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Tracking outcomes during the COVID-19 pandemic (November 2020) – Counting the costs of the COVID-recession

ANU Centre for Social Research and Methods

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Abstract

Given the substantial improvement in the Australian economy and easing of restrictions, it is an opportune time to take stock and reflect on the economic and wellbeing costs of the pandemic over the past nine months. Between the 9th and 23rd of November, the Social Research Centre on behalf of the ANU Centre for Social Research and Methods undertook the fifth wave of the ANU's COVID-19 Impact Monitoring Survey Program on a representative sample of over 3,000 adult Australians. This paper provides a summary of the main findings from the November 2020 survey. There has been a dramatic decline in the proportion of Australians who think it is very likely or somewhat likely that they would be infected by COVID-19 in the next 6 months, as well as a reduction in those who say they were anxious and worried about the spread of COVID-19. We also provide further evidence that the impact of the COVID-recession has not been evenly spread across the Australian population. We show that the total loss of wellbeing over the period was concentrated in Victoria, young Australians, those outside of the most advantaged areas in Australia, and those who lived in capital cities. The total loss of income, on the other hand, was greater for single parent and non-couple households, those whose main source of income was not wages and salaries, young and older Australians, those in the middle part of the education distribution, and those outside of the most advantaged areas in Australia.

1 Introduction and overview

As we near the end of 2020, Australia's success with managing infections from COVID-19 is becoming more and more apparent. Since around the end of September, the number of new confirmed cases has remained around the low double-digits, with cases in the single-digits for many days over the period. Any localised outbreaks have been able to be contained, with most new cases due to returning travellers or known sources of infection. In contrast, at the time of writing in December 2020, many countries in Europe and the Americas have experienced rapid increases in the number of COVID-19 cases.

While there are very limited numbers of people being allowed to travel to Australia from overseas, travel restrictions within Australia have been eased very substantially, and most internal borders are open or scheduled to be open soon. While some social distancing measures remain in place, in most areas these have been dramatically reduced and Australia is moving to COVID safe ways of living and working. The Oxford Stringency Index is now at 47.22 in Australia (higher values equal greater restrictions), well below the USA (75.46), Canada (64.35) and the United Kingdom (63.89), countries that politically Australia often compares itself against (Hale et al. 2020). New Zealand, another success story, has a stringency index well below Australia's (22.22) reflecting the fact that success in controlling the spread of COVID allows the easing and in some cases lifting of physical distancing measures

As outlined above the major restriction that remains in Australia is the very limited numbers of people being allowed to enter Australia which has resulted in many Australians being unable to return. Many people see the widespread introduction of an effective vaccine as necessary for a greater opening of Australia's border and a return to significant levels of international travel. At the time of writing, the first properly clinically-tested vaccine was about to be distributed (on a limited scale).

Statistics from the Australian Bureau of Statistics (ABS) released on the 2nd of December show that the Australian economy has begun to catch up some of the lost ground due to the COVID-recession. Reporting on the GDP numbers the ABS found that "Following the record 7.0 per cent decline in the June quarter, Australia experienced a partial recovery in the September quarter [a 3.3 per cent increase]. As a result, economic activity fell 3.8 per cent through the year to September quarter."¹ This improvement in economic activity in the September quarter has continued into the December quarter, with employment increasing by 1.4 per cent between September and October (according to the Labour Force Survey²). This is consistent with the data from the October 2020 ANU Centre for Social Research and Methods COVID-19 Impact Tracking Survey (Biddle and Gray 2020).

Given the substantial improvement in the Australian economy and easing of restrictions, it is an opportune time to take stock and reflect on the economic and wellbeing costs of the pandemic over the past nine months. Between the 9th and 23rd of November, as cases remained low in Australia, the Social Research Centre on behalf of the ANU Centre for Social Research and Methods undertook the fifth wave of the ANU's COVID-19 Impact Monitoring Survey Program on a representative sample of over 3,000 adult Australians.

Surveys had been conducted with the same group of respondents in January and February 2020, just before the COVID-19 pandemic started in Australia. Surveys were then conducted in April, May and August, after the pandemic started to cause impacts in Australia in a major way. The previous waves of data collection consisted of a 15-20 minute survey, with the

October 2020 survey slightly less than five minutes in length. A full-length survey was conducted in November 2020 with a further survey scheduled for January 2021. Full details of the survey are given in Appendix 1.

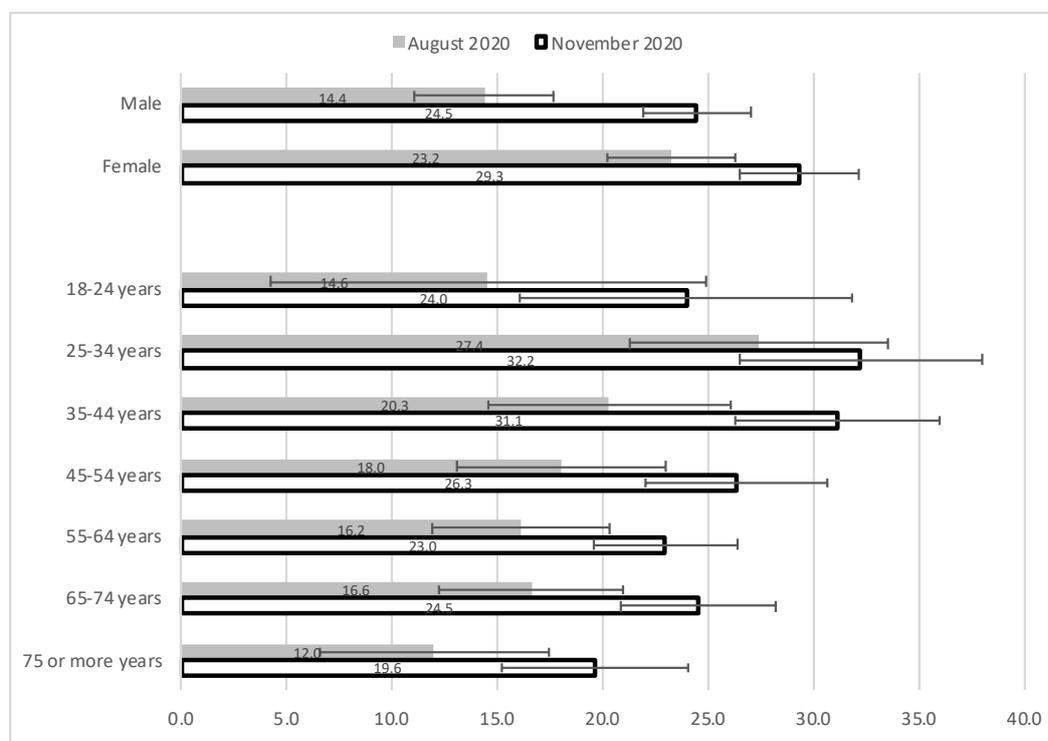
This paper provides a summary of the main findings from the November 2020 survey. In Section 2 we present up-to-date results on a range of COVID-19 specific measures (including anxiety and worry due to COVID-19) with Section 3 containing results on mental health and wellbeing (including loneliness and social interaction). In Section 4 we present results on economic outcomes (particularly income and employment) with Section 5 providing some concluding comments.

2 COVID-19 specific measures

Between August 2020 and November 2020 there has been a steady increase in the proportion of Australian adults who have been tested for COVID-19 at some stage over the pandemic period. In August 2020 (the last time we asked this question) 19.3 per cent of Australians said that they had been tested. By November 2020 this had increased to 26.9 per cent.

Not surprisingly given the patterns of infection rates over the period, testing rates were far higher in Victoria (34.8 per cent) than the rest of Australia (24.1 per cent). Testing rates were slightly higher for females compared to males, though males had a much larger increase between August and November (from 14.4 per cent to 24.5 per cent) than females (23.2 per cent to 29.3 per cent) over the same period (Figure 1). There were higher rates of testing for those of prime working age, with almost one-third of those aged 25 to 34 years having been tested by November 2020

Figure 1 Per cent of Australians who had been tested for COVID-19, by age and sex, August and November 2020

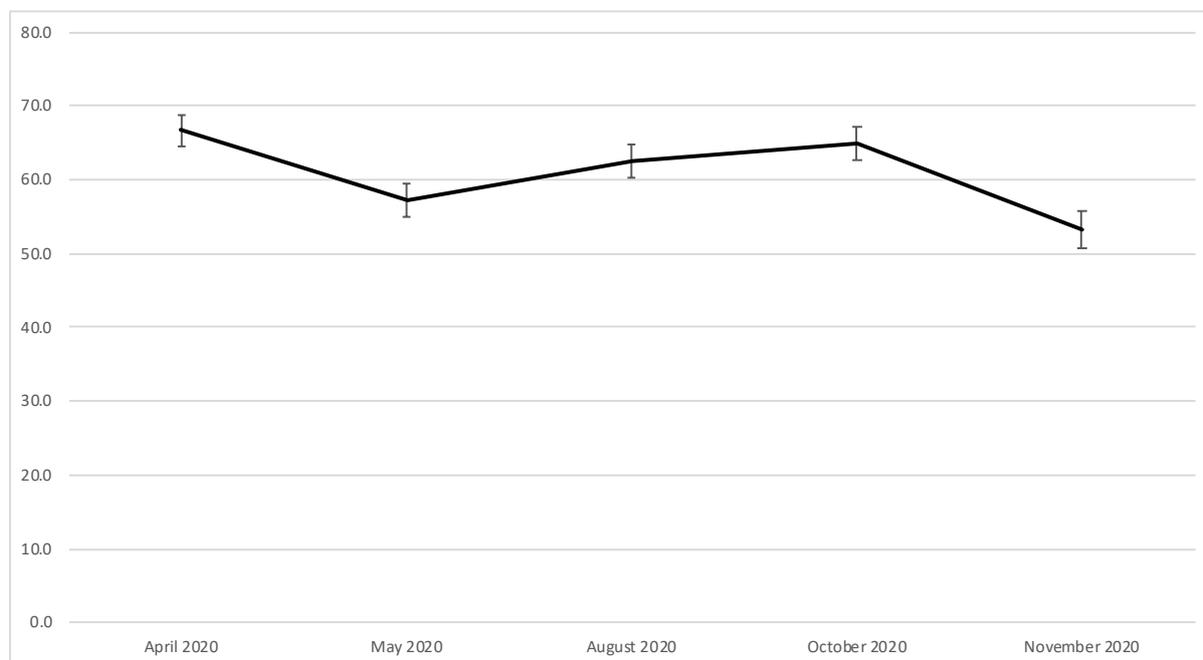


Source: ANUpoll, August, and November 2020.

While testing rates had increased (in cumulative terms), there was a very large decline in the

proportion of Australians who said they were anxious or worried due to COVID-19, from 64.9 per cent in October 2020 to 53.2 per cent in November 2020. This is the lowest value observed in the tracking surveys (Figure 2), with the previous low being 57.3 per cent in May 2020

Figure 2 Per cent of respondents who reported that they felt anxious or worried due to COVID-19, April 2020 to November 2020.



Source: ANUpoll, April, May, August, October and November 2020.

There has been a dramatic decline in the proportion of Australians who think it is very likely or somewhat likely that they would be infected by COVID-19 in the next 6 months – from 34.1 per cent in August 2020 to 16.8 per cent in November 2020.

In order to understand the extent to which the self-reported likelihood of becoming infected with COVID-19 varies according to the individual level characteristics two regression models are estimated. The first model includes individual level characteristics (Model 1) and the second adds a control for the individual respondent's assessment in August 2020 of their likelihood of being infected (Model 2). This model allows estimates of change through time in self-assessed likelihood of being infected

The self-reported likelihood of being infected was higher for females; lower for young adults (under the age of 35, though the p-value is slightly above 0.1) and older Australians (aged 65 years and over) (cf. those aged 35 to 44 years); and higher for those who were born overseas in a non-English speaking country (Table 1).

Controlling for self-reported likelihood of being infected in August (Model 2), the likelihood in November was higher for females; lower for young Australians aged 25 to 34 years and older Australians (aged 65 years and over) (cf. those aged 35 to 44 years), higher for those born overseas in a non-English speaking country; and higher for those who lived in the second most advantaged quintile in terms of area-level socioeconomic outcomes.

Table 1 Factors associated with the self-reported likelihood of being infected by COVID-19, November 2020

	Model 1		Model 2	
	Coeff.	Signif.	Coeff.	Signif.
Not very likely in August 2020			1.407	***
Somewhat likely in August 2020			2.351	***
Very likely in August 2020			3.159	***
Victoria	-0.040		-0.111	
Female	0.190	***	0.148	**
Aged 18 to 24 years	-0.200		-0.076	
Aged 25 to 34 years	-0.173		-0.244	**
Aged 45 to 54 years	-0.047		-0.055	
Aged 55 to 64 years	-0.058		-0.043	
Aged 65 to 74 years	-0.092		0.028	
Aged 75 years plus	-0.238	**	-0.233	*
Indigenous	-0.121		0.139	
Born overseas in a main English speaking country	0.004		0.029	
Born overseas in a non-English speaking country	0.200	*	0.197	*
Speaks a language other than English at home	0.159		0.156	
Has not completed Year 12 or post-school qualification	-0.001		0.097	
Has a post graduate degree	-0.109		-0.086	
Has an undergraduate degree	-0.033		-0.019	
Has a Certificate III/IV, Diploma or Associate Degree	0.057		0.062	
Lives in the most disadvantaged areas (1st quintile)	-0.099		-0.056	
Lives in next most disadvantaged areas (2nd quintile)	0.137		0.113	
Lives in next most advantaged areas (4th quintile)	0.125		0.194	**
Lives in the most advantaged areas (5th quintile)	0.146		0.081	
Lives in a non-capital city	-0.046		-0.015	
Cut-point 1	-0.709		0.753	
Cut-point 2	1.114		2.967	
Cut-point 3	2.671		4.730	
Sample size	2,867		2,661	

Source: ANUpoll, August and November 2020.

Notes: Ordinal Probit 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 *.

3 Mental health and wellbeing

Although Australia has been spared from the worst of the infections and deaths from COVID-19, there have nonetheless been very large negative impacts on the mental health and wellbeing of the Australian population. For some of our measures, outcomes still lag behind those from prior to the pandemic, whereas others have thankfully returned to pre-pandemic levels or above.

There was a significant improvement in mental health between October and November 2020. Our key measure of mental health is the Kessler 6 (K6) scale measure of psychological distress.³ Respondents who score highly on this measure are considered to be at risk of a serious mental illness (other than a substance use disorder). The psychological distress questions were previously asked in February 2017 and therefore allow us to measure long-term change through time in outcomes. Between October and November 2020 there was a large and

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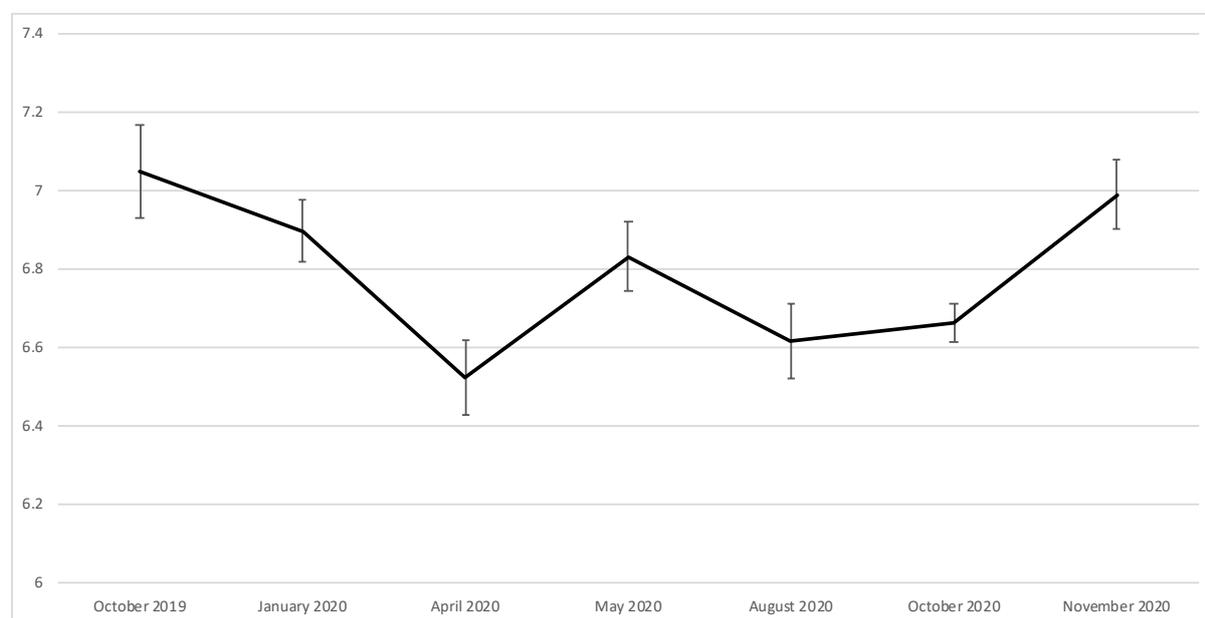
statistically significant reduction in psychological distress – from 11.82 to 11.43. Psychological distress was still, however, above the levels recorded in February 2017, the last time prior to the spread of COVID-19 that the questions were asked on the life in Australia panel.

Declines in psychological distress were similar for males (from 11.6 to 11.3) and females (11.9 to 11.6) and across the age distribution. The only real outlier is for those aged 18 to 24 years, with psychological distress declining from 15.5 to 14.0, a much larger decline than for all other age groups. It should be noted though that psychological distress increased by more for this group than any other between August and October, and therefore the greater decline between October and November represents a return (more or less) to the age distribution of psychological distress observed in August 2020.

There has also been a continued convergence in psychological distress between Victoria and the rest of Australia. In October 2020, just as lockdown conditions had started to be eased, psychological distress in Victoria was more than 1-point higher in Victoria compared to the rest of Australia (12.67 compared to 11.52). By November 2020, however, this difference had declined to less than half of one point – 11.73 compared to 11.32.

An alternative measure of wellbeing which measures positive wellbeing is life satisfaction. There was a significant and substantial improvement in life satisfaction between October 2020 to November 2020 – from an average of 6.66 to 6.99 over the period (Figure 3). Importantly, life satisfaction is no longer significantly different in November 2020 to what it was in October 2019 (when life satisfaction averaged 7.05), and is higher than during the Black Summer Bushfire crisis (January 2020 – 6.90)

Figure 3 Life satisfaction, October 2019 to November 2020.



Source: ANUpoll, October 2019, and January, April, May, August, October and November 2020.

While life satisfaction has returned almost completely to both pre-COVID and pre-bushfire levels, the reduction in life satisfaction over the period was substantial. To estimate this, we undertook a linear interpolation at the individual level for the months that we did not have a survey. For example, we estimate that the June 2020 life satisfaction measure was equal to the individual's May 2020 value, plus 1/3 of the difference between the individual's May and August 2020 values. If an individual did not complete a particular wave of data collection, then

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we use a linear prediction for that individual for that wave based on their demographic, socioeconomic, and geographic characteristics.

Based on this interpolation for missing waves, we estimate that there has been an estimated average loss in life satisfaction (compared to January 2020 as baseline) of 0.256. To convert this to a meaningful measure, we use a regression analysis of life satisfaction in February 2020 and household income per person.⁴ Based on this estimated relationship, we calculate that the average drop in life satisfaction equates to an average of \$423 per week per person, or \$16,905 for the total 40 weeks from the start of March to the end of November, or \$334billion across all 19.8 million Australian adults.

While this is clearly a very large number, what is perhaps most policy relevant is how the lost wellbeing was distributed across different sub-populations within Australia. Using a regression approach (Table 2) and controlling for life satisfaction in January 2020, the total amount of lost wellbeing over the period was significantly higher for those who lived in Victoria compared to the rest of the Australian population, but lower for those who lived outside a capital city. Demographically, there was no difference between males and females, but the total loss in life satisfaction was lower for those aged 55 years and over (relative to those aged 35 to 44) and particularly lower for those aged 75 years and over). The loss of life satisfaction was lower for those who spoke a language other than English at home, as well as for those who lived in the most advantaged areas in Australia.

Table 2 Factors associated with lost life satisfaction

	Model 1	
	Coeff.	Signif.
Life satisfaction in January 2020	0.463	***
Victoria	0.312	***
Female	-0.034	
Aged 18 to 24 years	0.181	
Aged 25 to 34 years	0.144	
Aged 45 to 54 years	0.009	
Aged 55 to 64 years	-0.173	*
Aged 65 to 74 years	-0.475	***
Aged 75 years plus	-0.736	***
Indigenous	0.078	
Born overseas in a main English speaking country	-0.002	
Born overseas in a non-English speaking country	0.168	
Speaks a language other than English at home	-0.255	**
Has not completed Year 12 or post-school qualification	0.005	
Has a post graduate degree	-0.059	
Has an undergraduate degree	-0.150	
Has a Certificate III/IV, Diploma or Associate Degree	-0.040	
Lives in the most disadvantaged areas (1st quintile)	-0.148	
Lives in next most disadvantaged areas (2nd quintile)	-0.109	
Lives in next most advantaged areas (4th quintile)	-0.112	
Lives in the most advantaged areas (5th quintile)	-0.245	**
Lives in a non-capital city	-0.150	**
Constant	-2.723	***
Sample size	2,628	

Source: ANUpoll, January, April, May, August, October, and November 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);

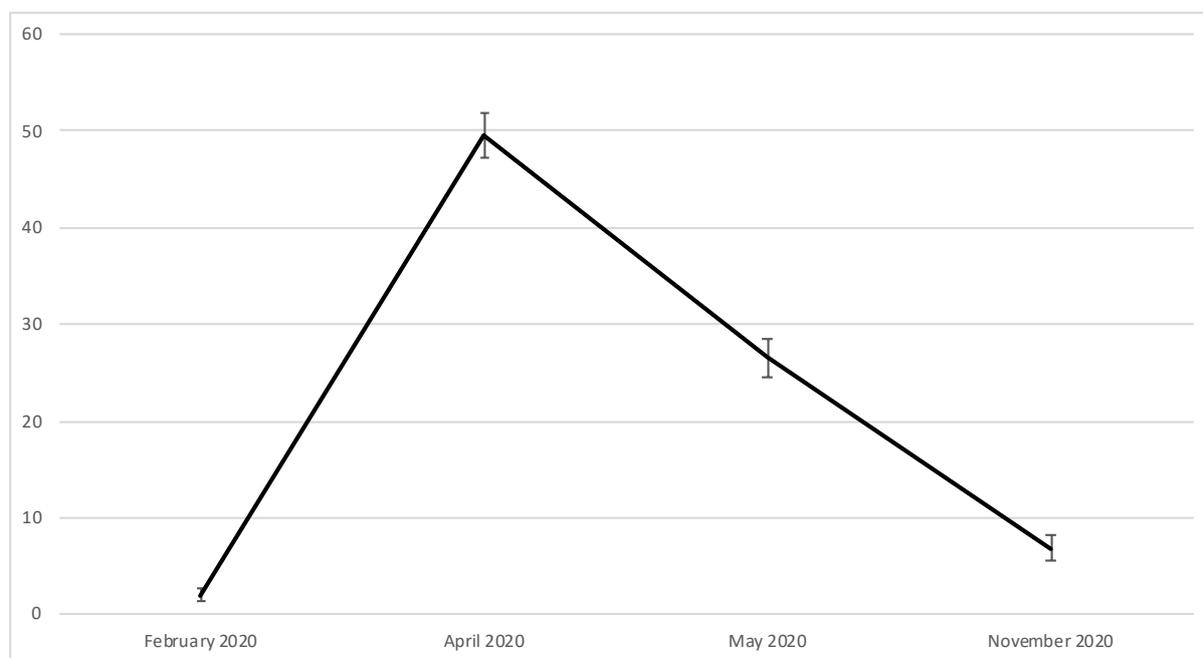
and lives in a capital city. Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

3.1 Loneliness and social interaction

The per cent of Australians who said that they had experienced loneliness at least some of the time in the week preceding the survey declined between August 2020 and November 2020 – from 40.5 per cent to 35.2 per cent. This is the lowest value observed over the COVID-19 period.

There has been a very large decline in the proportion of Australians who said that they never meet socially with friends, relatives or work colleagues since the early days of the pandemic. In April 2020, 49.4 per cent of Australians said they never met socially. This declined to 26.5 per cent by May 2020, and even further to 6.8 per cent in November 2020. While this is a dramatic change over a reasonably short period of time (Figure 4), the level of social isolation in November 2020 is still above the pre-pandemic level of 2.0 per cent.

Figure 4 Per cent of respondents who said they never met socially with friends, relatives or work colleagues, February 2020 to November 2020



Source: Life in Australia, February 2020, and ANUpoll, April, May, and November 2020.

Looking at the other end of the distribution, in February 2020 58.6 per cent of respondents said that they met socially weekly, or more frequently. This declined to 18.8 per cent in April 2020, but had increased back to 46.1 per cent in November 2020. So, while social interaction has still not returned to its pre-COVID levels, it is far higher than it was during the most stringent lockdown periods.

Social interaction and loneliness were strongly correlated with improvements in mental health and wellbeing since the peak of the first wave of COVID-19 infections in Australia, described in the previous sub-section. Controlling for life satisfaction in April 2020 when it was at its lowest level), as well as a range of demographic, socioeconomic and geographic measures, life satisfaction was higher in November 2020 for those who met socially more than weekly (cf. those who met socially never) and lower for those who felt lonely at least some of the time

(Table 3). Controlling for psychological distress in April 2020, as well as a range of demographic, socioeconomic and geographic measures, psychological distress was higher in November 2020 for those who felt lonely at least some of the time. There was no association however, between social interaction and psychological distress, controlling for loneliness.

Table 3 Relationship between mental health/wellbeing and loneliness/social interaction, November 2020

	Life satisfaction		Psychological distress	
	Coeff.	Signif.	Coeff.	Signif.
Life satisfaction or psychological distress in April 2020	0.429	***	0.486	***
Meet socially - Less than once a month	0.092		0.137	
Meet socially - Once a month	0.246		0.094	
Meet socially - Several times a month	0.330		-0.005	
Meet socially - Once a week	0.256		-0.057	
Meet socially - Several times a week	0.433	*	0.004	
Meet socially - Every day	0.528	**	-0.488	
Feels lonely - Some or a little of the time (1-2 days)	-0.355	***	2.212	***
Feels lonely - Occasionally or a moderate amount of time (3-4 days)	-1.024	***	4.529	***
Feels lonely - Most or all of the time (5-7 days)	-1.720	***	6.472	***
Victoria	0.100		0.094	
Female	0.083		-0.147	
Aged 18 to 24 years	-0.208		0.614	
Aged 25 to 34 years	0.232	**	0.230	
Aged 45 to 54 years	-0.169		-0.413	
Aged 55 to 64 years	-0.071		-0.333	
Aged 65 to 74 years	0.125		-0.823	**
Aged 75 years plus	0.192		-0.736	*
Indigenous	-0.085		0.621	
Born overseas in a main English speaking country	-0.064		-0.129	
Born overseas in a non-English speaking country	-0.086		0.028	
Speaks a language other than English at home	0.125		-0.308	
Has not completed Year 12 or post-school qualification	0.095		0.349	
Has a post graduate degree	0.070		0.224	
Has an undergraduate degree	0.096		-0.093	
Has a Certificate III/IV, Diploma or Associate Degree	0.044		0.348	
Lives in the most disadvantaged areas (1st quintile)	-0.097		-0.236	
Lives in next most disadvantaged areas (2nd quintile)	0.003		-0.257	
Lives in next most advantaged areas (4th quintile)	0.023		-0.085	
Lives in the most advantaged areas (5th quintile)	-0.035		-0.020	
Lives in a non-capital city	0.103		-0.151	
Constant	4.056		4.631	
Sample size	2,660		2,659	

Source: ANUpoll, August and November 2020.

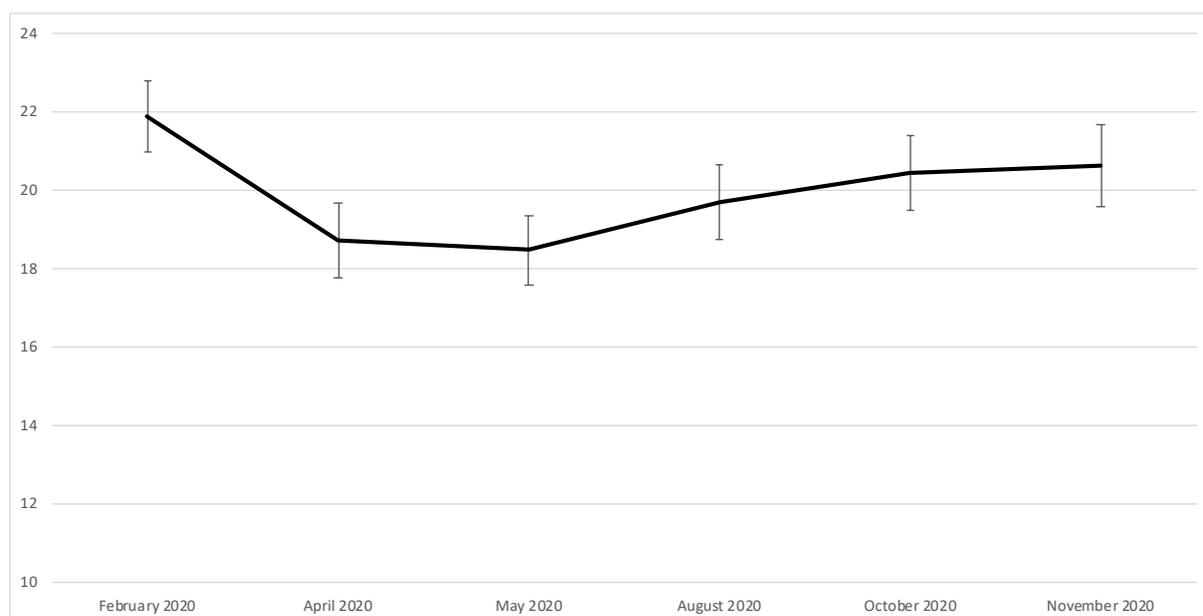
Notes: Ordinary Least Squares Regression. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb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

4 Income and employment change

4.1 Employment change

After a large increase in hours worked between August and October 2020, there was very little change in average hours worked between October and November 2020, increasing from 20.4 hours to 20.6 hours per week (with those who were not employed set to zero hours). This is higher than at any other time during the pandemic period, but still lower than the average of 21.9 hours worked per week in February 2020 (Figure 5).

Figure 5 Hours worked, February 2020 to November 2020.



Source: Life in Australia, February 2020, ANUpoll, April, May, August, October and November 2020.

Reflecting the slight improvement in hours worked, Australians have become slightly less worried about losing their job over the next 12 months than they were in October 2020. The average self-reported expected probability was 22.4 in November 2020 compared to 22.8 in October.

4.2 Income change

There has been a very large increase in household income since August 2020, the last time income data was collected on Life in Australia. Average after-tax income per household increased by \$121 per week, or 7.5 per cent (\$1,604 to \$1,725 per week). Across Australia, household income is now only slightly less than it was in February 2020 (\$1,761 per week).⁵

The change in income over the COVID period has not been even across the income distribution. Figure 6 gives the average income for each quintile, based on a person's household income quintiles at each particular survey.

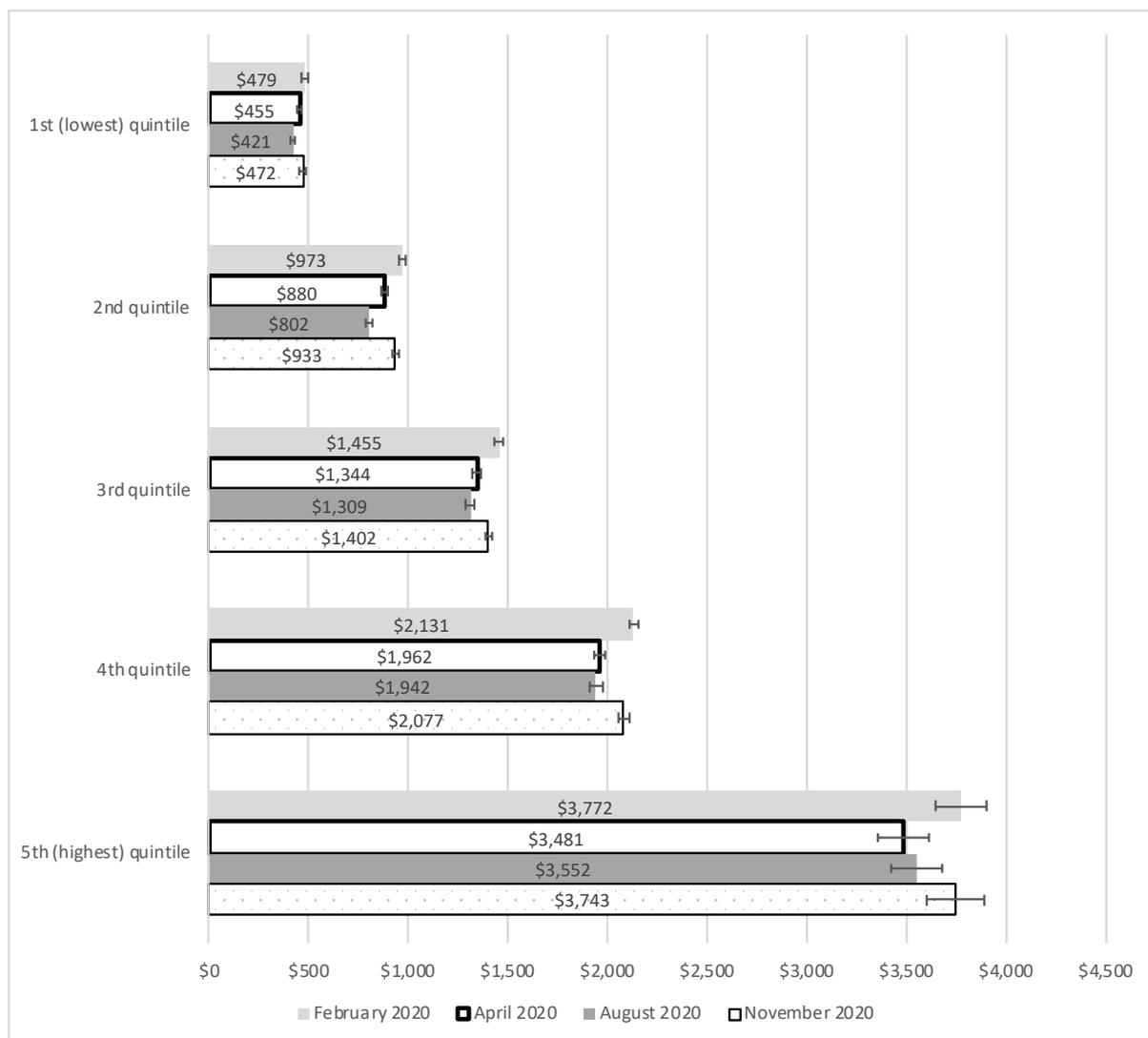
The relative decline in income between February and April (that is, difference between February and April as a percentage of the February value) was smallest for the lowest income quintile, with a change in -5.0 per cent over the first months of the pandemic. Relative decline was greatest for the second income quintile (-9.5 per cent), with the three highest income quintiles having a similar relative decline to each other (between -7.7 per cent and -7.9 per cent). The initial few months of the pandemic appeared to have impacted least on those at the

lower part of the income distribution, perhaps due to the impact of JobKeeper/JobSeeker.

Between April and August 2020, there was a further large decline in income for the second quintile (-8.9 per cent), but the second largest decline in income over that period was for the bottom quintile (-7.4 per cent). Declines in income between April and August were low for the 3rd and 4th quintile (-2.6 per cent and -1.0 per cent respectively) and there was actually an increase in income between April and August for the top quintile (2.0 per cent). Between August and November 2020, some of the large declines in income for the bottom two quintiles were recovered, with increases in income for the first two quintiles of 12.1 per cent and 16.3 per cent respectively. There were smaller, but still substantial improvements in income for the top three income quintiles of 7.2 per cent, 6.9 per cent and 5.4 per cent respectively.

Over the entire period, that is from February 2020 to November 2020, declines in income were smallest for the top income quintile (-0.8 per cent) and for the bottom income quintile (-1.3 per cent). Declines in income were greatest for the 2nd quintile (-4.1 per cent), the middle or third quintile (-3.6 per cent) and the fourth quintile (-2.5 per cent).

Figure 6 Average after-tax household income (weekly) by quintile, February to November 2020



Source: Life in Australia, February 2020, and ANUpoll, April, August, and November 2020.

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The changing income at different points on the income distribution have led to changes in summary measures of income inequality (Table 4). Using the Atkinson index with an inequality aversion parameter of 1 (Atkinson and Brandolini 2015), inequality declined slightly during the first months of the pandemic (February 2020 to April 2020), from 0.22067 to 0.22046. This was due to a convergence between the average income of those in the bottom part of the income distribution (the 1st quintile) and those in the middle (3rd quintile) from 3.04 to 2.95 with no change in the ratio between those in the top part of the income distribution (5th quintile) and those in the middle, which stayed at 2.59.

During the middle months of the pandemic, there was a large increase in inequality, to 0.23989 on the Atkinson (1) index in August from 0.22046 in April. This was due to a widening between the middle and the low parts of the income distribution (to 3.11) and a widening between the high and the middle parts (to 2.71). There was some convergence again between August and November 2020, but all four measures of income inequality were higher at the end of the period (0.22542 for the Atkinson (1) index) than they were at the start of the period.

Table 4 Household after-tax income distribution summary measures – February, April, August and November 2020

	Atkinson (1) Index	Ratio of average incomes across quintiles		
		Middle to low	High to middle	High to low
February	0.22067	3.04	2.59	7.88
April	0.22046	2.95	2.59	7.65
August	0.23989	3.11	2.71	8.43
November	0.22542	2.97	2.67	7.93

Source: Life in Australia, February 2020, and ANUpoll, April, August, and November 2020.

By utilising the longitudinal nature of the dataset, it is possible to estimate the total lost income over the period at the individual household level. Using a linear interpolation at the individual level between the months for which we did not collect data on income (March, June, July, September and October) and setting February income as the baseline against which comparisons are made, we estimate that over the 40 weeks from the start of March to the end of November that the average household lost a total of \$4,726 in income. Using a projection based on the 2016 Census, the ABS estimates⁶ that there were 9,882,413 households in Australia in 2020. We estimate, therefore, that there has been a total loss of \$46.7billion for Australian households over the COVID-19 recession.

Once again, the more interesting question is who lost the greatest amount of income over the period. In any monthly-survey there is variation in income at the individual level. A person's income in a given month can be thought of as a combination of their permanent income and a month-specific random component. Those who have a high income in one month due to that random component are therefore more likely to experience a decline in income by the next wave of data collection, whereas those who have a low income are more likely to experience an increase (all else being equal). In addition, because income is collected using grouped data (with a continuous income measure derived using interval regression), movement within the top income band is going to be harder to pick up in the data than movement between income bands (the ceiling effect).

To take into account these processes of reversion to the mean and ceiling effects, we control for income in February when looking at the factors associated with total lost income, under the assumption that higher income will (distributionally) be associated with greater losses.

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In our estimation model (Table 5) we control for characteristics of the household (main source of income, family type), characteristics of the area in which the household is located, and characteristics of the individual respondent. Results are presented as differences in lost income compared to the omitted category (as described underneath the table), with positive values indicating that a person with that characteristic (or whose household or area had that characteristic) had a greater loss of income than the base case, controlling for their income as of February 2020.

Controlling for income in February 2020, we find that households whose main source of income was from self-employment or farming had a larger drop in income than those whose household's main source of income was wages or salaries or transfer payments (for example pensions, unemployment benefits). The additional loss of income was even greater though for those whose main source of income was from investments. In terms of household structure, single parents and other non-couple households experienced a greater loss in income than couple families.

Controlling for these household characteristics, females did not experience a greater or lesser loss of income for their households than males. While the coefficient is positive, it is not statistically significant, despite there being a very large sample of both males and females in the dataset. Young Australians aged 18 to 24 years appear to have lost more income than those aged 35 to 44 years (coefficient of 3,840), but the relatively small sample size means that the difference is not statistically significant (p -value = 0.166). There was, however, a larger drop in income for older Australians, with someone aged 65 to 74 years experiencing a decline in income that was \$8,139 more than a person aged 35 to 44 years on the same income in February and with other characteristics being equal.

Although the standard errors are large and therefore the difference is not statistically significant (p -value = 0.186), in absolute terms we observed a larger loss of income for the households of Aboriginal and Torres Strait Islander Australians than for the households of non-Indigenous Australians. This is a finding that should ideally be explored with a dataset with a larger Indigenous sample (perhaps from administrative systems).

There was a smaller decline in income for those with post-school qualifications, with those with a post-graduate degree having the smallest income loss (controlling for income at baseline). Although the difference in lost income between those who have not completed Year 12 and those who have (without a qualification) was not statistically significant, if anything the loss of income for the middle part of the education distribution was less than the decline in income for the very bottom of the education distribution. This is consistent with the finding on lost hours worked from October 2020 (Biddle and Gray 2020).

A final finding of note is the different impact of the COVID-recession by the socioeconomic status of the area in which the person lived. Keeping in mind that we are controlling for household income at baseline, there is weak evidence that income declined by more for those in the most disadvantaged areas compared to those in the middle part of the distribution (p -value = 0.237). There was even stronger evidence (p -value = 0.016), however, that the decline in income was less for those at the top of the (area-based) socioeconomic distribution with those in the most advantaged areas predicted to have lost \$6,118 less than someone in the middle part of the area-level distribution with the same income.

Location and qualifications appear to be the greatest protective factors from the COVID-recession.

Table 5 Factors associated with loss of income – March 2020 to November 2020

Explanatory variables	Coeff.	Signif.
Income in February 2020	13	***
Main income source – Self employment and farming	3,975	*
Main income source – Pensions, unemployment, other transfer payments	3,806	***
Main income source – Investment, savings, insurance, property or other sources	5,244	***
Household type – Single parent	5,889	***
Household type – Other non-couple household	4,528	***
Number of people in the household	-860	
Victoria	520	
Female	1,647	
Aged 18 to 24 years	3,840	
Aged 25 to 34 years	1,272	
Aged 45 to 54 years	-181	
Aged 55 to 64 years	4,477	**
Aged 65 to 74 years	8,139	***
Aged 75 years plus	7,870	***
Indigenous	5,341	
Born overseas in a main English speaking country	-1,804	
Born overseas in a non-English speaking country	1,204	
Speaks a language other than English at home	2,334	
Has not completed Year 12 or post-school qualification	-2,582	
Has a post graduate degree	-9,784	***
Has an undergraduate degree	-7,684	***
Has a Certificate III/IV, Diploma or Associate Degree	-3,450	
Lives in the most disadvantaged areas (1st quintile)	2,152	
Lives in next most disadvantaged areas (2nd quintile)	1,308	
Lives in next most advantaged areas (4th quintile)	-63	
Lives in the most advantaged areas (5th quintile)	-6,118	**
Lives in a non-capital city	-1,188	
Constant	-17,568	***
Sample size	2,323	

Source: Life in Australia, February 2020, and ANUpoll, April, August, and November 2020.

Notes: Ordinary Least Squares Regression Model. The base case individual lives in a household who main source of income is wages or salaries, and is a couple family. In addition, 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 Concluding comments

In the months leading up to November 2020, Australia has experienced almost complete elimination of community spread of SARS-COV-2, a dramatic improvement in subjective wellbeing to 2019 levels, and close but not complete convergence in economic outcomes with pre-COVID levels. There are still many people who are doing it tough in Australia, and there is no guarantee that employment and income levels won't decline again if government support for the economy is removed too early, or if there is a third wave of infections.

The impact of the COVID-recession has not, however, been evenly spread across the Australian population. When we looked at lost hours of work in October (Biddle and Gray 2020) losses were greater for Melbournians, males, older Australians, those born overseas in a non-English speaking country, and those in the middle part of the education distribution. In this paper we

show that the total loss of wellbeing over the period was concentrated in Victoria, young Australians, those outside of the most advantaged areas in Australia, and those who lived in capital cities. The total loss of income, on the other hand, was greater for single parent and non-couple households, those whose main source of income was not wages and salaries, young and older Australians, those in the middle part of the education distribution, and those outside of the most advantaged areas in Australia.

The scars from the COVID-recession are likely to remain for many years. Governments in Australia have a role in supporting the healing process. However, this support needs to be targeted to those who need it most, commensurate with the losses incurred, and specific to the needs and priorities of the recipients.

Appendix 1 About the survey

The primary source of data for this paper is the November ANUpoll. Data collection for the full sample commenced on the 10th of November. In total, 1,670 individuals were collected across three main days of data collection – November 10th to 13th – and by the end of the collection period (23rd of October) the total sample size for the survey was 3,029.

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 6.8 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.

A total of 3,844 respondents were invited to take part in the survey, leading to a wave-specific completion rate of 78.8 per cent. Taking into account recruitment to the panel, the cumulative response rate for this survey is around 7.7 per cent. Of those who had completed the November ANUpoll:

- 92.9 per cent had completed the October ANUpoll;
- 92.9 per cent had completed the August ANUpoll;
- 94.7 per cent had completed the May ANUpoll;
- 92.5 per cent had completed the April ANUpoll;
- 92.0 per cent had completed the February Australian Social Survey; and
- 91.1 per cent had completed the January ANUpoll;

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.

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

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Endnotes

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- ¹ <https://www.abs.gov.au/media-centre/media-releases/economic-activity-increased-33-september-quarter>
- ² <https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release>
- ³ The K6 comprises six items and has been widely used and validated in many epidemiological studies (e.g., Kessler et al., 2002).
- ⁴ 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 $\ln(\text{income})$ as the explanatory variable.
- ⁵ 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. These categories have been converted into a continuous income measure using interval regression. 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). In November 2020 we did not ask about the number of

people in the household, and therefore are unable to measure per-person household income.

⁶ <https://www.abs.gov.au/statistics/people/population/household-and-family-projections-australia/latest-release>