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# Changes in paid and unpaid activities during the COVID-19 pandemic: Exploring labour supply and labour demand

## ANU Centre for Social Research and Methods

Professor Nicholas Biddle;<sup>1</sup> Professor Matthew Gray<sup>1</sup>; Dr Maria Jahromi<sup>1</sup>, and Dinith Marasinghe<sup>1</sup>

1 ANU Centre for Social Research and Methods

Australian National University

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### Abstract

This paper provides an in-depth analysis of the labour market and related outcomes of Australian adults at the time at which COVID-19 physical distancing restrictions are being lifted. Using data collected by the ANU Centre for Social Research and Methods and data collected by the Australian Bureau of Statistics, there is some evidence that by the end of May 2020, employment outcomes were starting to improve relative to their low point at the end of April/start of May. Furthermore, this improvement has continued through to the end of June/start of July 2020.

The initial loss of employment and hours worked, and then subsequent slight improvements, have had a differential impact on the population. Furthermore, changes in other unpaid activities have been experienced differently across the population. Females who stopped working were far more likely to have taken on housework and caring roles, and also appear to have stopped looking for work. Males, on the other hand, appear to be slightly more likely to have moved into education as their main role, and are far more likely to be still actively seeking work. Both males and females have increased the hours that they have spent working from home. We also show that some occupations have fared worse than others, particularly Community and Personal Service Workers; Labourers; and Technicians and Trades Workers. The industries that have fared worse on our Economic-Misery Index tend to be those that employ young Australians, those who were born overseas, and those who speak a language other than English. Finally, we show that the changes in economic activity described above have had a demonstrable impact on wellbeing. In what we understand to be the first longitudinal analysis of wellbeing and labour market outcomes during COVID-19, at least in Australia, we show that males and females who have lost their job have significantly lower levels of life satisfaction.

### Acknowledgements

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### 1 Introduction and overview

The effects of COVID-19 and the imposition of physical distancing measures have had a large impact on the labour market and in some ways these impacts are not fully captured by standard labour market measures such as the unemployment rate. Estimates from the Australian Bureau of Statistics (ABS) May 2020 Labour Force Survey show that there has been a decline in employment of 835,000 between the first two weeks of March 2020 and the first two weeks of May 2020. Of this decline, a net loss of 227,000 jobs occurred between April and May (ABS 2020a).

There have also been declines in the number of hours worked for those who were able to maintain their employment. The ABS estimates that around 2.3 million Australians or about one-in-five of the employed population had either experienced job loss or had worked less hours than usual for economic reasons between April and May (ABS 2020a). The ABS also concluded that women and younger workers have been particularly negatively impacted (ABS 2020a).

Although data from the Labour Force Survey is not yet available, there is some evidence from other sources that employment has improved slightly since the last Labour Force Survey. Payroll data suggests that since May 2020 there has been a very slight increase in the number of payroll jobs and total wages paid, with both increasing by 1.0 per cent between the 16<sup>th</sup> of May and the 13<sup>th</sup> of June (ABS 2020b). Furthermore, following a substantial fall in average hours worked between February and April 2020, initial tracking data from the surveys used in this paper showed that there was a small increase in average hours worked by the employed between April and May 2020 from 32.3 to 32.8 hours per week in May 2020 (Biddle et al. 2020b).

In addition to changes in employment rates, hours worked and income, there have been changes in the location of where people are working. Much of the economic activity that has taken place has moved to people's homes, as offices and workplaces impose physical distancing requirements. The closing of schools for the vast majority of students, and reductions in use of formal and informal childcare in the early stages of the pandemic has disrupted care arrangements, resulting in many parents juggling working while providing care and overseeing educational activities of their children. The changes in where and how work is done is expected to have an impact on labour supply.

As such, there have been immediate impacts on both the number of jobs (demand for labour) and the supply of labour (Borland 2020). These effects will be exacerbated by the global nature of the pandemic with large economic losses and unemployment on a global scale (Beland et al. 2020; Bell and Blanchflower 2020; Cajner et al. 2020; Coibion et al. 2020). These will translate into secondary effects on Australia through lower investment and a disruption to supply chains and international trade.

The economic impacts have been experienced differently by age, sex, industry, occupation, and location. In particular, it is expected that industries that have been directly affected by government restrictions or changes in consumption patterns (e.g. hospitality, arts and recreation services, airlines and personal services) will have experienced greater job losses. Other industries, including the retail grocery industry, the agriculture sector, utilities, logistic services, office supplies, health care, home delivery and cleaning services, are expected to have experienced increased demand (Cassels et al. 2020; Borland 2020). Studies from the United States find that the impacts of COVID-19 have differed by gender, ethnicity and whether an

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individual is a carer (e.g. Borjas and Cassidy 2020; Cajner et al. 2020; Coibon et al. Cowan 2020; Fairlie, Couch, and Xu 2020; Kurman et al. 2020; Montenovolo et al., 2020).

The aim of this paper is to contribute and extend our understanding of economic changes in an Australian context by utilising Australia's only longitudinal dataset with information from prior to and during the COVID-19 pandemic.

The remainder of the paper is structured as follows. The next section provides an overview of the data used in the paper, including the questions related to labour force status and unpaid domestic work (Section 2). Section 3 reports data on the impact of COVID-19 on paid and unpaid activity and Section 4 considers how changes in labour market outcomes since COVID-19 vary between industries and occupations. The focus in Section 5 is on the impact of COVID-19 on working from home and unpaid domestic work. Section 6 estimates of the relationship between labour market change and wellbeing are described. The final section concludes, and provides some implications for public policy.

## 2 Data and measures

The paper is primarily based on data collected by the ANU Centre for Social Research and Methods in February, April and May 2020. The May 2020 data is from the 34<sup>th</sup> ANUpoll which collected information from 3,249 respondents aged 18 years and over across all eight States/Territories in Australia, and is weighted to have a similar distribution to the Australian population across key demographic and geographic variables.<sup>1</sup> The participants in the survey come from Life in Australia<sup>TM</sup>, Australia's only probabilistic, longitudinal panel.<sup>2</sup> About half of respondents (1,555) completed the survey on the 12<sup>th</sup> or 13<sup>th</sup> of May, with the remaining respondents interviewed between the 14<sup>th</sup> and 24<sup>th</sup> of May.<sup>3</sup>

Most of the panel members who completed the May 2020 ANUpoll (the 38<sup>th</sup> Wave of data collection on Life in Australia<sup>TM</sup>) had also completed the April 2020 ANUpoll (Wave 37 of Life in Australia<sup>TM</sup>) or the February survey (Wave 35). That is, they are the same individuals. The longitudinal nature of our data allows us to look at the changes in economic circumstances at the national level using repeated cross-sections, or at the individual level using longitudinal techniques.<sup>4</sup> Of those individuals who completed the May 2020 ANUpoll, 91.6 per cent or 2,976 individuals had completed the February 2020 survey. The linkage rate was slightly higher with the April 2020 ANUpoll with 2,984 individuals or 91.8 per cent of the May respondents having completed the survey in the previous month.

We asked respondents to the February 2020 Life in Australia<sup>TM</sup> survey and the April and May 2020 ANUpolls 'Which of these descriptions applies to what you have been doing for the last 7 days?' with the following (non-mutually exclusive) options available:

- a) In **paid work** (or away temporarily) (employee, self-employed, working for your family business)
- b) In **education** (not paid for by employer), even if on vacation
- c) **Unemployed** and actively looking for a job
- d) **Unemployed**, wanting a job but **not** actively looking for a job
- e) Permanently **sick or disabled**
- f) **Retired**

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g) Doing **housework, looking after children or other persons**

h) Other (Please specify\_\_\_)

Respondents were then asked which of these activities best described their situation in the last 7 days. Responses to the activity which best describes the respondents situation is categorised as their main activity.

This question was included on the February 2020 Life in Australia™ survey in order to align those findings with those from the European Social Survey. Given that the February 2020 data provides a pre COVID-19 benchmark the question has been repeated in April and May 2020 in order to maintain longitudinal consistency. While the data from this question can be used to estimate changes in activities undertaken including employment, unemployment, marginally attached and other not-in-the labour force, it differs from the questions asked in the ABS Labour Force Survey. Therefore, the levels of employment reported in this paper may not be directly comparable with official estimates due to differences in wording and framing. The estimates of the impacts of COVID-19 on employment from the February, April and May polls (Biddle et al. 2020a; 2020b) are, however, broadly comparable to the ABS estimates from the Labour Force Survey and the payroll data reported by the ABS.

In addition to data from ANUpoll, we introduce data from a new survey – the ANUpulse – which took place between the 29<sup>th</sup> of June and the 1<sup>st</sup> of July 2020. For this survey, a subset of Life in Australia™ were invited to participate in a short tracking survey, and asked six key data items from the previous waves of ANUpoll. In total, 615 respondents who completed the May ANUpoll were invited to complete the survey, with 522 individuals answering the twelve questions (asked in the same order as the May ANUpoll).<sup>5</sup> Respondents were weighted to the total Australian population.<sup>6</sup>

Four questions were asked regarding employment, with all but the second of these also asked in the May ANUpoll. These were:

1. In the last 7 days, have you been...?
  - a) In paid work (or away temporarily) (employee, self-employed, working for your family business)
2. Of the following categories, which best describes your current job situation? Please exclude jobs that are voluntary:
  - a) Have a job, currently working paid hours;
  - b) Have a job, but not currently working any paid hours; or
  - c) Do not have a paid job.
3. Regardless of your basic or contracted hours, how many hours did you work last week in your main job, including any paid or unpaid overtime?
4. I would like you to think about your employment prospects over the next 12 months. What do you think is the per cent chance that you will lose your job during the next 12 months? That is, get retrenched or fired or not have your contract renewed.

## 3 The impact of COVID-19 on paid and unpaid activity

### 3.1 Changes in employment between February and July

Data from the full ANUpoll sample showed that the per cent of people who said that they were employed declined from 62.0 per cent in February to 58.9 per cent in April 2020. There was a further (though much smaller) decline between April and May 2020 to 57.1 per cent. While the sample size is too small to be too definitive for the level of employment in June 2020, the

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employment rates of the ANUpulse sample increased between May and late June/early July, with the difference statistically significant.<sup>7</sup>

Total hours worked (setting hours of those who were not employed to zero) declined by a larger amount over the period. Between February and April 2020, hours worked declined from 21.9 hours per week to 18.7 hours per week. Between April and May 2020, there was a reasonably steady number of hours worked (18.5 hours in May 2020), but there is some evidence from ANUpoll that there was an increase between May and late June/early July. Once again, there is significant uncertainty around the estimates, but we do observe a statistically significant increase of 1.04 hours per week for the linked sample.

While the ANUpulse data from late June/early July 2020 paints a somewhat more positive image of labour market change from May, there was still some caution amongst employees about the strength of this recovery. Specially, when we asked respondents for their expected probability of losing their job over the next 12 months, there was a small increase in this expected probability from 22.3 per cent in May to 23.5 per cent in June/July. This illustrates that those who were employed in our sample are still quite worried about losing their job.

### 3.2 Paid and unpaid activities

Looking in more detail at both paid and unpaid activities, Figure 1 shows the proportion of the total adult population who reported that they had done each of the paid and unpaid activities across February and May 2020. Figure 2 provides data on the activity which best describes their situation in the last 7-days (main activity) for the same time periods.

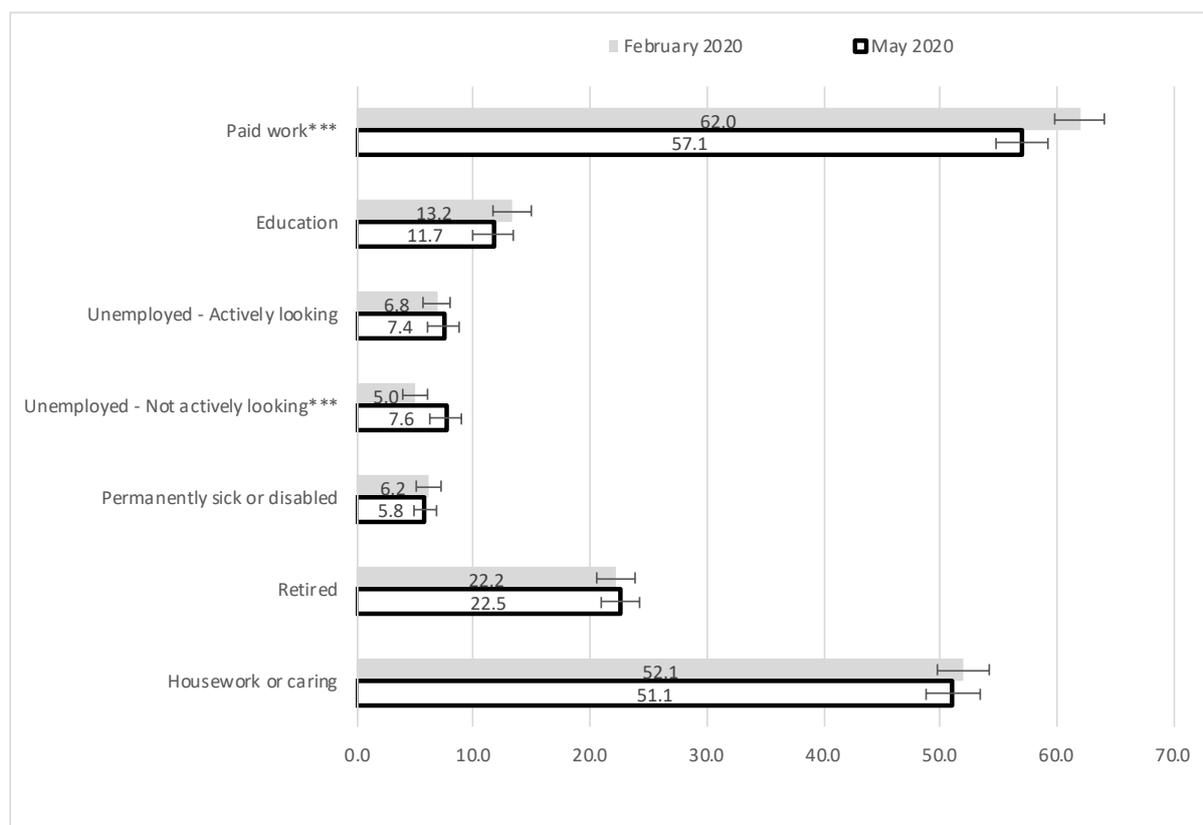
There has been a significant decline between February and May 2020 in the proportion of people who report having paid work from 62.0 per cent to 57.1 per cent (Figure 1). The proportion saying that work was their main activity fell from by a similar amount, from 56.2 per cent to 50.7 per cent.

These declines in employment lead to small increases across other multiple activities. Despite the fall in employment there was not a statistically significant increase in the proportion who were unemployed and actively looking for work (essentially what the ABS would classify as being unemployed). However, there was a large statistically significant increase in the proportion of people who said that they were unemployed but not actively looking for work (though they still said that they wanted a job). The fall in employment has resulted in an increase in people who are marginally attached to the labour market, and we would expect that the majority of them are discouraged workers.<sup>8</sup>

There were only small changes between February and May in the proportion who were doing housework or caring, were retired or were permanently sick or disabled and none of the differences are statistically significant.

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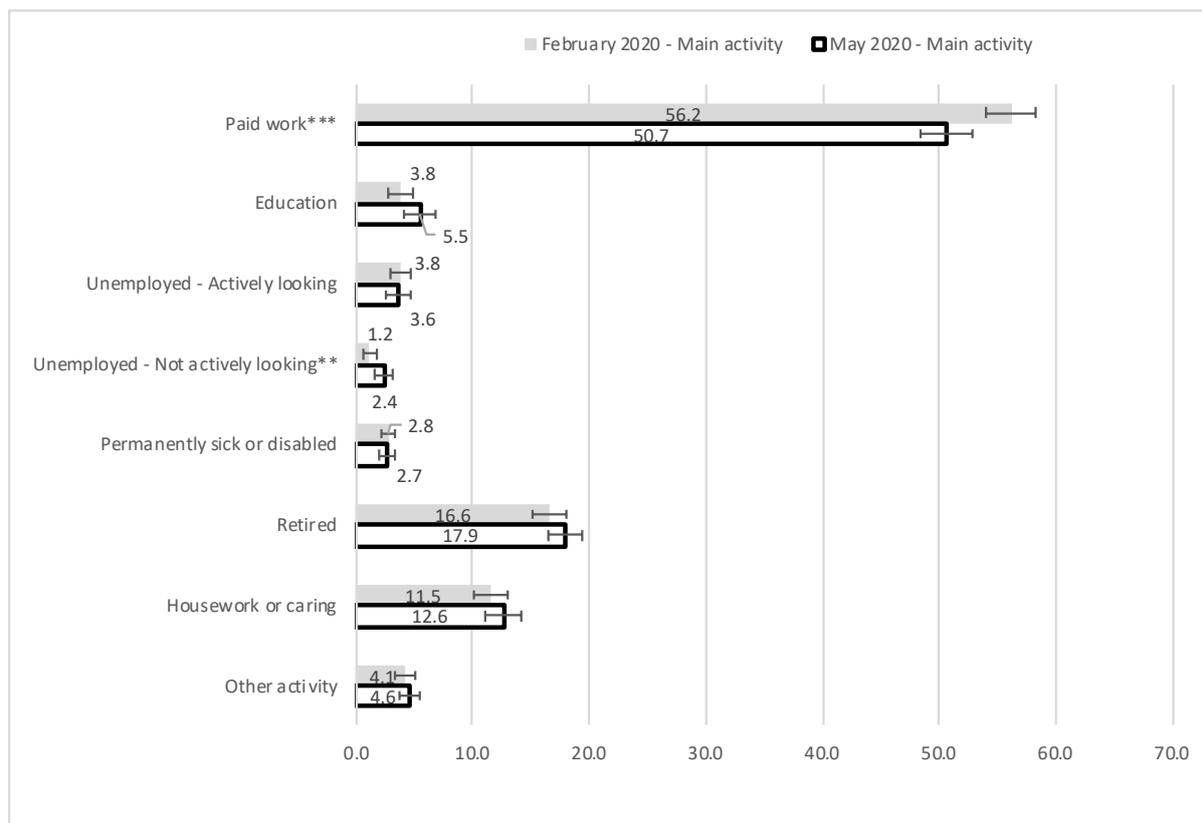
Figure 1 Paid and unpaid activities undertaken in February and May 2020



Notes: The “whiskers” on the bars indicate the 95 per cent confidence intervals for the estimate. Differences by month 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: Life in Australia™, February 2020 and ANUpoll, May 2020.

Figure 2 Main paid or unpaid activity undertaken in February and May 2020



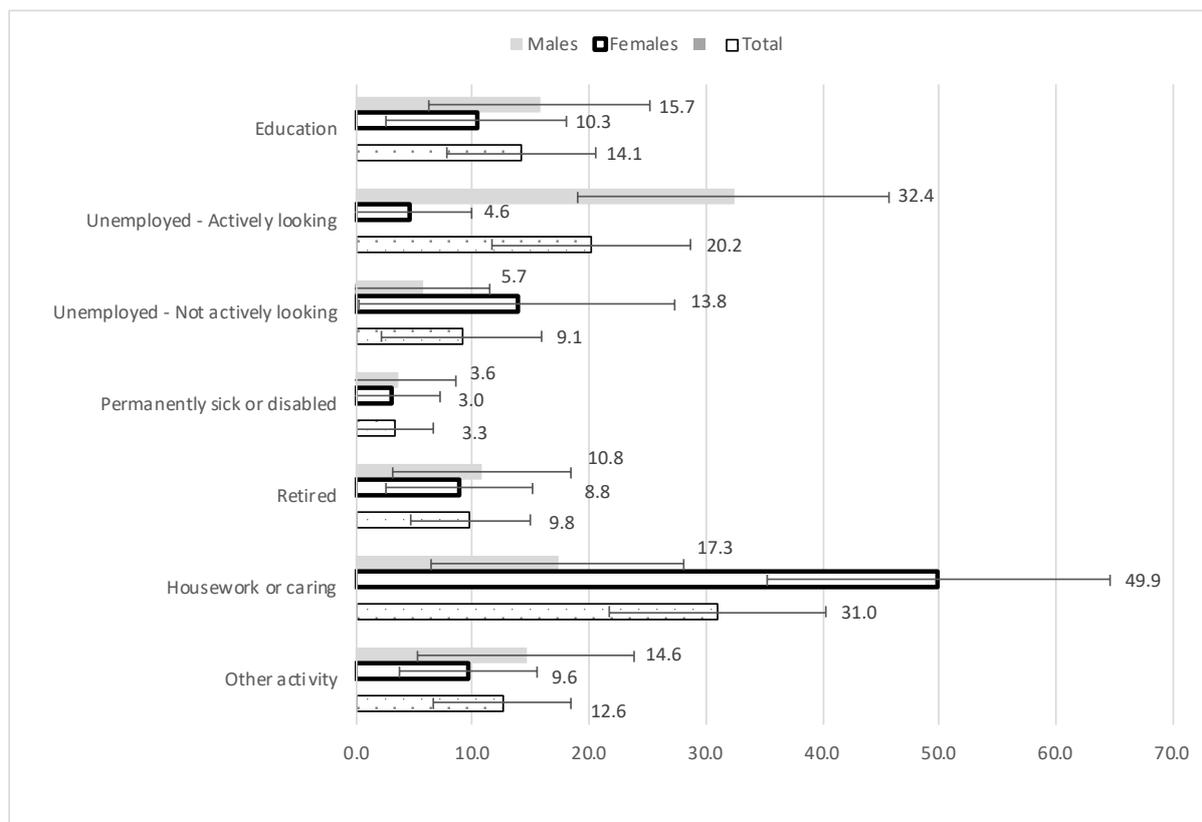
Notes: The “whiskers” on the bars indicate the 95 per cent confidence intervals for the estimate. Differences by month that are statistically significant at the 1 per cent level of significance are labelled \*\*\*; those significant at the 5 per cent level of significance are labelled \*\*, and those significant at the 10 per cent level of significance are labelled \*.

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

There were 190 respondents to the May 2020 ANUpoll who were employed in February 2020 but were not employed in May 2020. While this is a relatively small sample, it is large enough to provide some insights into what has happened to people who lost their job with many of the differences described below still statistically significant. Figure 3 provides data for males and females on what the main paid or unpaid activity was in May 2020 for those who moved out of employment between February and May.

There are big differences. For males 32.4 per cent were unemployed and **actively** looking for work, whereas only 4.6 per cent of females were unemployed and **actively** looking for work. Women who had left employment were, on the other hand, more than twice as likely to be unemployed and **not actively** looking (13.8 per cent) than were men (5.7 per cent). While this latter difference is not statistically significant (p-value = 0.223), it does give some indication that females are less confident in obtaining employment than males if they have lost their job, or less able to actively look for work. The largest gender differences in main activity in May 2020 for those who had left employment was unpaid housework or caring. This was the main activity for half of women (49.9 per cent) compared to it being the main activity for only 17.3 per cent of men.

Figure 3 Main paid or unpaid activity in May 2020 for those who were employed in February but not May by sex



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

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

#### 4 Changes in labour market outcomes by industry and occupation

The effect of COVID-19 has varied quite substantially by occupation and industry. The evidence from previous recessions is that there has been greater job loss amongst men than women, partially because men’s employment tends to be more concentrated in sectors with a high exposure to the business cycle (Richardson 2009). However, Alan et al. (2020) argue that the current recession is different in terms of which sectors of the economy record the largest drops in employment.

Defined jointly by the Australian Bureau of Statistics and Statistics New Zealand, the Australian and New Zealand Standard Industrial Classification (ANZSIC) classifies individual business entities to an industry based on the entity’s predominant activity (ABS 2008). In February 2020 respondents on Life in Australia™ were asked ‘What does/did the firm or organisation you work/worked for mainly make or do?’ The responses to this question were then coded by the Social Research Centre using the ANZSIC classification, and aggregated by us for this paper into the one-digit classification.

A person’s occupation, by comparison, relates to the type of work that they themselves do (rather than what their firm does). This is classified in the Australian and New Zealand Standard Classification of Occupations (ANZSCO) and organised such that ‘ANZSCO is a skill-based classification’ (ABS 2013). Occupation is identified through the question ‘In your main job, what

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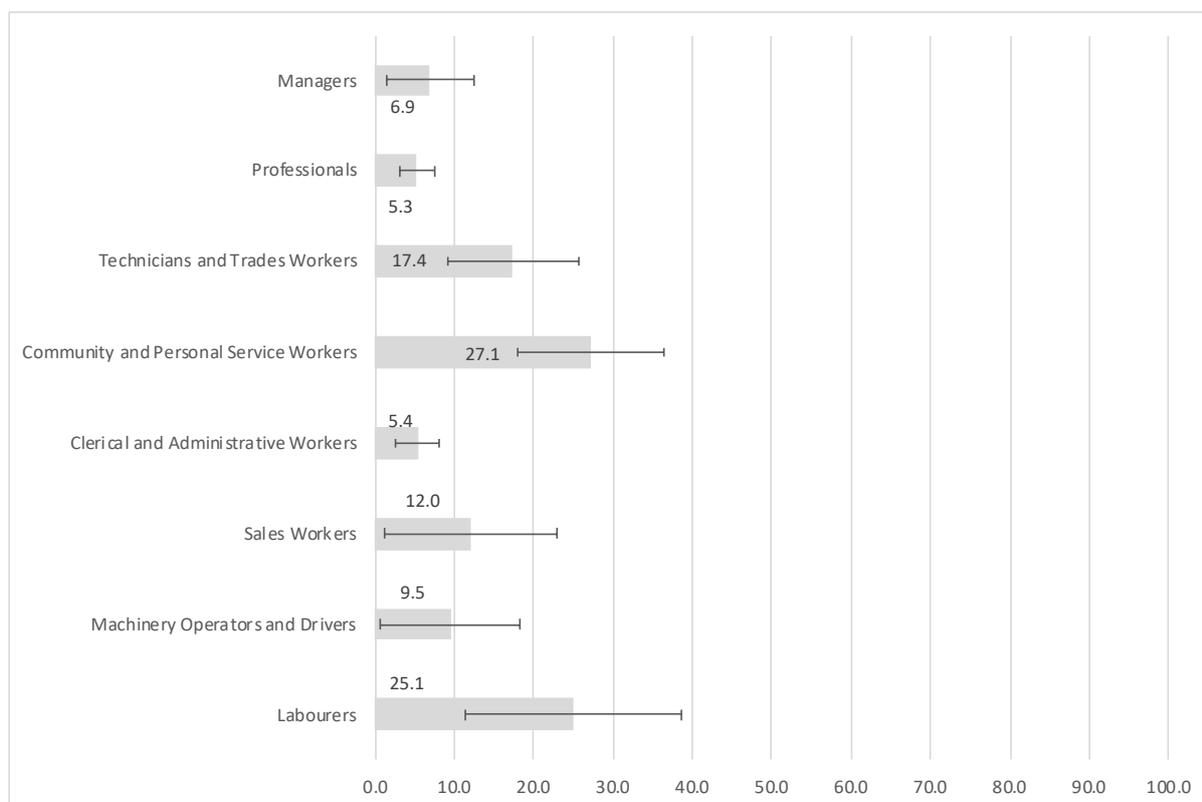
kind of work do/did you do most of the time?’ which was once again coded by the Social Research Centre and aggregated to the one-digit ANZSCO classification.

The distinction between occupation and industry can be highlighted by some examples (as recorded in the 2016 Census). In the Manufacturing Industry, for example, there are a minority of highly skilled Managers and Professionals working alongside less skilled Labourers and Sales Workers who make up a much greater proportion of the industry. In the Professional, Scientific and Technical Services Industry, on the other hand, the vast majority of workers are Professionals, but there is still a minority of workers who are recorded as Labourers or Sales Workers. Both industry and occupation therefore capture important aspects of the labour market, and in this section we look at how labour market outcomes have changed by both categorisations.

### 4.1 The impact of COVID-19 by occupation

The current economic crisis has had very different effects on employment outcomes by occupation.<sup>9</sup> However, it is not always the least skilled occupations that have been impacted the most. Figure 4 provides data on the proportion of people who lost their job between February and May 2020 by occupation in February 2020. The highest rates of job loss was for Community and Personal Service Workers (27.1 per cent lost their job between February 2020 and May 2020), Labourers (25.1 per cent) and Technicians and Trades Workers (17.4 per cent). All of these differences were significantly different from the occupation category with the lowest rate of job loss (Professionals).

**Figure 4** Per cent who had lost jobs by May 2020 by occupation in February 2020



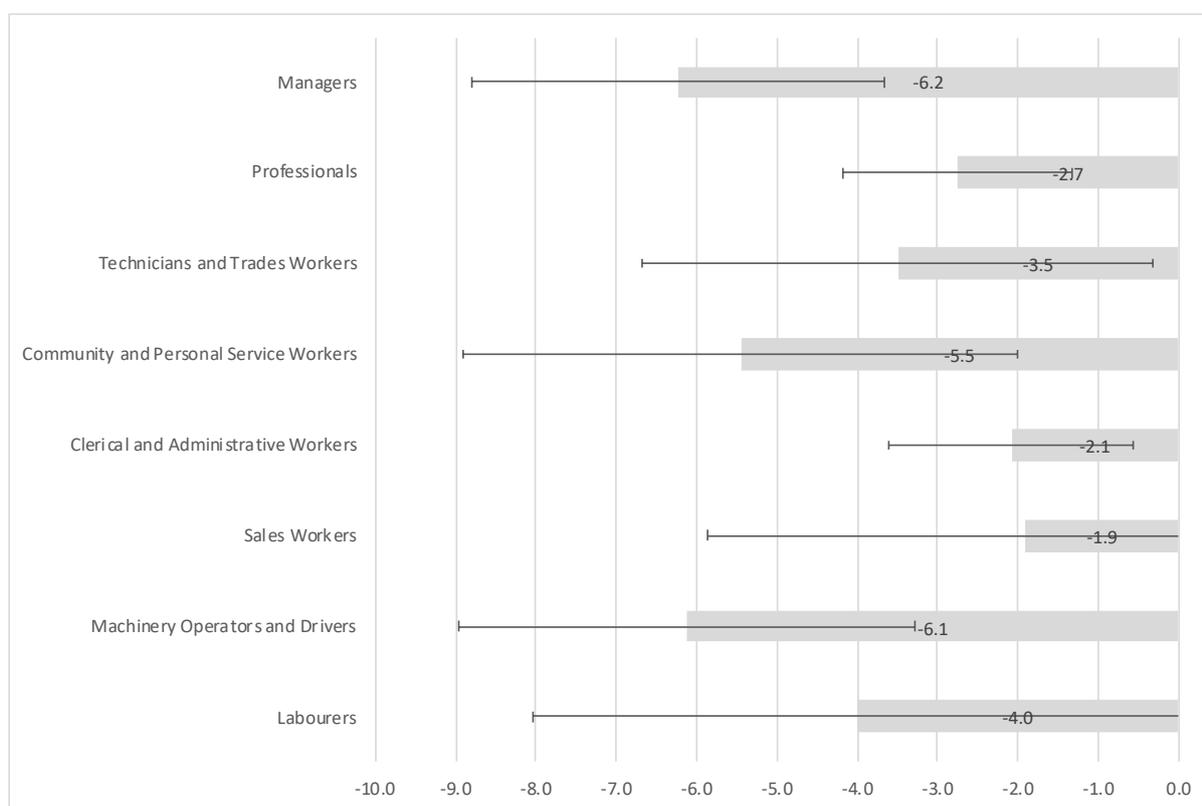
Source: Life in Australia™, February 2020 and ANUpoll, May 2020.

## Changes in paid and unpaid activities during the COVID-19 pandemic

For those who remained employed, there was on average a reduction in hours worked between February and May of 3.5 hours per week. The negative impact of COVID-19 on hours worked, however, varies between occupations (Figure 5).

The smallest decline in hours was for Sales Workers (declined by 1.9 hours per week), Clerical and Administrative Workers (declined by 2.1 hours per week) and Professionals (declined by 2.7 hours per week) (Figure 5). Interestingly, despite being the occupation grouping with the highest level of prestige and income prior to COVID-19, Managers experienced the greatest decline in hours worked between February and May 2020 – 6.2 hours per week on average. Machinery Operators and Drivers also experienced a large decline (6.1 hours per week) which was significantly different from the decline experienced by Professionals. Part of these differences are likely to be due to differential access to JobKeeper, as well as greater or lesser ability for the individual to keep undertaking their tasks under physical distancing restrictions (which were still in effect when our data was collected).

**Figure 5** Change in weekly hours worked between February and May 2020 by occupation of employment in February 2020



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

### 4.2 The impact of COVID-19 by industry

This section considers how the impact of COVID-19 has affected employment and hours worked by industry. Table 1 summarises the impacts of COVID-19 by industry including the impacts on the numbers employed in each industry, changes in hours worked, perceived job security, change in income and whether respondents said that their household finances had worsened. In order to provide information on the relative importance of each industry for total employment, Table 1 also provides data on the proportion of Australians working in each industry based on data from the February 2020 ANUpoll.<sup>10</sup> To make use of the much larger sample sizes in the Labour Force Survey, employment and hours changes are estimated using

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the ABS Labour Force Survey (ABS 2020c).<sup>11</sup> The estimates for perceived probability of job loss, income change and whether household finances had worsened are estimated using ANUpoll data. The specific measures used are:

- Employment change – The change in number of people employed in that industry between the February 2020 and May 2020 quarters, expressed as a percentage of February 2020 employment;
- Hours change – The change in average weekly hours worked between the February 2020 and May 2020 quarters;
- Lose job – The average expected probability of losing one's job over the next 12 months (for those employed in Wave 38);
- Income change – The average change between Wave 35 and 38 in per person household income (after tax); and
- Finances worsened – The per cent of people who said that their household finances worsened in the 3 months prior to the May 2020 survey due to COVID-19.

## Changes in paid and unpaid activities during the COVID-19 pandemic

**Table 1** Employment and other outcomes in May 2020 by industry of employment in February 2020

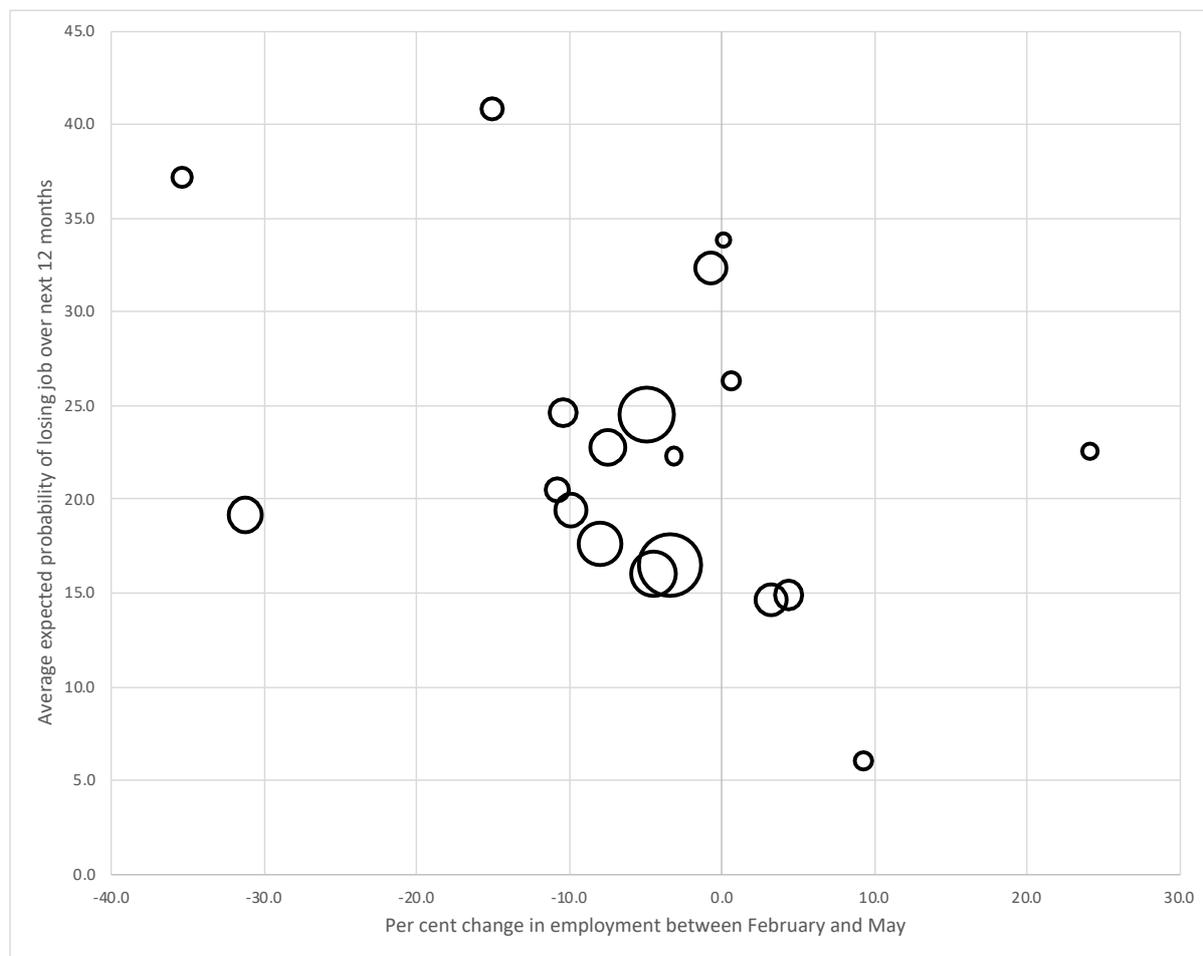
Industry classification	Size of industry (% of total)	Change employment (%)	Change hours (%)	Lose job (%)	Weekly income change (\$)	Finances worsened (%)
Agriculture Forestry Fishing	1.7	9.3	3.6	6.1	-\$16	2.0
Mining	1.7	-3.2	1.5	22.3	-\$129	12.5
Manufacturing	6.1	-7.4	-7.1	22.8	-\$108	40.9
Electricity Gas Water and Waste Services	1.4	24.1	-0.3	22.6	\$146	23.2
Construction	5.1	-0.7	-3.1	32.4	-\$39	45.9
Wholesale Trade	1.2	0.1	-5.2	33.8	<-\$150	4.9
Retail Trade	9.8	-4.5	-7.0	16.0	-\$41	38.1
Accommodation and Food Services	5.8	-31.2	-24.4	19.2	-\$52	50.9
Transport Postal and Warehousing	5.1	-9.9	-9.7	19.4	-\$36	35.6
Information Media and Telecommunication	2.5	-15.1	-5.1	40.8	-\$56	22.6
Financial and Insurance Services	4.1	4.4	2.9	14.9	<-\$150	31.4
Rental Hiring and Real Estate Services	1.8	0.6	-4.1	26.3	<-\$150	36.7
Professional Scientific and Technical Services	13.9	-4.9	-3.7	24.5	-\$104	37.0
Administrative and Support Services	3.9	-10.4	-14.0	24.7	-\$29	33.4
Public Administration and Safety	5.2	3.2	0.9	14.6	-\$22	31.4
Education and Training	8.6	-8.0	-3.5	17.7	\$5	33.6
Health Care and Social Assistance	17.4	-3.3	-3.1	16.5	-\$28	37.4
Arts and Recreation Services	2.0	-35.4	-21.3	37.2	-\$103	48.1
Other Services	2.9	-10.8	-18.0	20.5	-\$11	20.7

Note: Due to small sample sizes, reporting of changes in income is capped at \$150 per week, though the actual estimated amount is used in subsequent analysis. The large increase in employment for those in Electricity, Gas, Water and Waste Services is partly due to a decline between November 2019 and February 2020, though there is still an overall increase between November 2019 and May 2020.

Source: ABS (2020c); Life in Australia™, February 2020 and ANUpoll, May 2020.

While industries that had the biggest falls in employment also tended to have relatively large falls in hours worked by those who remained employed, there are some differences according to the particular outcome measure. Figure 6 describes the relationship between employment change between February and May 2020 (plotted on the X-axis) and the expected percentage of losing one's job over the next 12 months for those who were still employed in May 2020 (plotted on the Y-axis). The size of the circle is proportional to the per cent of the total Life in Australia™ workforce who were in that industry in February 2020. With a correlation of -0.38, workers appear to be more likely to think they will lose their job over the next 12 months if others in their industry have lost their job between February and May 2020.

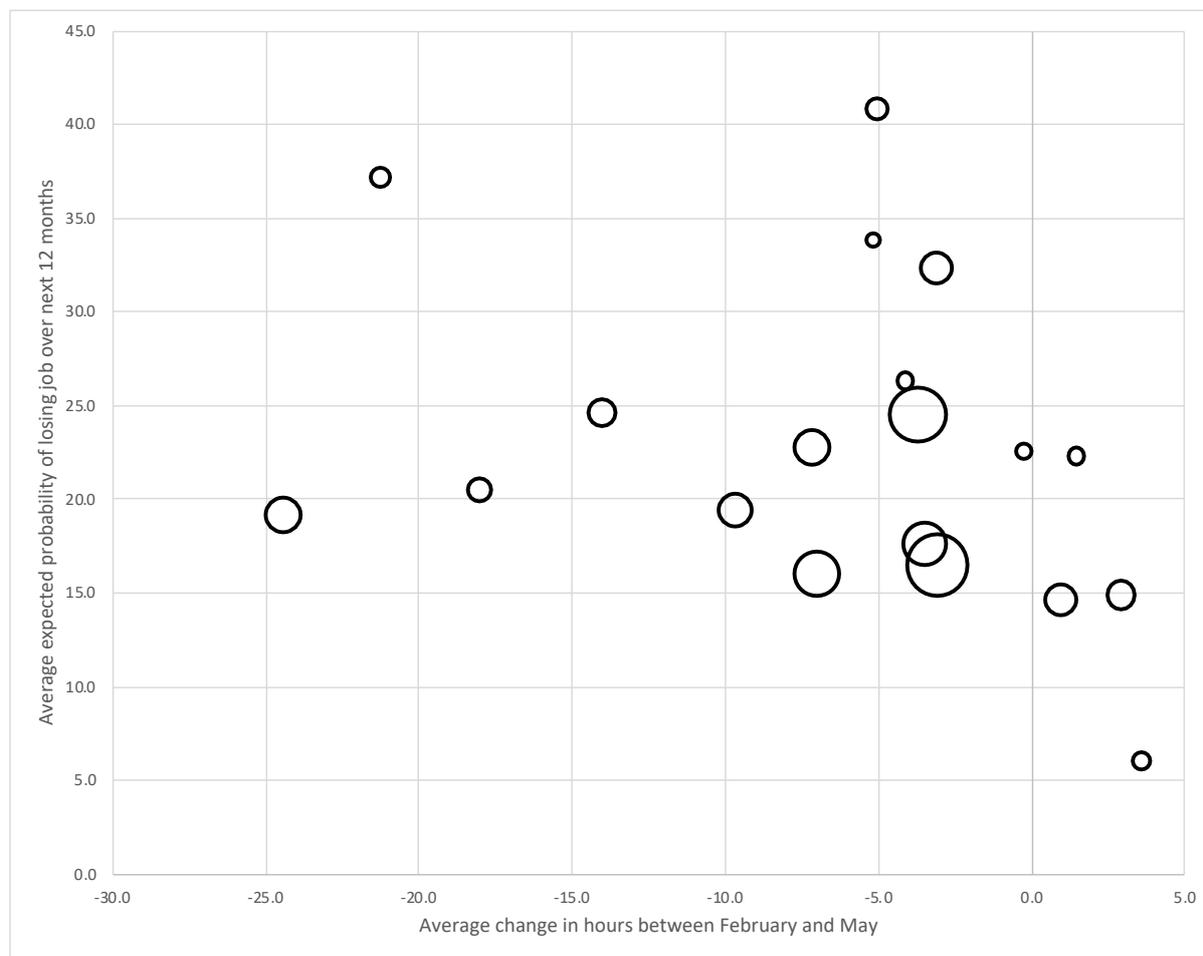
Figure 6 Relationship between employment change between May 2020 and February 2020 and expected future job losses



Source: ABS (2020c); Life in Australia™, February 2020 and ANUpoll, May 2020.

There is also correlation between change in hours worked in the industry and expected percentage of losing one's job over the next 12 months (correlation coefficient = -0.31). Furthermore, as shown in Figure 7, the relationship is in the direction that we might expect with workers appearing to be less likely to think they will lose their job over the next 12 months if hours worked of those who were in the industry increased between February and May 2020.

Figure 7 Relationship between change in hours worked between February 2020 and May 2020 and expected future job losses



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

### 4.3 Introducing the Economic-Misery index

The indicators of the impact of COVID-19 on workers in different industries reported in Table 1, while generally correlated, often move in subtly different directions. For example, for Financial and Insurance Services there has been a steady rate of employment but a significant decline in income for those employed in the industry. For Other Services, on the other hand, employment has declined substantially but income has remained steadier for those who were employed in that industry in February 2020.

Employment change, income change, and outlook for the future are all important though for understanding the wellbeing of workers in an industry. In order to produce a summary measure of the impacts of COVID-19 by industry we have therefore constructed an ‘Economic-Misery’ index, which ranks all 19 industries by the average change across the five labour market outcomes. Specifically, we rank all industries separately by each of the five change measures (from worst to best) and then take the average ranking.<sup>12</sup> The industry with the worst score on the Economic-Misery index (Accommodation and Food Services) has the worst average rank, whereas the industry with the best score on the index (Agriculture, Forestry and Fishery) has the best average rank.

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Table 2 gives the ranking for all 19 industries based on the Economic-Misery index. It is presented alongside the per cent of that industry that has particular demographic characteristics, based on data from the 2016 Census of Population and Housing.

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**Table 2** Demographic characteristics of industry in August 2016 by Economic-Misery Index for May 2020

Industry classification	Rank (most to least affected)	% workers				
		Female	Aged 15 to 24 years	Born overseas	Indigenous	Speaks LOTE
Arts and Recreation Services	1	47.5	25.8	24.1	1.9	13.8
Accommodation and Food Services	2	54.5	43.6	37.6	1.8	30.2
Manufacturing	3	27.9	10.9	36.5	1.3	25.3
Information Media and Telecommunications	4	39.7	12.8	34.1	0.9	22.9
Administrative and Support Services	5	52.6	11.1	39.2	1.9	26.6
Professional, Scientific and Technical Services	6	45.0	8.9	36.7	0.7	23.9
Rental, Hiring and Real Estate Services	7	51.3	11.9	29.4	1.0	19.3
Wholesale Trade	8	34.3	9.5	34.5	1.0	23.7
Transport, Postal and Warehousing	9	23.5	7.1	35.3	1.5	24.7
Construction	10	13.0	15.0	25.7	1.8	15.6
Retail Trade	11	57.0	31.3	26.7	1.5	20.2
Other Services	12	46.1	16.3	29.5	2.1	19.9
Mining	13	16.1	5.3	25.2	3.8	9.6
Health Care and Social Assistance	14	78.5	9.2	36.0	1.9	23.3
Education and Training	15	71.3	9.0	25.5	1.9	15.4
Financial and Insurance Services	16	51.5	6.9	37.0	0.7	26.2
Electricity, Gas, Water and Waste Services	17	23.9	6.0	26.1	1.7	14.7
Public Administration and Safety	18	46.6	6.6	23.8	2.8	14.0
Agriculture, Forestry and Fishing	19	30.6	11.5	18.9	1.7	11.1

Source: Australian Bureau of Statistics 2016 Census of Population and Housing, Life in Australia™, February 2020 and ANUpoll, May 2020.

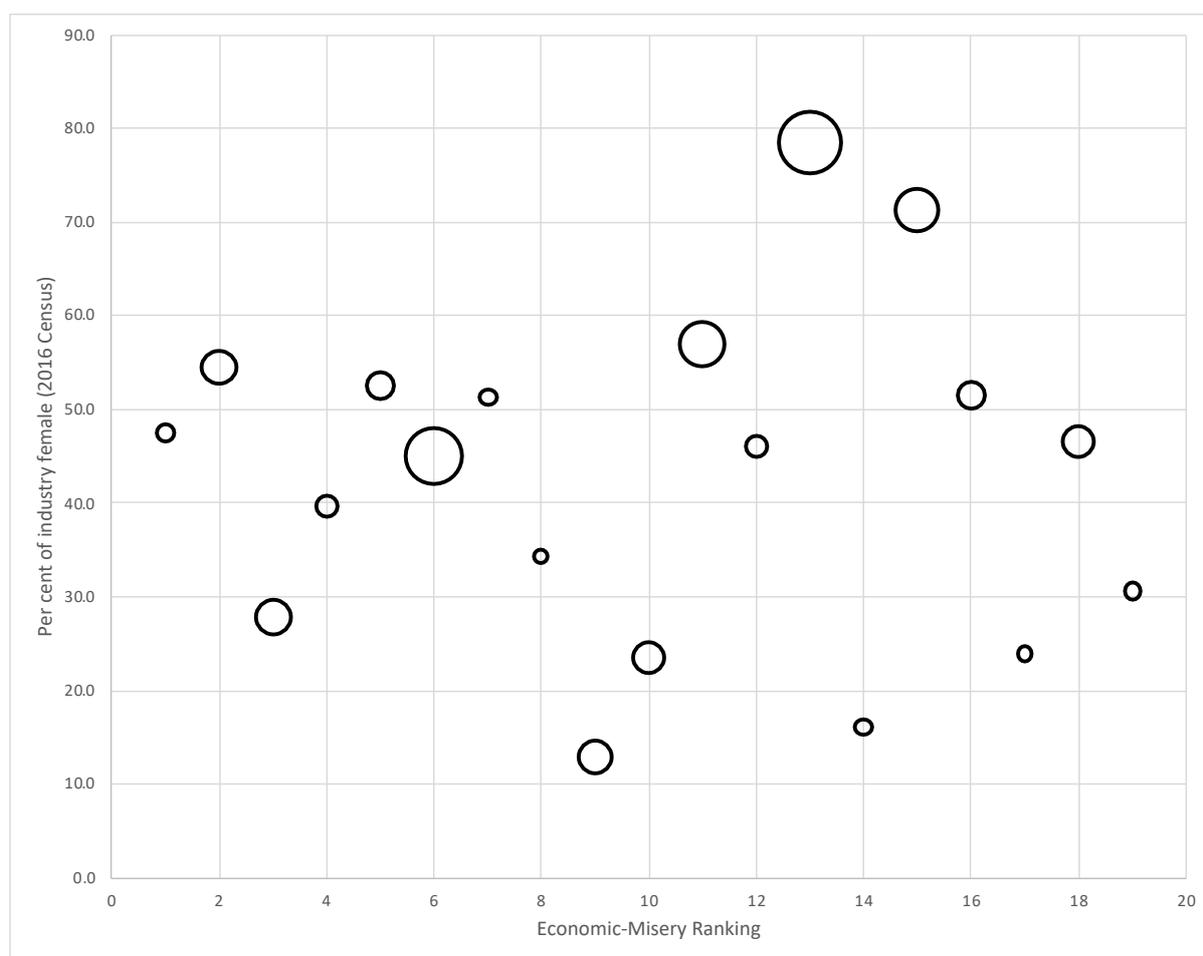
There is a relatively strong correlation between the proportion of workers in the industry who speak a language other than English at home, were born overseas and who are aged age 18-24 years and the Economic-Misery Index, but a far weaker correlation for the proportion of workers in the industry who are female and the proportion of workers who are Indigenous. Specifically, those industries that score worst on the Economic-Misery Index tend to be those with a high proportion of workers who: speak a language other than English (LOTE) at home (correlation coefficient = -0.52); were born overseas (correlation coefficient = -0.51); and are aged 15 to 24 years (correlation coefficient = -0.49). There is a weaker, but still substantial correlation (coefficient = 0.30) with Indigenous status, though it should be noted that unlike previous economic downturns industries with a relatively large Indigenous share have fared better on this measure.

There is essentially no relationship, however, between the Economic-Misery index and the per cent of workers in the industry who are female (correlation coefficient = 0.004). While there are some industries with a relative high proportion of female workers (for example Accommodation and Food Services) in which workers have been particularly negatively impacted by COVID-19, there are also industries with a relatively low proportion of workers

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who are female (for example Manufacturing) that are worse off in May compared to February (Figure 8). There are also some industries with a high female share (for example Education and Training) that have done relatively well. Furthermore, when we weight the correlations by the size of the total workforce that are working in that industry, the correlation becomes more positive (correlation coefficient = 0.28) with females less likely to work in industries that rank highly on the Economic-Misery index.

**Figure 8** Relationship between Economic-Misery Index and per cent of industry workforce female



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

## 5 Working from home and unpaid domestic work

This section reports on analysis of working from home and unpaid domestic work (housework and caring). This is of interest given the increase in the number of people working from home in the earlier stages of the pandemic, loss of jobs and changes in hours worked and the majority of children being at home rather than attending child care and schools throughout April and May. Given the gendered nature of unpaid domestic work prior to COVID-19, the extent to which COVID-19 has had differential impacts on the unpaid domestic work of men and women is an important question.

### 5.1 Working from home

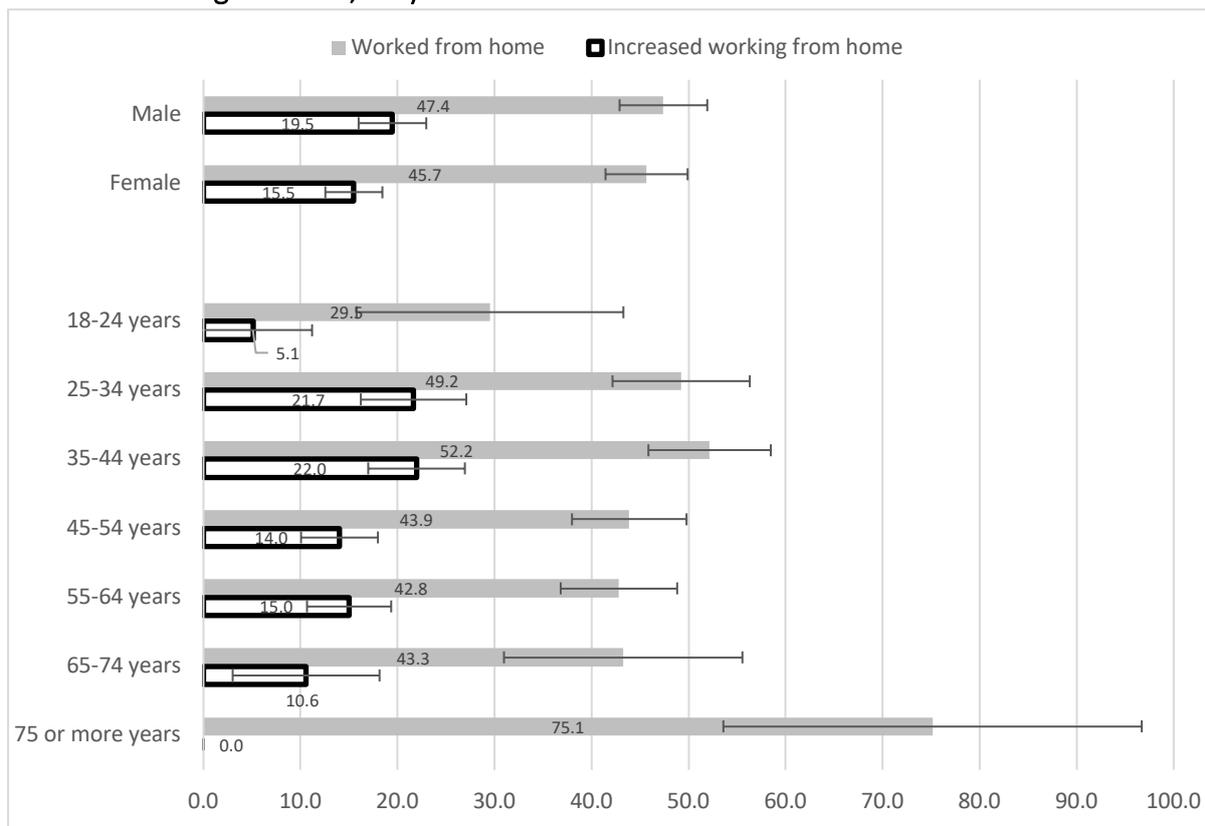
The May 2020 ANUpoll asked respondents who were employed whether they were currently working from home. Almost one-third (30.6 per cent) of respondents said that they worked from home every day and a further 16.0 per cent said that they worked from home some days but not every day. It is important not to overstate the change that occurred due to COVID-19, as only 37.7 per cent of those who were working from home said that they were doing so for more hours than prior to COVID-19, with the remaining 62.3 per cent either working the same number of hours from home (44.6 per cent) or fewer hours (17.7 per cent) than prior to COVID-19. In total, therefore, 17.5 per cent of employed Australians increased the number of hours they worked from home during the COVID-19 period.

What is interesting, and perhaps a little surprising, is that males are if anything slightly more likely to have been working from home during the COVID-19 period (47.5 per cent for males compared to 45.7 per cent for females, though the difference is not statistically significant) and more likely to have increased the number of hours that they worked from home (19.5 per cent compared to 15.5 per cent,  $p$ -value = 0.086). This is, however, in line with previous findings from the American Time Use Survey (ATUS) in 2017 and 2018 in the United States, according to which 28 per cent of male workers and 22 per cent of female workers are employed in occupations that are very conducive to working from home (Alan et al. 2020).

There are large age differences in the rates of working from home (Figure 9). Employed young adults (18-24 years) were far less likely to have been working from home (29.5 per cent) than were other age groups. Around half of those aged 25 to 34 years (49.2 per cent) and those aged 35 to 44 years (52.2 per cent) were working from home. The proportion of the employed aged 45 to 74 years who were working from home in May was around 43 per cent. Those aged 75 years and over who were employed had the highest likelihood of working from home with around three-quarters of that age group having worked from home.

There are larger relative differences by age in the probability of increasing the number of hours that a person worked from home (Figure 9). The largest increase was amongst those aged 35 to 44 years (22.0 per cent increased) and 24 to 34 years (21.7 per cent increased). Very few people in the 18 to 24 year age group increased their hours (5.1 percent increased), whereas the per cent of the other three age groups who increased their hours were all lower than for the peak age group at the 5 per cent level of significance.

Figure 9 Percentage working from home and who increased working from home, by age and sex, May 2020



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

Source: ANUpoll, May 2020.

There are certain types of work that are more conducive to be undertaken at home, with others not possible or far more difficult. Figure 10 shows that there are only three occupation groupings for which at least half of the population were working from home when asked in May 2020 – Professionals (68.5 per cent); Managers (61.5 per cent) and Clerical and Administrative Workers (53.6 per cent). For all other occupation categories, a quarter or less of the workforce were estimated to have worked from home. The largest increase was also amongst Professionals, with a little under one-third of Professionals (29.0 per cent) reporting an increase in the number of hours that they were working from home.

Figure 10 Percentage working from home and who increased working from home, by occupation, May 2020



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

Source: ANUpoll, May 2020.

## 5.2 Unpaid domestic work and paid work

*A priori* the impact of COVID-19 on the gendered nature of unpaid domestic work is unclear. On the one-hand the level of parental care for children has increased with many children not attending child care or school during April and for part of May combined with social distancing measures among the elderly meaning that the level of informal childcare from outside the household may have fallen (Alan et al. 2020). On the other hand, both men and women have been working from home in greater numbers which may increase the opportunities for men to contribute to housework and caring.

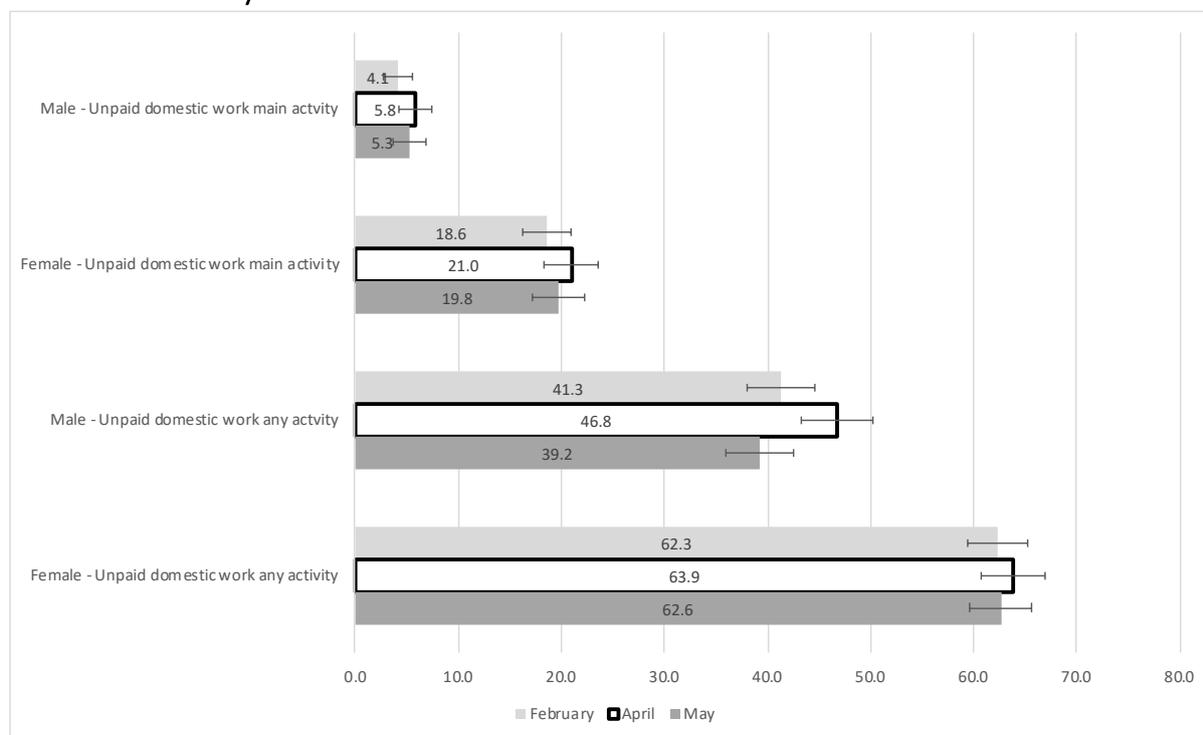
Figure 11 shows the per cent of males and females who reported housework or caring (unpaid domestic work) as either one of their activities or as their main activity in February, April and May 2020. For both males and females, there was an increase in unpaid domestic work between February and April, and then declines between April and May. However, the specifics are slightly different for males and females, and depending on whether one focuses on doing unpaid domestic work or whether unpaid domestic work is the respondent’s main role.

For males, there was a statistically significant increase in the proportion reporting unpaid domestic work as being one of their roles from 41.3 per cent in February to 46.8 per cent in May. However, by May 2020 the proportion of males reporting unpaid domestic work as being one of their roles fell to 39.2 per cent, which was below the level in February. For females the proportion reporting unpaid domestic work as being one of their roles hardly changed over the period February to May 2020, ranging from 62.3 per cent to 63.9 per cent.

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Similarly for unpaid domestic work being the main role, there were small increases for both males and females between February and May 2020 (statistically significant at the 10 per cent confidence level), but no change between April and May for either sex.

**Figure 11** Per cent who undertook unpaid domestic work, by sex, February, April and May 2020



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

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

Figure 12 provides information on change in paid hours worked between February and April 2020 based on the combination of whether the individual reported any housework/caring responsibilities in February and April. We focus on April 2020 data, rather than May 2020 data as unpaid activities were at their peak during April rather than May.

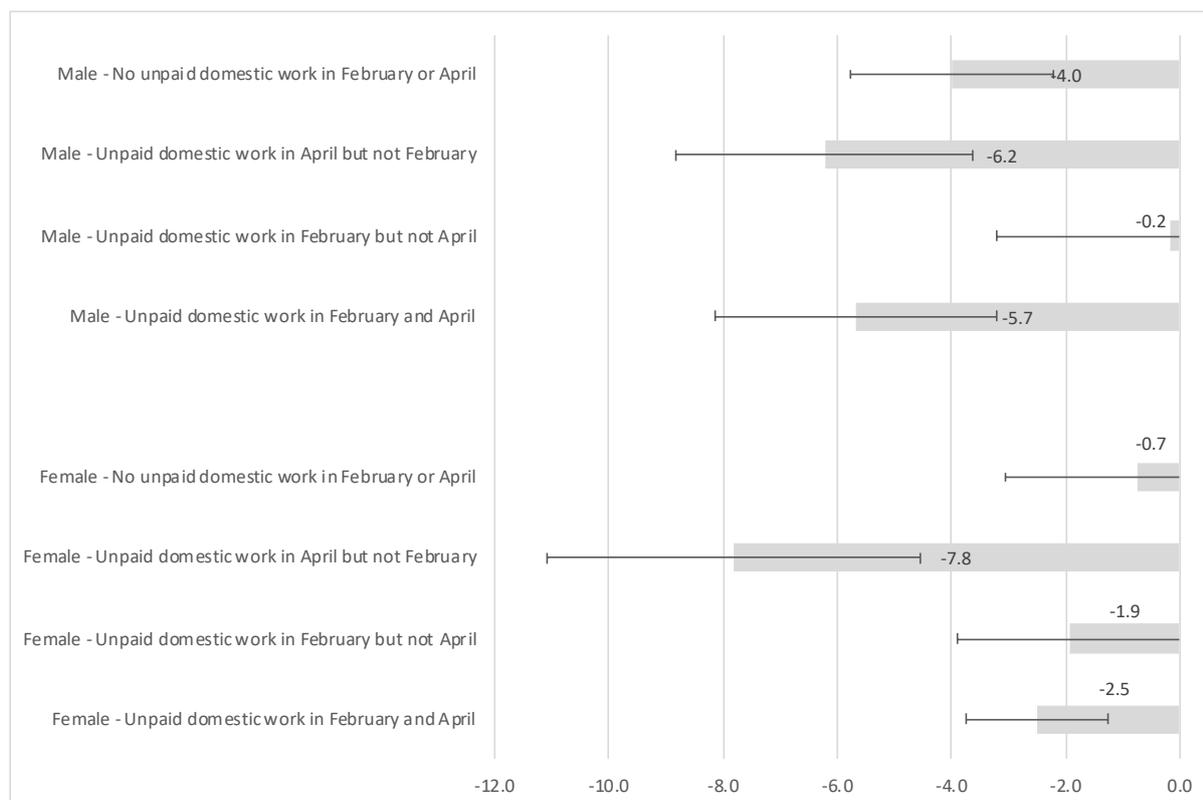
One way to interpret the data in Figure 12 is to compare males and females within the unpaid domestic work categories. For both sexes, the largest decrease in hours worked was for those who reported an unpaid domestic work role in April but not February. Males in that group decreased their paid hours worked by 6.2 hours on average with females decreasing by 7.8 hours, though this difference is not statistically significant ( $p$ -value = 0.453). For those people who stopped reporting an unpaid domestic work role between February and April (the smallest segment of the population) there was a larger decrease in hours worked for females compared to males (1.9 hours compared to 0.2 hours), but this difference is not statistically significant ( $p$ -value = 0.348).

There were differences in the changes in hours worked for those whose unpaid domestic work role didn’t change. For males who did not provide a caring role in either February or April, there was a large decline in hours worked (4.0 hours) whereas for females there was essentially no change (0.7 hours decline) with the difference between males and females statistically significant ( $p$ -value = 0.031). For those who were caring in both periods, males once again had a larger decline in hours worked (5.7 hours compared to 2.5 hours,  $p$ -value = 0.025). Possibly, females who were caring in both periods already had some flexible work arrangements in place

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or tended to work in jobs with working hours that allowed them to combine work and caring activities, and therefore the effects of the lockdown have not been as severe on their hours worked in April relative to February.

**Figure 12** Change in hours worked by unpaid domestic work and sex, February and April 2020



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

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

It is not possible to make causal conclusions about the relationship between paid hours worked and unpaid domestic work summarised in Figure 12. It might be that hours worked changed because of changes in unpaid domestic work. Or, it might be that the changes in hours worked led to changes in unpaid domestic work. What we can say though is that there is a different relationship for males compared to females. For females, it is only those who added an unpaid domestic work role between February and April that experienced a large decline in hours worked. For males, on the other hand, hours worked also declined if a person’s unpaid domestic work role remained the same. One interpretation of this could be that hours worked declined for males because of labour demand factors (that is, it occurred regardless of their own unpaid domestic work role), whereas hours declined for females because of labour supply factors (changes in unpaid domestic work reduced labour supply).

## 6 Relationship between labour market change and wellbeing

The labour market changes documented in this paper have been more rapid and far reaching than at almost any time in Australia’s history. We would expect, therefore, that they also have had an effect on other aspects of people’s lives. Biddle et al. (2020c) showed that changes in unpaid domestic work and hours worked were strongly correlated with changes with alcohol consumption (though in different ways for males and females). Effects of the COVID-19 pandemic on mental health have been documented in Australia and in a number of other

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countries. Longitudinal survey data suggests that the levels of psychological distress substantially increased from 8.4 per cent of participants who reported a serious mental illness in February 2017 to 10.6 per cent in April 2020 and that this increase is more pronounced among young Australian adults aged 18 to 34 years (Biddle et al. 2020d).

Other cross-sectional surveys in Australia confirm these findings. A survey administered during 27 March to 7 April 2020 reports that 78% of respondents had worsened mental health since the outbreak (Newby et al. 2020). This includes psychological distress such as elevated depression, anxiety and stress levels, as well as the fear of themselves or their family and friends contracting COVID-19, loneliness, financial worries and loneliness and particularly applies to participants with self-reported history of a mental health diagnosis (Newby et al. 2020). Likewise, according to the United Kingdom Household Longitudinal Study individuals experiencing mental health problems increased from 23.4% in 2017-2019 to 37.1% in April 2020 and these increases were particularly pronounced among younger individuals (aged 18-34), females and those with a degree (Daly et al. 2020). Similar increases in mental health concerns are documented in the United States and other countries (e.g. Park et al. 2020).

It would be interesting to explore the relationship between changes in economic circumstances and mental health, but we do not have the data with an accurate measurement of mental health for February. We therefore use measures of subjective wellbeing as a proxy (the correlation with measures of mental health is above 50%).

We expect that individuals will experience different levels of subjective wellbeing depending on their changes in labour status. Negative effects of unemployment on subjective wellbeing are well documented (see, for example, Korpi 1997; Dockery 2005; Carroll 2007; Weckström 2011, Binder and Coad 2015). Carers are another group that tend to have lower levels of mental health and subjective wellbeing during caregiving transitions (e.g. Cummins 2001; Edwards and Higgins 2009; Hammond, Weinberg and Cummins 2014; Rafnsson, Shankar and Steptoe 2017). In the context of the current crisis, Blustein et al. (2020) argue that the pandemic exacerbates existing inequities in the labour market. They discuss that there are groups of individuals who have higher levels of education in stable jobs where working from home is possible and they just face challenges associated with changes in work routine, childcare, and more stressful life in general (Blustein et al. 2020). Meanwhile, there are other groups of individuals who cannot work from home and either put themselves at risk of contracting the virus, lose their jobs or face reduced working hours and are more likely to face financial distress (Blustein et al. 2020). Therefore, in this section we make use of the longitudinal nature of our surveys and analyse the relationship between changes in economic circumstances and measures of subjective wellbeing.

We look at two outcomes of interest – life satisfaction (on a scale of 0 to 10) and satisfaction with the direction of the country (as a binary variable). Both of these variables have been described elsewhere (Biddle 2020a; 2020b) and we have shown that life satisfaction declined substantially between January and April and then recovered somewhat between April and May, whereas satisfaction with the direction of the country increased substantially between January and April, and then increased again (albeit by a smaller amount) between April and May.

We combine four waves of data into three data points based on when the questions were asked. In our analysis, the first data point for each individual combines the outcome variables from January 2020 with economic activity in February 2020. That is, we measure pre-COVID-

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19 economic activity and wellbeing using two waves of data collection. The next two data points were taken from the April 2020 and May 2020 surveys, with economic activity and wellbeing measured concurrently.

The relationship between economic activity and the measures of wellbeing are estimated via a random effects model, which includes both a wave and individual-specific error term. The time-varying explanatory variables are the person's main economic activity, with the omitted category being a person whose main activity is employment. We estimated separate models for males and females (that is, four estimations in total) and present the coefficients and statistical significance in Table 3. For life satisfaction, we use a linear regression model, whereas for satisfaction with the direction of the country, we use a binary probit model.

Results presented in Table 3 confirm that life satisfaction declined substantially between January and April 2020 (particularly for females), but returned to their January levels by May 2020. However, the results hold when controlling for the economic activity of individuals, highlighting that it was not only the direct effects of the dramatic shocks to the labour market that were responsible for the initial change in life satisfaction. Satisfaction with the direction of the country increased between January and April 2020, and then again between April and May.

We can see from the rest of the table, however, that there were different predicted levels of life satisfaction and satisfaction with the direction of the country depending on a person's type of main economic activity, but that the relationship was quite different for males compared to females. Females for whom education was their main activity had a significantly and substantially lower level of wellbeing than those who were employed. One potential explanation for this supported by the data is the fact that females are more likely to combine education with caring responsibilities, which has been quite difficult during the COVID-19 lockdown. Specifically, 42.4 per cent of females who reported that education was their main role reported caring as a role, compared to only 25.1 per cent of males whose education was their main role. Whatever the explanation, the results show that for adults and not just for school children, there were large disruptions to education delivery and this is reflected in the wellbeing data.

For both male and females who were unemployed, there was a negative association with wellbeing and, to a lesser extent, satisfaction with the direction of the country. With regards to life satisfaction, the results give some evidence that the relationship with being a discouraged worker (or those who are unemployed and not actively looking for work) was much greater for females compared to males.

Being permanently sick or disabled also had a negative association, and one that was consistent for both males and females and across the different outcomes. Being retired, on the other hand, had a positive association with life satisfaction.

Perhaps one of the most interesting findings from the longitudinal analysis is that there was a significant negative association with housework and caring as a person's main activity and wellbeing for males, but no association for females.

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**Table 3** Factors associated with measures of wellbeing, random effects model for January/February, April and May 2020, by sex

Economic circumstances and Wave	Life satisfaction				Satisfaction with direction of country			
	Male		Female		Male		Female	
	M.Effect	Signif	M.Effect	Signif	M.Effect	Signif	M.Effect	Signif
Observed in April 2020	-0.255	***	-0.444	***	0.887	***	1.072	***
Observed in May 2020	-0.039		-0.027		1.012	***	1.293	***
Education	-0.217		-0.722	***	-0.391		-0.129	
Unemployed - Actively looking	-0.664	***	-0.592	***	0.027		-0.407	*
Unemployed - Not actively looking	-0.388	**	-0.763	***	-0.488	*	-0.494	*
Permanently sick or disabled	-0.574	***	-0.671	***	-0.300		-0.448	**
Retired	0.471	***	0.369	***	0.076		0.226	**
Housework or caring	-0.296	**	-0.081		-0.395	**	0.147	
Other activity	0.117		0.162		-0.188		0.067	
Constant	6.845	***	6.947	***	0.441	***	0.219	***
Sample size	3,871		4,866		3,872		4,851	

Notes: OLS Regression Model (Life satisfaction) and Probit Regression Model (Satisfaction with direction of country). The base case was from January/February and was employed as their main activity

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

Source: ANUpoll, May 2020.

## 7 Concluding comments

The initial physical distancing and isolation measures and closure of Australia's borders appear to have been largely successful in controlling the spread of COVID-19 in Australia. While a number of other countries have experienced spikes in infections after initial apparent success which can't be ruled out from occurring in Australia, at the time of finalising (July 5<sup>th</sup>) there had been 8,142 confirmed cases for COVID-19 across Australia and 104 death attributable to the disease, substantially lower than other similar countries.

The Australian economy, and the Australian labour market, have not fared as well through the initial months of the pandemic. Data from the Labour Force Survey suggests that 2.3 million Australians or 1 in 5 people who were employed prior to the spread of the pandemic have either lost their job, or lost hours by the start of May. We find that there has been a significant improvement in labour market outcomes between Mid-May and late June/early July, with an increase in average hours worked of a little over 1 hour over the period. However, Australians who are employed are still quite fearful of losing their jobs, with this fear if anything appearing to have increased. Furthermore, the effects of COVID-19 differ across the population.

The data analysed in this paper shows that females who stopped working were far more likely to have taken on unpaid domestic roles (housework and caring), and also appear to have stopped looking for work. Males, on the other hand, appear to be slightly more likely to have moved into education as their main role, and are far more likely to be still actively seeking work. Both males and females have increased the hours spent working from home

We also show that some occupations have fared worse than others, particularly Community and Personal Service Workers; Labourers; and Technicians and Trades Workers. The industries that have fared worse on our Economic-Misery Index tend to be those that employ young Australians, those who were born overseas, and those who speak a language other than English. In some slightly more positive findings, Indigenous Australians appear to be less likely to work in industries that have been negatively impacted by COVID-19, giving some potential hope that Indigenous Australians will not experience relative negative outcomes, like has occurred in previous economic downturns (Hunter 2010).

What we have also shown in this paper is that the changes in economic activity described above have had a demonstrable impact on wellbeing. In what we understand to be the first longitudinal analysis of wellbeing and labour market outcomes during COVID-19, at least in Australia, we show that males and females who have lost their job have significantly lower levels of life satisfaction, but the measured impact of being unemployed and not actively looking for work seems much larger for females relative to males. For males, on the other hand, there is a strong negative relationship between taking on unpaid domestic work, whereas for females there is no difference in wellbeing for those who are doing unpaid domestic work and those who are employed as their main role.

While restrictions begin to ease, some vulnerable groups, such as those with compromised health will need to continue to avoid potential exposure to COVID-19. Future work could focus on the resulting long-term impacts on the labour market participation and career progression of carers and other groups. Alan et al. (2020) believe that there will be persistent effects on working mothers due to high returns to experience in the labour market. This is likely to be the case for other vulnerable groups and individuals whose employment status was significantly compromised during the crisis and the subsequent recession.

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## Endnotes

- 1 Data for the vast majority of respondents was collected online, with a small proportion of respondents enumerated over the phone.
- 2 <https://www.srcentre.com.au/services/life-in-australia-panel>
- 3 Data for this survey is available through the Australian Data Archive in unit record form (doi:10.26193/GNEHCQ).
- 4 In order to monitor the impacts of COVID-19, the ANU Centre for Social Research and Methods has established a COVID-19 impact monitoring survey program. It builds upon data collected in January and February 2020 prior to COVID-19 restrictions being implemented, thereby following the same group of individuals prior to and through the COVID-19 pandemic period. This program provides population level estimates of the impact of COVID-19 and allows measurement of the variation in and the determinants of the change in outcomes for Australians. The surveys include a core set of questions on attitudes to COVID-19, labour market outcomes, household income, financial hardship, life satisfaction and mental health. In addition, each survey contains some specific questions of particular policy interest at the particular point in time in which the data was collected. The first wave of the COVID-19 monitoring surveys was conducted in April and the most recent survey conducted in May 2020. A number of additional waves of data will be collected throughout 2020 and 2021, with data from these surveys made available from the Australian Data Archive as soon as possible after the data collection has finished.

- 5 We analyse the factors associated with participating in the ANUpulse survey in Biddle and Sollis (forthcoming). We find that of the outcome variables included in the June ANUpulse and the May ANUpoll, the only variable that is associated with participation in ANUpulse is life satisfaction, with slightly lower rates of participation (p-value = 0.061, sample size = 3,040) for those with higher levels of life satisfaction. There is no association with the employment variables. Females were slightly less likely to have participated, as were those who spoke a language other than English at home. There were no other demographic, socioeconomic or area variables that were statistically significant.
- 6 The variables used in the weighting are: gender; country of birth (Australia; non English-speaking country; other English-speaking country); state/territory (New South Wales; Victoria; Queensland; Western Australia); region (major cities of Australia; inner regional Australia; rest of Australia); and the interaction of age group and educational attainment.
- 7 We estimate statistical significance using a Random Effects Probit Model. P-Value = 0.012.
- 8 While the wording is slightly different, these individuals would fit very closely into the International Labour Office (ILO) definition of discouraged workers, defined as: 'People who want to work, but are not seeking work because they believe no suitable job is available for them. Under current international statistical standards, discouraged workers are counted as not economically active and outside the labour force. They do not show up in unemployment statistics.' (ILO 2015).
- 9 Occupation relates to the type of work that they themselves do (rather than what their firm does). This is classified in the Australian and New Zealand Standard Classification of Occupations (ANZSCO) and organised such that 'ANZSCO is a skill-based classification' (ABS 2019). Occupation is identified through the question 'In your main job, what kind of work do/did you do most of the time?'. In this paper the most aggregated (one-digit) ANZSCO classification is used.
- 10 The per cent of the Life in Australia™ workforce is very similar to the per cent of the workforce across the 2016 Census of Population and Housing, with a correlation of 0.8764.
- 11 There is a strong correlation between the employment and hours changes in the Labour Force Survey and the employment and hours changes in ANUpoll when weighted based on the size of the industry (correlation coefficient of 0.45 and 0.47).
- 12 When two industries have the same average ranking, we re-run the ranking of outcomes within those tied industries only, and then take the average rank of the within-group ranking. This is repeated until there are no ties.