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Sociodemographic inequality in exposure to COVID-19-induced economic hardship in the United Kingdom

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ABSTRACT

The COVID-19 pandemic led to a lockdown in European countries in the first half of 2020, including stay-at-home orders and closure of non-essential businesses. To mitigate the detrimental effects on the financial stress of employees and households, the UK government implemented a furlough scheme that temporarily secured earnings up to 80 percent of regular pay. Other employees were at risk of reduced work hours or permanent job loss. Using data from the UK Household Longitudinal Study COVID-19 Supplement, this study examines the extent to which different earnings groups and sociodemographic groups (gender, race/ethnicity, class background) became exposed to economic hardship between March and May of 2020. Results indicate that lower earnings groups were more than twice as likely to experience economic hardship relative to top quintile earners. Furthermore, among pre-COVID employed individuals, men had a higher probability of being furloughed or dismissed from work, as well as whites in middle-income jobs. Analyses indicate that these gaps are to a large extent attributable to structural gender earnings inequalities within occupations and the fact that women and racial-ethnic minorities are employed in essential occupations.

1. Introduction

The COVID-19 pandemic spread rapidly in Europe in February and March of 2020. To mitigate the number of coronavirus infections, governments took rigorous measures with regard to mobility and work. The so-called “lockdowns” entailed restrictions on commuting, social distancing rules, school closures, working from home orders, and a severe reduction of economic activity (e.g. retail and entertainment). On March 17th, the United Kingdom government encouraged citizens to avoid pubs, restaurants, and other public gatherings, and to work from home if possible. One week later, the UK prime minister issued a stay-at-home order, excepting workers in designated essential occupations. The lockdown immediately led to work hours reduction, income loss, and job loss for many UK workers.

The COVID-19 economic downturn is idiosyncratic for at least two reasons. First, unlike recessions in recent history, which originated in financial trade, its effect on the labor market was virtually immediate. As a result of the lockdown and reduction of economic activity, many employers were forced to drastically reduce the number of work hours of their employees or to lay them off (permanently or temporarily). Second, similar to other European countries, the UK government implemented a furlough scheme upon issuing the lockdown aimed to maintain income for workers and households. This scheme allowed employers to apply for grants to keep many employees on their payroll at 80 percent of their regular pay.

This study examines how the risks of exposure to such COVID-19-induced economic hardships are distributed across the active labor force during the initial lockdown phase of the pandemic. We first analyze the role of pre-COVID-19 employment position: (1) What is the association between earnings group and COVID-19-induced economic hardship? We next assess whether sociodemographic factors are predictive of exposure to COVID-19-induced economic hardship, conditional on earnings level: (2) What are the associations between gender, race/ethnicity, and class background and economic hardship? The concluding remarks will concentrate on how to interpret the reported significant associations and null findings in light of the looming recession and the long-term contexts of the pandemic.

2. Recessions and inequality

Macroeconomic downturns tend to exacerbate existing socioeconomic inequalities. A multitude of studies has shown that the extent to which households experience job loss and income loss during a recession is contingent on social class, income level, and occupational position...
Employers were given the opportunity to put employees on this scheme if they were employed prior to March 2020 upon issuing the first nationwide lockdown. These included a Corona virus federal grant, but up to a maximum of £2,500 monthly. Employees cannot undertake any work or training while being on the furlough scheme. Self-employed workers were not eligible for the furlough scheme, but instead had access to the Self-Employment Income Support Scheme (UK Government, 2020). This scheme allowed workers to claim up to 70 percent of their regular monthly profit for a maximum of three months and up to £6,570. Recipients of the grant were allowed to take on a new trade or take on any form of new employment.

4. Analytical framework

The research questions concentrate on the distribution to COVID-19-induced economic hardship as experienced at any point between March and May of 2020. Economic hardship is defined as being furloughed, being cut in number of work hours, or being laid off. The population of interest is the active labor force in the United Kingdom. How do socioeconomic inequalities in exposure to economic hardship come about? There are generally two (non-exclusive) mechanisms by which sociodemographic groups may be disproportionally affected during an economic downturn (Redbird & Grusky, 2016). First, employers’ decision-making over work reduction or job dismissal may contain discriminatory processes and behaviors along gender, race, ethnicity, class, and age. In other words, the sum of explicit or implicit preferences of employers for members of one social group over another may lead directly to inequalities. Second, already disadvantaged groups may be concentrated in industries or occupations that are hit hardest by the recession (e.g., low-pay, low-skill, service sector), which in turn leads to social inequalities in exposure to economic hardship.

While there is no reason to believe that the former mechanism – discrimination in the discretionary decisions over work – would operate differently during the COVID-19 economic downturn, the extent to which different industries and sectors were affected was rather idiosyncratic. That is, workers in occupations for which working from home was feasible are likely to have experienced the least amount of financial hardship during the initial phase of the economic downturn, as well as workers in the essential occupations: health and social care, education and childcare, key public services, local and national governments, food, public safety and national security, transport, and parts of utilities, communications, and financial services.

4.1. Data and methods

The data are drawn from the Understanding Society COVID-19 study, which consists of monthly surveys from April onward (Crosley et al., 2020; University of Essex, 2020b). All respondents who are in the annual Understanding Society Household Longitudinal Survey (UKHLS) were approached for survey participation (initial response rate is 48 %). The study selects respondents from the first wave (April) who were re-interviewed in second wave (May), which contained survey questions on how individuals mitigated the pandemic (follow-up response rate is 77 %). The survey weights extend the weighting strategy used in the UKHLS annual survey, which adjusts for unequal selection probabilities and differential nonresponse. We selected respondents for analyses if they were between ages 18 and 64 (labor force) and employed by January-February of 2020 (active).

Respondents’ data were subsequently linked to the 9th wave of the UK Household Longitudinal Study (UKHLS), which allows integration of prior work trajectories and other demographic information (University of Essex, 2020b). This includes respondents’ Socio-Economic of Occupational Status (ISEI) or alternative labor market status, as observed in the 9th wave of the UKHLS (2017–2019). Furthermore, the UKHLS records father’s ISEI at age 14, which is operationally defined as indicator of parental class. A total of 298 cases were dropped from the analysis because they had no record in the 9th wave of the UKHLS, which brings the study sample to 5,155 cases. Descriptive statistics of all independent variables are reported in Appendix A. Robustness checks for inclusion or exclusion of respondents’ ISEI are provided in Appendices C thru F.

The dependent variable – economic hardship between March and May of 2020 – is defined as (1) being furloughed during the UK lockdown (22.8 %) or (2) reduced work hours (11.0 %) or (3) being laid off (1.4 %). These observations are taken together because they are all indicative of instant income loss – i.e., financial stress. Layoffs are permanent and therefore somewhat different from the two temporary hardships. However, preliminary analyses indicated no substantive differences when layoffs were excluded. Appendix B replicates the main prediction model for separate economic hardship outcomes. A total of 35.2 percent of study respondents were exposed to “COVID-19-induced economic hardship.”

Eq. (1) is used for the first series of models, where $X$ represents a categorical (quintile) predictor of job earnings as observed prior to the pandemic. All models control for sociodemographics $D_i$ (gender, race/ethnicity, age, age-squared) and $L_i$ employment status (type, ISEI). Logit models were utilized to generate the estimates, reporting the marginal effects (sample weights applied). Subsequent analyses are also run on earnings groups separately, while maintaining the all covariates.

$$\begin{equation}
Y = \logit(p_i) = h_i + X_i\beta_i + D_i\gamma + L_i\omega + \epsilon_i
\end{equation}$$
5. Findings

5.1. Income groups

There is a strong relationship between job earnings and the chance of exposure to economic hardship by May 2020. As shown in Fig. 1, higher earnings groups are progressively less likely to be furloughed, cut in work hours, or laid off during the lockdown. Adjusting for sociodemographics and employment status, individuals in the highest earnings quintile display a predicted chance of 20.1 percent of economic hardship. This gradient increases progressively for lower earnings quintiles; 28.1 percent (2nd quintile), 36.4 percent (3rd quintile), 44.4 percent (4th quintile), and 51.9 percent (5th quintile). In other words, low-pay workers have a 2.5 times higher propensity of losing income during the lockdown as compared to the highest income tier.

As earnings level appears as the largest divider in exposure risk to COVID-19-induced hardship, subsequent analyses on earnings discrepancies along gender, race, and class will also be conducted by earnings group (tertiles). These within-earnings group assessments, in combination with adjusting for occupational ranking and employment type, provide a closer approximation of employers’ decision-making over jobs in comparable segments of the labor market. It will tell us whether social inequalities vary across different earnings groups.

5.2. Gender

Fig. 2 presents the association between gender and economic hardship up until May in the leftmost panel. Adjusting for earnings level, sociodemographics, and employment status, men are significantly more likely to experience COVID-19-induced economic hardship than women. The predicted margins are 40.0 percent and 31.6 percent for men and women, respectively.

The adjacent graphs of Fig. 2 split these estimates by earnings group tertile. Despite the overall pattern of women having less exposure to new economic hardship than men during the lockdown, the estimates do not display a significant difference in the bottom earnings tertile (49.1 % and 49.5 %). In contrast, the middle earnings tertile, men (40.9 %) display a significantly higher probability than women (28.6 %) of exposure to economic hardship. A sizeable gender gap of 9 percentage points appears for the top earnings tertile: men (25.2 %) are more likely to be furloughed, cut in hours, or laid off compared to women (16.1 %).

In sum, the gender gap is concentrated in the middle- and high-earnings groups.

5.3. Race / ethnicity

Fig. 3 presents the economic hardship estimates for race/ethnicity. The UK government, policy makers, and researchers frequently use the term BAME (Black, Asian, and Minority Ethnic) to refer to the collective ethnic minority population. As shown in the leftmost panel of Fig. 3, whites (35.6 %) are more likely to than BAME individuals (29.8 %) to face economic hardship during the lockdown, which contradicts with racial inequality patterns from previous recessions. Similar (lower) average exposure probabilities appear for each of the BAME groups (see Appendix A).

Importantly, the adjacent panels of Fig. 3 indicate that there is no inequality between whites and BAME individuals in both the bottom earnings tertile and the top earnings tertile, where point estimates are around 49 percent and 22 percent, respectively. Instead, the racial gap appears to be concentrated in the middle earnings group (Fig. 3). Adjusting for all control variables, whites have a predicted probability of COVID-19-induced economic hardship of 35.1 percent, as compared to 21.8 percent for BAME individuals. The last section of this paper examines the mechanisms that could contribute to this gap.

5.4. Parental class

Studies in labor market inequality have documented earnings- and employment gaps by class background, particularly in the early career and in terms of job access (hiring). The current study allows us to examine whether class background inequalities appear in the discretionary decisions over work reduction or job dismissal during the initial phase of the COVID-19 economic downturn. Indeed, on average, individuals from lower-class backgrounds are more likely to be exposed to economic hardships in the Spring of 2020 (Appendix A), yet these could be a function of their occupational position.

The leftmost panel of Fig. 4 presents the marginal effects for different levels of parental (father’s) occupational prestige score (ISEI tertiles), as well as a category for ‘no occupation.’ However, the similar point estimates and non-significant discrepancies give no reason to believe that the class background of employees plays a role in decisions over furloughs, cutting hours, or layoffs. There is also no class background inequality when conditioning on the earnings level of employment, as shown in the adjacent panels of Fig. 4.

5.5. Mechanisms

The reported gender and race inequalities stand in need of a closer examination. Why are advantaged groups – men and whites – more likely to lose income during the UK lockdown due to furloughs, work hour reductions, or layoffs? To be sure, the gender gap accords with earlier findings from the Great Recession, where men were at a relatively higher risk of job loss. Though, scholars disagree about the extent to which this was a function of men’s concentration in particular industries. Regardless, the racial gap in exposure to financial hardship during the 2020 economic downturn is somewhat surprising.

We examine three possible mechanisms that could explain the relative advantages and disadvantages. First, it could be that members of the relatively high earnings – men and whites – are the first ones to be furloughed because their salaries or wages comprise of a larger relative share of the payroll expenses of corporations. The furlough scheme allows employers to reduce labor expenses temporarily, and more so if they dismiss high earners. Second, following the same efficiency mechanism, employers could be more inclined to furlough workers who usually work more hours. As men and whites are least likely to have...
hourly or part-time contracts, they could be prioritized in furlough or dismissal decisions. Third, Blundell et al. (2020) found that women and racial-ethnic minorities are more likely to be employed in essential occupations or sectors of the economy that did not have a lockdown. It is therefore plausible that these groups were somewhat protected against exposure to economic hardship between March and May of 2020.

The three non-exclusionary hypotheses are tested by adding a measure for each hypothesis to the model and to evaluate whether the estimate changes in magnitude or significance. These variables include respondents’ earnings relative to their occupation’s median in percentages (hypothesis 1), respondents’ regular number of hours worked (hypothesis 2), and a dummy for being employed in an essential occupation (hypothesis 3).

As shown in Table 1, the gender gap estimates in each of the columns adjacent to the main model estimate are attenuated and thus seem to explain parts of the relative advantage of women. When adding all three explanatory variables to the model, the point estimates are substantially reduced and non-significant for the middle earnings group. With regard to the racial gap, the measures indicative of salary or wage variation between the groups do not change the point estimates (hypotheses 1 and 2). In contrast, the control variable for being an essential worker substantially reduces the effect size (top earnings tertile) and significance (middle earnings tertile), making this the most likely explanation for racial-ethnic variation in exposure to economic hardship during the lockdown.

6. Conclusion

The lockdown and simultaneous economic downturn in the Spring of 2020 put an immediate pressure on economic activity and the labor market. In the United Kingdom, public policy was aimed at an urgent need to ameliorate the financial stress on businesses and households by offering a furlough scheme to employers and a similar scheme for self-employed workers. An estimated 22.8 percent of the active labor force members made use of these schemes, who maintained up to 80 percent of their regular pay on a temporary basis. Work hours were reduced for another 11 percent of employees, while 1.4 percent were laid off permanently. This meant that about 35 percent of all workers faced a substantive loss of income – i.e. “COVID-19-induced economic hardship” – between March and May of 2020.

Exposure to economic hardship during the initial phase of the pandemic was progressively higher among lower-paid occupations.
These gradients are substantive as the probability of economic hardship was 49 percent for workers in the lowest earnings quintile and only 22 percent for those in the highest earnings quintile. To examine the extent to which discretionary decisions of employers regarding furloughs and job dismissals contained social inequalities along gender, race/ethnicity, and class background, marginal effects were estimated by earnings group. Taken together, these analyses revealed that men (vis-à-vis women) and whites (vis-à-vis racial-ethnic minorities) were significantly more likely to experience economic hardship during the initial phase of the economic downturn. These gaps appeared primarily in the middle- or high-earnings groups.

How should the relative labor market advantages of women and BAME individuals during the lockdown be interpreted? It should be noted that the gender gap bears some similarities with the early stages of the Great Recession (Hout et al., 2011). In the current COVID-19 economic downturn, we found that women were somewhat more
‘protected’ against furloughs and job dismissals because of being lower earners relative to the median of their occupation and working fewer hours. In other words, it is plausible that the gender pay gap – a structural disadvantage for women – led employers to prioritize higher earners for furloughs (thereby saving more labor costs). Another contributor to the gender inequality in exposure to economic hardship is the fact that women were twice as likely to have essential occupations and therefore could not be furloughed or laid off. The mechanism of working in essential “non-lockdown” sector also fully explains the relative advantage of racial-ethnic minorities – in particular British Indians, Bangladeshis, Pakistanis, and East Asians.

Importantly, this study’s findings apply to the first phase of the economic downturn. The total effect of the pandemic, the lockdown, and the looming recession on social inequalities are yet to be revealed. There are a couple of reasons to assume that the relative “advantages” of women and racial-ethnic minorities in the March thru May labor market are somewhat misleading. First, the furlough scheme is temporary and will be phased out in the Fall of 2020. It is likely that many jobs will be lost permanently and these could contain patterns of social inequality that are comparable to earlier recessions. Moreover, sectors that are classified as essential during the lockdown may experience a wave of job dismissals at a later stage, presumably without a furlough scheme in place to protect the financial stress on workers. Second, the furlough scheme remains restricted to individuals who were employed at beginning of the lockdown. This means that structurally disadvantaged groups in the labor market – e.g. women, racial-ethnic minorities, and working-class groups – are much more exposed to long-term unemployment and poverty, especially in context of high employment access hurdles during a recession.

Future social policy packages that aim to reduce the financial stress on UK households should be comprehensive and include arrangements for all members of the labor force. That is, individuals who happened to be unemployed prior to the pandemic, as well as those who will experience income loss in a later stage of the COVID-19 economic downturn or during a next lockdown period.

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**Declaration of Competing Interest**

The authors report no declarations of interest.

**Appendix A. Descriptive Statistics Independent Variables**

| Variable | Proportion in Study Sample | Proportion Economic Hardship (March - May 2020) |
|----------|-----------------------------|-------------------------------------------------|
| Job Earnings Jan./Feb. 2020 |                            |                                                 |
| 1st ISEI quintile | .162 (.006) | .539 (.021) |
| 2nd ISEI quintile | .223 (.007) | .437 (.019) |
| 3rd ISEI quintile | .219 (.007) | .338 (.018) |
| 4th ISEI quintile | .211 (.007) | .266 (.016) |
| 5th ISEI quintile | .215 (.006) | .201 (.015) |
| Job Position 2017–2019 |                            |                                                 |
| 1st ISEI quintile | .202 (.007) | .430 (.020) |
| 2nd ISEI quintile | .155 (.006) | .448 (.022) |
| 3rd ISEI quintile | .175 (.006) | .309 (.018) |
| 4th ISEI quintile | .181 (.006) | .286 (.017) |
| 5th ISEI quintile | .169 (.006) | .221 (.016) |
| unemployed | .022 (.003) | .520 (.068) |
| student/trainee | .060 (.005) | .414 (.038) |
| in active | .036 (.003) | .451 (.044) |
| Gender |                            |                                                 |
| man | .456 (.009) | .370 (.013) |
| woman | .544 (.009) | .336 (.010) |
| Race / Ethnicity |                            |                                                 |
| white | .927 (.004) | .355 (.009) |
| BAME | .064 (.004) | .305 (.029) |
| Black | .018 (.002) | .275 (.055) |
| Indian/Pakistani/Bangladeshi | .024 (.002) | .316 (.045) |
| Asian (other) | .014 (.002) | .339 (.068) |
| Arab | .001 | .599 |

(continued on next page)
Proportion in Study Sample Proportion Economic Hardship (March - May 2020)

| Parental Class          | (.000) | (.201) |
|-------------------------|--------|--------|
| no occupation           | .333   | .390   |
| 1st ISEI tertile        | .256   | .359   |
| 2nd ISEI tertile        | .191   | .325   |
| 3rd ISEI tertile        | .220   | .309   |
| Age                     |        |        |
| 18-24                   | .069   | .491   |
| 25-34                   | .165   | .324   |
| 35-44                   | .237   | .321   |
| 45-54                   | .282   | .333   |
| 55-64                   | .248   | .362   |
| Employment Type         |        |        |
| employee                | .871   | .313   |
| self-employed           | .099   | .707   |
| employee + self-employed| .030   | .316   |

Notes. ISEI = socio-economic index of occupational status (‘08), based on respondent’s own most recently observed job (2018 or later) and father’s occupation at age 14 (drawn from the 9th wave of the UK Household Longitudinal Study). BAME = Black, Asian, and Minority Ethnic. Dependent variable distribution: no COVID-19-induced economic hardship (64.8 %), COVID-19-induced economic hardship (35.2 %) of which 22.8 % furloughed, 11 % hours cut (but not furloughed), and 1.4 % laid off.

Sources. UK Household Longitudinal Study Coronavirus Supplement (May 2020 re-interviews of initial April 2020 sample) and UK Household Longitudinal Study 9th Wave. N = 5,155 (employed in January-February 2020). Weights applied.

Appendix B. Job Earnings Inequality in COVID-19-induced Economic Hardship by Type (Furloughed, Hours Cut, Laid Off)

Notes. Job earnings refer to January-February of 2020. COVID-19-induced economic hardships as experienced in March-May of 2020 (35.2 % overall), of which 22.2 % furloughed, 11.0 % hours cut but not furloughed, and 1.4 % laid off. The model additionally controls for gender, age, age squared, race/ethnicity, occupation (ISEI) or status 2017–2019, and employment type.

Sources. UK Household Longitudinal Study Coronavirus Supplement (May 2020 re-interviews of initial April 2020 sample) and UK Household Longitudinal Study 9th Wave. N = 5,155 (employed in January-February 2020). Weights applied.

Appendix C. Job Earnings Inequality in COVID-19-induced Economic Hardship (With and Without ISEI Control)
Notes. Job earnings refer to January-February of 2020. COVID-19-induced economic hardships as experienced in March-May of 2020 (35.2 % overall), of which 22.% furloughed, 11.0 % hours cut but not furloughed, and 1.4 % laid off. The model additionally controls for gender, age, age squared, race/ethnicity, occupation (ISEI) or status 2017–2019, and employment type.

Sources. UK Household Longitudinal Study Coronavirus Supplement (May 2020 re-interviews of initial April 2020 sample) and UK Household Longitudinal Study 9th Wave. N = 5,155 (employed in January-February 2020). Weights applied.

Appendix D. Gender Inequality in COVID-19-induced Economic Hardship (With and Without Offspring)

Notes. COVID-19-induced economic hardship as experienced in March-May of 2020 (35.2 % overall), of which 22.% furloughed, 11.0 % hours cut but not furloughed, and 1.4 % laid off. All models additionally control for age, age squared, race/ethnicity, occupation (ISEI) or status 2017–2019, and employment type. Offspring controls include dummies for (1) children under age 4, (2) children ages 5–15, and (3) children ages 16-18. The model that does not include these additional controls for offspring is presented in Fig. 2.

Sources. UK Household Longitudinal Study Coronavirus Supplement (May 2020 re-interviews of initial April 2020 sample) and UK Household Longitudinal Study 9th Wave. N = 5,155 (employed in January-February 2020). Weights applied.

Appendix E. Racial / Ethnic Inequality in COVID-19-induced Economic Hardship (With and Without ISEI Control)
Notes. BAME = Black, Asian, and Minority Ethnic. COVID-19-induced economic hardship as experienced in March-May of 2020 (35.2 % overall), of which 22.2 % furloughed, 11.0 % hours cut but not furloughed, and 1.4 % laid off. All models additionally control for gender, age, age squared, and employment type. The model that additionally controls for ISEI or status 2017–2019 (i.e. ISEI quintiles, unemployed, student/trainee, inactive) is presented in Fig. 3.

Sources. UK Household Longitudinal Study Coronavirus Supplement (May 2020 re-interviews of initial April 2020 sample) and UK Household Longitudinal Study 9th Wave. N = 5,155 (employed in January-February 2020). Weights applied.

Appendix F. Class Background Inequality in COVID-19-induced Economic Hardship (With and Without ISEI Control)

Notes. Parental class is defined as father’s ISEI at age 14. This variable is drawn from the 9th wave of the UK Household Longitudinal Study. The ‘no occupation’ category combines father not working, deceased, or not in household (9 %). Respondents with no missing father’s occupational status (23.7 %) are excluded from the model. A robustness check includes a category for ‘missing’ (not shown, similar results). COVID-19-induced economic hardship as experienced in March-May of 2020 (35.2 % overall), of which 22.2 % furloughed, 11.0 % hours cut but not furloughed, and 1.4 % laid off. All models additionally control for gender, age, age squared, and employment type. The model that additionally controls for ISEI or status 2017–2019 (i.e. ISEI quintiles, unemployed, student/trainee, inactive) is presented in Fig. 4.

Sources. UK Household Longitudinal Study Coronavirus Supplement (May 2020 re-interviews of initial April 2020 sample) and UK Household Longitudinal Study 9th Wave. N = 3,927 (employed in January-February 2020). Weights applied.

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