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Hardship, distress, and resilience: The initial impacts of COVID-19 in Australia

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Abstract

This paper provides a summary of the impact of COVID-19 on labour market outcomes, income, financial stress, social cohesiveness, political attitudes, subjective wellbeing, and psychological distress. It is based on data from the 33rd ANUpoll which collected information from 3,155 Australians over the period 14-27 April 2020. It is the first longitudinal survey data on the impact of COVID-19 in Australia, with respondents to the April ANUpoll also interviewed in January and February 2020. The findings suggest large declines in employment and income, significant increases in social isolation and psychological distress, changes in household structure, and significant uncertainty about the future. At the same time, we observe greater confidence in government and the public service, large improvements in social trust, and substantial observance of physical distancing measures.

Acknowledgements

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Executive summary

Countries around the world are taking steps to respond to the COVID-19 pandemic, balancing the need to save lives with the economic and social dislocation caused by physical distancing and isolation measures. In Australia, significant measures to limit the spread of COVID-19 were initiated in early February with the first travel restrictions. Following that, widespread physical distancing and isolation measures were progressively implemented from mid-March.

Monitoring and understanding the economic, health and social impacts of COVID-19 and the associated social policy response is vital for informing governments' decisions about the measures that are being taken. It can help shed light on how long to keep measures in place, and the policies and programs that are needed to reduce the negative impacts. The spread of COVID-19 is also changing the nature of the relationship between citizens and government, at least in the short-term.

This paper provides a summary of the impact of COVID-19 on labour market outcomes, income, financial stress, social cohesiveness, political attitudes, subjective wellbeing, and psychological distress. It is based on data from the 33rd ANUpoll which collected information from 3,155 Australians over the period 14-27 April 2020. It is the first longitudinal survey data on the impact of COVID-19 with respondents to the April ANUpoll also interviewed in January and February 2020. This means it is possible to not only estimate change in outcomes from prior to the spread of the COVID-19 pandemic, but also to understand what individual characteristics are associated with doing better or worse during the pandemic. Furthermore, the relatively large number of respondents compared to most other surveys collected after COVID-19 allows the data to be broken down into different population groups and geographic regions.

In addition to being nationally representative, when benchmarked against official data the rate of COVID-19 testing estimated using the ANUpoll data is very close to the official rate.

COVID-19 attitudes and behaviour

The relatively small number of COVID-19 cases in Australia has not led to it being dismissed as an issue by the Australian population.

- Almost exactly two-thirds (66.6 per cent) of Australians report that they 'felt anxious or worried for the safety of yourself, close family members or friends, due to COVID-19.'
- 4.3 per cent of Australians think that it is very likely that they will be infected by COVID-19 in the next 6 months and 35.2 per cent of Australians think that it is likely.

The (albeit self-reported) data suggests that most Australians were adhering to the main physical distancing guidelines.

There was still a significant minority of respondents (19.7 per cent) who agreed or strongly agreed that there has been too much unnecessary worry about the COVID-19 outbreak.

Initial economic impacts of COVID-19

Employment and hours worked

- The employment rate fell from 62.0 per cent in February to 58.9 per cent in April 2020. This translates to a drop in employment of about 670,000.

- Declines in employment are largest for those aged 18-24 years with there also being a relatively large fall in employment amongst those aged 65 years or older. The effect on

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the young is likely to be felt throughout their working life, and those who leave the labour force when close to retirement age may never return.

- The probability of staying employed in April 2020 was much larger for those who were employed as professional, clerical or administrative workers, and machinery operators and drivers in February 2020.

- Technicians, trades workers, community and personal services workers, sales workers and labourers who were working in February were less likely to be employed in April.

- Those who had been unemployed for three months or more in the previous 5 years were less likely to remain employed than those who had not.

- Trade union membership appears to be somewhat of a protective factor against employment loss, whereas being a casual worker was associated with a significantly and substantially lower probability of continued employment

- Average hours declined from 35.1 to 31.1 hours per week between February and April 2020 with the largest declines for women and those born in non-English speaking countries.

- The combined effect of job loss and reduction in hours worked is a decline of 13.1 per cent in hours worked, or around 56.2 million hours per week.

Perceived job security

Australians perceived levels of job insecurity are very high.

- Amongst the employed, the average perceived probability of someone losing their job over the next 12-months (from April 2020) is 24.6 per cent which is almost twice as high as it has ever been since 2001. Over one-in-four employed Australians assess that the likelihood they will lose their job over the 12-months is greater than 50 per cent.

- Australians are also concerned about finding an equally good job if they lose their current job during the next 12-months, with the average expectation of finding a job at least as good being 41.4 per cent. Only 8.2 per cent rated their chances of finding an equally good job as 100 per cent.

Income and financial stress

- Average household after-tax weekly income fell from $1,795 in February 2020 to $1,632 in April 2020; a fall of 9.1 per cent.

- When this household income is converted to a per person income level (i.e., household income divided by adults and children in the household) income fell from $740 per person per week in February to $663 per week in April, a fall of 10.4 per cent. The decline in per person income is larger than the decline in household income because the average household size increased.

- Based on the decrease in income between February and April continuing for the next 12-months, we estimate a fall in the income of Australian households of $102 billion per annum. While the number of lives saved by the COVID-19 restrictions is not known, modelling by Wilson and Blakely (2020) estimates that under the herd immunity scenario of a 60 per cent infection rate there would have been 134,000 deaths in Australia. If combine these two figures this leads to an estimate of the initial income cost of around $761,000 per life saved.

- The change in income is not uniform across the income distribution. There was an increase of 33.5 per cent in per person after tax household income for the lowest income decile, and smaller increases for the second and third income deciles. The growth in income at the bottom end are almost certainly due to the increases in government financial assistance to households. There was little change in incomes for deciles 4 and 5 and substantial falls for the higher income deciles with the highest income decile experiencing a 20.0 per cent decrease.

- There has been a fall in the difference in income between low and high income households, with the ratio of the average income of the 90th percentile (high income) to the 10th percentile (low income) decreasing from 7.2 in February 2020 to 6.2 in April 2020. This is a substantial decline in income inequality.

- There were larger declines in income for those aged 18 to 24 year and smaller declines for those who lived in the most socioeconomically advantaged neighbourhoods.

- Despite the falls in income, the proportion of Australians who said that they were finding it difficult or very difficult on their current income decreased from 26.7 per cent in February to 22.8 per cent in April 2020. This is explained by the increases in income at the bottom end of the income distribution.

Political attitudes and social cohesion

- There were large increases in Australians' confidence in the Federal Government, state and territory governments and the public service. Between January and April 2020, the proportion of Australians who are confident or very confident in the Federal government increased from 27.3 to 56.6 per cent.

- Confidence in the public service rose from 48.8 to 64.8 per cent, and confidence in state/territory governments increased from 40.4 to 66.7 per cent.

- Australians' satisfaction in the direction of the country has increased with 76.2 per cent reporting that they were either satisfied or very satisfied, compared to 59.5 per cent in January 2020 and 65.2 per cent in October 2019.

- Social cohesion has improved between February and April 2020 based on measures that Australians think most people can be trusted, that people are fair and that people are helpful.

Life satisfaction and mental health

The anxiety and stress associated with COVID-19, social isolation and negative economic impacts all may have an effect on subjective wellbeing and mental health.

- Life satisfaction has declined sharply since January 2020 with a drop of 6.90 to 6.50 (out of 10). To understand the size of this change in life satisfaction, it is equivalent to a drop in income of $581 per week.

- The proportion of the Australian population experiencing psychological distress levels consistent with having 'probable serious mental illness' increased from 8.4 per cent in February 2017 to 10.6 per cent in April 2020.

1   Introduction

Countries around the world are attempting to respond to the COVID-19 pandemic, balancing the need to save lives with the economic and social dislocation caused by physical distancing and isolation measures. In Australia, significant measures to limit the spread of COVID-19 started in early February 2020 with travel restrictions on foreign nationals who had been in mainland China not being able to enter Australia for 14-days from the time they left China. Australia's borders were closed to non-residents on 20 March 2020.

A series of physical distancing and isolation measures have been progressively implemented from mid-March. These include limits on the number of people that can gather; the forcible closure of many industries; closing of schools and postponement of elective surgeries; and restrictions on travel within Australia. There has been very strong encouragement for Australians to stay at home except to shop for essentials, medical or health care needs, exercise and work or study if unable to be done remotely. Other countries have implemented similar types of measures, but to varying degrees.

Australia has been successful in limiting the spread of COVID-19. As of 1st May there were 6,767 confirmed cases and 93 deaths (3.53 deaths per million persons). Australia along with Taiwan, Japan, New Zealand, and South Korea is in a small group of relatively rich countries with low deaths and infections. China, where the virus originated, was the first to be impacted, but also the first to lift physical distancing measures. Many countries in Western Europe have seen particularly large health impacts, with Belgium, Spain, Italy, United Kingdom and France (in descending order), at the time of data collection all reported as having 300 or more deaths per 1 million persons.[1] The United States, partly because of its absolute size, has the highest number of deaths, albeit with a rate of 184 per 1 million persons, lower than a number of comparable Western European countries.

In Australia, the COVID-19 pandemic immediately follows what has been historically the most destructive summer of bushfires, following a period of widespread and prolonged drought. When the pandemic commenced, Australia was already in a position of considerable economic uncertainty.

While the steps taken by Australian governments have been very effective in dramatically reducing the spread of COVID-19, they have also had a negative impact on many businesses. Similar measures around the world are also decreasing the demand for Australian exports. The fall in the stock market and reductions in dividends and other forms of investment income are also reducing incomes. The treatment, it has been said by some, is potentially worse than the disease. Even those who do broadly agree with the public health and economic interventions recognise that these interventions come with significant economic and psychological costs (e.g., Layard et al. 2020; Foster and Hickey 2020).

There is emerging data from international studies on the economic and social impacts of COVID-19 using probability-based longitudinal data, such as in Germany (Blom et al. 2020) and the United States (Pew Research Center 2020). There are also a number of innovative and rapid surveys being conducted by the Australian Bureau of Statistics (ABS) (2020a,2020b), as well as a number of smaller cross-sectional studies by academic and commercial data collectors.

Research on mental health impacts has covered areas such as feelings of fear, distress and anxiety, loneliness, and sleep.[2] The international evidence suggests that the COVID-19 pandemic has caused increased levels of distress and anxiety (Keeter 2020, Liu et al. 2020,

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COVID-19 impacts

Wang et al. 2020) and is having a significant negative effect on sleep quality (Pancani et al. 2020). Perhaps not surprisingly those who have experienced job loss or reduction in work hours have had a significant decline in mental health. Interestingly, higher levels of media exposure is also associated with a greater impact of COVID-19 on mental health ((Mertens et al. 2020).

COVID-19 is having major negative economic impacts with large job losses in many countries, reductions in working hours and wages and high levels of financial insecurity (ABS 2020a, ABS 2020b, Parker et al. 2020, Pew Research Center 2020). Research in Australia shows that young people may be particularly at risk, with those under 40 being twice as likely, compared to older Australians, to access their superannuation early (Zhou 2020).

There is an ongoing debate about whether the policies implemented in Australia (and to varying degrees in most other countries) have had a greater negative impact than what the effect of COVID-19 would have been in the absence of such interventions. Monitoring and understanding the economic, health and social impacts of COVID-19 and the associated social policy responses is vital for informing governments' decisions about the measures that are being taken, how long to keep them in place for, and the policies and programs that are needed to reduce the negative impacts.

The spread of COVID-19 is also changing the nature of the relationship between citizens and government, at least in the short-term. It is important, therefore, to also understand the impacts on the population's confidence in the policies that are in place, as well as the confidence and trust in Australian government and other key institutions.

While it is important to document changes in average outcomes leading into the spread of COVID-19, during the crisis itself and during the recovery phase, it is also important to start to document their direct causes and determinants. For example, we have seen from other sources that employment has declined quite substantially across Australia. But what are the characteristics of those who have lost their jobs, and has the economic pain been evenly spread across the population? We also know that some indicators of mental health have worsened, but to what extent is that due to the employment effects of COVID-19, and to what extent is it due to worries about the virus itself? To answer these types of questions, a different type of data is required, data that has information on the same individual prior to the pandemic and during it (as well as, ideally, post-pandemic).

This paper provides a summary of the first set of data that gets close to measuring variation in and the determinants of the change in outcomes as a consequence of the COVID-19 pandemic for Australians. The analysis is based on data from the 33rd ANUpoll, collected between the 14th and 27th of April 2020. Data was collected from 3,155 respondents aged 18 years and over across all eight States/Territories in Australia, and weighted to have a similar distribution to the Australian population across key demographic and geographic variables. Data for the vast majority of respondents was collected online, with a small proportion of respondents enumerated over the phone.

While there is a significant amount of data becoming available on the impacts of COVID-19, the April ANUpoll has several important strengths for helping inform policy and program design. First, the vast majority of respondents to the April ANUPoll were also interviewed in January and February 2020 and their responses across survey waves can be linked. In addition, a subset of respondents have been followed since 2017 and for these respondents it is possible to link their data across a number of surveys. This means it is possible to not only estimate the

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change through time in key variables, but also to look at the individual predictors of change in economic, health, social outcomes, and social attitudes. Second, the relatively large number of respondents to ANUpoll compared to other existing surveys, means it is possible to provide data on the impact of COVID-19 for disaggregated population subgroups and geographic regions.[3]

As will be documented later in this paper, there have been large declines in employment and income, significant increases in social isolation and psychological distress, large changes in household structure, and significant uncertainty about the future. At the same time, we observe improvements in confidence in government and the public service, decreases in support for populism, large increases in social trust, and substantial observance of physical distancing measures.

Results from the analysis are spread across four substantive sections. The first section of results (Section 2) summarises the direct experience of respondents and attitudes towards COVID-19. This is followed by a summary of the employment, income, and financial impacts of COVID-19 (Section 3) and then measures of social cohesiveness and political attitudes (Section 4). In the final section of results, we turn to measures of subjective wellbeing and psychological distress (Section 5), with the paper finishing with a short concluding section. In Appendix 1 of the paper, we give a short technical summary of the data, with Appendix 2 containing detailed statistical analyses to support the descriptive data presented in the main body of the paper

2   Results – Views on and exposure to COVID-19

2.1   Rates of testing and outcomes from testing

One indicator of how well the April ANUPoll reflects the Australian population's views and experience of COVID-19 is to compare the estimates of the testing rates for COVID-19 from the poll with official testing data. The ANUPoll estimates are close to the official reports with 2.1 per cent of the population having been tested by a doctor or nurse for COVID-19. This is similar to the reported testing rate of 1.5 per cent at the midpoint of our survey period (Roser et al. 2020). We would expect the ANUPoll estimate to be slightly higher since ANUPoll is restricted to the adult population and the testing rates are higher amongst adults than children.

Of the respondents to the survey who said they had been tested, most test results were negative (58 respondents) with a very small number waiting on results (3 respondents) and only one respondent identifying as having tested positive. This is consistent with what we would expect with the infection rate at the mid time-point of our sample collection (253 per 1 million persons) corresponds to an expected number of cases within our sample of less than one.

In terms of contact with others, only 0.8 per cent reported that they had close contact with someone confirmed as having COVID-19. However, 5.8 per cent reported that they had close contact with someone who may have been exposed.
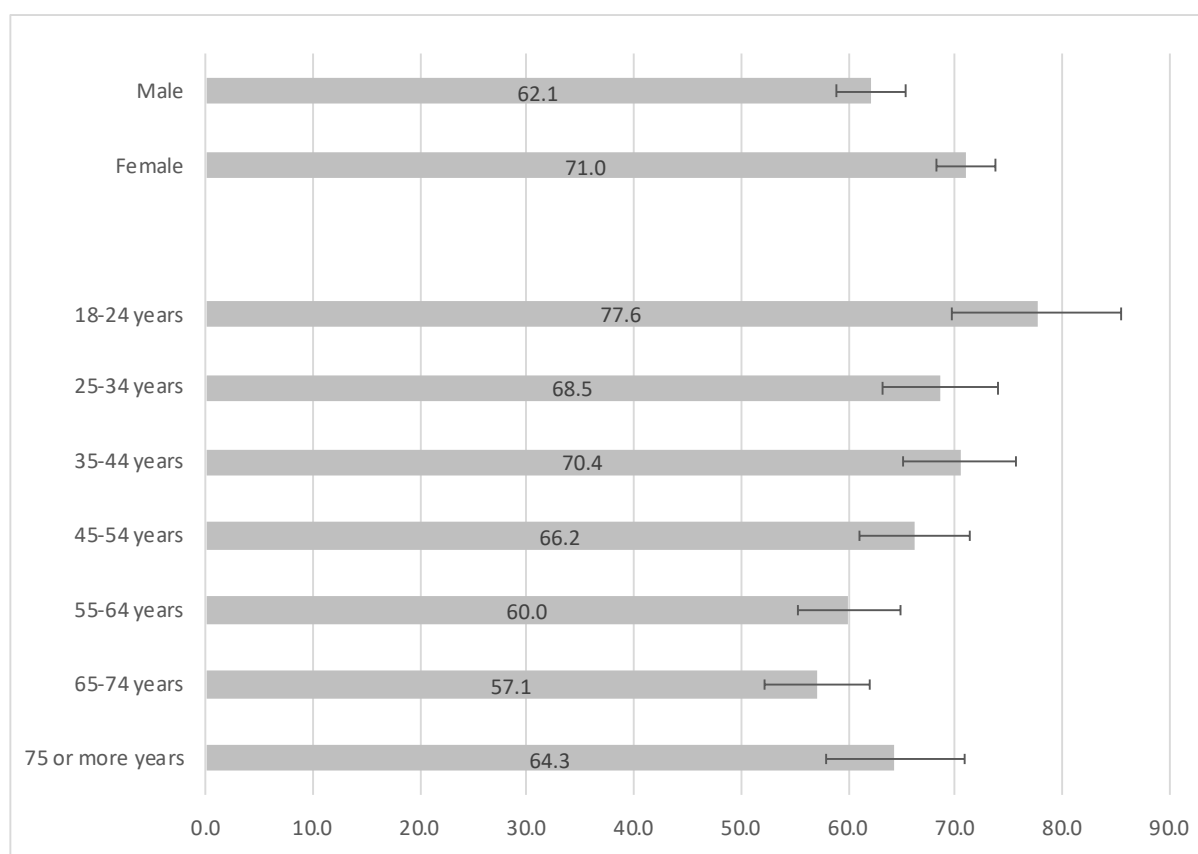
2.2   Anxiety and worry regarding COVID-19

The relatively small number of COVID-19 cases in Australia has not led to it being dismissed as an issue by the Australian population. Almost exactly two-thirds (66.6 per cent) of Australians report that they 'felt anxious or worried for the safety of yourself, close family members or friends, due to COVID-19.'

COVID-19 impacts

There are some differences between men and women, with men being less likely to report anxiety and worry due to COVID-19 (59.3 per cent) than are women (67.9 per cent) (Figure 1). There were also large differences by age, with the young, and particularly those aged 18 to 24 years more likely to report anxiety and worry. The proportion reporting anxiety or worry tends to decline with age, although it is slightly higher for those aged 75 years or older than for those age 65 to 74 years.[4]

Figure 1   Per cent of Australians who reported anxiety and worry due to COVID-19 by age and sex, April 2020

Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2020.

There are a number of reasons why a person may have experienced anxiety and worry regarding COVID-19, including: concerns about themselves, their family and friends becoming unwell; not being able to have contact with elderly relatives or grandchildren; and the economic and social consequences. The ANUPoll data strongly suggests that anxiety and worry regarding COVID-19 is not solely driven by a strong fear of one's own infection, with only 4.3 per cent of Australians thinking that it is very likely that they will be infected by COVID-19 in the next 6 months, and 35.2 per cent of Australians who think that it is likely.

Consistent with the differences in anxiety and worry due to COVID-19, there were statistically significant differences in people's assessment of the likelihood of infection by sex and age.[5] Compared to males, females think it is more likely that they will become infected by COVID-19 (36.1 per cent for males and 42.7 per cent for females) (Figure 2). Beyond the age of 35 to 44 years, there are significant declines in the percentage of people who think they will be infected,

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reaching 24.2 per cent for those aged 75 years and over, compared to around half of those aged 35 to 44 years (50.1 per cent).

While there is still much that we do not know about the age distribution of COVID-19 infections (given the relative lack of testing of asymptomatic individuals), the initial data shows that mortality rates and probably infection rates are far higher for males and those at the upper end of the age distribution (Lippi et al. 2020). This reality is not reflected in the perceptions of respondents, with women having a higher probability of thinking it is likely that they will be infected and older people thinking that it is less likely they will be infected. These results may reflect, in part, that older people are more strictly observing physical distancing rules (see below).

Figure 2   Per cent of Australians who think it likely or very likely that they will be infected by COVID-19 in next 6 months by age and sex, April 2020
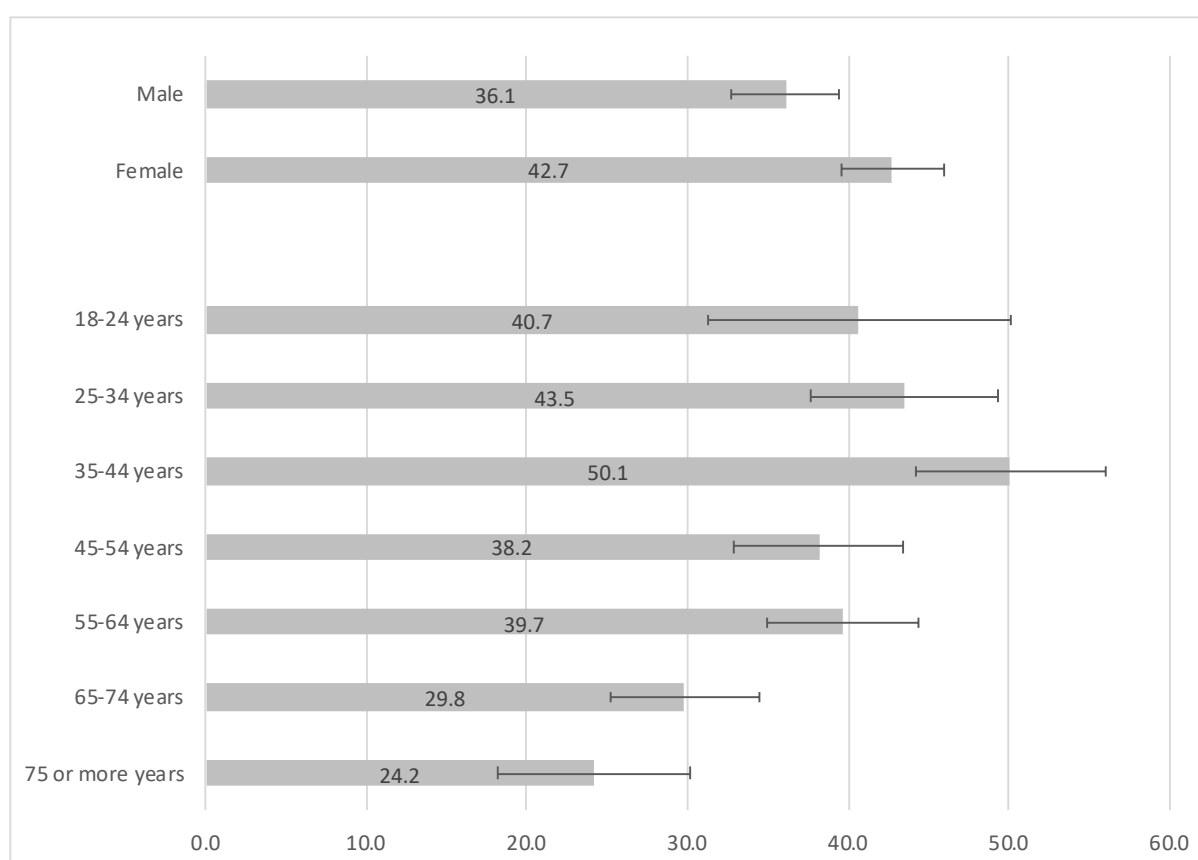
Male	36.1
Female	42.7
18-24 years	40.7
25-34 years	43.5
35-44 years	50.1
45-54 years	38.2
55-64 years	39.7
65-74 years	29.8
75 or more years	24.2

Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2020.

A higher proportion of those with a post-graduate university degree think they are likely or very likely to be infected by COVID-19 (45.5 per cent) than those without any post-school qualifications (38.3 per cent).

Another potential reason for anxiety and worry regarding COVID-19 is concerns about the impact on a person's family and friends if they were to catch COVID-19. When asked directly about how concerned they were about other family members being infected by COVID-19 in the next 6 months, 27.7 per cent of respondents said that they were very concerned, and a further 51.3 per cent said that they were concerned (excluding those who said that they did

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not have other family members). Females were more concerned than males about other family members (82.0 per cent compared to 75.8 per cent).

2.3   COVID-19 related behaviour and attitudes

If, or until, a vaccine or anti-viral treatment for COVID-19 is developed and becomes widely available, the main public health response will continue to be physical/physical distancing; reductions in travel and population movement; contact tracing; and isolation/quarantining for those who have a heightened probability of having COVID-19. The severity and specifics of these restrictions are, however, likely to be continuously changing as more evidence emerges on the most effective measures; whether infection rates go up or down (often in different ways within countries); and public pressure is placed on elected officials to dial measures up or down.

Most people are following the physical distancing requirements, such as keeping 1.5 meters away from others, and avoiding crowded places. It should be noted that for some people, their job or other responsibilities makes it not possible to always follow these requirements. In total, 63.1 per cent of the sample reported that in the 7 days preceding the survey they always avoided crowded places. In addition, 60.2 per cent said they always kept 1.5 metres from others; and 31.4 per cent said they avoided public places. These three variables are highly correlated with each other, and are combined using principal components analysis to create a COVID-19 behaviour index that has been scaled to have mean of zero and standard deviation of one.[6]

Using a linear regression model (Appendix Table 1), females, those aged 75 years and over, those born in an English-speaking country other than Australia (relative to those born in Australia) and those who speak a language other than English at home were more likely to have followed the physical distancing requirements. Those aged under 35 years (particularly those aged under 25 years) were less likely to have followed the requirements.

Some people may not follow the physical distancing requirements because they think that they are not necessary. However, as of mid-April, this appears to be a minority view only with only 4.3 per cent of the population say that they strongly agreed that 'There has been too much unnecessary worry about the COVID-19 outbreak' and an additional 15.4 per cent agreed.

There was considerable variation across the population in who held such attitudes, based on a binary probit model (Appendix Table 1) but also observable using weighted cross-tabulations. Specifically, males were far more likely than females to think that there has been too much unnecessary worry – 24.1 per cent compared to 16.6 per cent. There were also very large differences by education, and in particular by post-school qualifications. For those with a post-graduate degree, only 13.0 per cent agreed that there has been too much worry. This is significantly and substantially lower than for those with a Bachelor Degree only (17.2 per cent), which is lower still than for those without a degree (21.8 per cent).

Not surprisingly, those who thought they were likely to be infected by COVID-19 in the next 6 months were less likely to think that there has been too much unnecessary worry than those who did not think it would be likely – 16.3 per cent compared to 22.9 per cent.[7]

Both of these variables are also related to COVID-19 physical distancing behaviour. Remembering that the relevant index is scaled to have a mean of zero and a standard deviation of one, the difference between those who do and do not think they are likely to be infected by COVID-19 is around 1/10th of a standard deviation (0.081). There is an even larger difference

between those who do and do not think that there has been too much unnecessary worry regarding COVID-19 – almost half of one standard deviation or 0.03 (not too much worry) compared to -0.46 (too much worry).

2.4   COVID-19 and the media

One of the characteristics of the current crisis is the rapidly changing circumstances and the need for public health officials and government policy to quickly respond. Policy changes that would normally have taken months to discuss, legislate and implement, have occurred in weeks, or even days. To maintain public support and ensure high levels of compliance with measures that are put in place, it is necessary for the general public to have trustworthy and timely sources of information.

When asked about where they obtain their information from regarding COVID-19 (with the option of multiple responses), the two most common sources of information are radio and TV (84.5 per cent) and official government sources (82.6 per cent). The least common source of information was newspapers and magazines (44.0 per cent) and social media (48.6 per cent) with professional advice (57.2 per cent), and family and friends (52.4 per cent) in between.

It is difficult to establish causal relationships with cross-sectional data, particularly for attitudinal and behavioural variables. By definition we do not have longitudinal data on where people are obtaining information about COVID-19, because the most recent collection was prior to the spread of COVID-19 within Australia. However, it is possible to estimate correlations between sources of information and some of the COVID-19 related behaviours and attitudes.

Controlling for demographic, socioeconomic and geographic variables (Appendix Table 2), those who obtain information from official government sources; family and friends; and social media (in that order) are more likely to be anxious and worried about COVID-19 than those who do not obtain information from those sources. In the opposite direction though, those who obtain information from newspapers and magazines are less likely to be anxious and worried.

Controlling for the same variables, those who obtain information from professional advice are more likely to think they are likely to be infected by COVID-19 than those who do not obtain information from those sources, with those who obtain information from family and friends less likely to think they will be infected. Those who obtain information from radio and TV, and official government sources (in that order) are less likely to think that there has been too much unnecessary worry about COVID-19 than those who do not obtain information from those sources.

Finally, those who obtain information from official Government sources and from professional advice are more likely to have engaged in the physical distancing behaviours included in our index.

2.5   Concluding comments on COVID-19 attitudes and behaviour

The results presented in this section have highlighted that there is general adherence to the guidelines being provided by government and experts on COVID-19. Many Australians are anxious and worried which, especially at the time the main data was collected, was not surprising given the uncertainty in spread and mortality rates. Many Australians were particularly concerned about their friends and family members, whereas very few Australians

think that too much worry has been made of COVID-19. The (albeit self-reported) data suggests that most Australians were adhering to the main physical distancing guidelines.

What is also interesting from the results presented in this section is the large variation in attitudes and behaviours towards COVID-19 by demographic characteristics. Females in particular were more likely to be anxious and worried, think they themselves would be affected, were more likely to be concerned for family and friends, and were more likely to report that they followed the physical distancing guidelines. They were also less likely to think that too much worry had been made of COVID-19. At least on the measures summarised in this section, the spread of COVID-19 in Australia has had a gendered effect.

3   The initial economic impacts of COVID-19

It has been widely predicted, including by the International Monetary Fund (IMF), that for many countries the economic impact of COVID-19 will be as large as any time since the Great Depression of the 1930s (Georgieva 2020). Furthermore, while the effects of the Great Depression took many years to develop (Romer 2003; Australian Treasury 2001), some of the economic changes observed during the spread of COVID-19 have been unprecedented in their rapidity. On the flip-side however, it took most of the 1930s for unemployment and income to return to close to their pre-1930s levels, and it is only during and after World War II that Australia returned to something close to full employment. It is anticipated, or at the very least hoped, that the economic shock from the COVID-19 pandemic will be far shorter in duration than the Great Depression, or even than some of the more recent recessions in the 1970s, 1980s and 1990s which lasted a number of years and left deep scars on the Australian workforce (The Treasury 2001).

It is unclear at the time of writing as to whether the worst predictions about the short-term economic shocks from COVID-19 will come to fruition, and it is certainly too early to tell whether the more optimistic predictions of post-COVID-19 recovery will hold. Both may in fact turn out to be true. What is clear from the longitudinal data presented in this section, however, is that the short-term economic impacts are large and that they are not evenly spread across the population.

3.1   Employment impacts and job security

One of the major economic impacts of COVID-19 already observable in the data is the loss of jobs and reductions in hours worked. Some of this reduction is directly attributable to industry closures, whereas other reductions are due to a lack of aggregate demand.

3.1.1   Employment

According to ANUPoll data, the proportion of the adult population employed has fallen from 62.0 per cent in February 2020, prior to the COVID-19 restrictions, to 58.9 per cent in April 2020 when the initial impacts were beginning to be felt.[8] This is very similar to the ABS (2020a) estimate of a 3 percentage point decrease in the employment rate. With population weights applied to the data and using the June 2019 Estimated Resident Population as our denominator, this represents a drop in employment of roughly 607,000 adult Australians. This is truly unprecedented, at least in modern Australian economic history. To put this observed drop in perspective, the largest decline in the employment to population ratio that occurred over a two-month period since 1978 was 0.63 percentage points, which occurred between November 1982 and January 1983. We observed a decline almost five-times larger than that

in percentage terms, and an even larger drop in absolute terms, given the growth in the size of the population.

The longitudinal nature of the data allows for the identification of the characteristics of the employed population in February 2020 that predict not being employed in April 2020. Regression modelling is used to estimate the impact of various individual level characteristics on whether those who were employed in February 2020 were employed or not employed in April 2020.

Three probit models of the determinants of employment status in April 2020, conditional upon being employed in February 2020, are estimated in Table 1. Model 1 includes demographic, socioeconomic and geographic characteristics. Model 2 adds variables capturing details of the person's employment in February 2020 and whether they had a history of unemployment over the previous five-years. Model 3 also adds occupation in February 2020, using three groupings based on preliminary analysis of the data: (i) Managers, Technicians and Trades Workers, Community and Personal Services Workers, Sales Workers, and Labourers (the base case); (ii) Professionals, and Clerical and Administrative Workers; and (iii) Machinery Operators and Drivers.

The results from the regression modelling show no statistically significant differences in employment change between males and females. There is weak evidence in Model 2 that females have slightly better employment prospects than males (conditional on baseline employment), though the p-value is only 0.14, meaning the marginal effect should be interpreted with considerable caution. The results presented in Table 1 do show, however, that younger workers and those just beyond retirement age were less likely to be employed in April 2020, conditional on their employment in February 2020.[9] These differences hold when looking at the weighted percentages using repeated cross-sections. Specifically, the per cent of 18-24 year olds employed in February was 60.2, declining to 52.7 per cent in April 2020. For 65-74 year olds, the decline was smaller, but off a much lower base – 18.5 per cent in February 2020 compared to 15.9 per cent in April 2020. The initial employment impacts of COVID-19 and the associated public health responses appear to be concentrated amongst those in the process of entering the labour force, and those beyond retirement age. If previous periods of high unemployment are any guide (OECD 2010) the effect on the young is likely to be felt throughout their working life, and those who leave the labour force when close to retirement age may never return.

Education provides protection against job loss, with those with post-graduate qualifications having a higher probability of maintaining their employment. There are no statistically significant associations between the other demographic, socioeconomic and geographic measures included in Model 1 and employment in April. There was, however, a large association with other employment characteristics as of February 2020, and when occupation and other employment characteristics are controlled for (in Model 3), a positive association with living outside of a capital city emerges.

In Model 2, those who had been unemployed for three months or more in the previous 5 years were less likely to remain employed than those who had not. Trade union membership appears to be somewhat of a protective factor against employment loss, whereas not having an employment contract was associated with a significantly and substantially lower probability of employment. In Model 2, without controlling for occupation, there appears to be only a weak relationship with whether someone had a supervisory role (as a rough proxy for seniority) and

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employment prospects. However, this variable became more significant and had a reasonably large marginal effect when occupation was controlled for in Model 3. Furthermore, the marginal effects of the other employment variables became larger and the p-values smaller when occupation is controlled for.

Looking at the occupation variables, the probability of being employed in April 2020 was much larger for a person employed as a Professional, or a Clerical and Administrative Worker in February 2020. The marginal effect was larger still for Machinery Operators and Drivers, whose employment probability in April 2020 (conditional on being employed in February) was above 0.9.

In addition to the variation by age, those with high levels of education appear to have been protected to a certain extent from the labour market downturn. Even more so though, those who haven't been unemployed for a long period of time recently, those who are members of trade unions, those who have an employment contract, and those in more senior (supervisory) positions all also appear to have been protected. The employment slump has hit the most precarious workers the hardest.

Table 1 Factors associated with employment in April 2020 for person's who were employed in February 2020 – Marginal effects

	Model 1		Model 2		Model 3	
	Marg. Effect.	P-value.	Marg. Effect.	P-value.	Marg. Effect.	P-value.
Female	0.013		0.042		0.022	
Aged 18 to 24 years	-0.198	***	-0.224	***	-0.234	***
Aged 25 to 34 years	0.035		0.035		0.086	
Aged 45 to 54 years	0.055		0.046		0.055	
Aged 55 to 64 years	0.003		0.031		0.068	
Aged 65 to 74 years	-0.201	***	-0.183	**	-0.221	**
Born overseas in a main English speaking country	-0.026		-0.046		-0.042	
Born overseas in a non-English speaking country	-0.048		-0.029		-0.032	
Speaks a language other than English at home	-0.003		0.009		0.012	
Has not completed Year 12 or post-school qualification	0.022		0.089	*	0.104	
Has a post graduate degree	0.078	**	0.093	**	0.108	
Has an undergraduate degree	0.046		0.061		0.050	
Has a Certificate III/IV, Diploma or Associate Degree	-0.003		0.019		0.050	
Lives in the most disadvantaged areas (1st quintile)	0.021		0.023		0.054	
Lives in next most disadvantaged areas (2nd quintile)	0.007		0.007		0.013	
Lives in next most advantaged areas (4th quintile)	0.037		0.034		0.071	
Lives in the most advantaged areas (5th quintile)	0.027		0.007		0.019	
Lives in a non-capital city	0.038		0.060	*	0.105	**
Unemployed for 3 months or more in previous 5 years			-0.105	**	-0.090	
Member of a trade union in February 2020			0.080	**	0.134	**
Had a contract, but of limited duration in Feb 2020			0.022		0.019	
Did not have a contract in February 2020			-0.128	***	-0.129	**
Supervised other staff members in February 2020			0.054	*	0.108	**
Professionals (Category 2), and Clerical and Administrative Workers (Category 5)					0.173	***
Machinery Operators and Drivers					0.202	**
Probability of base case	0.849		0.832		0.708	
Sample size	1,579		1,348		1,281	

Notes: Model excludes those aged 75 years or older in February 2020. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city.

Those coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

Source: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

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In our sample, there were 124 respondents who were employed in February 2020, who were not employed in April 2020. With our longitudinal data, we are able to identify what that group was doing in April 2020 as their main activity. While this is a relatively small sample to make definitive conclusions on, their main reported activity in April 2020 does highlight that very few have moved into the standard measure of unemployment (though this is still a sizable minority of those who lost their job). Leaving aside the small proportion of the sample who reported an 'other' activity, the stated activities in April 2020 for those who lost their job were:

- 19.5 per cent – In education (not paid for by employer), even if on vacation
- 32.0 per cent – Unemployed and actively looking for a job
- 12.3 per cent – Unemployed, wanting a job but not actively looking for a job
- 0.4 per cent – Permanently sick or disabled
- 8.1 per cent – Retired
- 27.7 per cent – Doing housework, looking after children or other persons

In our data, a large proportion of the sample who lost their job have disengaged from the labour market entirely, and it will be important as the economy hopefully moves into the recovery phase that these people are supported in re-engaging.

3.1.2   Hours worked

One-in-four (25.7 per cent) of those who were employed in April 2020 said that they had their hours reduced in the last three months and 12.0 per cent reported they were required to take paid leave. Similar findings have been found in other surveys. The longitudinal nature of our data, however, also provides a direct measure of how working hours changed between February and Apri 2020l. For those who were employed in February and April 2020, average working hours (in the previous 7 days) declined from 35.1 hours in February 2020 to 32.1 hours in April 2020. When combined with the drop in employment described above and using population weights, this represents a decrease in the total number of hours worked in Australia (per week) of around 56.2 million hours, or by 13.1 per cent. Once again, this is far larger than any declines seen in modern Australian economic history, with the previous largest decline (since 1978) in seasonally adjusted monthly hours worked being 2.7 per cent (observed between June and August 1980) and the largest decline observed during the Global Financial Crisis of 2.4 per cent (between January and March 2009)

Figure 3 shows hours worked in April 2020 plotted against hours worked February 2020. If there was no change in hours worked by any of the respondents between February and April 2020 then all of the dots (each representing an individual respondent) would lie on the red 45-degree line. While there is a strong upward slope in the dots indicating that those who worked longer hours in February also tended to work longer hours in April 2020, many more of the dots are below the 45-degree line than above it. This tells us that there are many more people who reduced the number of hours worked over the period than those who increased their hours worked. It is also clear that those who stopped working between February and April (and hence had working hours of zero in April) included both those working part-time and those working full-time in February 2020.

Figure 3   Hours worked in April 2020 by hours worked in February 2020
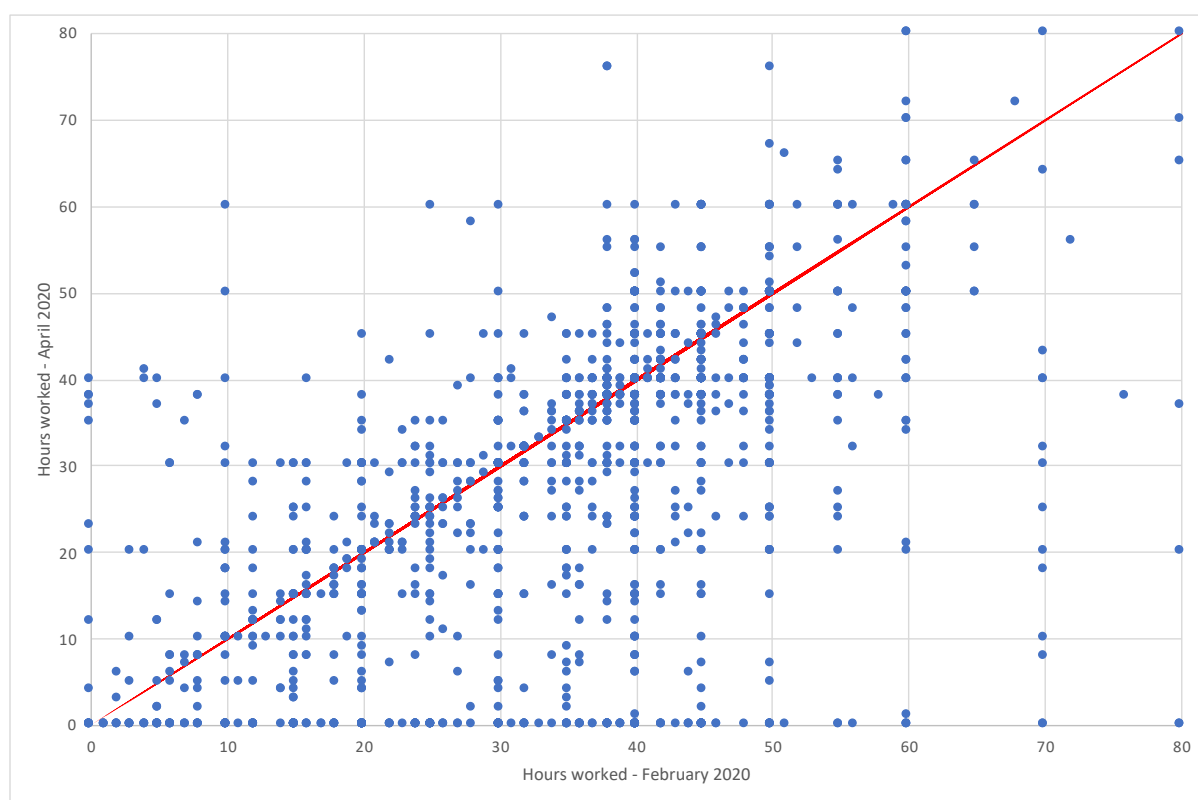
Notes: Restricted to respondents who were in paid employment in February 2020 and responded to both the February and April 2020 waves of ANUPoll.

Sources: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

Restricting the analysis to survey respondents who were employed at the time of both the February and April 2020 surveys (that is, focusing on reduction in hours for the employed population) allows us to identify what proportion of employees had a reduction in the number of hours they were working and the characteristics of those employees. Once again, by longitudinal data enables us to estimate this change without the respondent needing to remember their hours two months previously, as it was already reported by them. This analysis confirms the visual inspection of the data that there are many more people below the 45 degree-line than above the 45 degree-line, even amongst those who had continued work in April 2020. Specifically, almost exactly half of respondents (50.0 per cent) were working fewer hours per week than they were working in February (below the line), 25.1 per cent worked the same number of hours (on the diagonal line), and 24.9 per cent worked more hours (above the line).

Statistical modelling (Appendix Table 3) reveals that the largest decline in hours worked (for those who remained employed) between February and April were experienced by women and those born in non-English speaking countries (compared with those born in Australia). There were smaller declines in hours worked for those with a post-graduate degree and those who lived in the most disadvantaged neighbourhoods. To understand the scale of some of these differences (without controlling for other characteristics) the average decline in the number of hours worked for a female (who was employed in both periods) was 4.43 hours, compared to 3.65 hours for males. For someone born in Australia, it was 3.70 hours, compared to 5.82 hours for someone born in a non-English speaking country.

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Interestingly, and perhaps somewhat surprisingly, there were no statistically significant differences in the change in hours worked by the employment characteristics included in Model 2 of Table 1. While it should be kept in mind that the findings presented in this paper are from early in the expected COVID-19 induced economic slump, they do give some initial evidence that employment characteristics predict losses in employment, but they do not predict changes in hours for those who remain employed.[10]

3.1.3 Perceived job security

In April 2020, respondents who were currently employed were asked what they thought the chances were of them losing their job at some stage over the next 12-months. The probability of expected job loss averaged over all employed respondents was 24.6 per cent with just over one-third (34.1 per cent) assessing the chance of job loss as being zero and 28.4 per cent thinking it was 50 per cent or higher.

This is the first time that this question has been asked on an ANU survey with the Life in Australia[TM] panel. However, the survey instrument was drawn directly from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, which therefore provides benchmark data on perceived job security over a much longer time period. Over the period 2001 to 2016 the average expected probability of job loss over the next 12-months was 11 per cent (Foster and Guttmann 2018). The April 2020 data on perceived job security is almost twice as high as the highest level of perceived job insecurity over the period 2001 to 2016 of 14 per cent in 2001.

The second question asked about job security was 'If you were to lose your job during the next 12 months, what is the per cent chance that the job you eventually find and accept would be at least as good as your current job, in terms of wages and benefits?' Across employed Australians, the average value reported was only 41.4 per cent, with 20.2 per cent rating their chances as zero. A further 50.4 per cent of the sample rated the probability as being between 1 and 50 (inclusive) and only 8.2 per cent rated their chances of finding an equally good job as 100 per cent.

There is some variation in perceived job security across the population (Table 2). Those who were born overseas in a non-English speaking country had a higher self-perceived probability of losing their job compared to those born in Australia. What is interesting is the apparent non-linear association with individual education and the socioeconomic characteristics of the area in which the person lived. Having lower or higher educational levels (compared with those who have completed year 12 as their highest level of educational attainment) was associated with a lower self-perceived probability of losing one's job. There was also a lower self-reported probability for those who lived in the most disadvantaged suburbs (relative to those in the middle quintile).

There are no major differences in the expected probability of losing one's job by age. There were, however, very large differences in the expected probability of finding an equally good job. Specifically, those near or above retirement age (55 years and over) were far less likely to think they could find a new job. A final important finding from Table 2 is that those with a degree are more likely to think that they could obtain an equally good job than those without post-school qualifications.

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Table 2   Factors associated with future job security for those employed in April 2020

	Probability of losing job		Probability of a good new job	
	Coeff.	Signif.	Coeff.	Signif.
Female	0.828		-0.003	
Aged 18 to 24 years	-3.812		-4.639	
Aged 25 to 34 years	-4.509	*	3.850	
Aged 45 to 54 years	-4.294	*	-1.427	
Aged 55 to 64 years	-3.047		-14.004	***
Aged 65 to 74 years	-7.272	*	-23.547	***
Aged 75 years plus	6.740		-24.329	**
Indigenous	4.572		-8.884	
Born overseas in a main English speaking country	0.689		-0.609	
Born overseas in a non-English speaking country	10.291	***	-1.118	
Speaks a language other than English at home	-3.222		1.749	
Has not completed Year 12 or post-school qualification	-9.975	***	6.735	
Has a post graduate degree	-0.645		10.352	***
Has an undergraduate degree	-7.276	**	12.007	***
Has a Certificate III/IV, Diploma or Associate Degree	-1.621		4.489	
Lives in the most disadvantaged areas (1st quintile)	-7.841	***	4.154	
Lives in next most disadvantaged areas (2nd quintile)	-1.167		-0.965	
Lives in next most advantaged areas (4th quintile)	-1.645		-0.937	
Lives in the most advantaged areas (5th quintile)	-3.647		2.833	
Lives in a non-capital city	-2.941		0.104	
Constant	32.670		36.996	
Sample size	1,563		1,540	

Notes: OLS regression model. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city

Those coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

Source: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

3.2   Income

The combined effect of job losses, decreased hours worked, reduced rates of pay and falls in the stock market are likely to severely impact household budgets. However, between February and April 2020, there have been a number of policy interventions that have directly injected cash into households. These include the Economic Support payment of $750 for 6.8 million existing social security payment recipients, the provision of a $550 per fortnight Coronavirus Supplement to new and existing eligible income support recipients (including those receiving

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student support payments, Jobseeker Payment (unemployment benefit) or Parenting Payment), and the JobKeeper payment of $1,500 per fortnight for each eligible employee to employers to enable them to continue to pay their employees. Some of the cash injections had been received by households at the time of data collection, whereas others were still to be delivered. Overall we find a very large decline in income between what was reported in April 2020 compared to February 2020.

The specific question that we asked in February and April 2020 was 'Please indicate which of the following describes your household's total income, after tax and compulsory deductions, from all sources?' Respondents are then asked to choose from one of ten income categories.[11] These categories have been converted into a continuous income measure using interval regression (Appendix Table 4).[12]

The average household after-tax weekly income in February 2020 was estimated to be $1,795. By April 2020 this had fallen to $1,632; a fall of 9.1 per cent. When this household income is converted to a per person income level (i.e., household income divided by adults and children in the household), income fell from $740 per person per week in February to $663 per week in April, a fall of 10.4 per cent. The decline in per person income is larger than the decline in household income because the average household size increased between February and April 2020.[13] Either per person or per household, this is a very substantial fall in income over an approximate two-month period.

Our estimate of total income from these figures is substantially lower than the estimation of Gross National Income from official statistics, as we do not include taxes paid in our calculations. Nonetheless, if you multiplied our per person estimates by the size of the Australia population and the number of weeks per year, our annualised estimated decline in income between February and April for households is $102 billion.

We can use this data to compare the number of lives saved from the initial projections of COVID-19 deaths with the cost to the economy. According to Wilson and Blakely (2020), under the herd immunity scenario of 60 per cent infection rate, this would have equated to 134,000 deaths in Australia. With only 93 deaths recorded in Australia at the time of writing, assuming no further deaths from COVID-19, and assuming that there would be no economic costs of the deaths that otherwise would have eventuated, we estimate an initial income cost of around $761,000 per life saved. This is far lower than the estimated value of a statistical life of $4.2million used by the Australian Government,[14] though it should be noted that we do not take into account the age distribution of the lives that were saved and the estimated number of years of life saved.

The change in income is not consistent across the population, or across the income distribution. Specifically, Table 3 shows that there were estimated increases in income between February and April for those who were at the bottom of the income distribution in February, and declines in income for those who were at the top of the distribution.

There was a substantial increase of 33.5 per cent in per person after tax household income for the lowest income decile, and smaller increases for the second and third income deciles of 3.3 per cent and 9.1 per cent respectively. There was little change in incomes for deciles 4 and 5 and then substantial falls for the higher income deciles of: 4.7 per cent for decile 6; 12.6 per cent for decile 7; 10.8 per cent for decile 8; 10.3 per cent for decile 9; and 20.0 per cent for decile 10.[15]

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Table 3   Per person after-tax household income, February and April 2020

	Per person household income ($/week)		$ change, Feb to April 2020	% change, Feb to April 2020
	February 2020	April 2020		
Income decile (February 2020)				
Decile 1	$160	$213	$54	33.5
Decile 2	$292	$302	$10	3.3
Decile 3	$358	$391	$32	9.1
Decile 4	$449	$449	$1	0.1
Decile 5	$571	$570	-$2	-0.3
Decile 6	$648	$618	-$30	-4.7
Decile 7	$795	$695	-$100	-12.6
Decile 8	$972	$868	-$105	-10.8
Decile 9	$1,267	$1,136	-$131	-10.3
Decile 10	$2,110	$1,688	-$422	-20.0
Total	$740	$663	$77	-10.4%

Notes: Analysis is restricted to those who responded to the February and April 2020 ANUPolls.

These very different changes in income across the distribution have led to a reduction in some measures of income inequality between February 2020 and April 2020. Specifically, the ratio of the 90th percentile to the 10th percentile (the so-called 90/10 ratio) declined from 7.2 in February 2020 to 6.2 in April 2020.

Two additional results of high public policy relevance emerge when we look at the factors associated with change in income (Appendix Table 5). Firstly, the per person income of the households in which 18 to 24 year olds live declined by $64 more than an otherwise identical 25 to 64 year old. For those aged 65 to 74 year, the decline was $38 more than compared to an otherwise similar 25 to 64 year old. Second, those living in the most advantaged areas had an estimated decline in weekly income of $4 compared to a decline of $76 per week for those living in the middle three disadvantage quintiles. That is, the greatest declines in income were for the households of the relatively young (aged 18 to 24 years) and those just beyond retirement age (aged 65 to 74 years), whereas there were only negligible declines in income for those who lived in the most advantaged suburbs.

3.3   Financial stress

The increases in income at the lower end of the income distribution is also very consistent with the targeted increases in the level of government payments[16] (both the increases in payments to social security recipients and the JobKeeper subsidy to employers) which have been made in an attempt to reduce the economic consequences of physical distancing measures. The results also align with other data from the April 2020 ANUpoll, as described below.

In February and April 2020, respondents were asked about how comfortably they could live on their household's present income. Response were living comfortably, coping, finding it difficult and finding it very difficult. This question was asked in both February and April 2020. In April 2020, 31.4 per cent of Australians said they were living comfortably on present income; 45.8

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said they were coping on present income; 16.2 per cent said they were finding it difficult on present income; and 6.6 per cent said they were finding it very difficult on present income. Despite the substantial fall in income described above, the proportion of people who said that they were finding it difficult or very difficult on their current income decreased from 26.7 per cent in February to 22.8 per cent in April.

It is true that expenditure requirements are likely to have declined between February and April as people have less capacity to travel, eat out, and engage in other forms of discretionary expenditure. However, the data also suggests that the decline in the per cent of people finding it difficult was almost exclusively found at the bottom end of the income distribution. As shown in Figure 4, in February 2020 60.1 per cent of those in the bottom decile of the income distribution reported that they are finding it difficult or very difficult. Looking at the same individuals in April 2020 (that is, keeping decile fixed to February 2020 values), this had declined to 51.9 per cent.[17] There were also declines for the second, third and fourth income categories, but very little change across the rest of the distribution.

Those on lower income are still most likely to find it difficult to cope on their income. However, the reductions in the proportion finding it difficult or very difficult is consistent with the increases in income experienced by the lower income groups. If you take someone not having enough income to meet their needs as subjective measure of financial stress, then t the income support packages implemented to address economic upheaval caused by COVID-19 by multiple levels of government appear to have significantly reduced financial stress for those at the bottom of the distribution.

Figure 4   Per cent of Australians who report that they are finding it difficult or very difficult on their current income, February 2020 and April 2020, by income decile as of February 2020
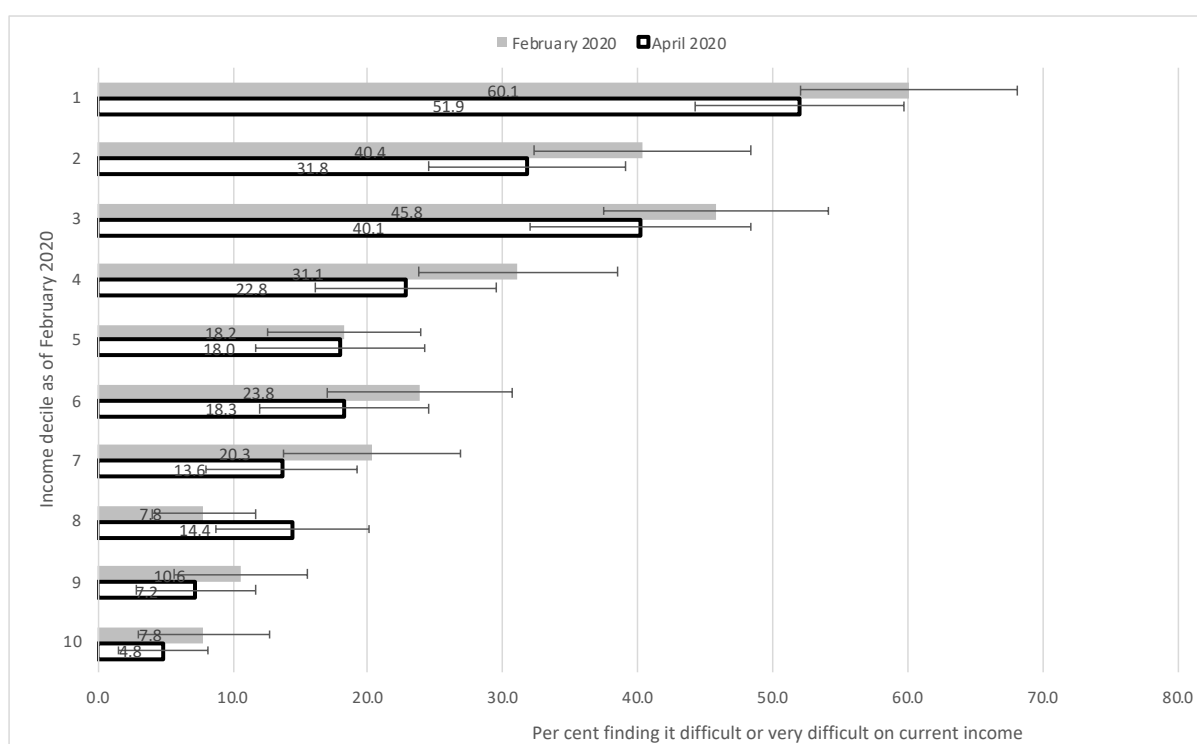
Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

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3.4   Concluding comments

It is clear from the data presented in this paper, and from other supporting data, that the economic costs to the Australian economy from the spread of COVID-19, and the associated policy responses are massive. We report significant declines in employment (around 607,000 fewer employed adults), very large declines in the number of hours worked (56.2 million hours) including for those who were still employed, and large declines in per-person household income ($102 billion on an annualised basis). In the labour market, those who have lost their job are more likely to be at the lower or upper end of the age distribution and had more precarious employment prior to COVID-19. The income support packages introduced by the government, however, appear to have moderated this lack of equity in the labour market, with gains in income for those at the bottom end of the distribution in February 2020 and a decrease in the proportion who do not think their current income is sufficient. The one exception to this is larger declines in income for the households of 18 to 24 year olds, and smaller declines in income for those who lived in the most advantaged suburbs.

4   Political attitudes and social cohesion

This section reports on how social cohesion and support for government in April 2020 compare to prior to COVID-19.

4.1   Confidence in institutions and satisfaction with the direction of the country

ANUPoll has collected data on the level of confidence that Australians have in key institutions over several years. At the start of the survey (and prior to asking about any COVID-19 related topics) respondents were asked 'How much confidence do you have in the following institutions…?':the Federal Government in Canberra; the Public Service; the State/Territory Government where you live; General Practitioners; and Hospitals and the Health System.[18] The response options are: a great deal of confidence; quite a lot of confidence; not very much confidence; and none at all.

Figure 5 shows the per cent of Australians who are confident or very confident in the five institutions asked about in April 2020 and data for confidence in the Federal Government, the Public Service and the State/Territory Government from the January 2020 ANUPoll. Confidence in General Practitioners and hospitals and the health care system was only asked in the April 2020 ANUPoll.

Between January and April 2020, the proportion of Australians who are confident or very confident in the Federal government increased from 27.3 to 56.6 per cent, in the public service from 48.8 to 64.8 per cent and state/territory governments increased from 40.4 to 66.7 per cent. These are substantial increases over a short-period of time. In interpreting the change from January to April it is important to note that the January data was collected during the middle of widespread, prolonged and damaging bushfires and this was associated with a large decline in confidence in the Federal government from 38.2 per cent in October 2019 to 27.3 per cent in January. So, while January 2020 data was a relatively low baseline, even in October 2019 less than two-in-five respondents reported confidence in the government.

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Figure 5   Per cent of Australians who are confident or very confident in key institutions, January 2020 and April 2020
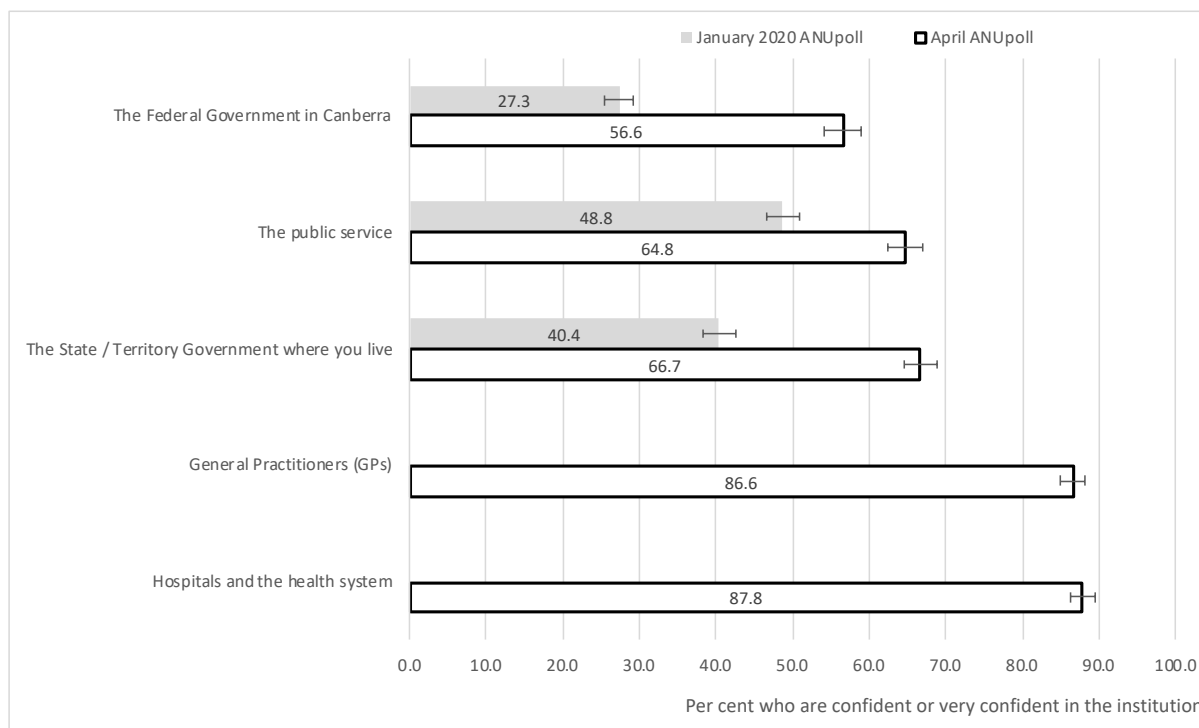
Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2020 and Life in Australia Wave 34, January 2020.

It is perhaps not surprising that confidence in the main institutions of government have improved since January 2020 given the widespread disapproval of the government handling of the bushfires, particularly at the Commonwealth level. For the most part, the response of Australian governments to the spread of COVID-19 has received a much greater level of support, especially when put in the context of some other developed countries against which Australia often compares itself.

What is perhaps a little more surprising is that in the midst of a global pandemic and at the start of what would appear to be one of the worst economic slumps in Australian history, Australians are more satisfied in the direction of the country than they have been in the past. When asked whether 'All things considered, are you satisfied or dissatisfied with the way the country is heading?' 76.2 per cent reported that they were either satisfied or very satisfied. This was not only a significant and substantial increase from January 2020 (the last time the question was asked), when 59.5 per cent were either satisfied or very satisfied, but also higher than the 65.2 per cent of the population who were estimated to be satisfied or very satisfied in October 2019.

While there has been an overall increase in satisfaction with the direction of the country, there is still variation by the attitudes of respondents towards COVID-19. Controlling for satisfaction with the direction of the country in January 2020, those who experienced worry and anxiety about COVID-19 were less likely to be satisfied with the direction of the country, as were those who thought too much was being made of COVID-19. While this result holds when also controlling for demographic, socioeconomic and geographic variables using a binary probit

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model (Appendix Table 6), the size of the relationship is clear from more simple descriptive statistics.

Of those who were not satisfied with the direction of the country in January, 56.1 per cent of those who felt anxiety or worry about COVID-19 were satisfied in April 2020, compared to 53.0 per cent of those who did not report anxiety or worry. While startistically significant, this difference is not very large, and suggests that people are making separate assessments about their own life (discussed in the next section) and how the country as a whole has managed the spread of COVID-19. The difference was even greater by whether or not someone thought that there has been too much unnecessary worry about COVID-19 – 42.6 per cent satisfaction for those who agreed there was too much worry compared to 56.7 per cent satisfaction who did not (focusing again on those who were not satisfied in January 2020).

4.2   Social cohesion and trust

Views on fellow Australians' trustworthiness, fairness and helpfulness improved between February and April 2020, with trust, perceptions of others' fairness and altruism all found to have increased from February to April 2020. In both February 2020 and April 2020, participants were asked:

- whether most people can be trusted;
- whether people are fair (as opposed to taking advantage of others); and
- and whether people are helpful.

The responses are given on a scale from 0 to 10 where 0 is the most negative assessment and 10 the most positive.

Trust in others increased from a mean value of 5.39 in February 2020 to 5.84 in April 2020, while believing people are fair increased from 5.54 to 6.04, and perceptions of whether people are helpful increased from 5.64 to 6.08 out of 10. A similar result has been observed in the United States in a longitudinal study which used the same measures (Rainie and Perrin 2020).

When we took an average of these three measures as a simple indicator of social cohesion, we found that one of the strongest predictors of changes between February and April 2020 was a person's age. In a simple model that controls for social cohesion in February 2020 only, we found that the predicted change in the social cohesion index between February and April 2020 for a 35 to 44 year old with the average value in February (5.69) was 0.06. There was no significant difference in this change for an 18 to 24 year old, or for a 25 to 34 year old. There was, however, a much greater increase in the social cohesion index beyond the age of 45. Specifically, for the 45 to 54 year age group (with the same index value in February), there was a predicted increase of 0.41. This continues to increase across the age groups (holding constant baseline social cohesion) to 0.63 for those aged 55 to 64, 0.81 for those aged 65 to 74 years, and 1.04 for those aged 75 years and over.

Given the very short time period, this is unlikely to reflect the ageing of this group. While it is difficult to make causal statements using observational data, this larger increase in social-cohesion amongst those at the upper end of the age distribution may reflect the fact that a key focus of the policy response to the spread of COVID-19 has been to protect the health of those who appear more susceptible to the virus and particularly those at the upper end of the age distribution. Given this focus on the health of the relatively old, and given the widespread observance of physical distancing measures, it is perhaps not surprising that those who are

being protected have increased their trust and belief in the fairness and altruism of the rest of the population.

4.3   Concluding comments

During times of economic stress and uncertainty, there is a real risk that social cohesion, trust in others, and confidence in the government will decline. There is no evidence for this during the early stages of the pandemic in Australia, and if anything, social cohesion has increased. Australians are more likely to think that their fellow Australians can be trusted, are generally fair, and are generally helpful than they were prior to the spread of COVID-19. Confidence in the government has also increased, and what is perhaps most surprising is that satisfaction with the direction of the country has increased quite substantially not only since January 2020 when Australia was being affected by bushfires, but also since October 2019. There is, of course, no guarantee that these trends will continue, especially if the economic slump drags on. In the short term though, there we have observed positive and improving views of Australians to each other, and to government.

5   Life satisfaction and mental health

The anxiety and stress associated with COVID-19, social isolation and negative economic impacts all may have an effect on subjective wellbeing and mental health. As discussed in the introduction, there is evidence from several countries that COVID-19 has had substantial negative impacts on mental health.

5.1   Life satisfaction

The April ANUPoll measured life satisfaction using the standard survey measure of "Overall, how satisfied are you with life as a whole these days" on a 0-10 scale where 0 is 'not at all satisfied ' and 10 is 'completely satisfied'. This question was also asked in January 2020 and in October 2019 enabling analysis of the change in life satisfaction at the individual level.[19]

In January 2020, around the height of the 2020 bushfire crisis, the mean life satisfaction was 6.90. This was a statistically significant decline since the October 2019 value of 7.05. However, between January 2020 and April 2020, life satisfaction declined by an even larger amount – down to 6.50 for those who were asked the question in a consistent way. This is a very large decline, roughly equivalent to one-fifth of a standard deviation. It is likely to capture the decline in income; worsening in employment; anxiety and worry; and reductions in social interaction already presented in this paper.

Another way to contextualise the observed change in life satisfaction is to estimate what the equivalent decline in income would have had to have been in order to lead to the same decline in life satisfaction. Using the estimated relationship between life satisfaction and income in February 2020[20] we estimate that a reduction in life satisfaction from 6.90 to 6.50 is equivalent to a decline in income of $581 per person, per week (from $993 to $412) or moving from the 80th to the 33rd percentile on the income distribution.

There were few demographic, socioeconomic and geographic variables that were associated with changes in life satisfaction (Model 1, Table 4). The one exception was age, with large differences in the change in life satisfaction across the ten-year age cohorts. Holding constant life satisfaction in January, life satisfaction improved significantly and substantially for those aged 55 years and over relative to those aged 35 to 44 years. There were also improvements in life satisfaction for those who lived outside of capital cities relative to those in capital cities.

Even though there was not a strong association between changes in life satisfaction and most of the demographic, socioeconomic and geographic variables, there was a large association with a number of other longitudinal and COVID-19 specific variables. Holding constant age cohorts and life satisfaction April 2020 those who were anxious or worried about COVID-19, and those who thought too much has been made of COVID-19 had a lower level of life satisfaction in April 2020 than those who did not.

Table 4   Factors associated with life satisfaction

	Model 1		Model 2	
	Coeff.	Signif.	Coeff.	Signif.
Life satisfaction in January 2020	0.538	***	0.533	***
Anxious or worried about COVID-19			-0.273	***
Expected likelihood of being infected by COVID-19			0.005	
Thinks there has been too much worry about COVID-19			-0.241	**
Female	-0.018		-0.027	
Aged 18 to 24 years	-0.188		-0.134	
Aged 25 to 34 years	-0.266		-0.227	
Aged 45 to 54 years	0.052		0.097	
Aged 55 to 64 years	0.348	**	0.358	**
Aged 65 to 74 years	0.604	***	0.594	***
Aged 75 years plus	1.023	***	1.040	***
Indigenous	0.167		0.182	
Born overseas in a main English speaking country	0.152		0.156	
Born overseas in a non-English speaking country	-0.126		-0.117	
Speaks a language other than English at home	0.253		0.283	*
Has not completed Year 12 or post-school qualification	-0.039		-0.047	
Has a post graduate degree	0.179		0.143	
Has an undergraduate degree	0.250	*	0.212	
Has a Certificate III/IV, Diploma or Associate Degree	0.117		0.128	
Lives in the most disadvantaged areas (1st quintile)	0.164		0.205	
Lives in next most disadvantaged areas (2nd quintile)	0.032		0.078	
Lives in next most advantaged areas (4th quintile)	0.089		0.132	
Lives in the most advantaged areas (5th quintile)	0.144		0.142	
Lives in a non-capital city	0.208	**	0.187	*
Asked life satisfaction question at end of survey	0.140		0.156	
Constant	2.296	***	2.512	***
Sample size	2,734		2,672	

Source: ANUpoll, April 2020 and ANUpoll, January 2020.

Notes: OLS Regression Model. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city

Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

5.2   Psychological distress and mental health

The debates that are occurring regarding the extent of physical distancing measures are frequently being framed as a trade-off between health and the economy. While there are undoubtedly some who are arguing for a quicker relaxation of physical distancing measures because of their own financial position, it would be more accurate to frame the debate as to whether and how to trade-off physical health outcomes and mental health outcomes. It is clear that Australia and a small number of other developed countries have limited the level of infections and deaths from COVID-19. Data collected from April 2020 gives strong initial support that this has come at the cost of deterioration in mental health and increases in psychological distress.

Mental health was measured by the Kessler 6 (K6) scale.[21] The K6 comprises six items and has been widely used and validated in many epidemiological studies (e.g., Kessler et al., 2002). Respondents who score highly on this measure are considered to be at risk of a serious mental

illness (other than a substance use disorder).[22] It is important to recognise that the K6 screens for the risk of serious mental illness and is not a diagnostic measure. These questions were previously asked in February 2017 and therefore allow us to measure long-term change through time in outcomes. We analyse the continuous index from the K6 scale, as well as whether or not respondents were above or below a clinical threshold for probable serious mental illness.

The K6 measure of psychological distress used in this paper has been constructed to have a minimum value of 6 and a maximum value of 30. In February 2017 when the question was last asked on Life in Australia[TM] , the average value was 11.2. By April 2020, the score had increased to have a mean of 11.9, and a standard deviation of 4.8. This increase is statistically significant, and also holds when we look at those who were linked at the individual level across the three years.

While this is a relatively large increase (a little under one-sixth of a standard deviation), the increase in the proportion of the sample who are beyond the clinical threshold of 19/30 was larger still. In April 2020, the proportion of the population who are identified as having 'probable serious mental illness' was 10.6 per cent. This was significantly larger than the per cent in February 2017 – 8.4 per cent. By both measures – continuous and threshold – we have observed a significant and substantial increase in psychological distress.

Given the relatively large time period since the last time the K6 scale was included in the Life in Australia[TM] panel, it is slightly more difficult to attribute changes to COVID-19 alone. As the only longitudinal dataset so far that has pre- and during-COVID-19 data on psychological distress in Australia, it is an important and urgent area of ongoing research to control for observed experiences between 2017 and 2020, as well as changes in demographic, socioeconomic and geographic circumstances to get a more direct measure of the effect of COVID-19 on psychological distress. However, it is possible to get some information on the potential effect of COVID-19 on psychological distress by first controlling for other related variables in February 2020, as well as demographic, socioeconomic, and geographic variables, and then measuring the relationship with the direct COVID-19 measures from April 2020. The February 2020 control variables we include are:

- All things considered, how satisfied are you with your life as a whole nowadays? (scale of 0 to 10);
- Taking all things together, how happy would you say you are? (scale of 0 to 10); and
- How is your health in general? Would you say it is…? (Very good; Good; Fair; Bad; Very bad).

Using life satisfaction and happiness as continuous variables, as well as general health as a series of binary variables, we show (in Table 5) a very strong association between some of the COVID-19 related variables and psychological distress, both as a continuous variable or as a threshold. Specifically, looking at the continuous measure, we find that those who were anxious and worried about COVID-19 had higher level of psychological distress than those who did not. There was no association, however, with thinking that it is likely that they would contract COVID-19 or that there has been too much worry about COVID-19.

Controlling for employment in February 2020, those who were employed in April 2020 had significantly lower levels of psychological distress than those who were not. While these results suggest that there are psychological consequences of job losses to date, these would likely

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have been even greater if there had also been large increases in financial stress of households. As mentioned, this does not prove causality. However, the data presented in Table 5 give strong *prima facie* evidence that COVID-19 and the associated economic slump has increased psychological distress for Australian adults.

Table 5   Factors associated with psychological distress

	Coeff.	Signif.
Anxious or worried about COVID-19	1.714	***
Expected likelihood of being infected by COVID-19	0.304	***
Thinks there has been too much worry about COVID-19	0.350	***
Employed in February 2020	-0.100	***
Employed in April 2020	-0.977	***
Life satisfaction in February 2020	-0.386	***
Self reported happiness in February 2020	-0.365	***
Health good in February 2020	0.689	***
Health fair in February 2020	1.396	***
Health bad in February 2020	2.227	***
Health very bad in February 2020	4.517	***
Female	0.986	***
Aged 18 to 24 years	1.491	***
Aged 25 to 34 years	0.997	***
Aged 45 to 54 years	-1.319	***
Aged 55 to 64 years	-2.000	***
Aged 65 to 74 years	-3.149	***
Aged 75 years plus	-3.320	***
Indigenous	1.705	***
Born overseas in a main English speaking country	0.270	***
Born overseas in a non-English speaking country	0.932	***
Speaks a language other than English at home	0.005	***
Has not completed Year 12 or post-school qualification	-0.665	***
Has a post graduate degree	-0.611	***
Has an undergraduate degree	-0.845	***
Has a Certificate III/IV, Diploma or Associate Degree	-0.805	***
Lives in the most disadvantaged areas (1st quintile)	-0.584	***
Lives in next most disadvantaged areas (2nd quintile)	-0.305	***
Lives in next most advantaged areas (4th quintile)	-0.759	***
Lives in the most advantaged areas (5th quintile)	-0.857	***
Lives in a non-capital city	-0.674	***
Constant	16.256	***
Sample size	2,734	

Source: ANUpoll, April 2020 and ANUpoll, January 2020.

Notes: OLS Regression Model. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city. In addition, the base case was not employed in either February or April, and reported their general health as very good.

Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

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6 Concluding comments

At the time of writing, there had been almost one-quarter of a million deaths directly attributable to COVID-19, with more than 3 million cases worldwide. Incomes across the world have declined substantially, and unemployment has drastically increased.

This paper provides a summary of the impact of COVID-19 on Australian labour market outcomes, income, financial stress, social cohesion, political attitudes, subjective wellbeing and psychological distress. It summarises the first set of longitudinal data with information on the same individuals from both before and after the spread of COVID-19.

We find large declines in employment and income, with our measured change in employment very similar to that found by the ABS. We also find significant increases in psychological distress and large drops in subjective wellbeing. These results are not surprising given the dramatic measures put in place by government, and the considerable fear and anxiety that a global pandemic will have inevitably engendered.

Not all the results presented in this paper are negative. We observe improvements in confidence in governments and the public service, enhanced satisfaction in the direction of the country, large increases in social trust, and significant observance of physical distancing measures. There are also increases in income due to government transfers at lower income levels and those on on low income are less likely to be finding it difficult or very difficult to cope on their income.

Monitoring and understanding the economic, health and social impacts of COVID-19 and the associated social policy response is vital for informing governments' decisions about the measures that are being taken, how long to keep them in place for, and the policies and programs that are needed to reduce the negative impacts. It is also important to know who in the population has been most affected.

The worst hit economically are the relatively young (those aged 18 to 24) and those just beyond retirement age (those aged 65 to 74 years). These two groups were the least likely to have maintained their employment, and recorded the biggest falls in income. We do find, however, that those who were at the bottom of the income distribution in February 2020 had an increase in income over the period.

While the economic costs of COVID-19 appear to have occurred at both ends of the age distribution, the costs in terms of subjective wellbeing appear to be concentrated amongst the young. The average decrease in life satisfaction for an 18 to 24 year old (between January and April) was more than three times that of the average decrease for a 65 to 74 year old, and the life satisfaction of a person 75 years and over actually increased.

Our findings certainly suggest that the relatively young have made very large sacrifices to support the health and wellbeing of the relatively old. But we have also been able to show that this sacrifice appears to have led to increases in social cohesion. Those at the upper end of the age distribution are far more likely in April 2020 to say that most people can be trusted, that people are fair, and that people are helpful than they were in February 2020.

Since the spread of COVID-19 in Australia there has been a dramatic increase in the amount of data available on attitudes, behaviours and experiences. The quality and representativeness of this data has varied, with conclusions sometimes being made on relatively small samples, with unclear biases in representation. There has, however, been a very welcome increase in the amount of administrative and transactional data that has been made available by government

and commercial entities, including population movement data being made available by large social media companies, and new data collections from the Australian Bureau of Statistics. Although it took some time for the disease modelling that helped to inform government be made publicly available, that data is now routinely made available for validation and sensitivity testing. It is hoped that as we move towards the economic recovery phase of the COVID-19 crisis, that the economic modelling will also be made available.

The data presented in this paper will be made available through the Australian Data Archive for the same type of testing and validation and we would strongly encourage other academic researchers and polling companies to make their data available (in an appropriately privacy preserving way). While decisions about how to trade-off the economic and mental health costs of physical distancing measures with the lives saved from slowing or stopping the spread of the disease are largely political ones, it is hoped that data measuring the social and economic impacts of COVID-19 is utilised by decision-makers to help form a more solid evidentiary base for policy…

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Appendix 1   About the survey

The fieldwork for the April 2020 ANUPoll commenced on the 14th of April and continued for a two-week collection period. The majority of data collection occurred at the start of this survey window, with 52.4 per cent of the sample enumerated in the first two days of full data collection. A total of 3,950 active panel members were invited to take part in the survey, of which 3,155 responded, leading to a completion rate of 79.9 per cent for the survey.

We linked data from previous waves of ANUpoll and from other data collection using Life in Australia™. Between October-December 2019, the panel was refreshed with n = 347 panellists being retired and n = 1,810 new panellists being recruited. This recruitment used a G-NAF (Geocoded National Address File) sample frame and push-to-web methodology. Only online participants were recruited in order to balance the demographics (the age profile of panel members was older and more educated than that of the Australian population). The recruitment rate (RECR) for the replenishment was 12.1 per cent.

The linkage rates to previous waves of data collection that were used in this analysis were:

- February 2020 – 92.6 per cent (2,920 participants)
- January 2020 – 91.5 per cent (2,886 participants)
- February 2017 – 52.3 per cent (1,651 participants)

The Social Research Centre collected data online and through Computer Assisted Telephone Interviewing (CATI) in order to ensure representation from the offline Australian population. Around 6.5 per cent of interviews were collected via CATI. The contact methodology adopted for the online Life in Australia™ members is an initial survey invitation via email and SMS (where available), followed by multiple email reminders and a reminder SMS. Telephone non-response of panel members who have not yet completed the survey commenced in the second week of fieldwork and consisted of reminder calls encouraging completion of the online survey.

The contact methodology for offline Life in Australia™ members was an initial SMS (where available), followed by an extended call-cycle over a two-week period. A reminder SMS was also sent in the second week of fieldwork. Taking into account recruitment to the panel, the cumulative response rate for this survey is 8.1 per cent.

Unless otherwise stated, data in the paper is weighted to population benchmarks. For Life in Australia™, the approach for deriving weights generally consists of the following steps:

1. Compute a base weight for each respondent as the product of two weights:

   a. Their enrolment weight, accounting for the initial chances of selection and subsequent post-stratification to key demographic benchmarks

   b. Their response propensity weight, estimated from enrolment information available for both respondents and non-respondents to the present wave.

2. Adjust the base weights so that they satisfy the latest population benchmarks for several demographic characteristics.

In designing the questionnaire for the April 2020 ANUpoll, the project team balanced six often competing priorities:

- The rapidly changing policy environment related to COVID-19;

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- Keeping questions consistent with pre-pandemic survey items in order to facilitate longitudinal analysis of change through time;
- Being able to compare items to comparable international surveys in order to compare outcomes in Australia to those internationally;
- Benchmarking results to nationally representative population estimates;
- Setting the survey up for future analysis and monitoring using subsequent waves of data collection; and
- Minimising harm and distress to survey participants.

The ethical aspects of this research have been approved by the ANU Human Research Ethics Committee (2014/241).

Appendix 2 Regression tables

Appendix Table 1 Factors associated with COVID-19 attitudes and behaviour

	Anxiety and worry		COVID-19 likelihood		COVID-19 concern		COVID-19 too much worry	
	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.
Female	0.255	***	0.117	**	0.213	***	-0.312	***
Aged 18 to 24 years	0.156		-0.240	*	-0.135		0.069	
Aged 25 to 34 years	-0.061		-0.162	*	-0.073		0.084	
Aged 45 to 54 years	-0.099		-0.273	***	-0.151	*	-0.011	
Aged 55 to 64 years	-0.259	**	-0.234	**	-0.159	*	0.127	
Aged 65 to 74 years	-0.341	***	-0.428	***	-0.090		-0.116	
Aged 75 years plus	-0.102		-0.619	***	-0.120		-0.031	
Indigenous	0.271		0.165		0.249		-0.047	
Born overseas in a main English speaking country	0.068		0.052		0.061		-0.120	
Born overseas in a non-English speaking country	-0.041		0.157		0.030		0.176	
Speaks a language other than English at home	0.287	**	-0.094		0.029		0.106	
Has not completed Year 12 or post-school qualification	-0.033		-0.173	*	0.042		0.055	
Has a post graduate degree	-0.187		0.041		0.007		-0.409	***
Has an undergraduate degree	-0.217	**	-0.034		-0.037		-0.247	**
Has a Certificate III/IV, Diploma or Associate Degree	-0.049		-0.054		0.068		-0.060	
Lives in the most disadvantaged areas (1st quintile)	-0.128		-0.196	**	-0.096		0.324	***
Lives in next most disadvantaged areas (2nd quintile)	0.036		-0.058		-0.021		0.196	*
Lives in next most advantaged areas (4th quintile)	0.095		-0.080		-0.028		0.010	
Lives in the most advantaged areas (5th quintile)	-0.015		0.020		-0.036		-0.008	
Lives in a non-capital city	-0.049		0.074		-0.023		0.031	
Constant	0.440						-0.768	
Cut-off 1			-1.679		-1.806			
Cut-off 2			0.017		-0.795			
Cut-off 3			1.510		0.622			
Sample size	2,980		2,914		2,978		2,982	

Source: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

Notes: Probit Regression Models. The coefficients for Anxiety and Worry, and COVID-19 too much worry are estimated using the Binary Probit Model, and the estimations for COVID-19 likelihood and COVID-19 concern are estimated using the Ordered Probit Model. For all estimations, the base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city. Coefficients that are statistically significant at the 1 per cent level

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of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

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Appendix Table 2   Factors associated with COVID-19 attitudes and behaviour, including media exposure (

	Anxiety and worry		COVID-19 likelihood		COVID-19 concern		COVID-19 too much worry	
	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.
Official government sources	0.293	***	0.019		0.216	***	-0.206	**
Professional advice	0.081		0.122	**	0.080		-0.069	
Family or friends	0.199	***	-0.103	*	0.084		0.055	
Newspapers and magazines	-0.133	**	0.018		-0.176	***	-0.078	
Radio and TV	0.098		-0.119		0.132		-0.263	***
Social media	0.175	**	-0.052		0.008		-0.022	
Female	0.228	***	0.120	**	0.193	***	-0.315	***
Aged 18 to 24 years	0.122		-0.256	**	-0.150		0.040	
Aged 25 to 34 years	-0.089		-0.191	**	-0.091		0.088	
Aged 45 to 54 years	-0.101		-0.285	***	-0.178	**	0.025	
Aged 55 to 64 years	-0.212	**	-0.256	***	-0.155	*	0.164	
Aged 65 to 74 years	-0.264	**	-0.444	***	-0.067		-0.062	
Aged 75 years plus	0.010		-0.620	***	-0.095		-0.030	
Indigenous	0.206		0.172		0.218		-0.082	
Born overseas in a main English speaking country	0.067		0.047		0.046		-0.154	
Born overseas in a non-English speaking country	-0.091		0.177	*	0.018		0.168	
Speaks a language other than English at home	0.271	**	-0.078		0.028		0.118	
Has not completed Year 12 or post-school qualification	-0.037		-0.152		0.044		0.051	
Has a post graduate degree	-0.176		0.030		0.010		-0.390	***
Has an undergraduate degree	-0.219	**	-0.046		-0.044		-0.213	*
Has a Certificate III/IV, Diploma or Associate Degree	-0.069		-0.056		0.045		-0.038	
Lives in the most disadvantaged areas (1st quintile)	-0.109		-0.198	**	-0.089		0.329	***
Lives in next most disadvantaged areas (2nd quintile)	0.024		-0.062		-0.026		0.214	*
Lives in next most advantaged areas (4th quintile)	0.107		-0.084		-0.027		0.023	
Lives in the most advantaged areas (5th quintile)	0.019		0.003		-0.032		0.000	
Lives in a non-capital city	-0.036		0.081		-0.021		0.023	
Constant	-0.049						-0.364	
Cut-off 1			-1.783		-1.806			
Cut-off 2			-0.081		-0.795			
Cut-off 3			1.419		0.622			
Sample size	2,980		2,914		2,978		2,982	

Source: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

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COVID-19 impacts

Notes: Probit Regression Models. The coefficients for Anxiety and Worry, and COVID-19 too much worry are estimated using the Binary Probit Model, and the estimations for COVID-19 likelihood and COVID-19 concern are estimated using the Ordered Probit Model. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city

Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

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Appendix Table 3   Factors associated with hours worked

	Coeff.	.Signif.
Hours worked in February 2020	0.661	***
Female	-2.814	***
Aged 18 to 24 years	-1.273	
Aged 25 to 34 years	-0.591	
Aged 45 to 54 years	0.922	
Aged 55 to 64 years	-1.304	
Aged 65 to 74 years	-0.635	
Aged 75 years and over	0.907	
Indigenous	1.909	
Born overseas in a main English speaking country	0.296	
Born overseas in a non-English speaking country	-4.880	**
Speaks a language other than English at home	2.185	
Has not completed Year 12 or post-school qualification	-0.134	
Has a post graduate degree	2.996	**
Has an undergraduate degree	1.363	
Has a Certificate III/IV, Diploma or Associate Degree	1.235	
Lives in the most disadvantaged areas (1st quintile)	2.650	*
Lives in next most disadvantaged areas (2nd quintile)	-0.543	
Lives in next most advantaged areas (4th quintile)	1.061	
Lives in the most advantaged areas (5th quintile)	1.200	
Lives in a non-capital city	-0.355	
Constant	8.638	
Sample size	1,376	

Source: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

Notes: OLS Regression Model. Model excludes those aged 75 years or older in February 2020. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city.

Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

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Appendix Table 4   Factors associated with log of income – Interval regression using income bands

	Wave 35		Wave 37	
	Coeff.	Signif.	Coeff.	Signif.
Female	-0.175	***	-0.146	***
Aged 18 to 24 years	-0.185	**	-0.198	***
Aged 25 to 34 years	-0.097	**	-0.103	**
Aged 45 to 54 years	-0.001		0.003	
Aged 55 to 64 years	-0.211	***	-0.216	***
Aged 65 to 74 years	-0.602	***	-0.604	***
Aged 75 years plus	-0.708	***	-0.675	***
Indigenous	-0.137		-0.240	**
Born overseas in a main English speaking country	0.084	**	0.070	*
Born overseas in a non-English speaking country	-0.107	**	-0.113	**
Speaks a language other than English at home	-0.169	***	-0.193	***
Has not completed Year 12 or post-school qualification	-0.214	***	-0.230	***
Has a post graduate degree	0.313	***	0.321	***
Has an undergraduate degree	0.212	***	0.248	***
Has a Certificate III/IV, Diploma or Associate Degree	-0.025		-0.025	
Lives in the most disadvantaged areas (1st quintile)	-0.245	***	-0.234	***
Lives in next most disadvantaged areas (2nd quintile)	-0.065		-0.129	***
Lives in next most advantaged areas (4th quintile)	0.048		-0.001	
Lives in the most advantaged areas (5th quintile)	0.190	***	0.164	***
Lives in a non-capital city	-0.063	**	-0.049	
Constant	7.500		7.415	
Sample size	2,564		2,799	

Source: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

Notes: OLS Regression Model. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city

Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

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Appendix Table 5   Factors associated with income, April 2020, controlling for income in February 2020

	Coeff.	Signif.
Income in February 2020	1.145	
Female	-63.942	*
Aged 18 to 24 years	-38.355	**
Aged 65 to 74 years	-26.258	
Aged 75 years and over	-52.777	
Indigenous	29.121	
Born overseas in a main English speaking country	-23.993	
Born overseas in a non-English speaking country	-14.143	
Speaks a language other than English at home	-28.329	
Has not completed Year 12 or post-school qualification	17.344	
Has a post graduate degree	14.745	
Has an undergraduate degree	-11.338	
Has a Certificate III/IV, Diploma or Associate Degree	30.710	
Lives in the most disadvantaged areas (1st quintile)	71.602	***
Lives in the most advantaged areas (5th quintile)	5.466	
Lives in a non-capital city	129.029	
Constant	1.145	
Sample size	-63.942	*

Source: ANUpoll, April 2020 and Life in Australia Wave 35, February 2020.

Notes: Model excludes those aged 75 years or older in February 2020. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city.

Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

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Appendix Table 6   Factors associated with satisfaction with the direction of the country

	Coeff.	Signif.
Satisfaction with direction of country in January 2020	1.247	***
Female	0.207	***
Aged 18 to 24 years	-0.139	
Aged 25 to 34 years	0.034	
Aged 45 to 54 years	0.279	**
Aged 55 to 64 years	0.173	
Aged 65 to 74 years	0.388	***
Aged 75 years and over	0.388	**
Indigenous	-0.012	
Born overseas in a main English speaking country	-0.014	
Born overseas in a non-English speaking country	0.001	
Speaks a language other than English at home	0.157	
Has not completed Year 12 or post-school qualification	-0.124	
Has a post graduate degree	-0.044	
Has an undergraduate degree	-0.112	
Has a Certificate III/IV, Diploma or Associate Degree	-0.095	
Lives in the most disadvantaged areas (1st quintile)	0.020	
Lives in next most disadvantaged areas (2nd quintile)	0.238	**
Lives in next most advantaged areas (4th quintile)	0.127	
Lives in the most advantaged areas (5th quintile)	0.207	*
Lives in a non-capital city	-0.061	
Constant	-0.201	
Sample size	2,725	

Source: ANUpoll, April 2020 and ANUpoll, January 2020.

Notes: Model excludes those aged 75 years or older in February 2020. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city.

Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

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Endnotes

1   https://ourworldindata.org/coronavirus-data

2   See for example, Asbury et al (2020), Flesia et al. (2020), Fried et al. (2020), Keeter (2020), Lades et al. (2020), Liang et al. (2020), Liu et al. (2020), Nelson et al. (2020) Oosterhoff et al. (2020), Orgiles et al. (2020), Pancani et al. (2020), and Veer et al. (2020).

3   Other advantages include: ANUPoll is collected using Life in Australia™, Australia's only probability-based sample, which results in more representative (accurate) data than is produced by surveys based on non-probability samples. This allows for accurate estimates of uncertainty around the estimates to be produced, and a number of important questions have been harmonised with high quality international-surveys, which means it is possible to robustly put the Australian results into an international perspective.

4   The results by gender and age group hold true when we estimate using a multivariate model (specifically, a binary probit model).For the multivariate analysis presented in this paper, we use a consistent set of demographic, socioeconomic, and geographic variables in our baseline model. The base case individual against which comparisons are made is male; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city

5   These results hold in an ordered probit model with the likelihood categories as the dependent variable.

6   The Eigenvalue for the first component is 1.92, and the second component 0.61, strongly suggesting a single factor solution.

7   This difference holds when demographic, socioeconomic, and geographic variables are controlled for using a binary probit model.

8   A decision was made when designing the questionnaire for the April ANUpoll to keep the employment question consistent with what was asked in February 2020, when the European Social Survey (ESS) was replicated on Life in AustraliaTM. While this had the significant benefit of allowing for analysis in changes in employment at the individual level, it did come at the cost of not being able to directly compare the levels of employment and unemployment to that which is collected from the Labour Force Survey (LFS) or other surveys on employment that more closely follow the International Labor Organisation (ILO) standards (ref).

9   Although we do not present the data in this paper, when we look at the probability of being employed in April 2020 for those who were not employed in February 2020, there is no countervailing increased probability of employment in the opposite direction.

10 This result holds when we model the probability of number of hours going up, staying the same, and going down as a multinomial probit model.

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11 The income categories were: $0 to $24,554 ($0 to $472 weekly); More than $24,554 to $38,896 (more than $472 to $748 weekly); More than $38,896 to $52,884 (more than $478 to $1,017 weekly); More than $52,884 to $69,524 (more than $1,017 to $1,337 weekly); More than $69,524 to $88,452 (more than $1,337 to $1,701 weekly); More than $88,452 to $109,304 (more than $1,701 to $2,102 weekly); More than $109,304 to $134,784 (more than $2,102 to $2,592 weekly); More than $134,784 to $168,688 (more than $2,592 to $3,244 weekly); More than $168,688 to $222,300 (more than $3,244 to $4,275 weekly); or More than $222,300 (more than $4,275 weekly)

12 The natural log of the lower and upper bound of the income categories is the relevant dependent variable, and using the same demographic, socioeconomic and geographic measures in the regression equations up until now as explanatory variables. The predictions from the model are constrained to be in the same income category as they are observed to fall into.

13 When asked about whether their household structure has changed since February 2020, 6.4 per cent of respondents said that there were more people living in the household. Only 3.1 per cent of respondents said that there were fewer people in the household, with the remaining 91.1 per cent saying that the structure hadn't changed (89.3 per cent) or there were different people in the household, but the same number of people (1.1 per cent).

14 https://www.pmc.gov.au/sites/default/files/publications/Value_of_Statistical_Life guidance_note.pdf

15 When the analysis of income change is done by February 2020 income quintiles, there was a 12.55 increase for the lowest income quintile, a 2.7% increase for quintile 2, a 4.1% decrease for quintile 3, a 10.7% decrease for quintile 4 and a 16.8% decrease for quintile 5.

16 In some ways, the findings presented in Table 3 represent a process of reversion to the mean. If there is time-varying, individual-level random variation in income, then those who are at the bottom of the distribution in one wave are likely to move up the distribution (and vice-versa).

17 The per cent of people in the bottom decile based on April 2020 income who reported that they were finding it difficult or very difficult in April 2020 was 51.4 per cent.

18 The order in which the institutions were presented to respondents was randomised.

19 In order to test the potential effect of participating in the survey on measures of life satisfaction, we randomly assigned 20 per cent of the April 2020 sample to answer the life satisfaction question at the end of the survey, with the remaining 80 per cent asked at the start, and before any of the COVID-19 questions. While this survey experiment will be the focus of a subsequent paper, it is worth noting that life satisfaction was higher for the treatment group asked at the end of the survey. In the descriptive analysis, we present results for the control group only, whereas in the regression analysis we use a separate intercept term for the treatment group.

20 The model we estimate is $LIFESATISFACTION_i = \beta_0 + \beta_1 ln(Income_i) + \mu_i$, with estimated values of $\beta_0 = 3.7577713$, and $\beta_1 = 0.4553272$. We tested a linear and a

linear+quadratic specification and found a significantly higher estimated likelihood using ln(income) as the explanatory variable.

21 The survey also includes the John Hopkins COVID-19 mental health scale (JHC-MH). However, as this was collected for the first time in April 2020 and we do not therefore have any longitudinal data, we leave the analysis of this variable for a future paper dedicated to mental health during COVID-19

22 The K6 questions ask the respondent how often in the last four weeks they felt: (a) nervous; (b) hopeless; (c) restless or fidgety; (d) so depressed that nothing could cheer you up; (e) that everything was an effort; and (f) worthless. There were five response categories, from "none of the time" to "all the time", with values of 1 through to 5. These values were summed, and those with a sum of 19 or higher, out of a possible maximum of 30, were said to be at serious risk of having mental health problems.

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