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**Does the UK furlough scheme mitigate psychological distress
during the pandemic?**

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Abstract

The UK Coronavirus Job Retention scheme (CJRS) was a temporary scheme designed to protect the economy supporting jobs and avoiding the social fallout of the COVID 19 crisis. It supported the incomes of workers, mitigated workers' financial hardship, and presumably affected workers' psychological distress. The aim of this paper is to explore the association between labour market status and individuals' psychological distress. In particular, we investigate whether the CJRS is able to mitigate individuals' psychological distress, especially for individual perceiving neighbourhood social cohesion deprivation. Using April-July 2020 data from the UK Understanding Society COVID-19 survey, we find that (i) a continuous employment status is associated with better mental health outcomes; (ii) the Coronavirus Job Retention Scheme is able to mitigate psychological distress; (iii) individuals experiencing neighbourhood social cohesion deprivation appear to benefit more (in terms of distress reduction) from the CJRS than individuals living in more cohesive neighbourhoods.

Keywords: mental health, job retention scheme, neighbourhood social cohesion, COVID-19, panel data

JEL-codes: C23, J24, I12, I18

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1. Introduction

The COVID-19 pandemic, discovered in Whuan in December 2019, led to a global pandemic that have had an impact on the economy in the United Kingdom and around the world. Nations all over the world called for measures to combat the disease within their own countries. Lockdown policies, confinement measures and social distancing led to elevated levels of loneliness and social isolation, which in turn produce mental-health related repercussions (Moreno et al., 2020; Miao et al., 2021; Breedvelt et al., 2022; Ferber et al., 2022). In the UK, the first lockdown started on 23 March 2020 and by mid-April 2020 the peak of the first wave was reached and restrictions were gradually eased. During the lockdown periods, non-essential activities, leisure facilities and schools were closed. Some individuals were furloughed, and others lost their job. Greater financial strains and smaller reserves of coping resources contribute in varying degrees to heightened levels of distress found among displaced workers (Scarpetta et al., 2021; Günay, 2021; Grace, 2023).

The UK Coronavirus Job Retention scheme (CJRS), set up in March 2020, was a temporary scheme designed to protect the economy by helping employers' firms affected by the pandemic to retain their employees and pay workers' wages². Thus, despite the temporary cessation of work, employees maintained a substantial portion of their income. In other words, the CJRS supported the incomes of workers, mitigated their financial hardship and presumably decreasing workers' psychological distress (OECD, 2020). However, some furloughed workers reported more depressive symptoms and anger than the stably employed people (Wilson and Finch, 2021). Furloughed workers were also concerned about the future: they were worried that the CJRS would only delay inevitable layoffs or hour reductions if they return to work. This concerns might create anxiety. Therefore, the impact of furlough (under the CJRS) on distress is not so straightforward and need to be empirically tested.

The aim of this paper is to explore whether individuals' mental health depends on labour market status. In particular, we investigate the association between being on furlough (under the CJRS) and psychological distress. We also explore this association in a specific case: individuals perceiving neighbourhood social cohesion deprivation. A neighbourhood low in cohesion refers to a neighbourhood where residents report feeling a weak sense of community, report engaging in rare (or none) acts of neighbouring and are poorly attracted to live in and remain residents of the neighbourhood (Buckner, 1988). Low levels of social cohesion mean limited capacities of supporting the needs of all in the community during the acute phase of the COVID-19 crisis and in recovery

² The grant covered up to 80% of employees' usual monthly wage costs, up to £2,500 a month, plus the associated employer NICs and pension contributions.

planning. The reasons for this are the following. First, social cohesion encourages closer adherence to public health guidelines through care for the collective (Jewett et al., 2021). Second, social cohesion includes the provision of social support, practical help, interpersonal reciprocity, and the sharing of information across social networks. And third, social cohesion promotes trust and creates a sense of belonging to the state (OECD, 2012). As results, low levels of social cohesion are associated with worst health outcomes, less engagement with positive health behaviours, and lower resilience and emotional wellbeing (Long et al., 2022; Ware, 2023; Zangger, 2023). Lack of social cohesion increases distress and depression during periods of high infection rates and restrictions on social activity (Best et al., 2021; O'Donnell et al., 2022; Zangger, 2023). Our hypothesis is that the CJRS is the main instrument for making ends meet for furlough workers living in social cohesion deprived neighbourhoods. These are often low-income areas where individuals do not benefit from social support, reciprocity, and practical help from other community members. Thus, being eligible for the CJRS represents for them a strong relief that could decrease stress. For individuals that can rely on social resources (that are individuals living in cohesive neighbourhoods) the psychological contribution of the CJRS could be smaller. We empirically test this hypothesis.

Using April-July 2020 data from the UK Understanding Society COVID-19 survey, we find that a continuous employment status is associated with better mental health outcomes. The Coronavirus Job Retention Scheme is able to mitigate distress. In particular, individuals perceiving neighbourhood social cohesion deprivation appear to benefit more (in terms of distress reduction) from the CJRS than individuals living in more cohesive neighbourhoods. We also find that individuals living in deprived neighbourhoods appear to experience, on average, higher level of distress.

The work is organised as follows. Section 2 presents a description of our empirical strategy. Results are discussed in Section 3. Finally, conclusions are outlined.

2. Empirical strategy

2.2 Data

We use data from the UK Understanding Society COVID-19 survey that is a panel study of households that aims to facilitate research on the experiences and reactions of the UK population to the COVID-19 pandemic. The first wave was fielded in April 2020, with monthly waves until September 2020. From September 2020 onwards the survey is fielded every two months. The study complements the annual interviews from the core annual Understanding Society survey (the UK

Household Longitudinal Study). All adult sample members aged 16+ and who had taken part in one of the two last waves of the main Understanding Society study were invited to participate. We use data from April 2020 to July 2020³ and we only consider individuals that do not change postal code, participate to the survey two or more waves and with non-missing responses in all the variables of interest. Our sample is an unbalanced panel composed by 8210 individuals aged 17-65 living in 373 Local Authorities. Descriptive statistics are displayed in Table 1.

Our dependent variable is the 12-Item version of the General Health Questionnaire (GHQ) indicator of distress developed by Goldberg and Williams, (1988). The indicator combines in a four-point scale of severity several symptoms related to psychiatric patients, namely concentration, loss of sleep due to worry, role's perception, capability of taking decisions, whether constantly under strain, perception of difficulty in overcoming problems, enjoyment of day-to-day activities, ability to face difficulties, depression, loss of confidence, self-worth, and general happiness. The highest well-being level of the Likert scale scores 0, and the worst well-being level scores 3 (Hauck and Rice, 2004). The scores to all twelve questions are summed obtaining a Likert score ranging from 0 (least distressed) to 36 (most distressed). This approximates to a normal distribution and can be used as a continuous measure in multivariate analysis (Propper et al., 2005). Compared to other scaling and reliability tests of health outcomes, the predictive validity of our dependent variable is good (Bowling, 1991) and has been robust against the effects of retesting (Pevalin, 2000). The prevalence of mental health in the UK increased from 19.1% before the pandemic to 30.6% in the first month of the pandemic (Banks and Xu, 2020; Wels et al., 2022), with an average score of 12 and a different trend over pandemic waves, as well as displayed in Figure 1.

Our key covariates are about labour market status. Our indicator of labour market status distinguishes between three categories of individuals: employed, self-employed, and neither employed and self-employed.⁴ The latter category is mainly composed by unemployed and inactive individuals. We defined as unemployed individuals that looked for work during the period of analysis.⁵ Figure 3 displays smooth representation of psychological distress distributions by employment status. The area under each curve between any pair of points at the distress scale (horizontal axis) shows the proportion of the population with distress between these two distress levels. On one hand, unemployed appear to be the group with the highest dispersion (lower peak) and the higher concentration of population

³ From 1 August 2020, the government introduced employer contributions for hours not worked, therefore we believe that data from August 2020 to September 2021 are non-suitable for our analysis.

⁴ Individuals that are "both employed and self-employed" are considered as employed for simplicity.

⁵ We have information about searching for work in the last 4 weeks only in wave 3 and 5, we use this information for identify individuals actively searching for job during the period of analysis.

with distress higher than the group's average (thicker right tail). On the other hand, employed appeared to be the group with the lowest dispersion, with the frequency density curve peak close to the group's mean distress.

Employees are an heterogeneous group of people (see Table 2) that includes people always working from home, sometimes working from home, and never working from home during the last four weeks. Furlough workers are also included among the employees. Furlough status refers to workers that received a written letter or email from the employer confirming the participation in Coronavirus Job Retention Scheme (CJRS). Figure 2 summarises the number of employees on furlough during our period of analysis, showing an increase of this number immediately after the introduction of the CJRS (on 20 March 2020) and a progressive reduction after. Note that the UK was one of the few major economies not to have a job retention scheme when the pandemic hit (Eichhorst et al., 2022) and for this reason represents an interesting case study.⁶

Neighbourhood social cohesion is defined using the Buckner's measure of neighbourhood cohesion that includes three constructs: the degree of neighbouring within the neighbourhood, the psychological sense of community, and the level of attraction to the neighbourhood (Buckner, 1988). See Appendix 1 for details. This measure records the individual level perception of neighbourhood cohesion. Higher values represent greater cohesion, ranging from 1 (lowest cohesion) to 5 (highest cohesion). Data on neighbourhood social cohesion are not available in the COVID-19 survey but only in specific waves in the main survey. Therefore, we use the most recent pre-pandemic data available in the main survey (wave 9, years: 2017-2019) and we merged them to our dataset. The linkage is at individual level. The neighbourhood social cohesion distribution is displayed in Figure 4. We defined deprived in terms of neighbourhood social cohesion individuals reporting value of cohesion equal or below the 60% of the median. About 5.1% of the individuals in the sample result deprived in terms of neighbourhood social cohesion (see Table 1).

We include in our analysis a measure for the spread of the infections by Local Authorities (LA) using an index of COVID-19 cases by Local Authorities. We construct this index by dividing the number of cases⁷ by the total population in each area. Further, we categorised the variable into three equal groups (low, moderate, and high cases) into which the observations are divided according to the distribution of index of COVID-19 cases. Figure 5 displays the evolution of the index of cases during the pandemic by Local Authorities.

⁶ During the 1970s and 1980s, UK governments also operated wage subsidy job retention schemes (Wiggan and Grover, 2022).

⁷ <https://coronavirus.data.gov.uk/details/download>.

Finally, the usual socio-demographic controls (e.g. are, gender, education, ethnicity, etc.) are included in our analysis.

2.3 The model

We use multilevel methods for estimating the association between furlough (under the CJRS) and psychological distress experienced by the individual. Our data are clustered with occasions at level 1, individuals at level 2, and area at level 3. Ignoring the clustering structure of the data results in biased or inconsistent estimation of the coefficients and often downward-biased standard error estimation (Hox, 1995). Therefore, multilevel models are the most appropriate methods since they permit to fully exploit the hierarchical structure of the data (Goldstein, 1995; Hox, 1995; Snijders et al., 1999; Skrondal et al., 2004).

We specify the following three-level linear model where the first level is the time, t , the second is the individual, i , and the third is Local Authority (LA), k ,

$$(1) \quad y_{ikt}^* = z_{ikt}\gamma + \alpha_0 + a_i + v_k + u_{ikt}$$

where the dependent variable y_{ikt} is the level of psychological distress experienced by individual i in Local Authority k at time t ; α_0 , and γ are the parameters to be estimated. z_{ikt} is the vector of explanatory variables. a_i is the random intercept for individual i and v_k is the random intercept for LA k . The random intercepts are assumed to be independently normally distributed. Equation (1) represents a multilevel longitudinal model where we take into account both the dependence existing among observations of the same unit (individual) realised in different times and across different units belonging to the same LA.

Assuming that there is a significant variance of the distress slopes throughout a certain covariate (x_{ikt} , included in the vector of explanatory variables) between the different individuals, the model in Equation (1) can be extended inserting slope random effects into levels 2. By maintaining the intercept random effects, the model has the following expression:

$$(2) \quad y_{ikt}^* = z_{ikt}\gamma + \alpha_0 + a_{i1} + a_{i2}x_{ikt} + v_k + u_{ikt}$$

where we need to estimate the fixed parameters (α_0 , and γ) and five random parameters ($\sigma_u^2, \sigma_{a_1}^2, \sigma_{a_2}^2, \sigma_{a_1 a_2}, \sigma_v^2$). Therefore, Equation (2) represents a multilevel longitudinal model that accounts for the correlation between time points by allowing each individual to have their own

intercept (mean value) as well as their own trajectory (i.e. slope). As in Eq. (1), the model in Eq. (2) take also into account the dependence existing across different individuals belonging to the same LA.

3. Results

Considering the hierarchical structure of the data, we implement a three-levels linear model with data that are clustered with “occasions” at level 1, individuals at level 2, and Local Authorities (LA) at level 3. The aim is to estimate the impact of been furloughed under the Coronavirus Job Retention Scheme (CJRS) on psychological distress, taking in consideration also the context (in terms of social cohesion) where the individual lives. First, we compute the intra-class correlation coefficients to discuss whether the three-level model is the appropriate model to use. Second, we discuss our estimates.

Intra-class correlation coefficients

To test whether three-level model is the appropriate model to use, we initially estimate the three level null models (without covariates) and computing intra-class correlation coefficients (ICC):

$$(3) \quad ICC_i = \sigma_a^2 / (\sigma_v^2 + \sigma_a^2 + \sigma_u^2)$$

$$(4) \quad ICC_a = \sigma_v^2 / (\sigma_v^2 + \sigma_a^2 + \sigma_u^2)$$

where $\sigma_u^2, \sigma_a^2, \sigma_v^2$ are respectively the first, second and third level variances. The ICC_i and the ICC_a give, respectively, information on the importance of individual and area effects on distress. Results are reported in Table 3. We find that the individual and the area levels explain about the 69 percent and 1 percent of the total variability, respectively. This implies that the estimated proportion of total variability explained by the LA level is not very large (and it is statistically significant only at 5% level). To further investigate this issue, we computed the likelihood ratio test comparing the log likelihoods of the two-level and three level null models. Results show that the difference is statistically significant (Prob > chi2= 0.0061). Therefore, we can maintain that the three-level model fits the data significantly better than the two-level model. In other words, the three-level model is the appropriate model to use. We can also conclude that unobserved heterogeneity across LAs is small, but it remains across LAs: some individuals are more inclined to show a certain level of distress than other individuals do simply due to the LAs where they live.

Discussion of the estimates

Table 4 carries a set of three-levels linear models for psychological distress that proceed from baseline by adding controls. The baseline assumes a specification where distress during the Covid-19 pandemic is predicted by labour market status, the spread of the Covid infections, and socio-demographic individual characteristics. In a second variant of models, we split employees according with their status: always home working, sometimes home working, never homeworking and furlough under the CJRS. The aim is to analyse whether the CJRS is able to mitigate psychological distress. In a third variant of the model, we test whether neighbourhood social cohesion deprivation matters and can mediate the impact of the CJRS on workers' distress. Results appear to be robust across specifications.

Labour market status, the spread of infections and social cohesion deprivation are important predictors of psychological distress.

Employment is associated with better mental health outcomes (less distress). In model 1 (Table 4), employees and self-employed appear to experience lower distress than inactive individuals, while unemployed appear to experience higher distress. Comparing employees and self-employed, the latter appear to suffer higher level of distress than the former.

Employees are a heterogeneous group of people (see Table 2). The latter includes people always working from home, sometimes working from home, and never working from home. Also furloughed workers under the CJRS are included among the employees. In Model 2 (Table 4), we control for such heterogeneity to better understand the relationship between employment characteristics and distress, and, of most interest, to analyse the association between furlough and distress.

On one hand, home working could imply a worsen in mental health. For individuals who live alone, full time home working without face-to-face interactions could contribute to mental issues such as social isolation and depression. For others, blurred work-life boundaries can make it difficult to detach mentally from work which can increase stress and anxiety (Xiao et al., 2021). However, we find no evidence supporting negative effects of home working on distress. On the other hand, going to work could increase the risk of infections and, therefore, could increase distress. We find no evidence of this either. Employees (independently if always, sometimes, or never working for home) as well as furlough workers appear to experience less distress than, respectively, unemployed and inactive individuals. Comparing employees, estimated coefficients are not statistically different. Our results suggest an association between being in a continuous employment status and better mental health status confirming previous literature (Wels et al., 2022, Burchell et al., 2020). However, the

robust association between furlough and lower distress partially contradicts previous literature, suggesting that job retention schemes can be beneficial for mental health (not only for alleviating financial hardships).

In Model 3 (Table 4), we find a positive correlation between neighbourhood social cohesion deprivation and distress: individuals perceiving neighbourhoods deprivation appear to experience, on average, higher level of distress. This result can be easily explained. Social cohesion, encouraging closer adherence to public health guidelines, is necessary for implementing social distancing. Thus, in deprived neighbourhoods, measures to combat the disease can be less effective, increasing risk of infections and distress. Of most relevance, individuals living in deprived neighbourhoods have limited capacities of supporting the needs of all in the community. Social support, interpersonal reciprocity, and practical help from other community members, can reduce distress during the acute phase of the pandemic, while the lack of these resources can be associated to higher level of distress. However, for some individuals, neighbourhood social cohesion deprivation could have a large effect on distress and for others the effect could be smaller. Therefore, Model 3 (Table 4) allows for both random intercepts and slopes, allowing the neighbourhood social cohesion deprivation to have a different effect for each individual. In other words, our specification includes a random term to the coefficient of neighbourhood deprivation so that it can be different for each individual. The estimated standard variation in slope is statistically significant confirming our intuition that the relationship between neighbourhood social cohesion deprivation and distress vary across individuals.

Model 3 (Table 4) also includes an interaction between furlough and cohesion deprivation. The estimated coefficient of the interaction is negative and statistically significant, indicating that neighbourhood social cohesion deprivation influences the relationship between furlough (under CJRS) and distress. In other words, the effect of furlough on distress changes depending on the value of neighbourhood social cohesion. Individuals experiencing neighbourhood social cohesion deprivation appear to benefit more (in terms of distress reduction) from the job retention scheme than individuals living in more cohesive neighbourhoods.

As expected, the spread of infections is positively associated with distress. Individual living in Local Authorities with moderate and high covid cases appear to experience higher level of distress.

Finally, individual socio-demographic characteristics are also predictors of psychological distress. We find a correlation between age and distress: younger individuals appear to experience higher levels of distress, confirming the emerging evidence of the detrimental impact of the pandemic and associated restrictions on young people's mental health in the UK (Pearcey et al., 2023). Females appear to experience more distress, and marriage/cohabitation is negatively correlated with distress.

On average, distress appears to decrease in July 2020 since restrictions were eased: hospitality and leisure businesses were re-open and there was more freedom to see other people.

4. Conclusion

The Coronavirus pandemic led to a global pandemic that has had economic and health impacts in the United Kingdom and around the world. Job retention schemes were one of the main policy tools used to support jobs and avoid social fallout of the COVID 19 crisis. In the UK, the Coronavirus Job Retention Scheme (CJRS) was introduced in March 2020 to avoid massive layoffs and prevent a surge in unemployment. As result, it supported individuals' well-being by mitigating financial hardship and, as our results show, decreasing psychological distress.

Using April-July 2020 data from the UK Understanding Society COVID-19 survey, we estimate a set of three-level linear models to explore the association between labour market status and individuals' psychological distress. In particular, we investigate whether the CJRS is able to alleviate psychological distress, especially for individuals experiencing neighbourhood social cohesion deprivation. We achieve the following results. *First*, a continuous employment status is associated with better mental health outcomes: employees (independently if always, sometimes, or never working for home) as well as furlough workers appear to experience less distress than, respectively, unemployed and inactive individuals. *Second*, the Coronavirus Job Retention Scheme appears to be beneficial for mental health decreasing psychological distress. *Third*, we find a positive correlation between neighbourhood social cohesion deprivation and distress: individuals perceiving neighbourhoods deprivation appear to experience, on average, higher level of distress. *Fourth*, individuals experiencing neighbourhood social cohesion deprivation appear to benefit more (in terms of distress reduction) from the job retention scheme than individuals living in more cohesive neighbourhoods.

Understanding the impacts of the CJRS is important because it was a key policy measure implemented to mitigate the economic disruption of the pandemic. HM Treasury and HMRC, (2023) provided a detailed evaluation of the CJRS showing that the latter directly protected around 4 million jobs and saved many employers from permanent closure reaching employers and their employees in need of support. They also show that CJRS was an equitable scheme, benefitting a broad base of working households across the income distribution and it played an important part in supporting the UK economy, in accelerating the labour market's recovery from the COVID-19 pandemic and restrictions on activity, as well as reducing the long-term damage to the economy. They conclude that the CJRS

was good value for money, with a positive net benefit to society of £50 billion and a social benefit to cost ratio of around 4:1. According to our results, the CJRS also positive impacted on mental health. Therefore, in our view, the benefit to society in terms of better mental health should be considered in the evaluation of the CJRS. In facts, psychological distress, and more in general mental disorders, represent huge costs to society (e.g. costs of treating mental health disorders, productivity losses, etc.) and are deleterious to economic growth. Therefore, the beneficial impact of temporary job retention schemes on mental health should be considered in designing policies to protect the economy during economic crisis and enhance economic growth.

In absence of job retention schemes, policy makers should take in consideration than displaced workers living in social cohesion deprived neighbourhoods exhibit higher psychological distress than displaced workers living in more cohesive neighbourhoods. Specific policies aimed to improve social cohesion in these deprived neighbourhoods could be beneficial to contain individual psychological distress during economic crises and, therefore, containing costs of treating mental health disorders and productivity losses.

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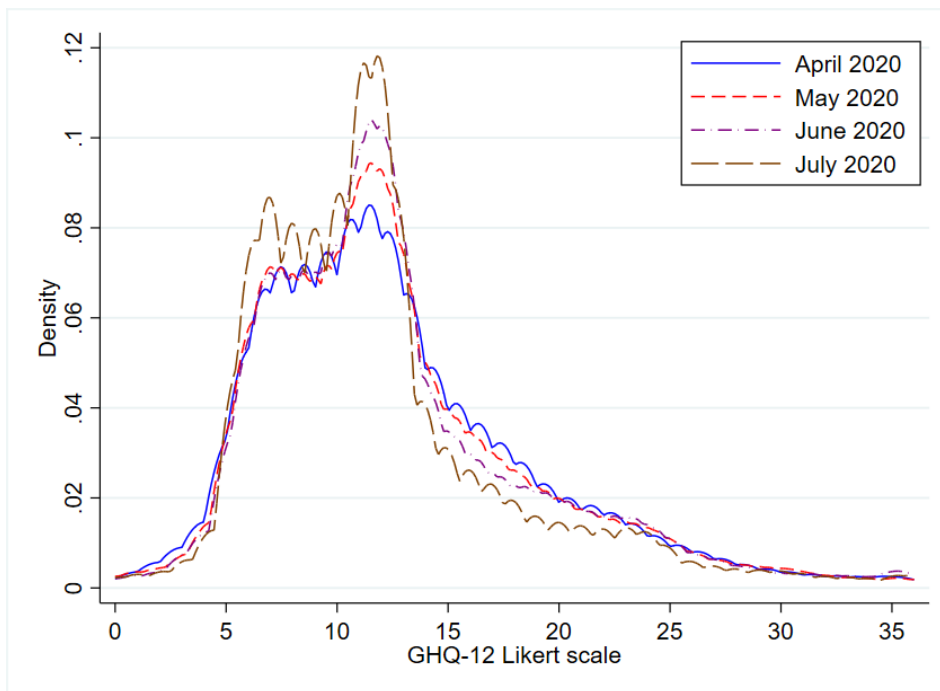
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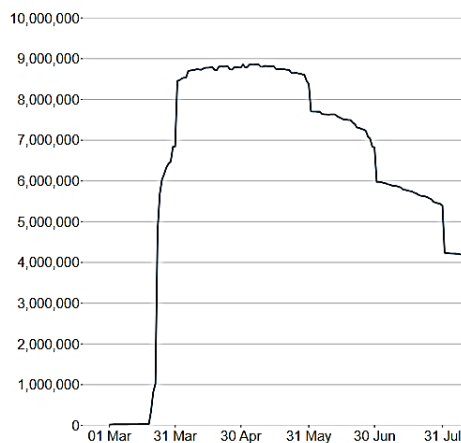
Figures and tables

Figure 1. Distribution of (GHQ)-12 Likert scale during the pandemic in the UK



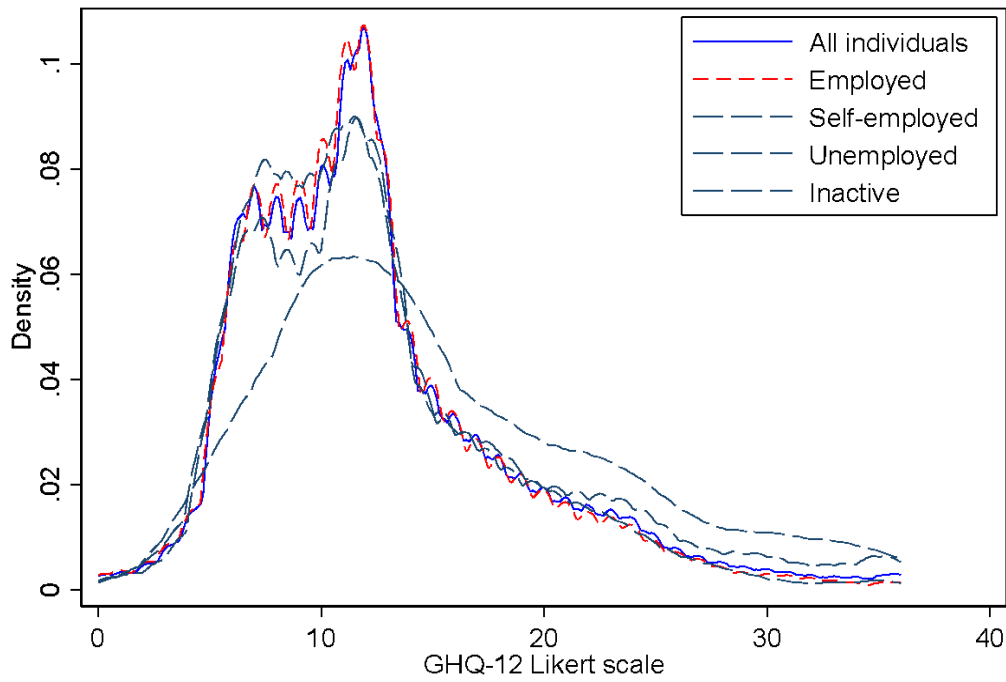
Source: authors' computation.

Figure 2- Total employments on furlough, 1 March 2020 to 31 July 2020



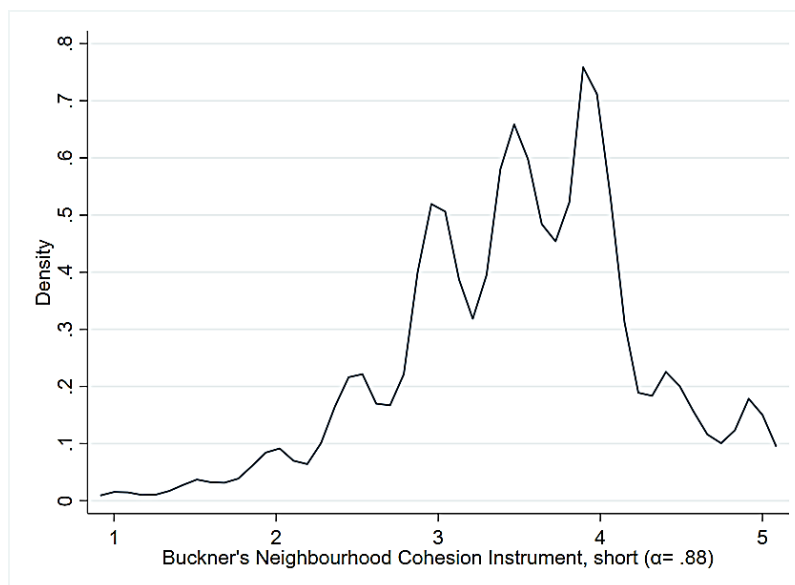
Source: Coronavirus Job Retention Scheme statistics: December 2020, Gov.UK

Figure 3-Psychological distress by employment status



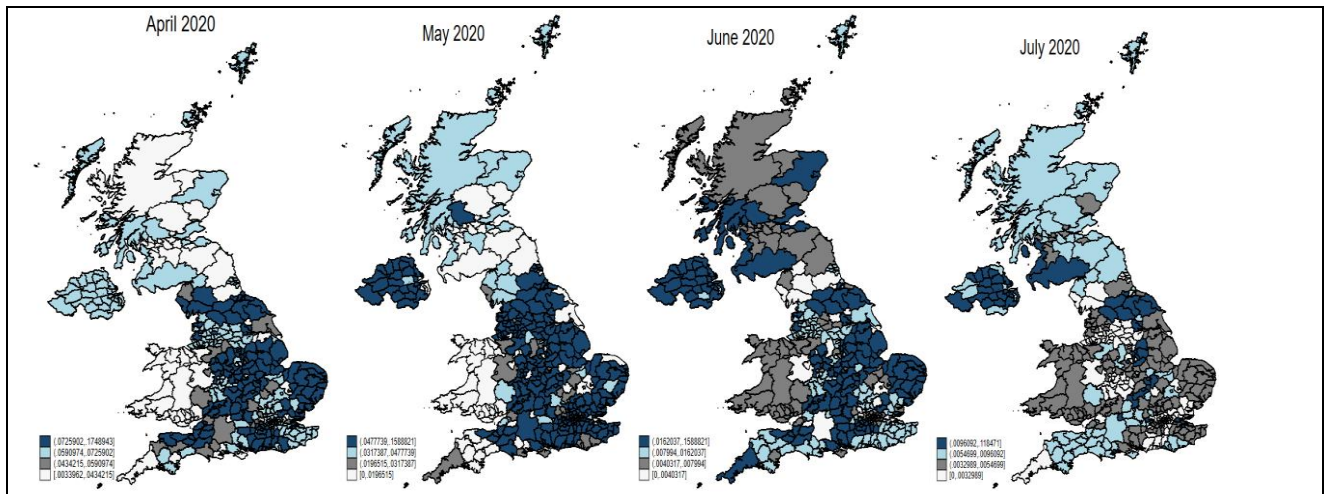
Source: authors' computation.

Figure 4-Distribution of neighbourhood social cohesion scale



Source: authors' computation.

Figure 5- Distribution of COVID-19 cases by Local Authorities in the UK



Source: authors' computation.

Table 1- Descriptive statistics of the analysis sample (No. Obs.: 29677)

Variables	Mean	Std. Dev.	Min.	Max
Age	48.88	11.935	17	65
Age squared	2493.534	1071.84	289	4225
Gender	0.605	0.489	0	1
Household size	2.959	1.328	1	15
Buckner's Neighbourhood Cohesion	3.502	0.74	1	5
Country of residence	1.364	0.82	1	4
Ethnicity	1.187	0.582	1	4
Labour status	1.572	0.853	1	3
GHQ Likert scale	12.511	6.11	0	36
Local authority	206.049	119.636	1	390
Index of covid-19 cases	0.03	0.275	0	0.175
Wave	2.448	1.114	1	4
Education	1.712	0.768	1	3
Living with a partner	0.728	0.445	0	1
Under JR scheme	0.044	0.205	0	1

Source: authors' computation.

Table 2. Proportion of employees working from home and furlough under the CJRS by wave

	Home working			Furlough under CJRS
	always	sometimes	never	
April 2020	35.96	17.75	46.30	18.8
May 2020	36.01	17.11	46.89	3.91
June 2020	33.51	18.26	48.23	1.98
July 2020	30.31	20.26	49.43	0.45

Source: author's computation.

Table 3. Intra-class correlation coefficients (No. individuals: 8210; No. Local Authorities: 373; No. Obs.: 29677)

Dependent variable is distress	Coef.	S.E.
ICC_ area	0.007 **	0.003
ICC_individuals	0.693 ***	0.004

*significance at 10% level, ** significance at 5% level, ***significance at 1% level.

Source: authors' computation.

Table 4. Estimates (No. individuals: 8210; No. Local Authorities: 373; No. Obs.: 29677)

Dependent variable is distress	Model 1		Model 2		Model 3	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Employed	-1.165 ***	0.123				
Employees always working at home			-1.059 ***	0.144	-1.014 ***	0.143
Employees sometimes/often working at home			-1.096 ***	0.149	-1.050 ***	0.148
Employees never working at home			-1.176 ***	0.132	-1.140 ***	0.131
Furloughed			-1.544 ***	0.162	-1.432 ***	0.163
Self employed	-0.836 ***	0.191	-0.828 ***	0.191	-0.782 ***	0.189
Unemployment	1.198 ***	0.259	1.194 ***	0.259	1.149 ***	0.259
Social cohesion deprivation					2.364 ***	0.337
Social cohesion deprivation*furloughed					-1.356 ***	0.488
Moderate COVID cases (index)	0.215 ***	0.072	0.213 ***	0.072	0.213 ***	0.072
High COVID cases (index)	0.301 ***	0.107	0.300 ***	0.107	0.301 ***	0.107
Gender	1.303 ***	0.120	1.303 ***	0.120	1.336 ***	0.118
Age	-0.053 ***	0.006	-0.053 ***	0.006	-0.049 ***	0.006
Ethnicity is Asian	0.398 *	0.233	0.398 *	0.233	0.443 *	0.230
Ethnicity is Black	-0.636	0.400	-0.634	0.400	-0.636	0.395
Other Ethnicity (not white)	0.751 **	0.377	0.755 **	0.377	0.709 *	0.374
Medium education	0.068	0.133	0.038	0.135	0.025	0.133
High education	-0.143	0.159	-0.190	0.162	-0.155	0.160
Couple	-0.645 ***	0.121	-0.650 ***	0.121	-0.587 ***	0.121
Household size	-0.048	0.046	-0.048	0.046	-0.047	0.046
May 2020	-0.009	0.064	-0.047	0.065	-0.045	0.065
June 2020	0.210 **	0.092	0.167 *	0.093	0.169 *	0.093
July 2020	-0.433 ***	0.100	-0.479 ***	0.101	-0.476 ***	0.101
Constant	15.636 ***	0.377	15.672 ***	0.377	15.248 ***	0.379
Local Authorities: var(_cons)	0.2583 **	0.1049	0.257 **	0.105	0.239 **	0.101
Individuals:						
var(social cohesion deprivation)					18.188 ***	3.139
var(_cons)	24.3092 ***	0.4416	24.307 ***	0.442	23.155 ***	0.434
var(Residual)	11.4547 ***	0.1107	11.448 ***	0.111	11.444 ***	0.111
Log likelihood	-		-87115.7		-	

*significance at 10% level, ** significance at 5% level, ***significance at 1% level.

Source: authors' computation.

Appendix 1. The Buckner's measure of neighbourhood cohesion

The Buckner's measure of neighbourhood cohesion that includes three constructs: the degree of neighbouring within the neighbourhood, the psychological sense of community, and the level of attraction to the neighbourhood (Buckner, 1988). The measure of neighbouring in the community is developed through simple actions such as daily casual greetings to helping one another which builds on the level of trust felt within the neighbourhood (Robinette et al., 2013; Echeverría et al., 2008). This element of trust amongst neighbours is an important part of developing a strong sense of community (Robinson and Wilkinson, 1995). The psychological sense of community is also cultivated through shared norms and values held by residents in the neighbourhood (Neal, 2015). Residents who are able to identify with their fellow neighbours are more inclined to bond and build trusting relationships. Individuals who report feeling a strong community belonging show more inclination to remain residing in the area and are incentivised to dedicate time and energy to improve and maintain the neighbourhood (Collins et al., 2017; Fernando et al., 2003).

This measure of neighbourhood cohesion has been validated and widely used in the literature (e.g. Teo and Chum, 2020).

The Buckner's measure of neighbourhood cohesion is constructed using the 18 items reported in the table A1 (Buckner, 1988). A shortened measure was adapted to be used for the Understanding Society survey. This measure includes items marked with (*) in Table A1: one 1 of 3 items measuring attraction to the neighbourhood, 3 out of 6 items measuring neighbouring and 4 out of 9 items measuring psychological sense of community.

Table A1. The Buckner's measure of neighbourhood cohesion

Items	Domains
Overall, I am very attracted to living in this neighbourhood	<i>Attraction to neighbourhood</i>
Given the opportunity, I would like to move out of this neighbourhood.	<i>Attraction to neighbourhood</i>
I plan to remain a resident of this neighbourhood for a number of years. (*)	<i>Attraction to neighbourhood</i>
I visit with my neighbours in their homes.	<i>Neighbouring</i>
If I needed advice about something I could go to someone in my neighbourhood. (*)	<i>Neighbouring</i>
I believe my neighbours would help me in an emergency.	<i>Neighbouring</i>
I borrow things and exchange favours with my neighbours. (*)	<i>Neighbouring</i>
I rarely have neighbours over to my house to visit.	<i>Neighbouring</i>
I regularly stop and talk with people in my neighbourhood. (*)	<i>Neighbouring</i>
I feel like I belong to this neighbourhood. (*)	<i>Sense of community</i>
The friendships and associations I have with other people in my neighbourhood mean a lot to me. (*)	<i>Sense of community</i>

If the people in my neighbourhood were planning something, I'd think of it as something "we" were doing rather than "they" were doing.	<i>Sense of community</i>
I think I agree with most people in my neighbourhood about what is important in life.	<i>Sense of community</i>
I feel loyal to the people in my neighbourhood.	<i>Sense of community</i>
I would be willing to work together with others on something to improve my neighbourhood. (*)	<i>Sense of community</i>
I like to think of myself as similar to the people who live in this neighbourhood. (*)	<i>Sense of community</i>
A feeling of fellowship runs deep between me and other people in this neighbourhood.	<i>Sense of community</i>
Living in this neighbourhood gives me a sense of community.	<i>Sense of community</i>

Notes: Response options are: strongly agree (1), agree (2), neither agree/nor disagree (3), disagree (4), strongly disagree (5), except items 5 and 15 that are reverse scored. For each item, average scores of the response options are calculated to compute the total measure score.