.

Australian governments should stand ready to introduce substantial fiscal stimulus policies to boost aggregate demand as the public health crisis subsides (Figure 5.2). Direct cash transfers to households could boost spending, accelerating the pace of the economic recovery.[125] With the official cash rate having already been cut to 0.25 per cent, conventional monetary policy has largely run its race. Unconventional monetary policies should be used where appropriate to support the economy. But more of the burden for supporting economic recovery from COVID-19 will likely fall on fiscal policy in the future.[126] Failing to provide that support will condemn many Australians to a long and deep recession, harming their long-term economic potential. A deep recession will also worsen governments' budgetary positions.

5.3.1 The budgetary costs of necessary government support are large but manageable

Unprecedented government support to cushion the economic blow of COVID-19 has raised concerns about the long-term costs of higher public debt.[127] In particular, some commentators have raised concerns that the costs will place an undue burden on younger generations.[128]

But younger generations are among those hardest hit by the economic costs of COVID-19: they are more likely to have lost their livelihoods, and will also bear the long-term costs of a severe and prolonged recession if government support is not forthcoming.[129] In the 1990s recession, it took three years for the unemployment rate to reach its peak, but nearly eight years to return to its pre-recession level. Younger

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123. Under this new facility, authorised deposit-taking institutions (ADIs) will be able to borrow from the Reserve Bank an amount equivalent to 3 per cent of their existing outstanding credit to Australian businesses and households. ADIs will be able to draw on these funds up until the end of September this year. Lenders will also be able to borrow additional funds from the Reserve Bank if they increase credit to business this year. For every extra dollar lent to large business, lenders will have access to an additional dollar of funding from the Reserve Bank. For every extra dollar of loans to small and medium-sized businesses they will have access to an additional five dollars. These funds can be drawn upon up until the end of March next year. There is no extra borrowing allowance for additional housing loans. The funding from the Reserve Bank will be for three years at a fixed interest rate of 0.25 per cent, which is substantially below lenders' current funding costs.Lowe (2020b).

124. Baldwin (2020).

125. Coates and Wood (2020).

126. Ibid.

127. For example, see: Wright (2020b), Derwin (2020) and Brown and Creighton (2020).

128. For example, see: Joyce (2020).

129. Borland (2020b).

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workers carried the scars for years via lower earnings (Section 4.3 on page 34).

Moreover, the long-term costs of higher government debt should not be overstated. The Commonwealth Government can borrow for 10 years at nominal interest rates of less than 1 per cent – less than the current rate of inflation.[130] As a result, the direct budgetary impact of higher interest bills on the accrued public debt is likely to be modest.[131] And many of the drivers of the secular decline in real interest rates – including population ageing – are likely to persist post-crisis, helping to anchor government borrowing rates at low levels.[132]

Nor is there an immediate need for debt to be repaid. COVID-19 is a once-in-a-generation, if not once-in-a-century event. Public debt accrued in responding to the crisis should be paid back over decades, not years. Nonetheless Australian governments continue to face long-term budget challenges.[133] As Australian governments move to consolidate their budget positions over time, they should do so in a way that drags least on the economy and shares the cost across the community and generations.

5.4 Economic reforms will also be needed to boost productivity and raise long-term living standards in a post-COVID world

COVID-19 is the largest economic shock since World War II and will likely weigh on economic growth in the medium term. And economic growth had already been slowing in Australia and around the developed world. National per capita incomes have flat-lined for the past seven

Figure 5.2: Demand stimulus should increase as the public health crisis subsides
Spending intensity

Note: Diagram should be taken as only a general representation of how spending should evolve.
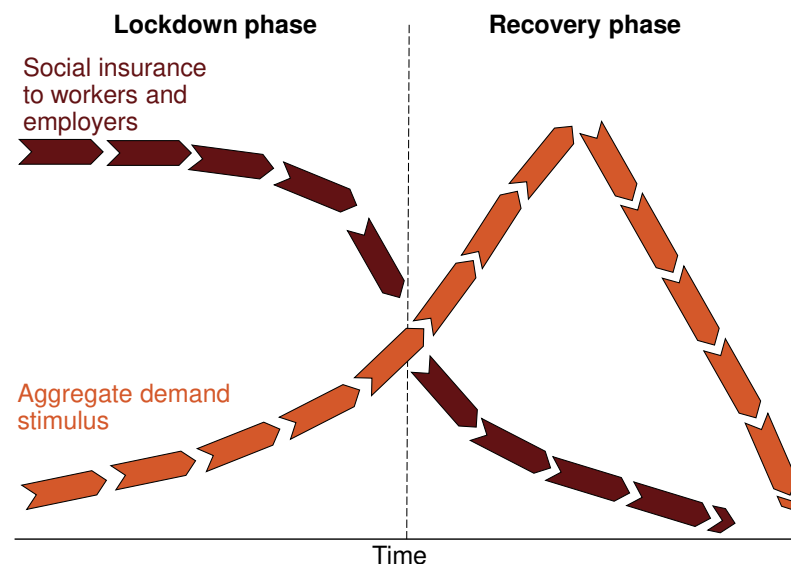Source: Dube (2020).

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130. Bloomberg (2020) as at 13 April 2020.
131. For example, economist Chris Richardson has estimated that the interest bill for the additional debt to fund the government's pledges will be $1.6 billion a year, or less than 0.1 per cent of GDP each year Commins (2020).
132. See: Rachel and Smith (2015).
133. Daley et al (2019a) and Daley et al (2019b).

years and wages growth has been slow.[134] Many already believed that growth would be lower for longer, in Australia and around the world.[135]

Many economic drivers are beyond the control of Australian governments altogether – not least, the performance of the global economy. But there are many economic levers that Australian governments do control. Adapting to a post-COVID world in particular will involve substantial structural adjustments as some sectors such as healthcare expand and other sectors contract. Government policies in areas such as tax, workforce participation, land-use planning, competition and innovation and others can support the pace of those adjustments and help create the preconditions for strong sustained economic growth and rising living standards on the other side of the COVID-19 crisis.[136] Future Grattan Institute reports will address these issues in greater detail.

134. Daley et al (2019a, p. 18).
135. Minifie et al (2017, p. 21).
136. For example, see: Daley et al (2019a) and Daley et al (2019b).

Appendix A: Validating 'proximity scores' from the O*NET data

Most of the estimates in this working paper are based, in whole or part, on O*NET data on the extent to which each occupation requires physical proximity to other people. As described in Chapter 2, we re-scale the raw O*NET physical proximity scores, so they lie between zero and one, and then square the re-scaled scores before using them in our analysis. This transformation is crucial to many of our methods. To test the validity of the transformation, we check to see how well the re-scaled proximity scores correlate with a more tangible measure of physical proximity.

O*NET records data on 23,901 occupational tasks, covering each job in the database. These occupational tasks are grouped into 332 'Individual Work Activities'. We classify each of these 332 activities as either 'requiring physical proximity' or 'not requiring physical proximity'.[137] We then calculate how often workers in each occupation do each work activity, using Table A.1, which follows a methodology from AlphaBeta (2017). This allows us to derive a measure, for each occupation, of the share of their weekly tasks that require physical proximity that is not based on the O*NET proximity scores.[138] We can then compare these alternative figures on the share of tasks that require physical proximity with the scaled-and-squared proximity scores that form the basis of our methods of estimating job loss.

Figure A.1 shows that there is indeed a strong positive correlation between the re-scaled proximity score, and the share of weekly tasks requiring physical proximity. A regression between share of weekly tasks requiring physical proximity and re-scaled proximity score

Table A.1: O*NET frequency score conversion table

O*NET frequency score	Description	Implied weekly frequency
1	Yearly or less	0.02
2	More than yearly	0.12
3	More than monthly	0.5
4	More than weekly	2
5	Daily	5
6	Several times a day	20
7	Hourly or more	40

*Source: AlphaBeta (ibid).*

yields a positive correlation, which is significant at the 1 per cent level (Table A.2).

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137. 5 per cent of all job tasks are dropped from the data, because they cannot be grouped together using the correspondences.
138. For simplicity this is performed for each of the US occupational codes recorded in O*NET, and not converted to the Australian occupational code.

Figure A.1: Re-scaled O*NET proximity scores strongly correlate with the share of weekly tasks requiring physical proximity
Share of weekly tasks requiring physical proximity
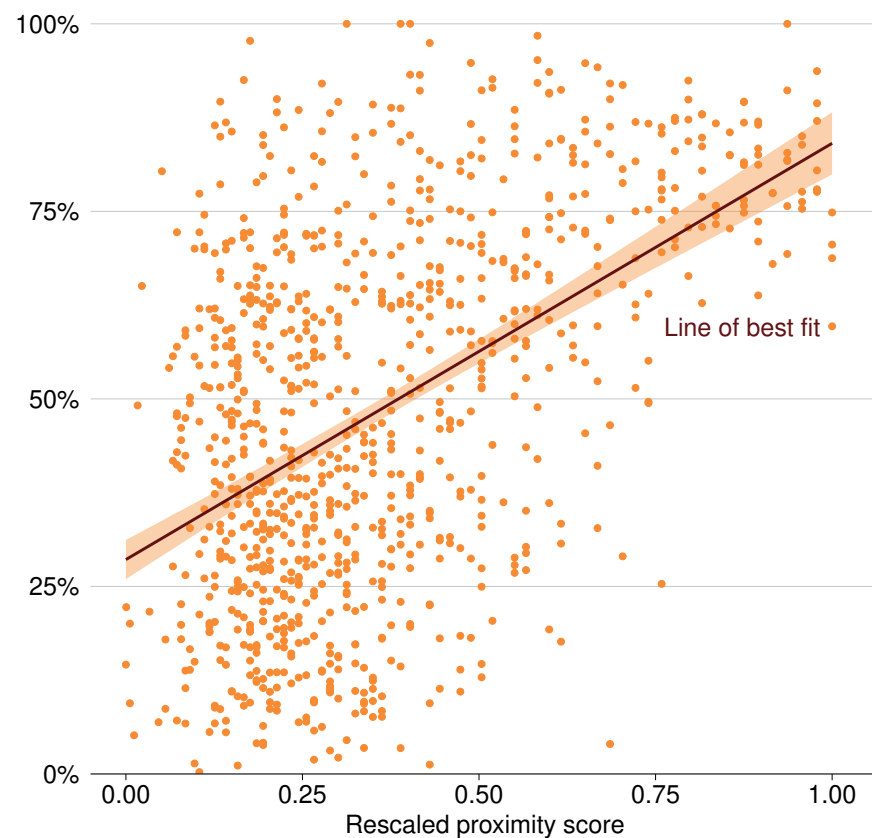
Notes: Each scatter dot represents an occupation. Using O*NET correspondences, occupational tasks are grouped into 'Individual Work Activities', which are then manually classified into requiring physical proximity, or not requiring physical proximity. Following the method used by AlphaBeta (2017), the frequency score for each occupational task is converted to an implied weekly frequency. 5 per cent of occupational tasks are dropped, because they cannot be matched up using this method.

Source: Grattan analysis of O*NET database.

Table A.2: Physical proximity score regression results

	Share of weekly tasks requiring physical proximity
Rescaled physical proximity score	0.555*** (0.031)
Constant	0.286*** (0.013)
Observations	961
R^2	0.247

Notes: Standard errors are in parentheses. Stars indicate p-values: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Appendix B: Manual estimates by industry

Our estimates of job loss probabilities use three different methods (see Chapter 2). Our 'alternative method two' relies entirely on manual estimates by Grattan researchers of job-loss probabilities within two-digit industries. Our 'preferred method' uses these estimates in combination with the occupational physical proximity scores.

The manually estimates by Grattan researchers are shown in Table B.1. Researchers entered their view about the likely change in employment within each industry, in percentage terms, as a result of the public health response to COVID-19. These views were 'binned' – entered only as -100 per cent, -75 per cent, -50 per cent, -25 per cent, 0, or +10 per cent. The figures shown in Table B.1 are the median of Grattan researchers' views. Note that these figures are used in only two of our three methods.

Table B.1: Estimated change in employment, per cent, by industry (manual estimates by Grattan researchers)

Industry	Estimate	Industry	Estimate	Industry	Estimate
Agriculture	0	Building construction	0	Internet service providers, web search portals, and data processing services	10
Aquaculture	0	Heavy and civil engineering construction	0	Library and other information services	-50
Forestry and logging	0	Construction services	0	Finance	0
Fishing, hunting, and trapping	0	Basic material wholesaling	-25	Insurance and superannuation funds	0
Agriculture, forestry, and fishing support services	0	Machinery and equipment wholesaling	-25	Auxiliary finance and insurance services	0
Coal mining	0	Motor vehicle and motor vehicle parts wholesaling	-25	Rental and hiring services (except real estate)	-25
Oil and gas extraction	0	Grocery, liquor, and tobacco product wholesaling	10	Property operators and real estate services	-25
Metal ore mining	0	Other goods wholesaling	-25	Professional, scientific, and technical services (except computer system design and related services)	0
Non-metallic mineral mining and quarrying	0	Commission-based wholesaling	-25	Computer system design and related services	0
Exploration and other mining support services	0	Motor vehicle and motor vehicle parts retailing	-25	Administrative services	-25
Food product manufacturing	10	Fuel retailing	0	Building cleaning, pest control, and other support services	10
Beverage and tobacco product manufacturing	0	Food retailing	10	Public administration	0
Textile, leather, clothing, and footwear manufacturing	-50	Other store-based retailing	-50	Defence	0

Continued on next page

Table B.1 – *continued from previous page*

Industry	Estimate	Industry	Estimate	Industry	Estimate
Wood product manufacturing	-25	Non-store retailing and retail commission-based buying and/or selling	-50	Public order, safety, and regulatory services	10
Pulp, paper, and converted paper product manufacturing	-25	Accommodation	-75	Preschool and school education	-25
Printing (including the reproduction of recorded media)	-25	Food and beverage services	-75	Tertiary education	-25
Petroleum and coal product manufacturing	0	Road transport	-25	Adult, community, and other education	-25
Basic chemical and chemical product manufacturing	0	Rail transport	-25	Hospitals	10
Polymer product and rubber product manufacturing	0	Water transport	0	Medical and other health care services	10
Non-metallic mineral product manufacturing	0	Air and space transport	-50	Residential care services	10
Primary metal and metal product manufacturing	0	Other transport	-25	Social assistance services	0
Fabricated metal product manufacturing	-25	Postal and courier pick-up and delivery services	10	Heritage activities	-25
Transport equipment manufacturing	-25	Transport support services	10	Creative and performing arts activities	-75
Machinery and equipment manufacturing	-25	Warehousing and storage services	0	Sports and recreation activities	-75
Furniture and other manufacturing	-25	Publishing (except internet and music publishing)	-25	Gambling activities	-75
Electricity supply	0	Motion picture and sound recording activities	-25	Repair and maintenance	-25
Gas supply	0	Broadcasting (except internet)	0	Personal and other services	-50

Continued on next page

Table B.1 – *continued from previous page*

Industry	Estimate	Industry	Estimate	Industry	Estimate
Water supply, sewerage, and drainage services	0	Internet publishing and broadcasting	0	Private households employing staff and undifferentiated goods and service-producing activities of households for own use	-25
Waste collection, treatment, and disposal services	0	Telecommunications services	10		

Appendix C: How will people be classified in labour force statistics?

During the COVID-19 shutdown, many Australians who were previously in paid work are likely to endure a period without paid work. Classifying them in the framework used for the ABS labour force statistics is not always straightforward.

Figure C.1 on the following page shows a simplified version of the questions the ABS asks as part of the labour force survey to determine whether a person is employed, unemployed, or not in the labour force. If the person has done at least one hour of paid work in the past week, the situation is straightforward – they are classified as 'employed'.

But people do not need to have done paid work in the past week to be considered 'employed'. Consider the case of someone who usually works, but has been 'stood down'. If they have been away from work for less than four weeks – or if they were paid by their employer in the past four weeks (as will be the case for many stood down workers under the JobKeeper program) – then they will also be classified as 'employed'.[139]

However, if someone has been stood down but does not believe they have a job to go back to, this may cause them to answer 'no' when asked whether they had a job they were away from. They will then be classified as either 'unemployed' or 'not in the labour force', depending on their job search activities and availability to work.

The COVID-19 pandemic is likely to affect the balance between people classified as 'unemployed' and 'not in the labour force'. If someone is out of work but not actively looking for work – perhaps because they don't believe work is available for someone with their skills, or because they are unwilling to be out in public during the pandemic – they will be classified as 'not in the labour force'. They will therefore not count in

the unemployment rate. Similarly, if someone answers 'no' when asked if they could have started a job last week – perhaps because they are self-isolating – then they are also 'not in the labour force'.

These factors, among others, make it difficult to translate our estimates in Chapter 3 into estimates of the number of employed and unemployed people, as measured by the ABS.

The ABS approach to classifying individuals' labour force status – which is derived from and consistent with the International Classification of Status in Employment (ICSE) of the International Labour Organization – is rigorous and appropriate. But, unfortunately, the statistical categories may not fully capture developments in the labour market over the coming months.

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139. The ABS confirms this interpretation of the labour force measurement framework in ABS (2020e).

Figure C.1: How will stood-down workers be classified in the labour force survey? It depends.
Simplified version of part of the labour force survey questionnaire
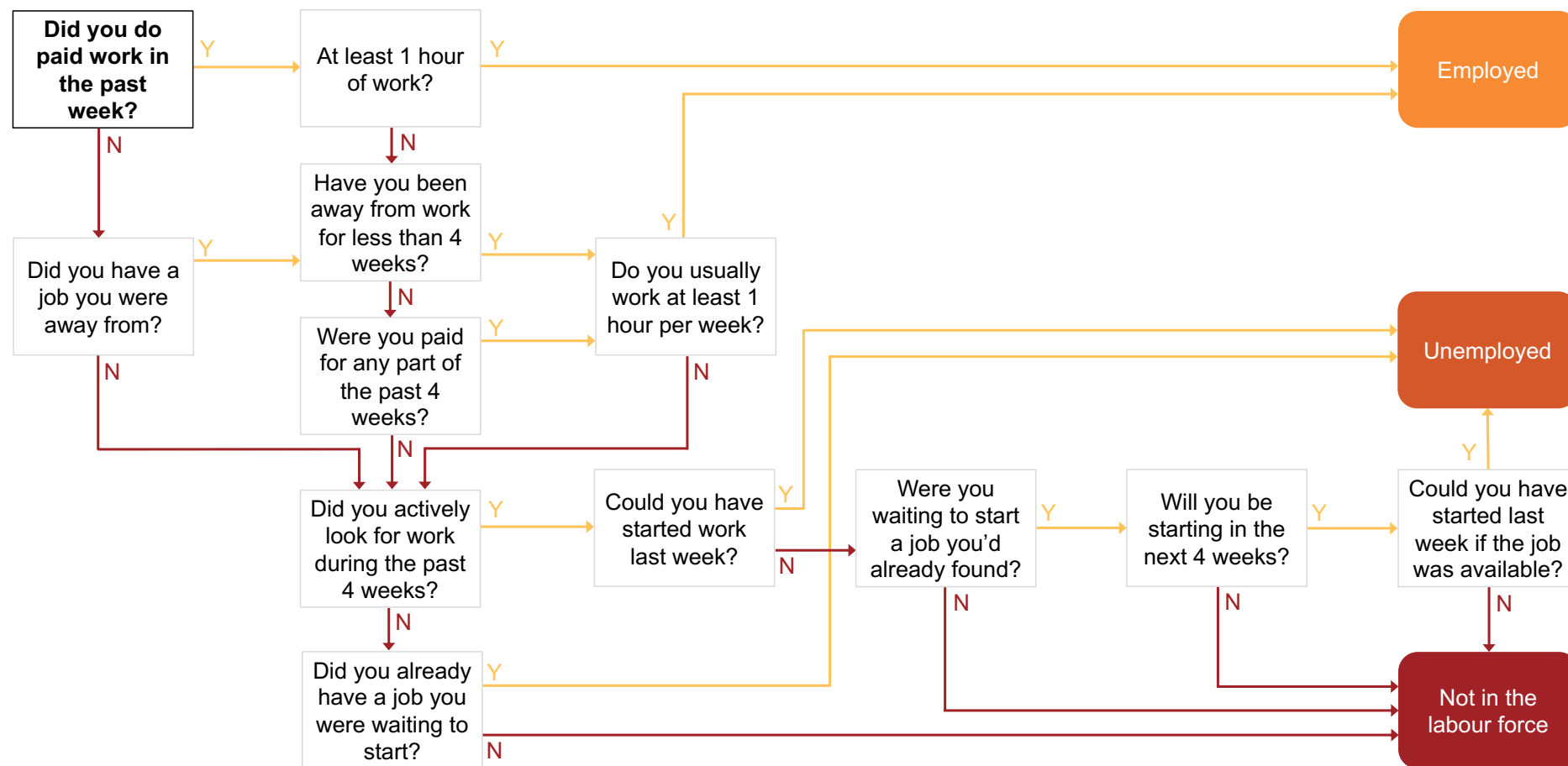
Notes: 'Actively' looking for work includes writing, telephoning, or applying to an employer; having an interview with an employer; answering an advertisement for a job; checking or registering with an employment agency; taking steps to purchase or start a business; advertising or tendering for work; or contacting friends or relatives for work. Registering with Centrelink as a jobseeker, or looking in newspapers or on the internet for jobs, do not count by themselves as 'active' job search steps.

Source: Grattan analysis of ABS (2014b) and ABS (2018).

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