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## From financial hardships to psychological distress: socioeconomic status and the fallouts of COVID-19

### Abstract

Although Australia made international headlines in 2020 and 2021 for its low COVID-19 case numbers, this came at the cost of prolonged restrictive lockdowns, which impacted youth in specific ways. The literature noted the exacerbating youth inequalities during the pandemic due to the government's long-term neoliberal policies that left young people "to fend for themselves". Young people have been dubbed "precariat" at risk of bearing the brunt of the COVID-related labour market turmoils.

To provide more evidence on this issue, I use preliminary data from the Longitudinal Survey of Australian Youth (LSAY), to analyse youth's subjective and economic well-being in 2020 and 2021. This LSAY data collection started in 2015 and involved Australian PISA participants who, every year, reported on their educational and work experiences. The most recent wave comes from the second half of 2021 – a time of extended lockdowns in Australia's largest cities.

The analyses, undertaken using the life course perspective, utilise regression models and focus on sex, ethnic, and class differentials in psychological distress, life satisfaction, material hardships, partaking in the gig economy, and COVID-related changes in the housing situation. I document several moderate adverse effects, including higher psychological distress among workers in teleworkable jobs. Economic, social and cultural advantages in respondents' families of origin protected many young people from more severe economic impacts. Yet, that was because many 20-year-old Australians could not afford to move out of their parental homes. Those living independently faced more hardships. More women than men suffered poor mental states and material difficulties. The question is how to decide whether these adverse effects should be seen as moderate and transient or substantial and lasting.

### *Keywords:*

COVID-19; psychological distress, telework; housing situation; life satisfaction, material hardships; longitudinal analysis, Australian youth

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## Introduction

In 2020 and 2021, Australia had some of the world's lowest COVID-19 prevalence, but this outcome came at the cost of prolonged restrictions. For instance, Melbourne, the country's second-most populous city, endured 263 days of hard lockdowns, arguably the most prolonged cumulative period globally. In 2021 Sydneysiders were in a strict lockdown for about 4 months. During that time, and even earlier, concerns emerged that workers aged between 20 and 24 years could not avoid long-term "scarring" due to their higher reliance on precarious work (42%) than the national average of 25% (O'Keeffe et al., 2022). Young women and migrant workers, in particular, were at risk of double disadvantage stemming from casualisation and discrimination. Many young people work in what is known as uberised economy, or gig jobs, where their treatment as self-employed subcontractors releases employers from providing paid leave or job security (O'Keeffe et al., 2022).

So far, the Australian research on COVID impact mostly focused on educational outcomes rather than work situation, although the latter has been monitored by systematic data collections undertaken by the Australian Bureau of Statistics. Some studies considered school attendance (Tomaszewski et al., 2022), the impact of moving to an online mode of teaching and learning at universities (Keane et al., 2022; Lin & Nguyen, 2021). Others have looked at well-being policies designed at universities (McKenzie et al., 2021). The situation of young hospitality workers, whose sector was particularly hard hit by the pandemic was also analysed (Cook et al., 2021).

However, no study focused on the cohort which was most likely to be simultaneously in full-time education and full-time employment. This situation is typical for young people in their early 20ties who experienced COVID-shocks in the education system and the labour market concurrently. About 80% of Australian students in this age group work while undertaking tertiary education, and 70% of students juggle working full-time with studying full-time. Many of these young people face challenges related to rising

education costs, diminishing welfare benefits for youth and negotiating one of the most expensive housing markets in the world (O'Keeffe et al., 2022).

Following the onset of the pandemic in 2020, 2021 saw adjustments in the delivery models of tertiary education, i.e. moves to hybrid teaching and the so called "partner education" in which students were to be consulted on what learning is possible in new circumstances (Drane et al., 2021). The Australian government released generous JobKeeper and much less generous JobSeeker support packages for workers. Despite that, it is unclear to what extent youth perceived they fared better in the second year of the pandemic than in the first.

To shed some light on this issue, I consider how the second year of the pandemic impacted 20-year-olds relative to its onset and the subjective and objective indicators of well-being. I use preliminary data from the seven waves of the Longitudinal Survey of Australian Youth (LSAY) and consider sex, ethnicity, and class differentials in 1) psychological distress, 2) life satisfaction dynamics, 3) material hardships, 4) partaking in the gig economy and 5) changes in the housing situation due to COVID-19.

## Prior studies of COVID-19's impact on Australian youth

Two strands of the literature have dominated the international and Australian studies of COVID's impact on youth. Firstly, the stratification paradigm focused on how the pandemic exacerbated preexisting social inequalities among young students and workers. The inequalities of most interest were gender, ethnic and socioeconomic divisions. A review of early COVID Australian and international researchers highlighted the emergence of new educational delivery models and the potential for "vulnerable learners" to permanently fall behind due to long periods of disengagement and ongoing psychosocial challenges (Drane et al., 2021).

Conversely, a much smaller body of literature sought to explore unique opportunities that led to more flexibility in the delivery of education or work arrangements (Ackah-Jnr et al., 2022). This literature signalled the potential positive outcomes of the COVID crisis, such as developing resilience, overcoming previously insurmountable geographic immobility barriers for workers or students and building closer connections within local communities or with family members. The present analysis necessarily engages more directly with the stratification paradigm as the LSAY asked questions about negative rather than beneficial experiences. However, one of the novel elements introduced in this analysis is investigating to what extent employment in "teleworkable" occupations might lead to undesirable outcomes.

#### Telworkability: which jobs can be done at home

The literature on pandemic workers indicates that those who previously experienced the worst conditions, that is, women, the casualised workforce and the young workers, bore the brunt of lockdowns and restrictions (Foster, 2020). This finding stimulated interest in identifying those jobs that could be entirely or performed from home, thus putting people at less risk of losing income or employment security. Dingel and Neiman undertook a comprehensive analysis of data from workers in different locations across the USA (2020). They found that computer and mathematical occupations, as well as education training and legal occupations, mostly lent themselves to remote work. Other professions, including some highly skilled, "human interaction" professions make it impossible to work from home. Thus teleworkable jobs are not always high-status professional and managerial occupations. The implicit assumption is that teleworkable professions were advantageous under the pandemic because they exposed workers to less risk of contracting the disease or losing their job. However, teleworkability has the potential to also affect the workers in undesirable ways, which is a possibility considered here.

#### Research questions

I focus on five research questions in light of the discussion above. They all concern young Australians who were approximately 20-22 years old in 2020 and 2021.

I ask to what extent did their residence, in areas with their specific lockdown histories, sex, work situation, ethnicity and class of origin affect:

- 1) short term psychological distress, associated with anxiety and depression
- 2) longer-term overall satisfaction with life
- 3) suffering material hardships
- 4) engagement in the gig economy
- 5) their housing situation.

## Data, Measurement and Method

Data come from the 2015 Longitudinal Study of Australian Youth (LSAY) cohort, known as Y15 (NCVER, 2021). This longitudinal survey involved Australian participants in the 2015 Program for International Student Assessment (PISA). Seven waves until 2021 are available as of September 2022. The survey is funded by the Australian Government's Department of Education, Training and Youth Affairs (DETYA) and its scope reflects the interest of the drafting committee associated with the department. In 2020 and 2021, several questions about COVID-specific circumstances were added, yet LSAY remains a general data collection without a specific focus on COVID.

## Dependent Variables

This analysis explores five dependent variables that indicate mental health problems, well-being or life satisfaction, material hardships, engagement in gig jobs and housing stress.

### Kessler's psychological distress scale

This measure of psychological distress has been used in Australia since the mid-1990s and correlates with mental health disorders, particularly depression and anxiety, substance use, and personality disorders (Andrews & Slade, 2001). General practitioners commonly use Kessler's inventory in Australia to screen for symptoms of these conditions. LSAY measured distress twice in 2020 and 2021, during COVID, with a smaller six-item version of the original 10-item scale. Even though psychologists use the

two or four-factor scale of distress (Smut, 2019), the intercorrelations are sufficient to treat the measure as loading on one factor. The alpha reliability for the composite is 0.88 in 2020 and 0.89 in 2022. It was converted to a 0 to 1 range for ease of reporting. The wording was:

*In the past four weeks, how often did you feel?*

- a. *Nervous*
- b. *Hopeless*
- c. *Restless or fidgety*
- d. *That everything was an effort*
- e. *So sad that nothing would cheer you up*
- f. *Worthless*

Before averaging the components, the five answer categories were scored as 1 "all of the time," 0.75 "most of the time", 0.5 "some of the time", 0.25 "a little of the time", 0 "none of the time". With this scoring, the typical average reported in 2001 for the Austrian population was about 0.1, with a median of 0.05, with 68% of the Australian population scoring below 0.125.

#### Life satisfaction or well-being

Since 2016, the LSAY queried: *The following question asks how you feel about your life. On a scale from 0 to 10, zero means you feel "not at all satisfied", and ten means you feel "completely satisfied". Overall, how satisfied are you with life these days?* The single-item measure was converted to the range from 0 to 1, retaining equal intervals between the original 11 measurement points.

#### Material hardships

With the onset of COVID in 2020 and 2021, LSAY added questions about material hardship: *We understand that circumstances are difficult right now, and it's important to know how this is affecting young people's finances and mental health. Have any of the following happened to you over the past year, because of a shortage of money?*

- a. *You sold something because you needed money*
- b. *You went without meals*
- c. *You had to ask family or friends for money*

- d. You had to borrow money just to live on*
- e. Didn't get medicines or go to a doctor*
- f. You couldn't buy textbooks or other study materials*
- g. You couldn't buy other things you needed*
- h. You couldn't pay electricity, gas or telephone bills on time*
- i. You couldn't pay mortgage/rent on time*
- j. You couldn't afford to heat your home*

The scale's alpha reliability was 0.82 in 2020 and 0.81 in 2021. Dichotomous yes/no responses were coded as zero and one, which, after averaging, gave a continuous variable in this range.

### Gig jobs

Since 2016, Y15 has been collecting detailed data on gig work. However, the number of Y15 respondents who work in gig jobs is small; therefore, questions about motivation and types of gig jobs do not provide enough variance for significant conclusions. Thus only the incidence of gig jobs was considered, using the following question:

*Gig work is a type of job where workers don't have set hours, and you get paid per task or assignment. Examples of gig work include Uber, Freelancer, Airtasker, delivering goods or doing online tasks, and completing surveys for pay.*

*Since your last interview, have you earned money taking on gig jobs? Yes (1), No (0).*

### Housing stress

Apart from questions about courses and degrees put on hold due to COVID, the only set of COVID-specific questions posed in 2020 concerned the housing situation of respondents. *Which of the following changes, if any, to your housing situation have you experienced due to government restrictions during the COVID-19 pandemic?*

- a. You had to move in with your parents or other relatives. Yes (1), No (0).*
- b. You had to move elsewhere (such as with friends or a partner). Yes (1), No (0).*
- c. You had to negotiate rental agreement or housing payments due to COVID-19 Yes (1), No (0)*

- d. *You experienced no change to your housing situation due to COVID-19* Yes (1), No (0).

To align with other items, the last item was reverse-coded to indicate that some change *has* occurred in respondents' housing situation.

## Independent Variables

Since states and territories implemented their COVID-19 health edicts, including differing lockdowns and interstate travel restrictions, the variable that identifies the state of residence in relevant years enters the models first, together with year and dichotomous sex that distinguished men from women. Sex is dichotomous, as Y15 has not identified intersex or gender diverse respondents (Appendix Table 1).

### Work, study and residence in the reference year

A dummy variable contrasted those respondents who were in full-time employment or full-time education (1) with everyone else (0). Another dummy identified those who had already completed or were studying for a bachelor's degree in the reference year, with the third dummy contrasting those who did and did not live with their parents.

The work situation of respondents was depicted by the status score of their primary job but also by an indicator of the degree to which that job could be done remotely or by telework. These are all time-varying indicators. Occupational status was measured by the Australian Socioeconomic Index 2006 (AUSEI), which ranges from 0 to 100 and denotes the status of titles listed in the Australian and New Zealand Standard Classification of Education (ANZSCO) (Australian Bureau of Statistics, 2006). ANZSCO titles available in Y15 were converted to AUSEI06 using the table provided by McMillan, Beavis, & Jones (2009). The continuum covers all occupations ranging from a 0 for low-status jobs, such as unskilled farm labourers, to 100 for high-status jobs, e.g. neurosurgeons.

Conceptually, occupational status reflects the link between educational credentials required for entry into a given position with its associated income. AUSEI conceptually mirrors ISEI, except that ANZSCO is used in place of its international equivalent. The

original scale from 0 to 100 was converted to 0 to 1 to reduce the decimals reported in the tables.

To identify telework, i.e., jobs that can be done from home, I rely on Dingel and Neiman's procedure developed for the US data (2020) but applied here to the Australian Census data to derive the proportion of teleworkers in each ANZSCO four-digit category. The D&N scores correlate with AUSEI. The  $r$  ranged from 0.69 in 2015 to 0.58 in 2021. Representing the proportions of teleworkers in each occupation, Dingel and Neiman's measure is continuous and ranges from 0 to 1.

#### Socioeconomic status and ethnicity

Much literature has focused on how COVID exacerbated existing social inequalities. Therefore, socioeconomic status is a crucial variable and here it is captured by the PISA's economic and cultural status of the family (ESCS). It comprises six components that correspond to two types of Bourdieu's capital. Institutionalised capital is captured by parents' years of education, parental occupational status and household wealth. The objectified capital is reflected by the number of books at home, the index of cultural possessions, and the educational resources available at home. Details regarding the measurement of ESCS are provided by the OECD (2007) who standardised this measure across the OECD countries participating in PISA 2015. In Australia, metropolitan residence and school attendance positively correlate with higher socioeconomic status and might depict forms of social privileging not captured by individual ESCS. Attending a Catholic or Independent secondary school can signal economic and social privilege as these schools, unlike those in the government sector, charge, often substantial, tuition fees. Therefore all these characteristics, measured in 2015, are captured by dummy variables (Appendix Table 1).

Ethnicity is depicted by the migration experiences of young people and their linguistic background. A dummy variable represents Indigenous students' self-reports of their identity. Another set of dummies contrasts students who speak only English with those who speak Korean, Chinese or Japanese or all other non-English speaking backgrounds. Australia has a selective migration policy, and relatively few migrants enter the country

on humanitarian grounds. Instead, the government actively promotes skilled migration. As a result, many migrant students are relatively affluent and tend to outperform their peers at school. This is the case, particularly for students who, at home, speak or have a parent who speaks Korean, Chinese or Japanese. First- and second-generation migrants and Australians with Australian-born parents are also distinguished using dummy variables. Finally, the analyses control for PISA science scores converted into quartiles which is necessary to adjust for attrition and sample design.

#### Adjusting for attrition and sample design

The current version of the analysis is preliminary, and the missing data have been treated by listwise deletion. However, the models include all the weight variables. For the Y15, they were sex, school sector, state or territory of residence, Aboriginal and Torres Strait Islander self-identification, parental education (part of ESCS), school location in metropolitan, provincial or remote areas and migration status. Another weight variable indicated whether a student scored in the top quarter on their PISA test. Using these controls in place of wave-specific weights provided with the data is the strategy recommended by the data owners for longitudinal analysis (Lim, 2011).

## Method

All estimations are two-level hierarchical models in which person-year observations (level 1) cluster within persons (level 2). This strategy enables the optimal use of available information (Singer et al., 2003). For dichotomous and continuous variables alike, I use a linear model and the *xtreg* procedure (Rabe-Hesketh & Skrondal, 2012). These models handle unbalanced data, where not all participants respond in all years. The coefficients denote linear probability for dichotomous outcomes, which lends itself to intuitive interpretation.

In most cases, the estimates reveal relationships between predictors that occur earlier than their hypothesised outcomes which suggests but does not prove causality. Thus, I present patterns of correlations between chronologically ordered variables that support the theoretical argument that such a causal relationship is most plausible. In some cases

highlighted in the description, the hypothesised antecedents were measured concurrently with their assumed outcomes.

## Results

The scope of COVID-related information in LSAY has been relatively limited. In 2020 and 2021, the survey asked about levels of psychological distress at both times, on average, 0.34 (Table 1). This value is considered high but not out of the ordinary compared to other recent reports. For instance, for 18 to 24-year-olds, Klein et al. report an average of 0.15<sup>1</sup> in 2015, rising to 0.18 in 2018 and reaching 0.35 in an anonymous online survey conducted in 2019 (2020).

The overall life satisfaction fell among people in their early twenties, from the typical value of 0.71 to 0.67. It is possible that with age at this life stage, happiness decreases linearly regardless of the historical context (McMillan et al., 2021). However, there are signs of a non-linear tendency in Table 1. Overall life satisfaction dropped from 0.70 to 0.66 between 2019 and 2020 and then increased to 0.67 in 2021. All of these changes were modest but statistically significant. This fluctuation may reflect the subjective adverse effects of COVID restrictions. Still, the size of this fluctuation is moderate rather than substantial and might signal the beginning of potential recovery after the initial shock (Table 1).

Material hardships in 2020 and 2021 were entirely avoided by 58% of LSAY respondents, while 42% experienced at least one. These proportions did not change between 2020 and 2021. They must be considered substantial, given that these youth live in an affluent economy with a welfare state. Gig jobs did not drop between 2019 and 2020, but there was a fall in 2021. The uptake of gig jobs could be tapering off in the second year of the pandemic. Yet, without multivariate analyses, it is impossible to speculate on the meaning of this fluctuation.

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<sup>1</sup> When converted to the scale used here. Typically Kessler is measured on a scale ranging from 10 to 50, not from 0 to 1.

Table 1 Descriptive statistics for dependent variables by year (IVs in the appendix)

	Mean	SD	Min	Max	Respondents
Kessler Psychological Distress scale six items					
2020	0.34	0.22	0	1	3727
2021	0.34	0.22	0	1	3676
Overall, how satisfied are you with life these days?					
2016	0.71	0.21	0	1	4648
2017	0.72	0.20	0	1	4617
2018	0.70	0.21	0	1	4801
2019	0.70	0.21	0	1	3708
2020	0.66	0.20	0	1	3721
2021	0.67	0.19	0	1	3669
Material hardships scale					
2020	0.42	0.49	0	1	3748
2021	0.42	0.49	0	1	3691
Since your last interview, have you earned money by taking on GIG jobs?					
2018	0.07	0.26	0	1	4654
2019	0.11	0.31	0	1	4847
2020	0.11	0.31	0	1	3734
2021	0.08	0.27	0	1	3718
Had to move in with parents or relatives due to COVID-19					
2020	0.09	0.29	0	1	3773
Had to move elsewhere (friends, partner) due to COVID-19					
2020	0.05	0.21	0	1	3773
Had to negotiate rental agreement or housing payments due to COVID-19					
2020	0.05	0.21	0	1	3773
Change to housing situation due to COVID-19					
2020	0.16	0.37	0	1	3773

Source: Y15

Finally, the housing situation in 2020, as the survey did not ask these questions in 2021, indicates that 16% of youth experienced some change in their housing situation, with 9% having to move in with their parents, 5% moving in with friends or partners and 5% having to renegotiate their rental agreement or payments (Table 1). Crucially, the prevalence of residing with parents in this cohort is high, although, for people aged 15 to 29 years, Australia's proportions of youth living with parents fall below the OECD average (OECD, 2022). In 2021, when they were typically 22 years of age, 64% of LSAY participants lived at home, down from 75% in 2020 and 77% in 2019 (not shown in Table 1).

The following analyses explore the extent of subjective well-being and then complement them with discussing material conditions, including dependence on gig jobs.

### Multivariate analyses: Kessler's scale of psychological distress

Australian state and territory governments implemented their unique sets of restrictions during COVID-19, which, among other measures, put to a halt geographic mobility outside of individuals' immediate residential areas while banning inter-state travel. The periods of restrictions varied in length and territorial scope. Nevertheless, Victoria and Melbourne experienced the most prolonged and strictest measures; therefore, Victoria is the comparison benchmark in Table 2. In 2020 Victorians were arguably most affected by COVID-related orders. Still, by the second half of 2021, NSW also went through a several-month-long strict lockdown finished by what became known as Freedom Day in October 2021. Residents of other states and territories could also suffer from the situation in Victoria and NSW as they could not undertake short travel there for family or work reasons, at times, even to see dying family members or to attend funerals. Overall, it is reasonable to assume that restrictions were less severe in the remaining five states and territories. The analytical strategy used here involves estimating three models. Firstly, only time, sex and residence are considered. The work and study situation is added in the second model, whereas the third model also accounts for socioeconomic background and ethnicity. Thus the objective is to explore to what extent the apparent influence of residence or work situation on the outcomes during the COVID years can be attributed to the variation in socioeconomic background and ethnicity.

The reported psychological distress remained similar in 2020 and 2021, with females feeling more distraught, as seen in previous studies using the Kessler scale. This sex effect is not surprising as the scale gauges anxiety and depression. The Queensland residents were considerably less likely to feel low compared to Victorians. Others, however, resembled Victorians in their levels of mental well-being.

Table 2. The six-item Kessler scale for psychological distress in 2020 and 2021 (1 High, 0 Low). A two-level linear regression model: person-year observations nested in persons.

	Model 1	Model 2	Model 3	
Year	-0.003	0.000	0.001	
Resides in Victoria (ref)				
Resides in Australian Capital Territory	0.004	0.019	0.028	
Resides in New South Wales	0.001	0.015	0.018	*
Resides in Queensland	-0.025 **	-0.031 ***	-0.030	***
Resides in South Australia	-0.002	-0.007	0.000	
Resides in Western Australia	-0.020 *	-0.018	-0.017	
Resides in Tasmania	0.001	-0.006	-0.005	
Resides in Northern Territory	-0.026	-0.014	-0.013	
Female	0.091 ***	0.090 ***	0.096	***
In full-time employment or full-time education		-0.027 ***	-0.024	***
Completed or studying for a bachelor's degree or higher		-0.014 **	-0.015	**
Living with parent(s)		-0.023 ***	-0.022	***
Works in a teleworkable job		0.016 **	0.019	**
AUSEI of the main job		-0.056 ***	-0.058	***
ESCS PISA Index of economic, social and cultural status			-0.011	**
English spoken at home (ref)				
Korean Japanese Chinese			-0.005	
Other languages spoken at home			0.002	
Australian born: self & parents (ref)				
Second-generation (Australian born + at least one parent born overseas)			0.001	
First-generation (self and both parents born overseas)			0.005	
Indigenous			0.007	
Government school in 2015				
Catholic school in 2015			-0.009	
Independent school in 2015			-0.008	
Secondary school metropolitan school in 2015				
Provincial school in 2015			0.008	
Remote school in 2015			0.009	
Science achievement quartile- the first plausible value			0.006	
Intercept	0.314 ***	0.344 ***	0.311	***
Intraclass correlation rho	62%	61%	62%	
Number of young people	3998	3348	2981	
Number of observations	7371	5420	4840	
Overall R-squared	0.041	0.060	0.070	

\*\*\* p&lt;.01, \*\* p&lt;.05, \* p&lt;.1

Source: Y15

The variation in ethnicity, migration experiences or linguistic background turned out to be unrelated to the reported feelings of distress. Similarly, secondary schooling characteristics did not matter.

Table 3. Life satisfaction between 2016 and 2021 (1 High, 0 Low). A two-level linear regression model: person-year observations nested in persons.

	Model 1		Model 2		Model 3	
Year	-0.010	***	-0.011	***	-0.011	***
Resides in Victoria (ref)						
Resides in Australian Capital Territory	-0.004		-0.013		-0.015	
Resides in New South Wales	0.008		-0.002		-0.002	
Resides in Queensland	0.023	***	0.029	***	0.026	***
Resides in South Australia	-0.002		0.007		0.001	
Resides in Western Australia	0.004		0.005		0.008	
Resides in Tasmania	0.013		0.011		0.007	
Resides in Northern Territory	-0.005		-0.006		-0.012	
Female	-0.035	***	-0.041	***	-0.046	***
In full-time employment or full-time education			0.016	***	0.018	***
Completed or studying for a bachelor degree or higher			0.010	***	0.017	***
Living with parent(s)			-0.001		-0.001	
Works in a teleworkable job			0.008		0.006	
AUSEI of main job			0.038	***	0.044	***
ESCS PISA Index of economic, social and cultural status					0.011	***
English spoken at home (ref)						
Korean Japanese Chinese					-0.020	
Other language spoken at home					-0.006	
Australian born: self & parents (ref)						
Second-generation (Australian born + at least one parent born overseas)					-0.004	
First-generation (self and both parents born overseas)					-0.008	
Indigenous					-0.003	
Government school in 2015						
Catholic school in 2015					0.019	***
Independent school in 2015					0.024	***
Secondary school metropolitan school in 2015						
Provincial school in 2015					0.004	
Remote school in 2015					-0.004	
Science achievement quartile- the first plausible value					-0.019	***
Intercept	0.752	***	0.745	***	0.788	***
Intraclass correlation rho	45%		46%		45%	
Number of young people	6352		5310		4771	
Number of observations	25,020		16,317		14,891	
Overall R-squared	0.018		0.031		0.043	

\*\*\* p&lt;.01, \*\* p&lt;.05, \* p&lt;.1

Youth in full-time employment or study felt less distraught, mainly if they had already completed or were pursuing a bachelor's degree at university. Working in a higher-status occupation additionally boosted that well-being. Another small buffer against anxiety and depression was co-residence with parents and other family members. The most intriguing finding in Model 2 of Table 2 is that having a teleworkable job lowered rather than raised subjective well-being. This potentially socially isolating, desktop-based employment coincided with increased nervousness, anxiety and low feelings. However, its negative effect was not as substantial as any of the positive impacts of other employment and study characteristics.

### Overall life satisfaction

In contrast to the short-term distress, the overall life satisfaction reflects a broader, longer-term outlook. Aligning with the distress analysis, Queenslanders, particularly men, showed higher levels of life satisfaction (Table 3). The linear form of the model shows only the average trend in life satisfaction over time, which is falling but does not pick up the dip that occurred in 2020. While full-time employment or tertiary study, already possessing or working towards a bachelor's degree and working in higher status occupations all increased life satisfaction, neither living with parents nor working in a teleworkable job had any impact. Apart from the work and study situation, people from more privileged socioeconomic backgrounds tended to be happier in life, as were those who attended Catholic or Independent schools during their secondary years. Ethnicity and migration status did not matter for overall life satisfaction, just as they were unrelated to anxiety and depression indicators. Overall, work, study situation, and hailing from a more advantageous social milieu were the best predictors of overall life happiness. The next logical step in this analysis was to see whether the dip seen in 2020 (Table 1) was deeper for those with lower ESCS status. The interaction term is negative but does not reach statistical significance, so there is insufficient evidence to support such a conclusion.

Table 4. Material hardships in 2020 and 2021 (continuous one item measure: 1 Many, 0 None). A two-level linear regression model: person-years nested in persons.

	Model 1	Model 2	Model 3
Year	0.000	-0.005	-0.005
Resides in Victoria (ref)			
Resides in Australian Capital Territory	-0.024	-0.025	0.010
Resides in New South Wales	-0.014	0.018	0.023
Resides in Queensland	0.049 **	0.025	0.038
Resides in South Australia	-0.009	-0.017	-0.009
Resides in Western Australia	-0.017	-0.003	0.008
Resides in Tasmania	0.048	0.045	0.043
Resides in Northern Territory	0.030	0.054	0.002
Female	0.133 ***	0.130 ***	0.122 ***
In full-time employment or full-time education		-0.055 ***	-0.052 ***
Completed or studying for a bachelor's degree or higher		-0.002	0.008
Living with parent(s)		-0.164 ***	-0.160 ***
Works in a teleworkable job		-0.006	0.002
AUSEI of the main job		-0.186 ***	-0.178 ***
ESCS PISA Index of economic, social and cultural status			-0.015
English spoken at home (ref)			
Korean Japanese Chinese			-0.110 **
Other languages spoken at home			0.070 *
Australian born: self & parents (ref)			
Second-generation (Australian born + at least one parent born overseas)			-0.008
First-generation (self and both parents born overseas)			-0.002
Indigenous			0.054 *
Government school in 2015			
Catholic school in 2015			0.004
Independent school in 2015			-0.001
Secondary school metropolitan school in 2015			
Provincial school in 2015			0.015
Remote school in 2015			0.058
Science achievement quartile- the first plausible value			-0.017 *
Intercept	0.340 ***	0.582 ***	0.609 ***
Intraclass correlation rho	49%	46%	46%
Number of young people	4015	3362	2993
Number of observations	7407	5420	4840
Overall R-squared	0.020	0.058	0.062

\*\*\* p&lt;.01, \*\* p&lt;.05, \* p&lt;.1

Source: Y15

## Material hardships

The continuous measure of material hardships, which depicted ten situations where young people failed short of consuming goods and services conventionally assumed necessary to meet the minimum needs (Beverly, 2001), was converted to a binary indicator. This transformation was motivated by the contrast between 58% of respondents who reported no hardships and everybody else. The distribution of those experiencing only some and many shortages was flat, with small groups falling along the hardship spectrum at equal intervals. Neither time nor the state of residence mattered for this outcome. However, women were considerably more likely to experience material hardships, particularly those who were neither in full-time work nor full-time education (Table 4).

Living with parents significantly lessened the risk, as did working in a higher-status job. While the socioeconomic family of origin status was not a significant predictor, apart from young people's work and study situation, ethnic divides also mattered. Migrant respondents differed from their non-migrant peers (Table 4). Those who spoke Korean, Japanese or Chinese at home were less affected than English speakers. At the same time, other linguistic background groups were more likely than monolingual English speakers to face significant hardships. Indigenous youth were significantly more like to face troubles of this type, while migrant generation status did not matter apart from the linguistic characteristics of young Australians. It is impossible to tell whether material hardships were much higher under COVID than before because these questions were only asked in 2020 and 2021. However, it is sobering that 42% of respondents could not meet their basic consumption needs. It must be borne in mind that LSAY is affected by some overrepresentation of well-to-do youth in later waves. Thus, this proportion might be the upper bound estimate. At the time, the media reported many cases of young people not able to purchase food and relying on community food distribution centres. Some restaurants crowdsourced ingredients and cooked free meals on a voluntary basis. Most such initiatives targeted international students, who were ineligible for safety payments, but non-migrants sometimes had to rely on such help.

Table 5. Housing situation in 2020 and 2021 (1 Yes, 0 No). A two-level linear regression model: person-year observations nested in persons.

	Had to move in with parents or relatives	Had to move elsewhere (friends, partner)	Had to negotiate rental agreement or housing payments	Change to the housing situation
Resides in Victoria (ref)				
Resides in Australian Capital Territory	0.002	-0.017	0.028	-0.003
Resides in New South Wales	-0.014	-0.015	0.018	-0.005
Resides in Queensland	-0.012 **	0.006	-0.011	-0.008
Resides in South Australia	-0.040	-0.025	-0.014 **	-0.054 **
Resides in Western Australia	-0.025	-0.005	-0.002	-0.026
Resides in Tasmania	-0.010	-0.012	-0.007	-0.018
Resides in Northern Territory	0.001	-0.011	0.019	0.006
Female	0.025 **	0.024 ***	-0.004	0.046 ***
ESCS PISA Economic, social and cultural status	0.031 ***	0.003	0.002	0.026 ***
English spoken at home (ref)				
Korean Japanese Chinese	-0.003	0.024	0.044 **	0.036
Other languages spoken at home	0.005	-0.011	0.019	0.016
Australian born: self & parents (ref)				
Second-generation (Australian born + at least one parent born overseas)	0.007	-0.005	0.002	0.000
First-generation (self and both parents born overseas)	0.009	-0.008	-0.010	-0.004
Indigenous	0.034 *	0.030 **	0.011	0.071 ***
Government school in 2015				
Catholic school in 2015	0.098	-0.007	0.000	-0.009
Independent school in 2015	0.082 ***	-0.003	-0.006	0.028 *
Secondary school metropolitan school in 2015				
Provincial school in 2015	0.098 ***	0.024 **	0.024 ***	0.116 ***
Remote school in 2015	0.082 **	0.058 **	0.013	0.140 ***
Science achievement quartile- the first plausible value	0.002	-0.003	0.000	-0.002
Intercept	0.028	0.046 ***	0.039 **	0.100 ***
Number of young people	3343	3343	3343	3343
Adjusted R-squared	0.03	0.01	0.00	0.03

\*\*\* p&lt;.01, \*\* p&lt;.05, \* p&lt;.1

Source: Y15

Table 6. Gig jobs between 2018 and 2021 (1 Yes, 0 No). A two-level linear regression model: person-year observations nested in persons.

	Model 1	Model 2	Model 3
Year	0.000	-0.006 **	-0.004
Resides in Victoria (ref)			
Resides in Australian Capital Territory	0.005	0.001	0.008
Resides in New South Wales	-0.022 ***	-0.023 **	-0.016
Resides in Queensland	-0.020 **	-0.013	0.001
Resides in South Australia	-0.029 ***	-0.027 **	-0.016
Resides in Western Australia	-0.005	0.000	0.009
Resides in Tasmania	-0.008	-0.004	0.003
Resides in Northern Territory	0.015	0.020	0.044 *
Female	-0.020 ***	-0.026 ***	-0.021 ***
In full-time employment or full-time education		-0.014 *	-0.013
Completed or studying for a bachelor's degree or higher		0.031 ***	0.012
Living with parent(s)		0.004	0.007
Works in a teleworkable job		0.026 ***	0.024 **
AUSEI of the main job		0.050 **	0.021
ESCS PISA Index of economic, social and cultural status			0.026 ***
English spoken at home (ref)			
Korean Japanese Chinese			-0.023
Other languages spoken at home			-0.005
Australian born: self & parents (ref)			
Second-generation (Australian born + at least one parent born overseas)			-0.002
First-generation (self and both parents born overseas)			-0.003
Indigenous			-0.011
Government school in 2015			
Catholic school in 2015			-0.005
Independent school in 2015			0.003
Secondary school metropolitan school in 2015			
Provincial school in 2015			0.002
Remote school in 2015			-0.030
Science achievement quartile- the first plausible value			0.012 ***
Intercept	0.123 ***	0.124 ***	0.072 ***
Intraclass correlation rho	15%	15%	13%
Number of young people	4639	4035	3617
Number of observations	14,218	10,290	9,316
Overall R-squared	0.003	0.009	0.015

\*\*\* p&lt;.01, \*\* p&lt;.05, \* p&lt;.1

Source: Y15

As Y15 does not include international students, 42% of people experiencing hardship is a high proportion, given it does not account for the most disadvantaged youth groups. Many international students rely on cash-in-hand work to meet their living expenses. Under COVID, they were not eligible for the government's Jobkeeper or JobSeeker schemes, allowances compensated tax residents for lost wages or helped through unemployment.

### Housing situation

Another dimension of material hardships explored in LSAY was the housing situation in 2020. Unfortunately, the survey did not follow up with the same questions in 2021, so no overtime comparisons are possible. Table 5 shows that young Queenslanders were significantly less likely to move in with their parents than Victorians due to COVID-19. Women, however, had to move more often than men. More women moved in with parents, friends or partners, renegotiated their rental agreement or housing payments or generally experienced a change in housing situation due to COVID. The support available in states and territories for renters varied. Moratoria on evictions were imposed, and landlords were encouraged to be lenient and understanding. In Victoria, tenants could apply for rent relief grants, and some tertiary education institutions offered one-off payments on humanitarian grounds to applicants experiencing substantial hardships. Still, these resources were ad-hoc and available to the lucky few. Youth from more advantageous SES backgrounds often resorted to moving in with parents and thus experienced housing changes (Table 5). Correspondingly, Indigenous youth and young people who went to schools in provincial and remote areas, many of whom might not have had social and economic resources, also experienced more housing changes due to COVID. The work experience variables, not included in Table 5, had no impact except employment status. Those who worked in higher-status jobs were less likely to move due to COVID. There appear to be at least two patterns of a housing situation change. Higher SES took the option of moving back with their parents. The other group comprises young people from remote and provincial secondary schools whose employment under COVID was lower status or who identified as Indigenous or Torres Strait Islanders. They were

more likely than others to be forced to move with friends or family. Research signals that even some youth from more affluent families found moving in with their parents stressful and complicated (Cook et al., 2021), so diversity is the norm here.

## Gig jobs

The final outcome considered in this analysis is gig jobs. They are typically regarded as precarious employment, although they might have advantages in specific circumstances, for instance, when performed in addition to an ongoing job. Under COVID, many young Australians lost their jobs, were put on furloughs or had reduced hours. Others took on additional jobs. While LSAY asks detailed questions about gig job circumstances, the overall proportion of respondents who worked in gig jobs is low, so the circumstances analysis mostly does not reach statistical significance. Nevertheless, some insights can be gained by looking at the prevalence of gig jobs between 2016 and 2021.

COVID stopped many gig job opportunities, so Tables 1 and 6 suggest a slight drop in their availability over time. Nevertheless, Table 6 indicates that gig work activity was more available under COVID to youth in teleworkable jobs, with bachelor's degrees and in high-status positions. This finding, combined with the negative coefficient for women, suggests that gig jobs reported here might involve more than the average share of IT-related activities known to be undertaken by a disproportionately lower proportion of women. While hospitality and direct-customer-contact gig jobs reduced, desktop gig jobs remained accessible, if only to a small proportion of people in their early twenties.

## Conclusion and discussion

Overall the adverse impact of COVID -19 on the subjective and material well-being of those born around 1999 can be considered severe and multifaceted. In line with the stratification paradigm, there is evidence of exacerbated inequality: women and youth from non-metropolitan lower socioeconomic backgrounds experienced more severe fallouts. However, it must be noted that the LSAY collection was framed to look for evidence of deterioration in subjective and economic well-being. No questions were asked about opportunities to benefit from some of the circumstances afforded by

COVID, e.g. the flexibility of continuing education online without meeting the cost of living in a metropolis, opportunities to re-connect with family members, etc., take up hobbies and self-development activities. Comparable information on the potential positive outcomes of COVID restrictions to complement the picture that emerged above would afford a more comprehensive and nuanced evaluation of the situation of young Australians that goes beyond arguments about "scarring" and "fragmented biographies". One reflection that the LSAY data afford is that the magnitude of these adverse effects might be moderate in relative terms. For instance, Indigenous youth were 7% more likely than others to have to move due to COVID, while women were about 3% more likely. While these are non-trivial proportions, there is no consensus on what scale of difficulties prevent recovery that might come with the favourable labour market situation of 2022, with falling unemployment rates. As O'Keeffe et al. (2021) argued, COVID-related economic disadvantage of young people in Australia might have lifelong consequences. This is due to a lack of protective government policies supporting rather than making it more costly for young people to study while relying on paid employment to pay bills. Nevertheless, the analysis presented here does not preclude the possibility that many young Australians might manage to bounce back from the negative short-term impact of COVID restrictions.

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## Appendix

Appendix Table 1 Descriptive statistics for the independent variables by year

	Mean	SD	Min	Max	Respondents
Australian Capital Territory					
2015	0.06	0.24	0	1	14530
2016	0.05	0.22	0	1	4694
2017	0.05	0.21	0	1	4607
2018	0.05	0.22	0	1	4846
2019	0.05	0.22	0	1	3733
2020	0.05	0.22	0	1	3773
2021	0.06	0.23	0	1	3710
New South Wales					
2015	0.23	0.42	0	1	14530
2016	0.24	0.43	0	1	4694
2017	0.24	0.42	0	1	4607
2018	0.25	0.43	0	1	4846
2019	0.25	0.43	0	1	3733
2020	0.24	0.43	0	1	3773
2021	0.25	0.43	0	1	3710
Victoria					
2015	0.15	0.36	0	1	14530
2016	0.18	0.38	0	1	4694
2017	0.19	0.40	0	1	4607
2018	0.19	0.39	0	1	4846
2019	0.21	0.41	0	1	3733
2020	0.21	0.41	0	1	3773
2021	0.21	0.41	0	1	3710
Queensland					
2015	0.20	0.40	0	1	14530
2016	0.19	0.39	0	1	4694
2017	0.20	0.40	0	1	4607
2018	0.18	0.39	0	1	4846
2019	0.18	0.38	0	1	3733
2020	0.18	0.39	0	1	3773
2021	0.18	0.38	0	1	3710
South Australia					
2015	0.12	0.32	0	1	14530
2016	0.11	0.31	0	1	4694
2017	0.11	0.31	0	1	4607
2018	0.12	0.32	0	1	4846
2019	0.12	0.32	0	1	3733
2020	0.12	0.32	0	1	3773
2021	0.11	0.32	0	1	3710
Western Australia					
2015	0.13	0.33	0	1	14530
2016	0.14	0.34	0	1	4694
2017	0.13	0.34	0	1	4607
2018	0.12	0.33	0	1	4846

2019	0.12	0.33	0	1	3733
2020	0.12	0.33	0	1	3773
2021	0.12	0.33	0	1	3710
Tasmania					
2015	0.07	0.26	0	1	14530
2016	0.06	0.24	0	1	4694
2017	0.06	0.23	0	1	4607
2018	0.06	0.23	0	1	4846
2019	0.06	0.23	0	1	3733
2020	0.05	0.23	0	1	3773
2021	0.05	0.22	0	1	3710
Northern Territory					
2015	0.04	0.19	0	1	14530
2016	0.03	0.17	0	1	4694
2017	0.03	0.16	0	1	4607
2018	0.02	0.15	0	1	4846
2019	0.02	0.15	0	1	3733
2020	0.02	0.14	0	1	3773
2021	0.02	0.14	0	1	3710
Female					
2015	0.50	0.50	0	1	15244
In full-time employment or full-time education					
2015	1.00	0.00	1	1	14530
2016	0.94	0.24	0	1	4626
2017	0.78	0.41	0	1	4475
2018	0.71	0.46	0	1	4641
2019	0.73	0.45	0	1	3596
2020	0.75	0.43	0	1	3520
2021	0.71	0.45	0	1	3510
Completed or studying for a bachelor's degree or higher					
2015	0.00	0.00	0	0	15596
2016	0.00	0.01	0	1	4704
2017	0.07	0.26	0	1	4623
2018	0.43	0.49	0	1	4847
2019	0.54	0.50	0	1	3734
2020	0.59	0.49	0	1	3773
2021	0.59	0.49	0	1	3718
Living with parent(s)					
2015	1.00	0.00	1	1	14530
2016	0.97	0.18	0	1	4704
2017	0.96	0.21	0	1	4623
2018	0.85	0.35	0	1	4847
2019	0.77	0.42	0	1	3734
2020	0.75	0.44	0	1	3773
2021	0.64	0.48	0	1	3718
Share of workers in the job who telework					
2016	0.19	0.38	0	1	2420
2017	0.14	0.32	0	1	2679
2018	0.21	0.38	0	1	3344
2019	0.25	0.41	0	1	2830

2020	0.27	0.42	0	1	2841
2021	0.31	0.43	0	1	2978
AUSEI of main job					
2016	0.34	0.13	0	1	2420
2017	0.33	0.12	0	1	2679
2018	0.35	0.14	0	1	3344
2019	0.37	0.16	0	1	2830
2020	0.38	0.17	0	1	2841
2021	0.42	0.19	0	1	2978
ESCS PISA Index of economic, social and cultural status (WLE)					
2015	0.19	0.82	-4	3	13989
English spoken at home					
2015	0.90	0.31	0	1	14103
Korean Japanese Chinese					
2015	0.02	0.14	0	1	14103
Language other than English spoken at home					
2015	0.08	0.28	0	1	14103
Aust-born students (student and both parents)					
2015	0.62	0.49	0	1	13743
Second-generation (student Australian born at least one parent born ov					
2015	0.28	0.45	0	1	13743
First-generation students (student and both parents born overseas)					
2015	0.11	0.31	0	1	13743
Indigenous					
2015	0.18	0.39	0	1	15223
Catholic school					
2015	0.23	0.42	0	1	14530
Government school					
2015	0.60	0.49	0	1	14530
Independent school					
2015	0.18	0.38	0	1	14530
Metropolitan					
2015	0.68	0.46	0	1	14530
Provincial school					
2015	0.28	0.45	0	1	14530
Remote school					
2015	0.04	0.19	0	1	14530
Science achievement quartile used from the first plausible value					
2015	2.50	1.12	1	4	14530