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ABSTRACT

Working Parents, Financial Insecurity, and Child-Care: Mental Health in the Time of COVID-19*

The COVID-19 pandemic and the policy measures to control its spread – lockdowns, physical distancing, and social isolation – has coincided with the deterioration of people's mental well-being. We use data from the UK Household Longitudinal Study (UKHLS) to document how this phenomenon is related to the situation of working parents who now have to manage competing time demands across the two life domains of work and home. We show that the worsening of mental health in the United Kingdom is worse for working parents, and that it is especially related to the increased financial insecurity and the time spent on childcare and home schooling. We find that this burden is not shared equally between men and women, and between richer and poorer households. In crafting public policy responses to the pandemic, better outcomes can be achieved if policymakers are cognizant of these inequalities.

JEL Classification: I14, J16

Keywords: COVID-19, working parents, United Kingdom, childcare, mental health, financial insecurity

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1 Introduction

Work–life balance is important for individual well-being, and the spheres of employment and home typically should not overlap (Robinson, 2006). However, the public policy response to the COVID-19 pandemic necessitated an amalgamation of two life domains that was largely involuntary. With school closures, formal education was shifted to the home environment – delivered remotely by teachers but largely supervised by parents and guardians.[1] Even those without children had to make adjustments, such as setting up temporary home offices in kitchens and bedrooms.

The quarantine measures adopted by the UK and several other governments around the world in response to COVID-19 have coincided with the deterioration of people's mental health. Individuals reported suffering from increased depression and anxiety because of social distancing (see, e.g., Brooks et al., 2020), in line with research on previous pandemics: being in quarantine during the COVID-19 outbreak raised feelings of fear, nervousness, anger, grief, and anxiety-driven insomnia similarly to the experiences of quarantined individuals during the Ebola and SARS outbreaks in the late 1990s and early 2000s (Reynolds et al., 2008; Desclaux et al., 2017; Caleo et al., 2018).

Competing time demands and financial concerns also contribute to the degradation of mental health, resulting in the reduced productivity of workers. Depression alone, for example, was estimated to have led to 200 million lost working days each year at a cost of USD 30–40 billion (Gabriel and Liimatainen, 2020). In turn, high levels of stress could lead to mental

[1] The United Kingdom closed schools on 26 March 2020. Many schools carried out teaching and learning activities online, relying on parents to ensure the smooth continuation of the schooling programmes. Plans to slowly reopen economic activities were introduced on May 11 (Step 1), but leaving the house for any reason and increased schooling activity started only on June 1 (Step 2).

and physical illness, aggressive and violent behaviour, alcohol abuse, and decreased work performance (Cohen and Willis, 1985; Whitley and McKenzie, 2005).

Our paper aims to (1) document the potential damage to the financial security of working parents during the first wave of the COVID-19 pandemic in the UK; (2) explain the relationships between financial insecurity and the homecare of children and the mental well-being of working parents; and (3) explore the heterogeneity of these relationships across gender and economic status among working parents.

To achieve our objectives, we use data from the UK Household Longitudinal Study (UKHLS), otherwise known as *Understanding Society*, which has been collecting information on UK households since 2009. Beginning in April 2020, a COVID-19 special survey has been running to examine the impact of the pandemic on the participants of UKHLS. Using this dataset, we are able to compare working parents to workers without children, i.e., workers who are assumed to be under less pressure to reallocate time between home (including childcare) and work life.

We contribute to the literature in a number of ways. First, we are the first to focus on the well-being of working parents during the COVID-19 pandemic using high-quality longitudinal data. In particular, we use pre-COVID-19 information to control for pre-existing characteristics of working families. Second, in examining the well-being of working parents, we pay special attention to financial insecurity and childcare and home schooling responsibilities. Third, we demonstrate that the burden between men and women, and between rich and poor households, are distinctly unequal. Since this heterogeneity exists in the distribution of burden, targeting both financial and nonfinancial aid can lead to more efficient and equitable outcomes.

2 Data and Descriptive Statistics

Our analysis is based on Wave 9 of the UK Household Longitudinal study (UKHLS) and the April and May 2020 waves of the UKHLS COVID-19 survey. Wave 1 of the UKHLS, which started in 2009–2010, included around 40,000 households in the United Kingdom, collecting information on a range of socioeconomic and behavioural domains. Wave 9 (pre-COVID-19) consists of individuals surveyed during the period 2017–2018.

On April 2020, selected respondents of the UKHLS were invited to take part in the first wave of the new COVID-19 special survey, which includes important questions on the impact of the pandemic on the well-being of individuals, families, and wider communities. Participants were asked to complete one survey per month until July 2020, followed by a survey every two months from September 2020 in order to track changes in their circumstances and environments. There were 17,452 individuals who completed a full post-COVID-19 survey in April 2020, and 14,811 individuals completed the survey in May 2020 (Institute for Social and Economic Research, 2020). We use data from the first two months of the survey. It includes information about, among others, caring responsibilities and family life, employment and financial situation, financial well-being, home schooling, and mental well-being.

We restricted the sample to individuals who work (either being employed or self-employed) and have non-missing information on important socioeconomic characteristics, including age, gender, family structure, region of residence, education, employment, and household income. Individuals are defined as a working parent if the person is employed or self-employed and lives with a child younger than 18 years old. We do not distinguish among natural, adoptive, and stepparents. There are 6,795 (43%) working parents in the estimation sample, of which 57% are female. The final estimation sample consists of 15,665 individuals

who completed at least one post-COVID-19 survey. We show proportions and means of important characteristics in Table 1.

[Table 1 here]

Mental health is measured using the General Health Questionnaire (GHQ). The GHQ caseness score is constructed from the responses to 12 questions covering feelings of strain, depression, inability to cope, anxiety-based insomnia, and lack of confidence. The 12 answers are combined into a total GHQ score that indicates the level of mental distress, giving a scale running from 0 (the least distressed) to 12 (the most distressed). In Table 2, we show that working individuals were, on average, less mentally distressed before COVID-19. We find the same results if the sample is restricted to working parents only.

In order to broadly capture financial insecurity, we consider seven indicators as follows (Table 2):

1. Looking ahead, how do you think you will be financially a month from now: will you be better off, worse off, or about the same?
2. Have you asked your bank for a mortgage holiday?
3. Have you applied for/received a payment holiday on any credit product other than a mortgage?
4. Have you given financial help to, or received financial help from, family or friends who do not currently live in the same house?
5. Have you applied for Universal Credit[2] (asked if not already receiving it in January or February 2020)?
6. If your household is now earning less than in January or February 2020, did you borrow from a bank or use a credit card to deal with this?
7. How likely it is that you will have difficulties in paying your bills (in %)?

Only the first question on the respondent's expectation about his or her own financial situation in the future is asked before and after the COVID-19 pandemic started. Questions 3 and 7 were only asked in the May 2020 round of the COVID-19 special survey.

[2] Universal Credit is a social security payment in the United Kingdom designed to alleviate the financial situation of low-income households.

[Table 2 here]

Table 2 shows that more working individuals expect their financial situation to be worse after COVID-19, both among those who are working and among the restricted sample of working parents only. In Table 2, note, for instance, that the mental well-being of working parents worsened by 64% as the pandemic was unfolding. The survey shows that working parents are in worse mental health and are less financially secure – irrespective of which measure of financial insecurity is used – than the sample of working individuals (see columns 1 and 3 of Table 2).

The intensity of engagement in childcare or home schooling is captured by the time spent on these activities. Based on the empirical distribution of this variable, we created four groups of working parents (quartiles): those who spend less than an hour, those who spend between 1 to 7 hours, those who spend between 7 to 20 hours, and those who spend 20 hours or more per week on childcare or home schooling.

In Table 3, we show that about a third of working mothers spend more than 20 hours per week on these activities, but less than a quarter of working fathers spend a similar amount of time looking after or schooling their children. Most working fathers spend less than an hour each week on childcare or home schooling. More than half of working parents with younger children (less than 5 years old) spend more than 20 hours per week on childcare or home schooling. Finally, there is a strong propensity among parents with a tertiary or higher qualification to engage in childcare or home schooling. Parents with low or no educational qualification tend to spend less than one hour per week in these activities.[3]

[3] This finding is consistent with much of the literature examining the relationship between educational attainment and parental time spent with children. See, for example, Bianchi et al. (2004), Chalasani (2007), and Marsiglio (1991).

[Table 3 here]

3 Estimation

We estimate the parameters of the following model to control for observable confounders:

$$Y_{it} = \alpha + \beta WP_{it} + \boldsymbol{\delta}'\mathbf{x}_{it} + \varepsilon_{it}, \quad (1)$$

where Y_{it} represents an outcome pertaining to financial insecurity for individual i at time t, WP_{it} is an indicator of being a working parent, $\mathbf{x}_{it}$ is a vector of individual and family characteristics, and ε_{it} is the unobservable determinant of the outcomes that varies across i and t. The vector $\mathbf{x}_{it}$ includes variables such as age, ethnic group, gender, education, labour market activity at COVID-19 waves and at previous wave, marital status, household gross income before COVID-19, and region of residence.

We also examine the relationship between financial insecurity, different levels of time spent in childcare or home schooling, and parental mental well-being. We estimate the following model:

$$MH_{it} = \alpha + \beta FI_{it} + TCH_{it} + \boldsymbol{\delta}'\mathbf{x}_{it} + \varepsilon_{it}, \quad (2)$$

where MH_{it} represents mental well-being for individual i at time t, FI_{it} is the index of financial insecurity constructed using factor analysis,[4] TCH_{it} is a variable representing hours spent in child care or home schooling (grouped into four categories based on the empirical distribution of the variable), $\mathbf{x}_{it}$ is a vector of individual and family characteristics, and ε_{it} is the error term. The vector $\mathbf{x}_{it}$ is the same as in Equation (1), with the addition of the GHQ-12

[4] The index is standardised to have a mean of 0 and a standard deviation of 1. It was created using factor analysis using the answers of the respondents to five out of the seven questions regarding financial insecurity listed in Sec. 2. These questions were asked in both post-COVID-19 waves, and the remaining two were not. One factor with an eigenvalue greater than 1 is retained and is used to construct an index of financial insecurity. Factor loadings are reported in the appendix (Table A1).

caseness score at the last pre-COVID-19 survey (Wave 9), which is similar to the idea behind controlling for previous trends in mental health (Banks and Xu, 2020).

4 Results

Table 4 shows the OLS estimates of the associations between being a working parent and a series of measures of financial insecurity. These results correspond to Equation (1) in Sec. 4. The different outcomes, which are displayed as separate columns 1-7, are binary variables indicating financial distress. Rows A to H correspond to eight types of working parents according to when they were surveyed (pre- or post-COVID-19 waves) and the number and ages of their children.

[Table 4 here]

Irrespective of the measure of financial insecurity, working parents are more financially insecure relative to workers without children during the COVID-19 period. For instance, they are more pessimistic about their financial future (column 1), and they are more likely to have received some sort of financial assistance such as a mortgage or credit holiday, loans, and transfer payments from the state via Universal Credit (columns 2 to 5). When we restrict the sample to the pre-COVID-19 wave (panel B1), we observe no statistically significant difference in expectations about financial security between workers with and without children. Therefore, any changes in expectations regarding the financial futures of these two types of workers must have occurred after the start of the pandemic.

Working parents with three or more children demonstrate a worse outcome than the general working population and experience higher levels of financial distress (panel B). While parents with children under the age of 5 also appear more vulnerable and distressed (panel G), we also find significant estimates of financial distress for parents of school-aged (5–15)

children (panel E). Working parents with three or more children are neither more likely to get a credit holiday (panel C3), nor do working parents with children less than 5 years old think they will experience difficulties in paying their bills in the future when compared to the general population (panel G7).[5]

In sum, Table 4 show that working parents with more children and working parents with younger children (less than 5 years old) fared worse after COVID-19 as measured by indicators for financial well-being.

We further explore the heterogeneity of our findings by gender and income group. In Table 5, we show that both mothers and fathers experience the same changes in financial insecurity during the pandemic. Except for the probability of having a mortgage holiday (panels B2 and B3; probably because mortgages are typically shared by a couple), all the point estimates are larger for mothers. This implies that mothers experienced relatively harsher financial hardship than fathers in the sample. Neither mothers nor fathers expected their financial situation to be worse when asked the question before the pandemic (panels B1 and D1).[6]

[Table 5 here]

In Table 6, we group households by income before the pandemic. In particular, we create two groups based on whether the household is above or below the median income before the pandemic. Parents with a lower pre-pandemic income are particularly exposed to financial insecurity. Point estimates are larger for working parents whose income before the pandemic

[5] These two questions were only answered in the May 2020 post-COVID-19 wave, so these results should be interpreted with caution.

[6] Although not presented in the table, working mothers are 6.3 percentage points more likely to feel constantly under strain and 2.5 percentage points more likely to have lost sleep over worrying relative to working women with no children. The corresponding comparisons between working fathers and working men with no children do not show a statistically significant difference.

was below the median income relative to those whose income was above the median. Since Universal Credit was designed for low-income households, it is reassuring that the estimate is not statistically significant for those households with income above the median (panel C5). Regardless of whether the household was above or below the median income before the pandemic, there was a deterioration about their future financial situation after the pandemic (panels A7 and D7).

[Table 6 here]

The results presented in Tables 4, 5, and 6 indicate that the perceived financial security of working parents has deteriorated after the start of the pandemic. This change in circumstances is likely be associated with the mental well-being of working parents. To explore this, we estimate the relationship captured by Equation (2) in Sec. 3, that is, whether declining financial well-being is reflected in worsening mental health while controlling for other relevant factors, particularly the time spent on childcare and home schooling.

In Table 7, we show the corresponding coefficient estimates of Equation (2). The measure of mental health that we use is the GHQ-12 caseness score, which goes from 0 to 12, where higher numbers are associated with worse mental health.[7] The index of financial insecurity is constructed using the different measures of financial well-being described in Sec. 2.

Overall, we see that a one-standard-deviation increase in the index of financial insecurity is associated with an increase in the caseness score of 0.411 (panel A1). Other studies have reported a similar relationship: an increase in anxiety, depression, and other negative feelings

[7] We also use the GHQ Likert score (scale 0 to 36) as an alternative measure of mental well-being. The results – available in the appendix – using that outcome variable do not change our substantive conclusions.

are connected with the financial difficulties and economic downturn associated with the pandemic and resulting isolation policies (Holmes et al., 2020; Academy of Medical Sciences, 2020). In these early days of the COVID-19 lockdown, mental health deteriorated significantly across the households in the UK (Davillas and Jones, 2020). For Australia in particular, Broadway, Méndez, and Moschion (2020) use the Household, Income, and Labour Dynamics in Australia (HILDA) longitudinal survey as well as the recent *Taking the Pulse of the Nation* survey to show similar results for parents.

That financial insecurity predicts worsening mental well-being is true for both households below and above the median income in the pre-pandemic wave (panels A2 and A3), as well as for both mothers and fathers in the sample (panels A4 and A5). The relationship is stronger for poorer households and for fathers. Conti (2020) similarly showed that households at the lower end of the income distribution experienced the worst effects with reference to stress levels.

Having children per se does not have a significant relationship with mental health. However, spending 20 or more hours per week on childcare or home schooling is associated with worsening mental health. Based on the whole sample, working parents who spend 20 hours or more on childcare or home schooling have a caseness score that is higher by 0.525 relative to working parents who spend less than one hour on the same child-related activity (panel F1). Working parents whose household income are below the median (pre-pandemic) do not show a significant relationship between the time spent on childcare and home schooling and mental health.[8] Andrew et al. (2020) note that, during the lockdown, the amount of

[8] We also estimated the relationship between the components of the GHQ-12 caseness score and the index of financial well-being and hours spent on childcare or home schooling. The results are presented in Table A3 of the appendix. Financial insecurity is significantly related to all components; the majority of the components are also significantly related to spending 20 hours or more on childcare or home schooling.

time devoted to paid work reduced to an average of 3 hours per day while that of housework increased to 9 hours per day.

Mothers and working parents whose income were above the median (pre-pandemic) exhibit the strongest relationship between child-related activities and mental health. That women are faring worse under the pandemic was confirmed by other studies (Etheridge and Spantig, 2020; Banks and Xu, 2020; Andrew et al. 2020). Mothers tended to find childcare more stressful than fathers (Roeters and Gracia, 2016), and this is confirmed by the larger coefficient estimate on "20 or more hours" (0.580 vs 0.404) in panel F5 in Table 7. With school closures, the learning materials have been delivered remotely, and it is likely that mothers have taken on the task of ensuring schooling is taking place at home. Working mothers were, in any case, more likely to have lost their jobs during the pandemic (Andrew et al., 2020). In addition, maternal time with children is largely invariant to macroeconomic conditions and fluctuations in the labour market (Bauer and Sonchak, 2017).

5 Conclusion

The COVID-19 pandemic necessitated a range of policy prescriptions enacted to preserve public health and to secure the future of the UK economy. Measures have included an economic lockdown, physical distancing both in private and in public, and in extreme cases, complete self-isolation. On top of this, school closures have shifted a large part of the responsibility for children's education to parents and to the home environment. This has all but obliterated the notion of a healthy work-life balance, where competing time demands and the sudden precariousness of their economic position have meant that working parents have had to endure financial distress and a deterioration of their well-being, especially their mental health.

In this study, we documented the financial insecurity of working parents around the peak of the first wave of the COVID-19 pandemic in the UK. In addition, we examined their mental well-being as it relates both to their increased financial insecurity as well as the increased time spent on child-related activities, particularly childcare and home schooling. Our results show that working parents are more likely to be experiencing significantly higher levels of financial distress now relative to working counterparts without children.

We also show that the post-pandemic burden of financial insecurity and worsening mental health is neither equally shared between men and women, nor between rich and poor households. We show that women are more substantially affected, which is congruent with the results of previous studies (Etheridge and Spantig, 2020). We have also shown that poorer households are worse off. Bayrakdar and Guveli (2020) note that poorer families send their children to schools which do not having adequate facilities to cater to the online learning environment.

The heterogeneous distribution of the post-pandemic burden implies that public policy decisions ought to be made with these underlying inequities firmly in mind. Working parents, especially mothers, are experiencing a worse mental and financial position. The burden can be eased by amplifying support for childcare and home schooling, including nonfinancial assistance such as training in educational content delivery. The increased conflict between work and life domains, especially for those with children, can be mitigated by public and private policies that acknowledge the varied circumstances in which households find themselves.

Our results strongly suggest that while the COVID-19 lockdown policies put in place by the UK government were well-intentioned, but the 'one-size-fits-all' approach adopted resulted in less effective measures for working families. As financial and mental distresses are not equally distributed across the populations, our results highlight that the most precarious

groups of society is disproportionally more affected by mental distress than other groups. Addressing this imbalance requires a more targeted approach to policy and emergency management to ensure that the burden of home schooling and financial distressing is no worse than the mental health problems caused by COVID-19.

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Table 1. Descriptive Characteristics

	All employed or self-employed individuals	Working parents
Female (%)	57.3	57.9
White (%)	89.2	86.6
Employed (%)	83.6	85.7
Self-employed (%)	13.01	11.2
Employed and self-employed (%)	3.4	3.1
Married (%)	75.6	87.2
Age (mean (s.d.))	47.01 (12.21)	43.1 (8.9)
Working parent (%)	43.3	NA
Working mothers (%)	25.1	57.9
Working fathers (%)	18.2	42.02
Degree or other higher qualification (%)	60.9	64.6
A levels (%)	20.6	19.7
General Certificate of Secondary Education (GCSE) (%)	13.9	12.6
Low or no educational qualification (%)	4.6	3.1
Children <5 years old (%)	11.4	26.3
Children 5-15 years old (%)	30.8	71.2
Two children or more (%)	20.5	47.3
Three children or more (%)	4.1	9.5
Gross monthly household income at pre-COVID-19 wave Q1 (<£2,422) (%)	16.5	11.6
Gross monthly household income at pre-COVID-19 wave Q2 (£ 2,422 - £3,807) (%)	22.73	22.95
Gross monthly household income at pre-COVID-19 wave Q3 (£ 3,807- £5,771) (%)	29.01	31.5
Gross monthly household income at pre-COVID-19 wave Q4 (>£5,771) (%)	31.7	33.8
N	15,665	6,795

Table 2. Mental health and financial insecurity

	(1)	(2)	(3)	(4)
	All employed or self-employed individuals (during COVID-19)	**All employed or self-employed individuals at wave 9 (pre-COVID-19)**	**Working parents (during COVID-19)**	**Working parents at wave 9 (pre-COVID-19)**
Mental health				
GHQ-12 (mean (s.d.))	2.62 (3.23)	1.58 (2.83)	2.72 (3.28)	1.66 (2.93)
Financial insecurity (yes=1, no=0)				
Do you expect your financial situation to be worse in the future? (%)	16.2	12.2	17.9	11.9
Have you asked your bank for a mortgage holiday? (%)	6.6		9.5	
Have you applied for/received a payment holiday or any credit product other than a mortgage? (%)	4.9		6.6	
Have you given or received financial help to or from family or friends not living with you? (%)	4.5		5.6	
Have you applied for Universal Credit? (%)	3.7		4.4	
Did you borrow from a bank or use a credit card to deal with lower earnings from January/February 2020? (%)	1.9		2.6	
How likely is it that you will have difficulties in paying your bills? (%)	11.0		13.19	

Table 3. Parents' characteristics and time spent in childcare/home-schooling

	0 hours per week	1-7 hours per week	7-20 hours per week	>20 hours per week
Working parents (%)	29.23	20.52	20.87	29.37
Non-working parents (%)	38.40	16.68	16.10	28.83
Working mothers (%)	27.87	16.97	21.33	33.83
Working fathers (%)	31.17	25.58	20.23	23.02
Non-working mothers (%)	34.42	16.07	17.43	32.08
Working parents with children < 5 years old (%)	15.17	13.03	17.68	54.12
Working parents with children 5-15 years old (%)	`19.12	25.60	26.42	28.86
Parents with degree or other higher qualification (%)	23.89	20.90	21.07	34.15
Parents with A levels (%)	38.22	18.23	17.24	26.31
Parents with GCSE (%)	42.13	16.22	21.49	20.15
Parents with low or no educational qualification (%)	43.45	20.23	16.09	20.23

Table 4. COVID-19 and financial insecurity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Expect subjective financial situation to be worse in the future	**Having a mortgage holiday**	**Having a credit holiday (second COVID-19 wave only) n=7221**	**Has received financial transfers**	**Has applied for Universal Credit**	**Is borrowing from a bank or credit card to compensate for loss in earnings**	**How likely it is that you will have difficulties in paying your bills (in %)? (second COVID-19 wave only)**
A: Working parent at COVID wave	**0.027 (0.007)*** **	**0.036 (0.006)*** **	**0.021 (0.006)*** **	**0.017 (0.004)*** **	**.0098 (0.0041)** **	**0.011 (0.003)*** **	**2.956 (0.575)*** **
B: Working parent at wave 9	-0.010 (0.010)						
C: Working parent with 3 or more kids	**0.073 (0.019)*** **	**0.054 (0.017)*** **	0.013 (0.016)	**0.037 (0.012)*** **	**.019 (0.012)***	**0.028 (0.010)*** **	**4.887 (1.450)*** **
D: Working parent with 3 or more kids at wave 9	-0.008 (0.021)						
E: Working parent with kids 5-15	**0.020 (0.008)** **	**0.031 (0.007)*** **	**0.018 (0.007)*** **	**0.013 (0.005)*** **	**.0074 (0.0044)*** **	**0.010 (0.003)*** **	**2.759 (0.605)*** **
F: Working parent with kids 5-15 at wave 9	-0.002 (0.010)						
G: Working parent with kids <5	**0.021 (0.011)***	**0.041 (0.010)*** **	**0.024 (0.010)** **	**0.022 (0.007)*** **	**.015 (0.007)*** **	**0.011 (0.005)** **	1.245 (0.867)
H: Working parent with kids <5 at wave 9	0.009 (0.013)						

Note: Standard errors are robust and clustered at individual level. Control variables: ethnic background, age, age square, gender, employment status, education, employment status at previous wave, couple, household gross income at wave 9, GOR (Government Office Region)

Table 5. COVID-19 and financial insecurity: analysis by gender

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Expect subjective financial situation to be worse in the future	**Having a mortgage holiday**	**Having a credit holiday (second COVD wave only)**	**Has received financial transfers**	**Has applied for Universal Credit**	**Is borrowing from a bank or credit card to compensate for loss in earnings**	**How likely it is that you will have difficulties in paying your bills (in %)? (second COVID wave only)**
A: Working mother at COVID wave	**0.026 (0.009)*** **	**0.031 (0.008)*** **	**0.019 (0.008)** **	**0.017 (0.006)*** **	**.014 (0.005)*** **	**0.011 (0.004)*** **	**3.408 (0.746)*** **
B: Working mother at wave 9	-0.001 (0.012)						
C: Working father at COVID wave	**0.020 (0.010)***	**0.032 (0.008)*** **	**0.018 (0.008)** **	**0.012 (0.006)** **	.0003 (0.005)	**0.007 (0.004)***	**1.499 (0.763)** **
D: Working father at wave 9	0.022 (0.013)						

Note: Standard errors are robust and clustered at individual level. Control variables: ethnic background, age, age square, gender, employment status, education, employment status at previous wave, couple, household gross income at wave 9, GOR (Government Office Region)

Table 6. COVID-19 and financial insecurity: analysis by income group

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Expect subjective financial situation to be worse in the future	**Having a mortgage holiday**	**Having a credit holiday (second COVID wave only)**	**Has received financial transfers**	**Has applied for Universal Credit**	**Is borrowing from a bank or credit card to compensate for loss in earnings**	**How likely it is that you will have difficulties in paying your bills (in %)? (second COVID wave only)**
A: Working parent at COVID wave: Income at previous wave < median	**0.034 (0.013)*** **	**0.043 (0.010)*** **	**0.032 (0.011)*** **	**0.032 (0.009)*** **	**0.018 (0.009)** **	**0.013 (0.006)** **	**4.165 (1.081)*** **
B: Working parent at wave 9: Income < median	0.026 (0.016)*						
C: Working parent at COVID wave: Income at previous wave > median	**0.024 (0.009)** **	**0.031 (0.008)*** **	**0.014 (0.007)** **	**0.009 (0.004)** **	0.005 (0.004)	**0.009 (0.003)*** **	**2.368 (0.669)*** **
D: Working parent at wave 9: Income > median	0.001 (0.012)						

Note: Standard errors are robust and clustered at individual level. Control variables: ethnic background, age, age square, gender, employment status, education, employment status at previous wave, couple, household gross income at wave 9, GOR (Government Office Region)

Table 7. Financial insecurity, time spend on childcare and home schooling, and mental health

	Mental health GHQ-12 Caseness score				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	All sample	**Wave 9 Income < median**	**Wave 9 Income > median**	**Fathers**	**Mothers**
A: Index of financial insecurity	0.411 (0.033)***	0.438 (0.048)***	0.376 (0.045)***	0.538 (0.052)***	0.335 (0.041)***
B: Children < 4 y.o.	0.020 (0.120)	-0.156 (0.199)	0.149 (0.152)	-0.219 (0.149)	0.234 (0.182)
C: Children 5-15 y.o.	-0.106 (0.096)	0.268 (0.181)	-0.254 (0.112)**	-0.117 (0.125)	-0.105 (0.144)
D: 1-7 hours	0.131 (0.121)	-0.277 (0.223)	0.327 (0.144)**	0.182 (0.158)	0.108 (0.184)
E: 8-19 hours	0.216 (0.128)*	-0.145 (0.233)	0.382 (0.153)**	0.325 (0.174)*	0.171 (0.186)
F: 20 or more hours	0.525 (0.126)***	0.299 (0.231)	0.595 (0.149)***	0.404 (0.168)**	0.580 (0.182)***
N	14,997	5,812	9,185	6,382	8,615

Control variables: ethnic background, age, age square, gender, employment status, education, employment status at previous wave, couple, household gross income at wave 9, GOR (Government Office Region). Standard errors are clustered at individual level.

APPENDIX

Table A1. Factor Analysis for Financial Insecurity – Rotated Factor Loadings and Unique Variances (Method: Principal Component factor)

Variable	Factor 1	Uniqueness
Do you expect your financial situation to be worse in the future?	0.5227	0.7268
Have you asked your bank for a mortgage holiday? (%)	0.5036	0.7464
Have you given or received financial help to or from family or friends not living with you? (%)	0.5406	0.7077
Have you applied for Universal Credit? (%)	0.5608	0.6855
Did you borrow from a bank or use a credit card to deal with lower earnings from January/February 2020? (%)	0.5525	0.6947

Table A2. Financial insecurity, time spent on childcare and home schooling, and mental health (GHQ-12 Likert Score)

	Mental health GHQ-12 Likert score				
	All sample	**Wave 9 Income < median**	**Wave 9 Income > median**	**Fathers**	**Mothers**
Index of financial insecurity	0.756	0.831	0.666	0.965	0.637
	(0.058)***	(0.082)***	(0.083)***	(0.092)***	(0.074)***
Children < 4 y.o.	0.120	-0.259	0.393	-0.346	0.516
	(0.212)	(0.341)	(0.273)	(0.273)	(0.316)
Children 5-15 y.o.	-0.209	0.160	-0.343	-0.132	-0.289
	(0.173)	(0.312)	(0.209)	(0.231)	(0.256)
1-7 hours	0.216	-0.278	0.449	0.296	0.158
	(0.218)	(0.389)	(0.263)*	(0.285)	(0.330)
8-19 hours	0.289	-0.004	0.417	0.533	0.198
	(0.229)	(0.401)	(0.281)	(0.310)*	(0.332)
20 or more hours	0.672	0.472	0.717	0.384	0.840
	(0.227)***	(0.405)	(0.273)***	(0.319)	(0.321)***
N	14,997	5,812	9,185	6,382	8,615

Control variables: ethnic background, age, age square, gender, employment status, education, employment status at previous wave, couple, household gross income at wave 9, GOR (Government Office Region). Standard errors are clustered at individual level.

Table A3. Financial insecurity, time spent on childcare and home schooling, and mental health (individual GHQ components)

	Feeling constantly under strain	**Losing sleep over worrying**	**Unable to make decisions**	**Losing confidence**	**Feeling worthless**	**Unable to concentrate**	**Unable to face problems**	**Unable to enjoy day to day activities**	**Unable to overcome difficulties**	**Unable to play a useful role**	**Feeling depressed**	**Feeling unhappy**
Index of financial insecurity	0.048	0.049	0.026	0.031	0.023	0.034	0.029	0.018	0.040	0.039	0.041	0.035
	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.003)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***
Children < 4 y.o.	0.043	-0.008	0.005	0.012	0.016	-0.016	-0.004	0.001	0.007	-0.048	0.004	0.005
	(0.017)**	(0.016)	(0.012)	(0.014)	(0.011)	(0.016)	(0.012)	(0.018)	(0.013)	(0.015)***	(0.016)	(0.015)
Children 5-15 y.o.	0.016	-0.016	-0.020	0.003	0.021	-0.027	-0.001	-0.016	-0.005	-0.034	-0.020	-0.007
	(0.014)	(0.013)	(0.010)**	(0.012)	(0.009)**	(0.013)**	(0.010)	(0.015)	(0.011)	(0.012)***	(0.013)	(0.012)
1-7 hours	0.021	0.014	0.011	0.006	-0.023	0.033	0.005	0.021	0.012	0.018	0.006	0.008
	(0.019)	(0.017)	(0.013)	(0.015)	(0.011)**	(0.017)*	(0.012)	(0.019)	(0.014)	(0.016)	(0.017)	(0.015)
8-19 hours	0.020	0.031	0.024	0.025	0.003	0.042	0.006	-0.001	0.015	0.021	0.027	0.011
	(0.019)	(0.017)*	(0.013)*	(0.015)	(0.012)	(0.018)**	(0.013)	(0.020)	(0.014)	(0.016)	(0.018)	(0.016)
20 or more hours	0.093	0.061	0.038	0.033	-0.007	0.082	0.013	0.028	0.032	0.070	0.047	0.032
	(0.019)***	(0.017)***	(0.013)***	(0.015)**	(0.011)	(0.017)***	(0.013)	(0.019)	(0.014)**	(0.016)***	(0.017)***	(0.016)**
N	15,053	15,065	15,058	15,034	15,034	15,067	15,040	15,046	15,051	15,053	15,053	15,034