Separate Lives, Uncertain Futures: Does Covid-19 Align or Differentiate the Lives of Low- and Higher-Wage Young Workers?

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Abstract

With labour markets already polarised in industrialised economies, if Covid-19 worsens this polarity, young people could be more severely affected. This is because their entry into a post-pandemic economy has ramifications for their divergent or convergent career trajectories far into the future. Therefore, on the premise that work life is central to quality of life, this article assesses the effects of low wage and Covid-19 on the psychological outlook of young people in Singapore. We found that Covid-19 did worsen polarisation. On average, higher wage workers telecommuted more and had more work, but low wage young workers bore the brunt of earnings loss and job disruption. Low wage respondents also experienced poorer psychological well-being, even after adverse child experiences, highest educational qualification and occupation type were controlled for. However, higher wage workers might be more psychologically affected by the Covid-19 impacts. This might be because low earning workers are more accustomed to employment instability. These findings suggest the urgency of policy attention to help low wage young workers recover from Covid-19.

Keywords Low wage · Labour market duality · Covid-19 · Generalised anxiety · Discouragement · Singapore

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Work life is central to one’s overall quality of life. Work is where the majority of adults spend most of their working hours, and the economic fallout from a global pandemic has borne out starkly the intertwining of work and personal lives. As telecommuting from home and online meetings have become the default for many workers, commentators are discussing the ill effects on the quality of life of diminished boundaries between work and personal lives (Meah, 2020; Vyas & Butakieo, 2021). At the same time, this global pandemic has costed jobs and livelihoods, which could have long-term scarring impacts on affected individuals (Grzegorczyk & Wolff, 2020; Moxon et al., 2021; Shields et al., 2021). Young workers, in particular, are entering the labour force or attempting to advance their careers when opportunities are lacking. This is likely to severely disrupt their career progression (Dias et al., 2020), as past research has shown that graduating into a recession adversely affects lifetime earnings and prospects (Fernandez-Kranz & Rodriguez-Planas, 2018; Kondo, 2015).

The above macro trends, however, do not apply equally to all types of workers. Telecommuting, for example, is possible only for certain, predominantly white-collar, occupations. In many economies, low-income households and individuals have also been more adversely affected economically by Covid-19 (Chok, 2021; Goldin & Muggah, 2020; UNICEF, 2020). These differential impacts of Covid-19 speak to the labour market polarisation that has been documented in industrialised economies since the 1970s (Autor, 2019; Dickens & Lang, 1993; Doeringer & Piore, 1971; Kalleberg, 2011). Wage inequality has risen between jobs held by educated and less educated workers, low-paid jobs have become more precarious and middle-level jobs are disappearing, ultimately leading to divergent qualities of work life.

This article discusses the heterogeneous effects of Covid-19 by wage status of adults aged 21 to 38, and the subsequent effects on psychological outlook. Surveyed in the midst of Covid-19 in 2020–2021, when many employees shifted to remote work, while others, such as staff in the retail sector, were laid off or put on furlough, respondents’ job situations and outlook enabled a contrast of those in low wage and higher wage jobs. The setting is in Singapore, an industrialised economy with high labour market polarisation. The focus is on the impact of the combination of labour market duality and Covid-19 on young workers, since their entry into a polarised market has ramifications for their divergent or convergent career trajectories far into the future.

**Pandemic Disruption in a Polarised Labour Market**

**Dimensions of Labour Market Polarisation**

Several streams of research have highlighted the increasing polarisation of labour markets in developed economies. Industrialisation and automation have led to capital substitution of labour, while offshoring has led to relocation of manufacturing to cheaper locations, resulting in the disappearance of lower end technical jobs and the expansion of service-oriented industries. With globalisation accompanying technological development, the global competition for skills bid wages in the upper
spectrum up while the influx of low-cost migrant workers bid wages at the bottom end down. Together, these economic developments have led to inequality by educational and occupational prestige (Autor, 2019; Dickens & Lang, 1993; Doeringer & Piore, 1971; Kalleberg, 2011).

Another source of labour market duality is performance management practices, which have led to the dichotomisation of staff into core staff with protected benefits and favourable wages in the primary labour market and peripheral workers with more tenuous status in the secondary market (Atkinson, 1984; Kalleberg, 2003). While workers in primary and secondary markets are distinguished by education and occupation, they can also be differentiated within occupations depending on industry configuration and organisational size. Further, cost reduction strategies along with technological development have facilitated the shift from employer-employee relations to contracting arrangements such that workers in the secondary market no longer enjoy staff benefits and protections as employees (Kalleberg, 2000; Standing, 2012).

In many developed economies, young workers appear to be the most vulnerable to polarisation, e.g. in Western/Central European regimes with greater labour market rigidities (Fernandez-Kranz & Rodriguez-Planas, 2018), where older workers are protected by employment terms that make it hard to fire them (Fernandez-Kranz et al., 2013; Kahn, 2010), and in America where newer entrants to the labour market are more likely to be subject to non-traditional and sometimes extra-legal forms of employment (Brown, 2016; Vallas & Prener, 2012).

The Singapore Experience

With rapid economic growth that propelled it from a poor developing country to one of the richest and most industrialised countries in the world in merely three decades (Ng, 2013), Singapore has experienced acutely the various duality-inducing developments outlined in the previous section. As a highly globalised economy, many of the technological adoption, performance management, and cost reduction practices are often promptly adopted (Bali et al., 2019; Ng et al., 2018; Stanton & Nankervis, 2011; Teo, 2007; Wan, 2003). From a small trading post, Singapore’s rapid economic growth began with labour-intensive manufacturing in the 1960s and 1970s (Chiu et al., 1997; Pang & Lim, 2015). Today, its industries are dominated by high-end services and knowledge-based, technology-intensive industries like electronics and pharmaceuticals (Coe & Kelly, 2000; Hoon, 2005; Hsieh & Tseng, 2002; Lim, 2014).

As such, Singapore’s labour force has had to match the industrial shifts. Singapore’s resident population has become increasingly educated (Department of Statistics [DOS], 2021a), and correspondingly, the proportions of managers, professionals, associate professionals and technicians among employed residents have risen from 24% in 1990 to 61% in 2020 (DOS, 1990; Ministry of Manpower [MOM], 2021a).

Low-skilled positions, on the other hand, have increasingly been filled by foreign labour. This is most intense in the manufacturing and construction industries, but is also pervasive in other low-skilled sectors such as retail, food and beverages (Ho, 2021; Phua & Chew, 2020), cleaning and other services (Lim, 2014). Overall, since
the early 1970s, the proportion of foreign workers in Singapore’s labour force has roughly doubled every decade until 2010 (Ho, 2005), reaching 38% in 2014 (Pang & Lim, 2015).

The rapid industrial transformation and use of low-cost foreign labour have led to a lopsided form of labour market polarisation in Singapore where instead of middle level jobs hollowing out, it is low-skilled jobs that have diminished among the resident labour force. This is depicted in Fig. 1, where the skilled occupations of managers and professionals have ballooned through the decades, while lower-prestige occupations of craftsmen and related trades workers, machine operators and assemblers, as well as cleaners and labourers, have shrunk. At the same time, middle-level occupations of associate professionals and technicians, clerical support workers, and service and sales workers have stayed fairly constant. The trends are particularly stark among younger workers, where only 6% of 15- to 39-year olds are employed in the lowest prestige occupations (MOM, 2021a).

The economic conditions have also resulted in one of the highest wage inequality among industrialised economies (Ng, 2020). Policies addressing wage depression relied on sectoral based wage ladders called a progressive wage model (MOM, 2021c), and a workfare income supplement (WIS) for older low wage workers (Workfare, 2021). Perhaps spurred by the gaping insecurities to low wage Singaporeans brought on by the pandemic, plans are underway to greatly expand these two wage support programmes in the next few years (Ang, 2021).

Fig. 1 Distribution of occupational groups by age group

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[Image of Fig. 1 showing occupational distribution by age group, with text references to the figures.]

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However, policy focus has been on older workers, who suffer the more immediate problems of low education and employability. Thus, besides the above wage support programmes, highly subsidised training is also extended to workers 40 years and older (Seow, 2020). Such a policy focus, unfortunately, suggests that the lopsided labour market polarisation might lead to two related major problems. First, although the numbers are small, this poses extremely bleak prospects for the few young workers who are low educated and employed in low prestige jobs whose wages and conditions have been depressed. Second, as younger workers avoid jobs dominated by foreign workers, a nation-wide lack of local workers in essential services such as construction, cleaning and health services has resulted in an unhealthy over-reliance on foreign labour, as has been made clear by pandemic travel restrictions curtailing the inflow of foreign labour and disrupting many services.

Compounding the worry for lower educated young workers is an increasing number of them working in gig economy jobs for instance as food delivery riders and private hire drivers (Meah, 2021; Tham, 2021; Zeng, 2020). Gig economy jobs are considered self-employment in Singapore, and are therefore more precarious because they are not covered by legislated protection for employees, and do not offer career progression that might be expected by an employee (Teoh et al., 2020).

**A Global Pandemic Hits**

It is into such a pre-existing structure of labour market polarity that Covid-19 struck, and its disruptions might worsen or ameliorate existing inequalities. On one hand, more disadvantaged households have been shown to be more adversely affected (Daly et al., 2021). On the other hand, government assistance has been much more generous in a time when economic hardships are clearly widespread, with governments promising to “build back better” (The White House, 2021).

Research evidence on specific impacts of the pandemic is still emerging. In terms of job and income losses, the few published findings so far suggest that low-income and younger workers are more adversely affected, along with women and ethnic minorities (Adams-Prassl et al., 2020; Aum et al., 2020). However, the effects by these demographic characteristics also appear to be temporary, with industry and occupation being more important determinants of whether one is economically affected by the pandemic when all characteristics are controlled for (Angelucci et al., 2020; Lee et al., 2021). Lee et al. (2021) found sustained job losses in the hospitality and leisure industry, while Angelucci et al. (2020) found greater job and respiratory health losses among low-income workers who did not work remotely. As explained by Piyapromdee and Spittal (2020), that very young or very old workers are more adversely affected might be because they tend to work in inflexible occupations where remote work is not possible. At the same time, if one continues to be employed, the media has reported on longer working hours leading to burnout, especially among workers in essential healthcare and hygiene industries (Shreffler et al., 2020; Tan et al., 2020; Teo et al., 2021).

Even if the job and income effects of Covid-19 by personal characteristics might be short-term, the consequences to affected individuals could be long-term. For
example, low-income households could suffer the greatest consumption and wealth consequences because they experience disproportionately larger income reductions, have less buffer income, and possess lower amounts of liquid assets for current consumption needs (Piyapromdee & Spittal, 2020). Young people might delay job entry or home ownership (Delbosc & McCarthy, 2021). Mental health problems and suicide have also been highlighted (Giuntella et al., 2021; Goh, 2021; Ng, 2021; Shrestha et al., 2021).

Disruption and Well-Being of Young Workers

The mental health effects of Covid-19 and labour market duality on young people can be expected to be larger than on older people (Dias et al., 2020). First, mental disorder is negatively correlated with age (Subramaniam et al., 2020; Thomas et al., 2016). For example, in the latest Singapore Mental Health Study, conducted in 2016, the lifetime prevalence of at least one mood, anxiety or alcohol abuse was 13.9% in the adult population, but young adults aged between 18 and 34 years had the highest lifetime (21.6%) and 12-month prevalence (11.9%) for any mental disorders compared to other age groups.

Second, the relationship between employment and health outcomes is long established (Modini et al., 2016; Paul & Moser, 2009). With the increasing polarisation of work, a new wave of studies has also emerged, arguing that poor job conditions can pose a greater risk for both mental and physical health than being unemployed (Butterworth et al., 2011; Dooley, 2003; Holtgrewe et al., 2015; Milner et al., 2017). Thus, with low-educated young workers disproportionately employed in lower quality jobs that are low-paid and insecure with limited benefits and career progression (OECD & ILO, 2015), if Covid-19 worsens polarity, then improving job conditions of low-quality jobs becomes an urgent component of pandemic recovery policies in order to protect young people’s mental well-being.

Third, for disadvantaged young people, polarisation can be more detrimental to mental health because of its implications to future prospects. Attaining life goals, aspirations and having a positive future outlook are pertinent to young people’s mental and overall well-being (Martos & Kopp, 2012), but these have become uncertain with Covid-19. Warnings of the scarring effects of Covid-19 on young people, and particularly on young people from marginalised backgrounds, have emerged (Grzegorczyk & Wolff, 2020; Moxon et al., 2021). At the same time, surveys have reported greater pessimism among young people. The International Labour Organization (ILO) (2020) reported that 38% of young people globally are uncertain of, and 16% are fearful about, their future career prospects. In Singapore, the World Values Survey revealed that over half of Singapore’s residents worry about their job prospects and children’s future, with younger respondents expressing more fears (Mathews et al., 2021).

In summary, the research on the effects of labour market duality on young people, Covid-19 on employment and outlook, and employment conditions on mental health combine to suggest that Covid-19 could lead to greater inequality in the jobs and psychological outlook of young people, with a consequential divergence in future
prospects. Our article seeks to verify this conclusion, which appears forgone but is not so, since much of the findings so far are from descriptive reports that do not assess job and psychological effects together. Only a few, for example Angelucci et al. (2020) and Lee et al. (2021), control for different factors using multivariate analysis, but they study only job losses as outcomes. By controlling for occupational categories and childhood adversities, this article strengthens the direction of explanation from low wage to Covid-19 psychological outlook. Further, by studying effects on psychological outlook besides employment, it is also one of the first studies to take a broader quality of life perspective (as opposed to a narrow economic lens) to understand the heterogenous effects of the labour market on young people navigating a pandemic.

**Methodology**

**Data**

As our study was interested in the work-life challenges of young workers, the survey targeted Singaporeans aged 21 to 38 who were either working or whose last full-time employment was less than three years ago. This was to guard against respondents not being able to recall conditions of their previous job. Non-citizens were excluded from the study.

In addition, because the focus of the study is on in-work poverty, our sampling strategy targets young adults from low-income households with a comparable number of young adults from the next few higher rungs in the income strata. This is proxied by housing type, thus the study’s sampling frame includes only young adults living in public housing (79% of households in Singapore live in public housing) (DOS, 2021b), excludes young adults from the highest housing strata of condominiums or landed property, and oversamples young adults from lower income households.

An original sampling frame comprising 5,700 households with a member within our target age range was purchased from the Department of Statistics. Where households were unresponsive or ineligible, they were supplemented by another 1,373 households in the same block as the original households. Face-to-face surveys were conducted until we reached the target number of respondents (N = 1,900), with recruitment also through alternative means like Facebook, agencies and occupational networks for under-represented categories of respondents. Only 59 respondents were recruited by alternative means.

For the present analysis, we look at conditions of respondents’ current jobs, and if they were not working at the time of interview, conditions of their last job. In total, 13.7% of respondents were not employed at the time of interview, a rate that is higher than the national resident unemployment rate of 6.2% for the same age group in 2020 (MOM, 2021a).
Variables

Dependent Variables

A total of five variables were analysed as impacts of Covid-19: no effect; more work; primarily remote work; earnings loss; and job disruption. The first three effects of Covid-19 are individual dichotomous variables. Earnings loss equals 1 if the respondent received less pay and/or was put on no pay leave due to Covid-19. Job disruption equals 1 if the respondent had less work, had to take up other activities to earn money, quit their job and/or was retrenched or terminated, due to Covid-19.

Our survey was conducted several months after Singapore’s lock down, thus reflecting economic ramifications rather than lockdown effects of the virus. Subsequently, all the Covid-19 variables except no effect were entered as independent variables to predict psychological outlook.

Under psychological outlook are two variables. The first is a measure of Generalised Anxiety Disorder (GAD) that follows the Diagnostic and Statistical Manual of Mental Disorders (DSM-III), and is used widely in surveys (Newman et al., 2002). It takes the value 1 if in the last six months, the respondent was worried more than half the time, found it difficult to control the worry, and had at least three of the following six symptoms of anxiety: being restless or on edge, being particularly irritable, awareness of muscles tensing, being easily tired, having trouble sleeping or staying asleep, and having difficulty concentrating.

While GAD gives indication of general anxiety, the other psychological variable elicits respondents’ anxiety over the future. It takes the value 1 if the respondent answered that they felt discouraged about the future often or always, and zero otherwise (University of Michigan, 2002).

Independent Variables

The main variable of interest is a dichotomous variable that takes the value 1 if the respondent is low waged. Low wage proxies for labour market duality, as wage is a defining characteristic of polarisation. As explained in the literature review, while duality is often along education or occupational categories, it could also occur within occupations between employees hired as core staff members and workers engaged in peripheral firms or positions. Thus, we use wage as the main indicator of duality, but add occupation groups subsequently in the empirical model to study whether the effects of low wage are mediated through occupation types.

Following the definition in Singapore, where workers earning below the 20th percentile are considered low wage (MOM, 2019), and would qualify for programmes such as the WIS, the respondent’s monthly earnings were low if it was below the 20th percentile of all monthly wages. This was $2,340 per month for full-time work in 2020 (MOM, 2021b).

In order that low wage indeed proxies for polarity, we ensured that low wage represents respondents were permanently in low wage jobs through two alternative measures of low wage. The first and main measure uses the current wage of respondents but reclassifies 28 respondents who used to be in professional or
managerial positions into the higher wage group. The second measure assigns low wage status only if the wages of both the current and first jobs of respondents are below the 20th percentile in their respective years. In this way, the second measure is more conservative than the first measure, with only 25% classified as low wage via the second specification compared to 40% from the first specification (Table 2). The true scenario is probably somewhere in between.

In a step-wise regression, after the first step that includes the indicator variable for low wage, the occupational group of respondents is added to study if it mediates the association between low wage and the various outcomes. We classified eight occupational groups approximately according to the Singapore Standard Occupational Classification (SSOC) 2020: managers; professionals; associate professionals and technicians; clerical support workers; service and sales workers; drivers and riders; cleaners, labourers and other machine operators and assemblers; and other occupations (DOS, 2020). Drivers and riders dominated the SSOC “machine operators and assemblers” and were pulled out as a group of its own. The small number of remaining operators and assemblers were combined with cleaners and labourers. The last category “others” combined categories with very few individuals, including craftsmen and related trades workers, armed forces, trainees and interns, and workers who were unclassifiable. Besides this “others” category, the other occupation groups can roughly be ranked by occupational prestige from managers to cleaners and labourers (Song & Xie, 2020).

In the regression, professionals form the base group to which the other occupational groups are compared. Each of the other groups are thus entered into the regression with a dummy variable for each group. This enables the analysis of whether it is low wages that significantly relate to the outcomes of interest or the occupational group. For example, the category “drivers and riders” comprises largely of platform delivery riders and drivers in our sample. These are the gig economy workers whose job conditions have been highlighted to be more precarious than traditional forms of work. Might the association between low wage jobs and poor outcomes be because of poorer conditions of certain occupations, such that when both occupation group and low wage are in the model together, the association between low wage and outcomes greatly weakens?

Similarly, because labour market polarisation is related to education, respondents’ highest qualification is included in three levels: technical certification, which forms the lowest level of post-secondary education, and below; polytechnic diploma; and university degree. In the regressions, university degree is used as the base group.

In order to take into account the influential conclusions in the literature on adverse childhood experiences (ACEs), the following three variables represent adverse experiences when growing up: (i) the respondent’s family had difficulties meeting ends meet sometimes, often or always (childhood poverty); (ii) a parent or other adult in the household often swore at, insulted or put down the respondent (domestic abuse); and (iii) the respondent lived with a problem drinker, alcoholic or drug user (substance abuse). The ACEs literature suggests that childhood adversities have lasting effects till adulthood, including poor mental and economic outcomes (Wade Jr et al., 2017), thus if ACEs is the root cause for both low wages and poor mental health,
then the significant association between low wages and poor psychological outlook might be due to ACEs, and not low wages.

Control Variables

All specifications controlled for the following variables: age (specified in years), and four other dichotomous variables that take the value 1 if the respondent was female, of minority races, was married, and worked part-time. The regressions for psychological outlook also controlled for the log of household income net of the respondent’s wage, as an alternative buffer resource.

Empirical Strategy

Our empirical analysis centres on two sets of outcomes: five variables on Covid-19 and two variables on psychological outlook. All dependent variables are binary, thus probit regression models were used.

We start by establishing the strong association between ACEs, educational background and low wage by regressing highest qualification on ACEs, and low wage on ACEs and highest qualification. From there, we examine polarised effects of Covid-19 by first regressing the five Covid-19 outcomes (model 1) on low wage and then adding to model 1 ACEs, highest qualification and SSOC (model 2) to examine whether these three factors mediate the association between low wage and the effects of Covid-19. Finally, we examine polarity in psychological outlook by first regressing the two psychological variables on low wage, more and remote work due to Covid-19, and job and income losses due to Covid-19 (model 1), followed by adding ACEs, highest qualification and SSOC (model 2). We report the effects of all three mediators at once for parsimony, as the gradual mediation of each variable is mostly as expected. We apply the first measure of low wage throughout, adding the second wage measure as an alternative specification to the regressions of the two psychological outcomes.

Findings

Low Wage and Socio-economic Background

Based on our first wage measure, a total of 40% of respondents were low wage, with median monthly earnings of S$1,800 if working full time and S$550 if working part time (Table 1). The remaining 60% of higher wage respondents had median monthly earnings of S$3,500 if working full time and $1,875 if working part time.

Sample respondents were 29 years old on average. About half were male, and 44% were married. Minority races were oversampled, leading to a more even ethnic distribution than the population distribution: 54% Chinese, 32% Malays, 13% Indians, 1% other races.
In terms of occupation, the largest groups are professionals, semi-professionals and service and sales workers (Table 2). Low wage is naturally over-represented in the lower SSOCs, although in all occupation groups, there are some low wage individuals. The occupation groups with the highest proportion of low wage workers are cleaners, labourers and other machine operators (73%), drivers and riders (70%), and clerical support workers (68%).

With lower income young people targeted for our study, respondents with the lowest education level of technical certification and below are over-represented (42%). A high 65% of them were low wage, compared to 37% of polytechnic diploma holders, and only 5% of degree holders.

The prevalence of childhood adversities is high, with 10% having lived with a family member who abused substances, 22% having experienced verbal abuse in the household, and 51% having grown up in families that had difficulties making ends meet (Table 2). Greater proportions of low wage respondents had experienced all three types of ACEs, especially living with someone who abused substances.

Further, the mediation analysis in Table 3 shows that the effects of ACEs on low wage are mediated by education. Childhood poverty and substance use in the family are significantly associated with lower education (column 1), and their associations with low wage are completely mediated by education. From columns 2 to 3, the coefficient sizes of poverty and substance use greatly decreased and became statistically insignificant. Compared to a degree, technical and polytechnic qualifications strongly and significantly increase the probability of being low waged.

One more background result to discuss before moving to the outcomes of this paper is shown in the last two columns of Table 3. They show the highly significant associations of all three ACEs variables with GAD and discouragement. This corroborates the conclusions in the ACEs literature of the lasting impacts of ACEs into adulthood, and necessitates their inclusion in the subsequent models.

### Impact of Covid-19

The first clear result from the impact of Covid-19 is that many were affected. On average, 58% of respondents were affected in one way or another (Table 4, first row). A larger proportion of higher wage respondents were affected in some
way, primarily because of the reclassification of the 28 low wage respondents who were formerly in high status jobs. Strikingly, for this young sample, overall, only 20% switched primarily to telecommuting due to Covid-19 (second row),

| Distribution (%) | N |
|------------------|---|
| Wage Measure 1   |    |
| Low wage         | 40.04% | 756 |
| Higher wage      | 59.96% | 1132 |
| Wage Measure 2   |    |
| Low wage         | 25.10% | 431 |
| Higher wage      | 74.90% | 1286 |
| Occupational group |      |
| Managers         | 7.15 | 135 | 17.04 | 23 |
| Professionals    | 22.14 | 418 | 7.42 | 31 |
| Associate professionals and technicians | 26.80 | 506 | 32.81 | 166 |
| Clerical support workers | 10.17 | 192 | 67.71 | 130 |
| Service and sales workers | 17.16 | 324 | 60.80 | 197 |
| Riders and drivers | 5.93 | 112 | 69.64 | 78 |
| Cleaners, labourers, and other machine operators | 6.67 | 126 | 73.02 | 92 |
| Other occupations | 3.97 | 75 | 52.00 | 39 |
| Total            | 100.00 | 1,888 | - | 756 |
| Highest education level |      |
| Technical certification or below | 41.84 | 790 | 65.32 | 516 |
| Polytechnic diploma | 29.98 | 566 | 37.28 | 211 |
| University degree and above | 28.18 | 532 | 5.45 | 29 |
| Total            | 100.00 | 1,888 | - | 756 |

| Distribution (%) | Proportion among low wage with ACEs (%) | Proportion among higher wage with ACEs (%) | Diff |
|------------------|-----------------------------------------|-------------------------------------------|------|
| ACEs             |                                        |                                           |      |
| Grown up in family with difficulties making ends meet (Childhood poverty) | 51.14 | 57.94 | 46.64 | *** |
| Experienced verbal abuse in the household (Domestic abuse) | 21.95 | 25.00 | 19.96 | ** |
| Lived with family member who abused substances (Substance abuse) | 9.62 | 13.10 | 7.33 | *** |

Significance level for difference in proportions test: *** p < .001, ** p < .01, * p < .05
Managers include working proprietors. Other occupations include craftsmen and related trades, armed forces, interns, and unclassifiable workers
and half of the employed did not telecommute at all (last row). These suggest that for many young workers, remote work is uncommon.
There is clear duality in how low wage and higher wage respondents were affected. While higher wage workers telecommuted more and had more work, low wage workers bore the brunt of economic hardship. 16% of higher wage respondents had more work, but only 8% of low wage workers experienced so. 29% of higher wage workers, but only 7% of low wage workers, switched primarily to remote work (Table 4). Of the respondents who were employed, 75% of low wage respondents did not telecommute at all, whereas only 41% of higher wage workers did not do so (Table 4). The impacts are reversed for the other two variables. The earnings of 19% of low wage workers, but only 15% of higher wage workers, were affected by Covid-19. A high 35% of low wage workers experienced employment disruption, but only 21% of higher wage workers did.

All the differences by wage level that are statistically significant in the bivariate analysis remain statistically significant after controlling for background factors in the multivariate analysis, except being affected by Covid-19 in any way (Table 5). The effects are partially mediated by SSOC, education and ACEs, with the coefficient of low wage completely mediated for working more due to Covid-19. The association between low wage and Covid-19 effects remain statistically significant for the other variables.

**Psychological Outlook**

Ultimately, working in a low wage job can take a mental toll, and this is suggested by the higher prevalence of GAD among low wage workers (Table 6). Going by the main measure of low wage, 31% of low wage respondents reported GAD symptoms, which is nine percentage points higher than the 22% among higher wage workers. The second more conservative measure of low wage yields a smaller but still statistically significant difference of six percentage points in GAD experienced by low wage and higher wage respondents. All rates are likely higher than population prevalence, since the World Health Organisation (WHO) estimates that 3.6% of the global population suffer from anxiety disorders (WHO, 2017). This might reflect the lower income and younger age of our sample respondents. Relatedly, a higher proportion of low wage respondents indicated feeling highly discouraged about the future (14% compared to 10% of higher wage respondents using the main wage measure, and 16% compared to 10% using the second measure).

In the multivariate analysis, where we include not just the previous background variables but also the Covid-19 variables, low wage workers continue to be significantly more likely to report poorer psychological well-being. However, which psychological outcome statistically significantly relates to low wage depends on the wage measure. While the main measure of low wage is significantly related to GAD, the second measure is statistically related to discouragement. (Tables 7 and 8). This result follows from the larger difference in GAD for the main wage measure and the larger difference in discouragement for the second measure.
Table 5 Probit regressions of COVID-19 impacts

| Variables                        | unaffected by COVID-19 | Remote Work | Had More Work | Earnings Loss | Job disruption |
|----------------------------------|------------------------|-------------|---------------|---------------|---------------|
|                                  | (1)        | (2)        | (1)        | (2)        | (1)        | (2)        | (1)        | (2)        | (1)        | (2)        |
| Low wage                         | -0.017     | -0.041     | -0.81***   | -0.44***    | -0.23**    | 0.29***    | 0.18*     | 0.42***    | 0.23**    |
|                                  | (0.065)    | (0.075)    | (0.087)    | (0.10)      | (0.087)    | (0.11)     | (0.078)    | (0.089)    | (0.069)    | (0.079)    |
| Highest education level          |                        |             |             |              |             |            |            |             |            |
| Technical certification or below |                        |             |             |              |             |            |            |             |            |
|                                  | 0.26*      | -0.61***   | -0.30*     | -0.080       | 0.23       |
|                                  | (0.11)     | (0.13)     | (0.14)     | (0.13)       | (0.12)     |
| Polytechnic diploma              |                        |             |             |              |             |            |            |             |            |
|                                  | 0.21*      | -0.32**    | -0.21      | 0.032      | 0.27*       |
|                                  | (0.096)    | (0.10)     | (0.12)     | (0.12)      | (0.11)     |
| ACEs                             |                        |             |             |              |             |            |            |             |            |
| Childhood poverty                | -0.21***   | 0.087      | 0.23**     | 0.21**     | 0.14*      |
|                                  | (0.063)    | (0.078)    | (0.082)    | (0.076)    | (0.068)    |
| Domestic abuse                   | -0.11      | -0.16      | 0.13       | 0.072      | 0.26**     |
|                                  | (0.078)    | (0.099)    | (0.099)    | (0.091)    | (0.081)    |
| Substance abuse                  | -0.070     | 0.19       | 0.0070     | 0.062      | -0.091     |
|                                  | (0.11)     | (0.14)     | (0.14)     | (0.12)     | (0.11)     |
| Occupational group               |                        |             |             |              |             |            |            |             |            |
| Managers                         | -0.43**    | 0.34*      | 0.13       | 0.23       | 0.35*      |
|                                  | (0.14)     | (0.13)     | (0.15)     | (0.16)     | (0.15)     |
| Associate professionals and technicians |       |             |             |              |             |            |            |             |            |
|                                  | -0.14      | -0.14      | -0.088     | 0.25       | 0.25*      |
|                                  | (0.10)     | (0.11)     | (0.13)     | (0.13)     | (0.12)     |
| Clerical support workers         | -0.063     | -0.13      | -0.18      | 0.20       | 0.36*      |
|                                  | (0.13)     | (0.16)     | (0.19)     | (0.17)     | (0.15)     |
| Service and sales workers        | -0.10      | -0.75***   | -0.21      | 0.28       | 0.36**     |
|                                  | (0.12)     | (0.16)     | (0.17)     | (0.15)     | (0.14)     |
| Variables                                      | Unaffected by COVID-19 | Remote Work | Had More Work | Earnings Loss | Job disruption |
|-----------------------------------------------|------------------------|-------------|---------------|---------------|----------------|
|                                               | (1)                    | (2)         | (1)           | (2)           | (1)            | (2)           |
| Riders and drivers                            | -0.81***               | -1.30**     | 0.80***       | 0.93***       | 0.84***        |
|                                               | (0.17)                 | (0.42)      | (0.19)        | (0.18)        | (0.17)         |
| Cleaners, labourers, and other machine operators | -0.018                | -0.70**     | -0.32         | 0.16          | 0.33           |
|                                               | (0.16)                 | (0.27)      | (0.24)        | (0.19)        | (0.17)         |
| Other occupations                             | -0.025                 | -0.14       | 0.12          | 0.0046        | -0.10          |
|                                               | (0.17)                 | (0.20)      | (0.21)        | (0.22)        | (0.21)         |
| Constant                                      | 0.53*                  | 0.54*       | -0.52*        | -0.20         | -1.47***       |
|                                               | (0.21)                 | (0.22)      | (0.26)        | (0.28)        | (0.28)         |
|                                               |                        |             | -1.41***      | -1.93***      | -2.12***       |
|                                               |                        |             |               |               | -1.57***       |
|                                               |                        |             |               |               | -1.96***       |
| Pseudo R.$^2$                                  | 0.021                  | 0.044       | 0.13          | 0.19          | 0.041          |
|                                               | (1.888)                | (1.888)     | (1.888)       | (1.888)       | (1.888)        |
| Observations                                  | 1.888                  | 1.888       | 1.888         | 1.888         | 1.888          |

Standard errors in parentheses, *** $p < .001$, ** $p < .01$, * $p < .05$
All models controlled for age, sex, ethnicity, marital status, and full-time status
Omitted categories: Higher-wage, degree and above, professionals
For the Covid-19 effects, respondents who experienced more work and earnings loss were significantly more likely to report GAD, but the effect of earnings loss is completely mediated by ACES, highest education and occupation types. Earnings loss and job disruption also significantly relate to discouragement, and the effects are only partially mediated. In Table 8, which reports results based on the second measure of low wage, job disruption also significantly relates to GAD, mediated by ACES, highest education and occupation types. Remote work had no significant association with the two psychological well-being outcomes.

Do the effects of the Covid-19 variables on psychological well-being differ by wage level? Separate regressions for low and higher wage individuals (Tables 9 and 10) show that higher wage respondents might be more psychologically affected by the Covid-19 effects. Across the two wage measures for higher wage respondents, working more increases GAD, earnings loss increases discouragement and job disruption increases both GAD and discouragement. In Table 10 reporting the results based on the second wage measure, earnings loss also significantly increases GAD among higher wage respondents, but the effect is mediated completely by ACES, education and occupation types.

For low wage workers, more work increases GAD and job disruption increases discouragement across the two wage measures (Tables 9 and 10).1 In Table 9 with the main wage measure, earnings loss also significantly increases GAD, mediated completely by ACES, highest qualification and occupation type.

Vulnerability of Dependent Self-Employment

While this paper is focused on the effects of low wage and Covid-19, the particular vulnerability of dependent self-employed workers needs to be highlighted (Williams & Lapeyre, 2017). These include delivery drivers/riders or private hire drivers.

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1 The association between more work and GAD in Table 10 is marginally significant at a p-value of 0.10 although the coefficient size is large.
Table 7  Probit regressions of psychological outlook (Wage Measure 1)

| Variables | Generalised Anxiety Disorder | Feel Discouraged about Future |
|-----------|-------------------------------|-------------------------------|
|           | (1)                           | (2)                           | (1)                           | (2)                           |
| Low wage  | 0.18* (0.072)                 | 0.21* (0.082)                 | 0.11 (0.086)                  | 0.036 (0.099)                 |
| Covid-19 impacts |                             |                               |                               |                               |
| Worked more due to Covid-19 | 0.43*** (0.094)             | 0.37*** (0.097)             | 0.082 (0.12)                  | 0.048 (0.12)                  |
| Remote work due to Covid-19   | -0.043 (0.087)              | -0.070 (0.092)              | -0.093 (0.11)                | -0.037 (0.11)                |
| Earnings loss due to Covid-19 | 0.20* (0.088)               | 0.16 (0.092)                | 0.26** (0.10)                | 0.21* (0.11)                 |
| Job disruption due to Covid-19| 0.14 (0.075)                | 0.093 (0.078)               | 0.37*** (0.087)             | 0.32*** (0.091)              |
| Highest education level |                             |                               |                               |                               |
| Technical certification or below | -0.25* (0.12)              | -0.19 (0.15)                | -0.12 (0.11)                 | -0.17 (0.14)                 |
| Polytechnic diploma | -0.12 (0.11)                | -0.17 (0.14)                | -0.12 (0.11)                 | -0.17 (0.14)                 |
| ACEs |                             |                               |                               |                               |
| Childhood poverty | 0.34*** (0.069)             | 0.31*** (0.086)             | -0.041 (0.15)                | -0.041 (0.20)                |
| Domestic abuse | 0.49*** (0.079)             | 0.46*** (0.092)             | -0.041 (0.15)                | -0.041 (0.20)                |
| Substance abuse | 0.30** (0.11)               | 0.35** (0.12)               | -0.041 (0.15)                | -0.041 (0.20)                |
| Occupational group |                             |                               |                               |                               |
| Managers | 0.12 (0.15)                 | -0.041 (0.20)               | -0.041 (0.15)                | -0.041 (0.20)                |
| Associate professionals and technicians | 0.0030 (0.11) | 0.29* (0.15) | -0.041 (0.15) | -0.041 (0.20) |
| Clerical support workers | 0.042 (0.15) | 0.26 (0.19) | -0.041 (0.15) | -0.041 (0.20) |
| Service and sales workers | 0.022 (0.14) | 0.30 (0.17) | -0.041 (0.15) | -0.041 (0.20) |
| Riders and drivers | 0.19 (0.18) | 0.54* (0.21) | -0.041 (0.15) | -0.041 (0.20) |
| Cleaners, labourers, and other machine operators | -0.10 (0.18) | 0.39 (0.21) | -0.041 (0.15) | -0.041 (0.20) |
| Other occupations | 0.22 (0.19) | 0.22 (0.24) | -0.041 (0.15) | -0.041 (0.20) |
| Constant | -0.49 (0.25) | -0.70* (0.28) | -1.33*** (0.31) | -1.79*** (0.34) |
many of whom are not employed staff but instead work through the platform economy. Out of seven outcome variables analysed in this paper, this occupation group statistically significantly relate to all outcomes except GAD. Compared to respondents in professional jobs, they were more likely to report being affected by Covid-19, less likely to telecommute, more likely to report having worked more, more likely to earn less, more likely to experience employment disruption, and more likely to feel discouraged. Therefore, whether due to its poorer conditions or to selection into the gig economy after having left or lost other jobs, platform workers represent a particularly vulnerable group.

### Discussion

Our analysis from a quality of life perspective shows that labour market polarisation has ramifications beyond job conditions that the literature has so far concentrated on. Low-wage and higher-wage young workers were differentially affected by Covid-19, with higher wage workers telecommuting more and having more work, and low wage young workers bearing the brunt of job and earnings losses. Low wage workers were also more likely to report having GAD and feeling very discouraged.

However, higher wage workers might be more psychologically affected by the Covid-19 impacts. While more work significantly related to greater anxiety for both low and higher wage respondents in our study, there were more statistically significant psychological effects of earnings loss and employment disruption for higher wage workers. This might be because low earning workers are more accustomed to employment instability, as the labour market duality literature has found (Standing, 2012). Thus, some low earning workers might have adapted psychologically to stress (Park et al., 2019). They might also take up other small jobs to make up for any earnings shortfall from a job disruption (Dalton et al., 2021). Even so, our low wage respondents experienced both earnings and employment disruption more, and many experienced both (62% of those who experienced earnings loss also experienced employment disruption). Thus, on the aggregate, the magnitude of the Covid-19 impacts on their mental health is greater.
| Variables                                      | Generalised Anxiety Disorder | Feel Discouraged about Future |
|-----------------------------------------------|------------------------------|-------------------------------|
|                                               | (1)                          | (2)                          |
| Low wage                                      | 0.066                        | 0.097                         |
|                                               | (0.082)                      | (0.093)                      |
|                                               | 0.22*                        | 0.21*                         |
|                                               | (0.096)                      | (0.096)                      |
| Covid-19 impacts                              |                              |                              |
| Worked more due to Covid-19                   | 0.40***                      | 0.34***                      |
|                                               | (0.096)                      | (0.10)                       |
|                                               | 0.080                        | 0.056                         |
|                                               | (0.12)                       | (0.12)                       |
| Remote work due to Covid-19                   | -0.041                       | -0.062                       |
|                                               | (0.088)                      | (0.095)                      |
|                                               | -0.056                       | -0.011                       |
|                                               | (0.11)                       | (0.12)                       |
| Earnings loss due to Covid-19                 | 0.20*                        | 0.17+                        |
|                                               | (0.092)                      | (0.096)                      |
|                                               | 0.28**                       | 0.24*                        |
|                                               | (0.11)                       | (0.11)                       |
| Job disruption due to Covid-19                | 0.17*                        | 0.11                         |
|                                               | (0.080)                      | (0.083)                      |
|                                               | 0.37***                      | 0.31**                       |
|                                               | (0.093)                      | (0.098)                      |
| Highest education level                       |                              |                              |
| Technical certification or below              | -0.23+                       | -0.28+                       |
|                                               | (0.13)                       | (0.16)                       |
| Polytechnic diploma                           | -0.092                       | -0.17                        |
|                                               | (0.11)                       | (0.14)                       |
| ACEs                                          |                              |                              |
| Childhood poverty                             | 0.37***                      | 0.36***                      |
|                                               | (0.073)                      | (0.093)                      |
| Domestic abuse                                | 0.51***                      | 0.46***                      |
|                                               | (0.084)                      | (0.098)                      |
| Substance abuse                               | 0.34**                       | 0.36**                       |
|                                               | (0.11)                       | (0.13)                       |
| Occupational group                            |                              |                              |
| Managers                                      | 0.14                         | 0.028                        |
|                                               | (0.15)                       | (0.21)                       |
| Associate professionals and technicians       | -0.012                       | 0.31*                        |
|                                               | (0.12)                       | (0.16)                       |
| Clerical support workers                      | 0.091                        | 0.23                         |
|                                               | (0.15)                       | (0.20)                       |
| Service and sales workers                     | -0.0053                      | 0.33+                        |
|                                               | (0.14)                       | (0.18)                       |
| Riders and drivers                            | 0.21                         | 0.44+                        |
|                                               | (0.19)                       | (0.23)                       |
| Cleaners, labourers, and other machine operators | -0.12                       | 0.32                         |
|                                               | (0.19)                       | (0.23)                       |
| Other occupations                             | 0.30                         | 0.25                         |
|                                               | (0.20)                       | (0.26)                       |
| Constant                                      | -0.43                        | -0.71*                       |
|                                               | (0.26)                       | (0.29)                       |
|                                               | -1.45***                     | -1.97***                     |
|                                               | (0.32)                       | (0.37)                       |
Therefore, when governments promise to “build back better”, they need to contend with the fact that what they think represents the normative worker might exclude the most vulnerable workers. In the first instance, young workers as a group are already side-lined in ageing workforces where workplace policies tend to overlook young people’s lived realities and needs. Our data where more than half of our young respondents do not work from home provides an illustrative contrast to the many news articles discussing improvements in geographical flexibility and home environments as workplaces. True, the other half of our respondents do telecommute to varying extents, but here is where labour market duality factors in to doubly exclude low wage young people, three quarters of whom in our data do not work remotely at all.

Examples of such doubly excluded occupations include sales, service, delivery and driving that lower educated young people have been drawn to, but which have been hit hard by Covid-19. Many in the latter two groups of workers, in particular, are platform workers with limited labour benefits and protection, and whom our findings show are significantly more discouraged about their future. Covid-19 might have led some of them into platform work, but still for the majority of them, alternative job options are limited since 84% of these respondents who were delivery workers and drivers had at most a technical certificate, and only one respondent had a degree. Future research could delve deeper into how platform workers will fare in a post-pandemic world.

Overall, that low wage significantly relates to being adversely affected by Covid-19, anxiety and discouragement even after childhood adversities, educational background and occupational group are controlled for, suggests the urgency of policy attention to help young workers in low wage jobs recover from Covid-19. The scarring effects of the economic and psychological setbacks could be long-term for two reasons. One is the limited higher paying options in a lopsided labour market polarisation where positions in skilled crafts such as plumbing and mechanics have become dominated by immigrant labour. Another is the threat of technology, which has shrunk middle level jobs such as administrative and clerical positions in other economies, but somehow have held their ground in Singapore. With Covid-19 having hastened digitalisation, administrative positions are under greater threat of displacement.

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### Table 8 (continued)

| Variables          | Generalised Anxiety Disorder (1) | Generalised Anxiety Disorder (2) | Feel Discouraged about Future (1) | Feel Discouraged about Future (2) |
|--------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Pseudo R.\(^2\)    | 0.040                           | 0.097                           | 0.051                           | 0.11                            |
| Observations       | 1,717                           | 1,717                           | 1,717                           | 1,717                           |

Standard errors in parentheses, \(* * * p < .001\), \(* * p < .01\), \(* p < .05\), \(+ p < .1\)

All models controlled for age, sex, ethnicity, marital status, full-time status, and log of household members’ income. Omitted categories: Degree and above, professionals

Missing observations are due to lack of data on respondents’ starting salary and/or current wage

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| Variables                                      | Low Wage |             | Higher Wage |             |
|-----------------------------------------------|----------|-------------|-------------|-------------|
|                                               | Generalised Anxiety Disorder | Feel Discouraged about Future | Generalised Anxiety Disorder | Feel Discouraged about Future |
|                                               | (1)      | (2)         | (1)         | (2)         |
| Covid-19 impacts                              |          |             |             |             |
| Worked more due to Covid-19                   | 0.54**   | 0.43*       | 0.19        | 0.12        | 0.40*** | 0.36** | 0.042 | 0.0092 |
|                                               | (0.17)   | (0.18)      | (0.20)      | (0.20)      | (0.11)  | (0.12) | (0.15) | (0.15) |
| Remote work due to Covid-19                   | 0.022    | 0.090       | 0.083       | 0.22        | -0.030  | -0.086 | -0.14  | -0.081 |
|                                               | (0.19)   | (0.20)      | (0.23)      | (0.24)      | (0.098) | (0.11) | (0.12) | (0.13) |
| Earnings loss due to Covid-19                 | 0.27*    | 0.21        | 0.19        | 0.19        | 0.12    | 0.088  | 0.31*  | 0.22  |
|                                               | (0.13)   | (0.14)      | (0.15)      | (0.16)      | (0.12)  | (0.13) | (0.14) | (0.15) |
| Job disruption due to Covid-19                 | 0.033    | -0.033      | 0.35**      | 0.28*       | 0.23*   | 0.22*  | 0.41*** | 0.37** |
|                                               | (0.11)   | (0.11)      | (0.12)      | (0.13)      | (0.11)  | (0.11) | (0.12) | (0.13) |
| Highest education level                       |          |             |             |             |
| Technical certification or below              | -0.48    | -0.54       | -0.14       | -0.060      |
|                                               | (0.28)   | (0.31)      | (0.16)      | (0.19)      |
| Polytechnic diploma                          | -0.28    | -0.45       | -0.13       | -0.18       |
|                                               | (0.28)   | (0.31)      | (0.12)      | (0.16)      |
| ACEs                                          |          |             |             |             |
| Childhood poverty                            | 0.52***  | 0.27*       | 0.22*       | 0.36**      |
|                                               | (0.11)   | (0.13)      | (0.092)     | (0.12)      |
| Domestic abuse                                | 0.34**   | 0.46***     | 0.59***     | 0.44***     |
|                                               | (0.12)   | (0.14)      | (0.11)      | (0.13)      |
| Substance abuse                               | 0.37*    | 0.36*       | 0.30        | 0.39*       |
|                                               | (0.15)   | (0.17)      | (0.16)      | (0.18)      |
| Variables | Low Wage | | | | Higher Wage | | | |
|-----------|---------|-------------|---------|-----------|-------------|-------------|---------|
|           | Generalised Anxiety Disorder | Feel Discouraged about Future | | Generalised Anxiety Disorder | Feel Discouraged about Future | | |
| (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
| Occupational group | | | | | | | |
| Managers | 0.012 | -0.75 | 0.15 | 0.0094 | | | |
| | (0.42) | (0.60) | (0.16) | (0.22) | | | |
| Associate professionals and technicians | 0.21 | 0.12 | -0.11 | 0.22 | | | |
| | (0.29) | (0.34) | (0.13) | (0.17) | | | |
| Clerical support workers | 0.099 | 0.050 | 0.10 | 0.24 | | | |
| | (0.30) | (0.35) | (0.21) | (0.28) | | | |
| Service and sales workers | 0.25 | 0.065 | -0.14 | 0.33 | | | |
| | (0.30) | (0.35) | (0.18) | (0.22) | | | |
| Riders and drivers | 0.46 | 0.33 | -0.16 | 0.61 | | | |
| | (0.33) | (0.38) | (0.29) | (0.32) | | | |
| Cleaners, labourers, and other machine operators | 0.17 | 0.31 | -0.38 | 0.044 | | | |
| | (0.32) | (0.37) | (0.31) | (0.36) | | | |
| Other occupations | 0.31 | -0.016 | 0.21 | 0.18 | | | |
| | (0.36) | (0.43) | (0.25) | (0.33) | | | |
| Constant | -0.67 | -0.81 | -1.39*** | -1.19* | -0.12 | -0.23 | -1.20** | -1.90*** |
| | (0.34) | (0.50) | (0.41) | (0.58) | (0.35) | (0.38) | (0.43) | (0.47) |
| Pseudo R.² | 0.042 | 0.10 | 0.043 | 0.10 | 0.036 | 0.090 | 0.043 | 0.11 |
| Observations | 756 | 756 | 756 | 756 | 1,132 | 1,132 | 1,132 | 1,132 |

Standard errors in parentheses, ***p < .001, **p < .01, *p < .05

All models controlled for age, sex, ethnicity, marital status, full-time status, and log of household members’ income

Omitted categories: Degree and above, professionals
### Table 10 Probit regressions of psychological outlook, by low-wage versus higher-wage, (Wage Measure 2)

| Variables                        | Low Wage                      | Higher Wage                  |
|----------------------------------|-------------------------------|------------------------------|
|                                  | Generalised Anxiety Disorder | Generalised Anxiety Disorder | Feel Discouraged about Future | Feel Discouraged about Future |
|                                 | (1)  | (2)  | (1)  | (2)  | (1)  | (2)  | (1)  | (2)  |
| Covid-19 impacts                 |      |      |      |      |      |      |      |      |
| Worked more due to Covid-19      | 0.45+ | 0.30 | 0.25 | 0.23 | 0.41*** | 0.35** | 0.046 | 0.033 |
|                                 | (0.23) | (0.25) | (0.25) | (0.27) | (0.11) | (0.11) | (0.14) | (0.14) |
| Remote work due to Covid-19      | 0.31 | 0.48 | -0.11 | 0.022 | -0.065 | -0.11 | -0.037 | 0.010 |
|                                 | (0.28) | (0.32) | (0.36) | (0.39) | (0.094) | (0.10) | (0.12) | (0.13) |
| Earnings loss due to Covid-19    | 0.13 | 0.15 | 0.11 | 0.15 | 0.22* | 0.18 | 0.34** | 0.27* |
|                                 | (0.17) | (0.19) | (0.19) | (0.21) | (0.11) | (0.12) | (0.13) | (0.14) |
| Job disruption due to Covid-19    | 0.023 | -0.055 | 0.39* | 0.36* | 0.24* | 0.20+ | 0.35** | 0.31* |
|                                 | (0.14) | (0.15) | (0.16) | (0.17) | (0.098) | (0.10) | (0.12) | (0.12) |
| Highest education level          |      |      |      |      |      |      |      |      |
| Technical certification or below | 0.39 | -0.027 | -0.31* | -0.28 |
|                                 | (0.69) | (0.78) | (0.14) | (0.18) |
| Polytechnic diploma              | 0.44 | 0.14 | -0.10 | -0.20 |
|                                 | (0.69) | (0.79) | (0.12) | (0.15) |
| ACEs                             |      |      |      |      |      |      |      |      |
| Childhood poverty                | 0.66*** | 0.49* | 0.29*** | 0.32** |
|                                 | (0.16) | (0.19) | (0.085) | (0.11) |
| Domestic abuse                   | 0.43** | 0.57** | 0.55*** | 0.43*** |
|                                 | (0.17) | (0.19) | (0.099) | (0.12) |
| Substance abuse                  | 0.32 | 0.48* | 0.36* | 0.37* |
|                                 | (0.21) | (0.23) | (0.14) | (0.16) |
| Occupational group               |      |      |      |      |      |      |      |      |
Table 10 (continued)

| Variables                                | Low Wage                | Higher Wage             |
|------------------------------------------|-------------------------|-------------------------|
|                                           | Generalised Anxiety Disorder | Feel Discouraged about Future | Generalised Anxiety Disorder | Feel Discouraged about Future |
|                                           | (1)        (2)           | (1)        (2)           | (1)        (2)           | (1)        (2)           |
| Managers                                 | -0.21       (-0.61)     | 0.13          (0.16)     | 0.0042           (0.21)     |
| Associate professionals and technicians  | -0.21       (-0.40)     | -0.064         (0.13)     | 0.25          (0.16)     |
| Clerical support workers                 | -0.32       (-0.40)     | 0.15          (0.18)     | 0.22          (0.24)     |
| Service and sales workers                | -0.21       (-0.39)     | -0.080         (0.16)     | 0.42*        (0.20)     |
| Riders and drivers                       | -0.057      (-0.43)     | 0.20          (0.24)     | 0.43          (0.29)     |
| Cleaners, labourers, and other machine operators | -0.41      (-0.41)     | -0.12         (0.27)     | -0.13          (0.37)     |
| Other occupations                        | -0.51       (-0.47)     | -1.39***       (0.35)     | -1.78***       (0.40)     |
| Constant                                 | -1.35       (-0.90)     | -1.80+        (1.06)     | -0.34         (0.31)     |
| Pseudo R.²                               | 0.046       0.064       | 0.039         0.096       | 0.041         0.099       |
| Observations                             | 431         424          | 1,286         1,286       | 1,286         1,286       |

Standard errors in parentheses, *** p < .001, ** p < .01, * p < .05, + p < .1
All models controlled for age, sex, ethnicity, marital status, full-time status, and log of household members’ income
Omitted categories: Degree and above, professionals
Missing observations are due to lack of data on respondents’ starting salary and/or current wage
Missing observations for low wage, columns 2 are due to lack of variation in responses for GAD and discouragement among respondents with other occupations
A main instrument by the Singapore government in addressing these problems of restructuring and upskilling is a nation-wide continuing education programme named SkillsFuture. However, it is unclear how effective these strategies are with lower earning and younger workers. For instance, among our sample respondents, only 49% answered that they had attended training in the past year. Furthermore, some of these job market structures issues cannot be overcome without also addressing the reliance of immigrant labour, and ultimately, the wages and conditions of lower end jobs need to be addressed, especially for dependent self-employed workers. These pose great challenges to Singapore’s wage model, which has relied on a progressive wage model tied to training rather than minimum wage legislation.

While some of the issues discussed thus far are Singapore-specific, the findings in this paper speak to a worldwide challenge post-Covid-19. To the extent that our findings reflect the experiences in other advanced economies, this global pandemic has worsened labour market duality. With a quality of life perspective that discusses not only the economic but also the psychological effects of the heightened polarisation, our paper suggests the urgency of addressing duality for young people.

Limitations

Conducted in the midst of a global pandemic, many of the variables in our cross-sectional study are endogenous. For example, although we modify our low wage measures to reflect permanent low wage, our cross-sectional data cannot rule out reverse causality. Even as our results largely reflect the effects of low wage on being impacted by Covid-19 and psychological outlook, there might remain some individuals whose poor psychological well-being led to low wage. We therefore also control for background variables such adversities and education level. Still, the causal claims in our cross-sectional study cannot be taken as conclusive. Generally, collecting data during an unprecedented pandemic makes it impossible to tease out one-time unique factors and lingering structural factors.

Other limitations include common constraints in survey-based studies such as common source bias and reliability of variables (Bakker & Demerouti, 2017). For the present study, common source bias is likely minimal because most variables are more objective occurrence-based rather than subjective opinion-based. However, especially for the Covid-19 variables, the results could be manipulated by how the variables are combined. We had tried different specifications and chosen one that we found to be conceptually clean and most closely reflect the experiences of the two wage groups. Our main findings do not differ with different specifications.

Conclusion

Our findings that Covid-19 has worsened labour market duality for young people suggests the necessity of paying special attention to young workers in lower paying occupations. Not only do many of them not telecommute, they have also experienced greater job disruption and earnings loss, and are more anxious and discouraged. As
governments plan for economic recoveries, they must seize the opportunity from the gaps revealed by this global pandemic to pivot and reset from existing inequalities. Otherwise, we will have to reckon with a lost generation whose quality of work lives could be scarred for life.

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References

Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Inequality in the impact of the coronavirus shock: Evidence from real time surveys. *Journal of Public Economics, 189*, 104245. https://doi.org/10.1016/j.jpubeco.2020.104245

Ang, H.M. (2021). NDR 2021: Progressive wages to be extended to more sectors as part of move to uplift lower-wage workers. Channel News Asia. Retrieved November 3, 2021, from https://www.channelnewsasia.com/singapore/progressive-wage-model-local-qualifying-story-national-day-rally-ndr-2021-2143121.

Angelucci, M., Angrisani, M., Bennett, D.M., Kapteyn, A., Schaner, S.G. (2020). Remote work and the heterogeneous impact of COVID-19 on employment and health. *NBER Working Paper Series, (27749)*. http://www.nber.org/papers/w27749. Accessed 9 Nov 2021.

Atkinson, J. (1984). Manpower strategies for flexible organisations. *Personnel Management, 16*(8), 28–31.

Aum, S., Lee, S.Y., & Shin, Y. (2020). COVID-19 doesn’t need lockdowns to destroy jobs: The effect of local outbreaks in Korea. *NBER Working Paper Series, (27264)*. http://www.nber.org/papers/w27264. Accessed 9 Nov 2021.

Autor, D. H. (2019). Work of the past, work of the future. *AEA Papers and Proceedings, 109*, 1–32. https://doi.org/10.1257/pandp.20191110

Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology, 22*(3), 273–285. https://doi.org/10.1037/ocp0000056

Bali, A.S., McKiernan, P., Vas, C., & Waring, P. (2019). *Productivity and innovation in SMEs: Creating competitive advantage in Singapore and South East Asia*. Routledge.

Brown, T. M. (2016). The making of vulnerable workers: Uncredentialed young adults in postindustrial, urban America. *Equity & Excellence in Education, 49*(3), 363–379. https://doi.org/10.1080/10665684.2016.1194105

Butterworth, P., Leach, L. S., Strazdins, L., Olesen, S. C., Rodgers, B., & Broom, D. H. (2011). The psychosocial quality of work determines whether employment has benefits for mental health: Results from a longitudinal national household panel survey. *Occupational & Environmental Medicine, 68*(11), 806–812.

Chiu, S. W., Ho, K. C., & Lui, T. (1997). Singapore: Manufacturing fortunes in “sunrise” and “high noon” industries. In S. W. Chiu, K. C. Ho, & T. Lui (Eds.), *City states in the global economy: Industrial manufacturing in Hong Kong and Singapore* (pp. 79–106). Westview Press.

Chok, S. (2021). *Mind the chasm: COVID-19 & deepening inequalities in Singapore*. Beyond Social Services. Retrieved November 9, 2021, from https://beyondresearch.sg/wordpress/wp-content/uploads/2021/02/BSS-COVID19-REPORT-080221v2.pdf.

Coe, N.M., & Kelly, P.F. (2000). Distance and discourse in the local labour market: The case of Singapore. *Area, 32*(4), 413–422.

Dalton, M., Groen, J. A., Loewenstein, M. A., Piccone, D. S., Jr., & Polivka, A. E. (2021). The k-shaped recovery: Examining the diverging fortunes of workers in the recovery from the COVID-19
pandemic using business and household survey microdata. *Journal of Economic Inequality*, 19, 527–550. https://doi.org/10.1007/s10888-021-09506-6

Daly, P., Brassard, C., McCaughey, J., Ng, R., Kathiravelu, L., & Horton, B. (2021). The social and economic impacts of COVID-19 mitigation measures on citizens and permanent residents during the circuit breaker period in Singapore. *NTS Insight*, (IN21–02). https://www.rsis.edu.sg/rsis-publication/nts/the-social-and-economic-impacts-of-covid-19-mitigation-measures-on-citizens-and-permanent-residents-during-the-circuit-breaker-period-in-singapore/#.YYsYfPByUK. Accessed 9 Nov 2021.

Delbosc, A., & McCarthy, L. (2021). Pushed back, pulled forward: Exploring the impact of COVID-19 on young adults’ life plans and future mobility. *Transport Policy*, 107, 43–51. https://doi.org/10.1016/j.tranpol.2021.04.018

Department of Statistics [DOS]. (1990). Singapore census of population 1990: Economic characteristics. *Department of Statistics*, Singapore.

Department of Statistics [DOS]. (2020, March 20). *Singapore standard occupational classification SSOC 2020*. Department of Statistics, Singapore. Retrieved October 26, 2021, from https://www.singstat.gov.sg/standards/standards-and-classifications/ssoc.

Department of Statistics [DOS]. (2021a). *Education, language spoken and literacy*. Department of Statistics, Singapore. Retrieved October 26, 2021a, from https://www.singstat.gov.sg/find-data/search-by-theme/population/education-language-spoken-and-literacy/latest-data.

Department of Statistics [DOS]. (2021b). *Households*. Department of Statistics, Singapore. Retrieved November 10, 2021b, from https://www.singstat.gov.sg/find-data/search-by-theme/households/households/latest-data.

Dias, M. C., Joyce, R., & Keiller, A. N. (2020). *COVID-19 and the career prospects of young people*. Institute for Fiscal Studies. Retrieved November 9, 2021, from https://ifs.org.uk/publications/14914.

Dickens, W. T., & Lang, K. (1993). Labor market segmentation theory: Reconsidering the evidence. In W. Darity (Ed.), *Labor economics: Problems in analyzing labor markets* (pp. 141–180). Kluwer Academic Publishers.

Doeringer, P. B., & Piore, M. J. (1971). Internal labor markets and manpower analysis. *D.C. Heath and Company*.

Dooley, D. (2003). Unemployment, underemployment, and mental health: Conceptualizing employment status as a continuum. *American Journal of Community Psychology*, 32(1–2), 9–20. https://doi.org/10.1023/a:1025634504740

Fernandez-Kranz, D., Lacuesta, A., & Rodriguez-Planas, N. (2013). The motherhood earnings dip: Evidence from administrative records. *Journal of Human Resources*, 48(1), 169–197. https://doi.org/10.1353/jhr.2013.0007

Fernandez-Kranz, D., & Rodriguez-Planas, N. (2018). The perfect storm: Graduating during a recession in a segmented labor market. *Industrial & Labor Relations Review*, 71(2), 492–524. https://doi.org/10.1177/0019793917714205

Giuntella, O., Hyde, K., Saccardo, S., & Sadoff, S. (2021). Lifestyle and mental health disruptions during COVID-19. *Proceedings of the National Academy of Sciences*, 118(9), e2016632118. https://doi.org/10.1073/pnas.2016632118

Goh, T. (2021). *IMH study points to likely increase in mental health issues in S’pore amid Covid-19*. The Straits Times. Retrieved November 10, 2021, from https://www.straitstimes.com/singapore/health/imh-study-points-to-likely-increase-in-mental-health-issues-in-spore-amid-covid-19.

Goldin, I., & Muggah, R. (2020). *COVID-19 is increasing multiple kinds of inequality. Here’s what we can do about it*. World Economic Forum. Retrieved November 10, 2021, from https://www.weforum.org/agenda/2020/10/covid-19-is-increasing-multiple-kinds-of-inequality-here-s-what-we-can-do-about-it/.

Grzegorczyk, M., & Wolff, G. B. (2020). *The scarring effect of COVID-19: Youth unemployment in Europe*. Bruegel. Retrieved November 9, 2021, from https://www.bruegel.org/2020/11/the-scarring-effect-of-covid-19-youth-unemployment-in-europe/.

Ho, K. C. (2005). Service industries and occupational change: Implications for identity, citizenship and politics. In P. W. Daniels, K. C. Ho, & T. A. Hutton (Eds.), *Service industries and Asia-Pacific cities: New development trajectories* (pp. 93–109), Routledge.

Ho, T. W. L. (2021). Regulating the labour market. In T. W. L. Ho (Ed.), *Refreshing the Singapore system: Recalibrating socio-economic policy for the 21st century* (pp. 235–288). World Scientific Publishing.
Separate Lives, Uncertain Futures: Does Covid-19 Align or...

Holtgrew, U., Kirov, V., & Ramioul, M. (2015). *Hard work in new jobs. The quality of work and life in European growth sectors*. Palgrave Macmillan.

Hoon, H. T. (2005). Future job prospects in Singapore. *SMU Economics & Statistics Working Paper Series, 01–2005*, 1–38. https://sites.google.com/site/hthoon/home#:~:text=Prospects%20in%20Singapore%25Bdraft%5D,Hoon%20and%20Ho. Accessed 9 Nov 2021.

Hsieh, Y., & Tseng, S. (2002). The welfare state in the 'information age': Hollowing out or restructuring in the changing labour market in Singapore? *International Journal of Human Resource Management, 13*(3), 501–521. https://doi.org/10.1080/09585190110111503.

International Labour Organisation [ILO]. (2020). *Youth & COVID-19: Impacts on jobs, education, rights and mental well-being*. International Labour Organization. Retrieved November 9, 2021, from https://www.ilo.org/wcmsp5/groups/public/----ed_emp/documents/publication/wcms_753026.pdf.

Kahn, L. M. (2010). Labor market policy: A comparative view on the costs and benefits of labor market flexibility. *Institute for the Study of Labor (IZA) Discussion Paper, (5100).* https://ftp.iza.org/dp5100.pdf. Accessed 9 Nov 2021.

Kalleberg, A. L. (2000). *Nonstandard employment relations: Part-time, temporary and contract work*. Russell Sage Foundation, American Sociological Association’s Rose Series in Sociology.

Lee, S. Y., Park, M., & Shin, Y. (2021). Hit harder, recover slower? Unequal employment effects of the COVID-19 shock. *NBER Working Paper Series, (28354).* http://www.nber.org/papers/w28354. Accessed 9 Nov 2021.

Lim, L. Y. C. (2014). Singapore’s success: After the miracle. In R. Looney (Ed.), *Handbook of emerging economies* (pp. 203–226). Routledge.

Martos, T., & Kopp, M. S. (2012). Life goals and well-being: Does financial status matter? Evidence from a representative Hungarian sample. *Social Indicators Research, 105*(3), 561–568.

Mathews, M., Teo, K. K., Tay, M., & Wang, A. (2021). Lived experiences in Singapore: Key findings from the World Values Survey. *IPS Exchange Series*, (18). https://lkyspp.nus.edu.sg/docs/default-source/ips/ips-exchange-series-18.pdf. Accessed 9 Nov 2021.

Ministry of Manpower [MOM]. (2019). *Income, wages and earnings*. In *Singapore yearbook of manpower statistics 2019* (pp. B1–B3). Ministry of Manpower, Singapore. https://stats.mom.gov.sg/iMAS_PdfLibrary/mrsd_2019Yearbook_We_d.pdf.

Ministry of Manpower [MOM]. (2021a). *Labour force in Singapore: Impact of COVID-19 on the labour market: 2020 edition*. Manpower Research and Statistics Department, Ministry of Manpower, Singapore. Retrieved November 1, 2021a, from https://stats.mom.gov.sg/iMAS_PdfLibrary/mrsd_2020LabourForce.pdf.

Ministry of Manpower [MOM]. (2021b). *Statistical table: Income: Gross monthly income from work of full-time employed residents*. Retrieved November 10, 2021b, from https://stats.mom.gov.sg/Pages/IncomeTimeSeries.aspx.

Ministry of Manpower [MOM]. (2021c). *What is the progressive wage model*. Ministry of Manpower, Singapore. Retrieved November 9, 2021d, from https://www.mom.gov.sg/employment-practices/progressive-wage-model/what-is-pwm.
Modini, M., Joyce, S., Mykletun, A., Christensen, H., Bryant, R. A., Mitchell, P. B., & Harvey, S. B. (2016). The mental health benefits of employment: Results of a systematic meta-review. Australasian Psychiatry, 24(4), 331–336. https://doi.org/10.1177/1039856215618523

Moxon, D., Bacalso, C., & Şerban, A. (2021). Beyond lockdown: The 'pandemic scar' on young people. European Youth Forum. Retrieved November 9, 2021, from https://www.youthforum.org/sites/default/files/publication-pdfs/European%20Youth%20Forum%20Report%20v1.2.pdf

Newman, M. G., Zueilig, A. R., Kachin, K. E., Constantino, M. J., Przeworski, A., Erickson, T., & Cashman-McGrath, L. (2002). Preliminary reliability and validity of the generalized anxiety disorder questionnaire—IV: A revised self-report diagnostic measure of generalized anxiety disorder. Behavior Therapy, 33(2), 215–233.

Ng, I. Y. H. (2013). Multi-stressed low-earning families in contemporary policy context: Lessons from work support recipients in Singapore. Journal of Poverty, 17(1), 86–109.

Ng, I. Y. H. (2020). Low wage work: Trends and possibilities. In I. Y. H. Ng & Y. W. Neo (Eds.), Working with low income families through the life course: Challenges to social services (pp.77–90). National University of Singapore. https://fass.nus.edu.sg/ssr/wp-content/uploads/sites/8/2020/06/2019_SSR_proceedings_Working_With_Low-Income_Families_Through_the_Life_Course_2.pdf. Accessed 9 Nov 2021.

Ng, I. Y. H., Ng, Y. Y., & Lee, P. C. (2018). Singapore’s restructuring of low-wage work: Have cleaning job conditions improved? Economic and Labour Relations Review, 29(3), 308–327. https://doi.org/10.1177/1035304618782558

Ng, K. G. (2021). 452 suicides reported in Singapore in 2020 amid Covid-19, highest since 2012. The Straits Times. Retrieved November 10, 2021, from https://www.straitstimes.com/singapore/452-suicides-reported-in-singapore-in-2020-amid-covid-19-highest-since-2012.

OECD & ILO. (2015). Achieving better youth employment outcomes: Monitoring policies and progress in G20 economies. Organisation for Economic Co-Operation and Development and International Labour Organization. Retrieved November 9, 2021, from https://www.oecd.org/g20/topics/employment-and-social-policy/Achieving-better-youth-employment-outcomes.pdf

Pang, E. F., & Lim, L. Y. C. (2015). Labor, productivity and Singapore’s development model. Singapore Economic Review, 60(3), 1550033–1-1550033–30.

Park, S. K., Rhee, M. K., & Kim, M. A. (2019). Job stress, daily stress, and depressive symptoms among low-wage workers in Korea: The role of resilience. Asia Pacific Journal of Social Work and Development, 29(2), 149–162. https://doi.org/10.1080/02185385.2018.1542339

Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. Journal of Vocational Behavior, 74(3), 264–282. https://doi.org/10.1016/j.jvb.2009.01.001

Phua, R., & Chew, H. M. (2020). Can Singapore rely less on foreign workers? It’s not just about dollars and cents, say observers. Channel News Asia. Retrieved November 3, 2021, from https://www.channelnewsasia.com/singapore/singapore-foreign-workers-reliance-challenges-722001

Piyapromdee, S., & Spittal, P. (2020). The income and consumption effects of COVID-19 and the role of public policy. Fiscal Studies, 41(4), 805–827.

Seow, J. (2020). Singapore budget 2020: $1,000 SkillsFuture credit top-up for mid-career workers; more places in re-skilling programmes. The Straits Times. Retrieved November 10, 2021, from https://www.straitstimes.com/singapore/singapore-budget-2020-1000-skillsfuture-credit-top-up-this-year-for-mid-career-workers.

Shields, M., Dimov, S., Kavanagh, A., Milner, A., Spittal, M. J., & King, T. L. (2021). How do employment conditions and psychosocial workplace exposures impact the mental health of young workers? A systematic review. Social Psychiatry and Psychiatric Epidemiology, 56, 1147–1160. https://doi.org/10.1007/s00127-021-02077-x

Shreffler, J., Petrey, J., & Huecker, M. (2020). The impact of COVID-19 on healthcare worker wellness: A scoping review. Western Journal of Emergency Medicine, 21(5), 1059–1066. https://doi.org/10.5811/westjem.2020.7.48684

Shrestha, R., Siwakoti, S., Singh, S., & Shrestha, A. P. (2021). Impact of the COVID-19 pandemic on suicide and self-harm among patients presenting to the emergency department of a teaching hospital in Nepal. PLoS One, 16(4), e0250706. https://doi.org/10.1371/journal.pone.0250706

Song, X., & Xie, Y. (2020). Occupation-based socioeconomic index with percentile ranks. University of Pennsylvania Population Center Working Paper, (2020–59). https://repository.upenn.edu/cgi/viewcontent.cgi?article=1058&context=psc_publications. Accessed 9 Nov 2021.

Standing, G. (2012). The precariat: From denizens to citizens? Polity, 44(4), 588–608.
Separate Lives, Uncertain Futures: Does Covid 19 Align or…

Stanton, P., & Nankervis, A. (2011). Linking strategic HRM, performance management and organizational effectiveness: Perceptions of managers in Singapore. *Asia Pacific Business Review*, 17(1), 67–84. https://doi.org/10.1080/13602381003790382

Subramaniam, M., Abdin, E., Vaingankar, J. A., Shafie, S., Chua, B. Y., Sambasivam, R., Zhang, Y. J., Shahwan, S., Chang, S., Chua, H. C., Verma, S., James, L., Kwok, K. W., Heng, D., & Chong, S. A. (2020). Tracking the mental health of a nation: Prevalence and correlates of mental disorders in the second Singapore mental health study. *Epidemiology and Psychiatric Sciences*, 29(e29), 1–10. https://doi.org/10.1017/S2045796019000179

Tan, B. Y. Q., Kanneganti, A., Lim, L. J. H., Tan, M., Chua, Y. X., Tan, L., Sia, C. H., Denning, M., Goh, E. T., Purkayastha, S., Kinross, J., Sim, K., Chan, Y. H., & Ooi, S. B. S. (2020). Burnout and associated factors among health care workers in Singapore during the COVID-19 pandemic. *Journal of the American Medical Directors Association*, 21(12), 1751–1758. https://doi.org/10.1016/j.jamda.2020.09.035

Teo, I., Chay, J., Cheung, Y. B., Sung, S. C., Tewani, K. G., Yeo, L. F., Yang, G. M., Pan, F. T., Ng, J. Y., Aloweni, F. A. B., Ang, H. G., Ayre, T. C., Chai-Lim, C., Chen, R. C., Heng, A. L., Nadarajan, G. D., Ong, M. E. H., See, B., Soh, C. R., … Tan, H. K. (2021). Healthcare worker stress, anxiety and burnout during the COVID-19 pandemic in Singapore: A 6-month multi-centre prospective study. *PLoS One*, 16(10), e0258866. https://doi.org/10.1371/journal.pone.0258866

Teo, T. S. H. (2007). Organizational characteristics, modes of internet adoption and their impact: A Singapore perspective. *Journal of Global Information Management*, 15(2), 91–117. https://doi.org/10.4018/jgim.2007040104

Teoh, T., Zhou, J., Ng, I. Y. H., Peck, G., & Neo, Y. W. (2020). Will poor work get poorer after the pandemic? *NUS Social Service Research Centre Snippet*, 4, 10–18. https://fass.nus.edu.sg/ssr/wp-content/uploads/sites/8/2020/11/Snippet_Issue4_Poverty_Poor_Work_2020.pdf. Accessed 9 Nov 2021.

Tham, Y. (2021). NDR 2021: MOM looking into issue of work benefits and welfare needs of delivery workers. The Straits Times. Retrieved November 10, 2021, from https://www.straitstimes.com/singapore/politics/national-day-rally-2021-mom-looking-at-job-protection-for-delivery-workers.

The White House. (2021, October 28). *President Biden announces the Build Back Better framework*. The White House Statements and Releases. Retrieved November 9, 2021, from https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/28/president-biden-announces-the-build-back-better-framework/.

Thomas, M. L., Kaufmann, C. N., Palmer, B. W., Depp, C. A., Martin, A. S., Glorioso, D. K., Thompson, W. K., & Jeste, D. V. (2016). Paradoxical trend for improvement in mental health with aging: A community-based study of 1,546 adults aged 21–100 years. *Journal of Clinical Psychiatry*, 77(8), e1019–e1025. https://doi.org/10.4088/JCP.16m10671

UNICEF. (2020). *Families on the edge: Low-income families need continued support to recover from the effects of COVID-19*. UNICEF Malaysia and United Nations Population Fund. Retrieved November 10, 2021, from https://www.unicef.org/malaysia/press-releases/families-edge-low-income-families-need-continued-support-recover-effects-covid-19.

University of Michigan. (2002). *Child development supplement II: Child CAPI interview and assessments*. The Child Development Supplement of The Family Economic Study. Retrieved November 10, 2021, from https://psidonline.isr.umich.edu/cds/questionnaires/cds-ii/english/cdsii_child_assess.pdf.

Vallas, S., & Prener, C. (2012). Dualism, job polarization, and the social construction of precarious work. *Work & Occupations*, 39(4), 331–353. https://doi.org/10.1177/0730888412456027

Vyas, L., & Butakhieo, N. (2021). The impact of working from home during COVID-19 on work and life domains: An exploratory study on Hong Kong. *Policy Design and Practice*, 4(1), 59–76. https://doi.org/10.1080/25741292.2020.1863560

Wade, R., Jr., Becker, B. D., Bevans, K. B., Ford, D. C., & Forrest, C. B. (2017). Development and evaluation of a short adverse childhood experiences measure. *American Journal of Preventive Medicine*, 52(2), 163–172.

Wan, D. (2003). HRM in Singapore: Change and continuity. *Asia Pacific Business Review*, 9(4), 129–146. https://doi.org/10.1080/13602380312331288740

Williams, C. C., & Lapeyre, F. (2017). Dependent self-employment: Trends, challenges and policy responses in the EU. *ILO Employment Working Paper*, (228). https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_614176.pdf. Accessed 9 Nov 2021.

Workfare. (2021). *Workfare income supplement (WIS) scheme*. Workfare, Government of Singapore. Retrieved November 9, 2021, from https://www.workfare.gov.sg/Pages/WIS.aspx.
World Health Organization [WHO]. (2017). *Depression and other mental health disorders: Global health estimates*. World Health Organization. Retrieved November 23, 2021, from https://apps.who.int/iris/bitstream/handle/10665/254610/WHO-MSD-MER-2017.2-eng.pdf.

Zeng, H. N. (2020). *Improving the welfare of platform workers in Singapore*. [Case Study, Lee Kuan Yew School of Public Policy]. ScholarBank@NUS Repository. https://doi.org/10.25818/6gpf-pk42.

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