

Where have all the flowers gone? The Impact of COVID-19 on UK Households' Economic Well-Being

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Abstract: - The United Kingdom introduced a national lockdown in March 2020, as a means to curb the rising pace of COVID-19 infections in the country. Since then, the various restrictions imposed on citizens have produced enormous social and economic consequences. However, full awareness of the mid-term and long-term impacts of such restrictive measures is still lacking. In this paper, by making use of longitudinal data from the Understanding Society COVID-19 study, consisting of nine survey waves administered to a representative sample of UK citizens from April 2020 to September 2021, we analyze the potential determinants of lack of employment and poor economic conditions, considering individuals' length of stay in an economic hardship context and the differential effects related to their socio-demographic characteristics.

Key-Words: - Job loss, Bill payments, Subjective financial situation, Employment, Minority ethnic groups, Health, Loneliness, Persistence, Pandemic crisis, Understanding Society.

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1 Introduction

The first national lockdown in the United Kingdom was carried out on 23 March 2020, as a response to the rapid spread of COVID-19 cases in the country. Since then, the price of the implemented restrictions has been incredibly high, with strong consequences on the population as a whole and, in particular, on its most vulnerable segments, in terms of mass unemployment, isolation of the people, and widespread financial difficulties. Indeed, among European countries, the United Kingdom was one of the hardest hit by the pandemic, [1] and three lockdowns have been implemented in the country so far.

The economic consequences at the aggregate level have been extremely strong. In 2020, GDP decreased by 9.7% compared to the previous year, followed by a growth of 6.9% in 2021, [2]; the unemployment rate in 2020 increased by only 1.5%, mostly as a result of government support, but a great heterogeneity among different groups of households

was pointed out for what concerns the COVID-19 effects on unemployment, [3]. In 2021, despite the strong recovery in the economic activity level, the forecasts predicted a further increase in unemployment of 1.8%, until reaching a level of 7.1%, [4]. Moreover, households' consumption fell by 10.6% in 2020 but recovered by 6.2% in 2021 (+6.2%), [5].

Recent evidence has shown that the COVID-19 pandemic and the related social and economic interventions, such as physical distancing and closure of production activities, have had different impacts on the various social groups, [6], [7]. It must be underlined that the regressive impact of COVID-19 comes after three decades of increase in inequality in household income, [8]. Furthermore, cuts in benefits in the years immediately preceding the COVID-19 pandemic left low-income households with a poor degree of protection: as highlighted in [9], in the two-year period 2017-2018, the wage growth was lower than inflation and

the reductions in benefits pushed down the poorest households' incomes.

In the UK, females and parents are among those who have experienced the largest reduction in subjective well-being, [10], [11]. Black, Asian, and minority ethnic groups (BAME) exhibited a higher COVID-19-related mortality rate than the White population, [12] and suffered harsher economic consequences, [13].

The available evidence concerning the impact of COVID-19 identifies the existence of immediate effects; nevertheless, our understanding of the mid-term and long-term consequences of the pandemic and its related measures remains incomplete. To this end, we analyze a representative sample of the UK population, the UK Household Longitudinal Study (UKHLS), making use of data from the Understanding Society COVID-19 Study, [14], [15]. It consists of nine survey waves administered to a representative sample of UK citizens from April 2020 to September 2021. The analysis of numerous survey waves gives a reliable picture of the phenomenon and allows us to investigate not only the immediate effects of the lockdown (as done, e.g., by [3], [16]) but also its mid-term effects.

Through this study, we aim to contribute to the comprehension of the effects of COVID-19 by focusing on three outcome variables: job loss, difficulties in paying bills, and subjective financial situation.

These outcome variables were chosen as they highlight three different but interconnected faces of economic and social malaise. Employment is obviously at the core of social life, both as a way for individuals to integrate into society and fulfill themselves. A scarce ability to pay bills is an index of material deprivation. As underlined by [17], [18], [19], among others, it is reductive to use income or monetary consumption as a proxy of living standards. In [20], realizations are defined as the various activities or goods that an individual performs or uses in order to lead a satisfactory life; individuals' basic abilities mirror the different combinations of the realizations they can achieve, given what they are able to choose. This concept opened the path to the direct measurement of living standards and is at the basis of official surveys such as Understanding Society and EU-SILC, [21], [22], [23], [24], that aim at giving a comprehensive picture of economic and social conditions in different countries.

Moreover, the perception of one's financial situation responds to the principle of subjective measurement of living standards. The subjective approach leads to measures based on the opinions of

interviewees and the relationship between their subjective opinions and their welfare, [25], [26]. The subjective approach has been criticized by [20]. In brief, people can get used to their situation, following a behavior that marketing researchers describe as cognitive dissonance, [27]. In our study, we use the subjective approach as we agree with the position of [28], which assumes that individuals are responsible for their preferences.

It should be mentioned that government interventions to support families and businesses accounted for 5.5% of GDP in 2020, [4]. As regards households, the Coronavirus Job Retention Scheme took shape. It guaranteed transfers to companies to pay 80% of furloughed workers' wages up to a maximum of 2,500 British pounds if they did not work while receiving the subsidy. In addition, self-employed workers received a taxable subsidy equal to 80% of the average income of the previous three months, as part of the Self-Employment Income Support Scheme. Furthermore, the government temporarily increased the unemployment benefits. Indeed, the United Kingdom pursued a policy of protecting jobs during the crisis.

The impact of the COVID-19 crisis on unemployment in the UK has been small. This is due to the policy measures enforced by the government, especially those concerning furloughed workers. Comparing the UK with other Western countries, [29], we can see that its furloughing scheme has been more efficient in protecting jobs. For instance, in the United States of America, unemployment rose steeply (+16% in April 2020), mainly as a consequence of the lack of a furloughing scheme.

In what follows, we will be highlighting the differential effects on the three outcome variables, related to the structural characteristics of individuals and households – such as gender, age, ethnic group, and family size. Our main hypothesis (as in [3]) is that the economic effects of the COVID-19 pandemic have been regressive, and the negative consequences of the economic crisis have had the greatest impact on the socio-demographic groups that were already in the worst situation before the onset of the pandemic.

From the methodological side, the main novelties of our study reside in the conceptualization and operationalization of the dependent variables: we consider the degree of permanence of each respondent in each condition of interest, to measure the intertemporal patterns of the analyzed phenomena. In doing so, we take inspiration from [30], [31].

For a review of the different methods for expressing the persistence of a statistical unit in a specific state (such as poverty or unemployment), [32]. For aggregate data, the usual time-series methods can be applied, [33].

From a substantive point of view, we aim to highlight the segmentation of individual responses to the COVID-19-driven economic crisis, by using social and demographic variables. The next Section illustrates the data and techniques put to use to reach our aims, while the main findings are presented in Section 3. Then, some final remarks are given in Section 4.

2 Data and Methods

The Understanding Society COVID-19 study is a longitudinal survey aimed at capturing the experiences of UK individuals during the COVID-19 pandemic, covering the changing impact of the pandemic on the welfare of the UK population, [14], [15]. It is part of the UK Household Longitudinal Study (UKHLS) and includes all members of the main Understanding Society sample who participated in waves 8 or 9 (2017-2018), selected through a probability sampling of postal addresses in the UK. The COVID-19 survey was conducted during the first lockdown (April, May, and June 2020), in its immediate aftermath (July and September 2020), during the last two lockdowns (November 2020, January 2021, and March 2021), and finally in September 2021, for a total of nine survey waves so far.

The pattern of our investigation concerns the longitudinal effects of the COVID-19 pandemic on households' economic well-being. This goal can be achieved by analyzing intertemporal aggregations of indicators that reflect economic malaise, [30], measured by using variables such as income, unemployment, ability to make ends meet, and economic subsidies received. The degree of economic malaise also depends on the length of time during which an individual or household lingers in a difficult situation, [34]: therefore, we can assume that a challenging time is such if there is a minimum length of persistence in a state of difficulty.

The economic and statistical literature has focused mainly on the permanence in two states: unemployment and poverty, [35], [36]. Here, we measure the persistence in a state of lack of employment, difficulty in paying bills, and poor subjective financial situation, by using the approach drawn in [30].

Such approach is grounded on the length of the period in which an individual lingers in a condition

of economic malaise. Their proposal consists of computing, for each statistical unit (individual or household), the weighted average of the indicators linked to economic discomfort for each interval. The weights are represented by the length of the period in which the disease is present (for an alternative scheme, [35]). To give a simple example, referred to unemployment (0 = employed; 1 = unemployed), the sequence (1, 0, 1, 0) is considered to be better than the situation (1, 1, 0, 0), as the latter implies that the individual has been unemployed for two consecutive periods rather than two distinct ones.

Using a formal approach, the proposal in [30], can be described as follows.

Let $\Omega = \cup_{T \in N} R_+^T$

For each $T \in N$, an individual profile of size T is a vector $p_i \in R^+$, where p_i is the experience of economic malaise characterizing the individual i in the period $t = (1, 2, \dots, T)$.

An intertemporal measure of economic malaise is given by the function:

$$P_i: \Omega \rightarrow R^+$$

where, for each $p_i \in \Omega$, $P_i(p_i)$ is the individual condition affecting the i -th unit.

Let us consider each

$$T \in N, p_i \in R^+ \\ \text{for } t \in (1, 2, \dots, T) \ni p_i^t > 0$$

Let $D_t(p_i)$ as the maximum number of consecutive intervals (t included) in which the indicator of economic malaise is zero.

The measure of intertemporal uneasiness is defined as:

$$P_i^*(p_i) = \frac{1}{T} \sum_{\tau=1}^T D^\tau(p_i) p_i^\tau \quad (1)$$

for each $T \in N$ and for each $p_i \in R_+^T$.

The indicator specified above treats persistence coherently to our aims. Ceteris paribus, longer spells between two periods in which economic malaise is captured decrease the intertemporal index, while shorter periods between two discomfort episodes make the intertemporal index greater. When the number of consecutive periods during which the individual remains in a state of economic malaise becomes greater, the weight D^τ increases, which implies the growth of the individual measure. For a review of the algebraic properties of the indicator, [30].

Even if the measure proposed in [30], – just as any other statistical index – holds a conventional component, we regard a representation of economic malaise that considers the persistence in the situation of interest as preferable to one in which duration has no role.

We run a set of panel regression models, using three different dependent variables, each of which reflects a condition of economic malaise (not being employed or self-employed, being behind with some or all bill payments, considering the own financial situation as quite or very difficult). The value of each dependent variable is adjusted for its duration, according to the method described in [30] (formula 1 supra). The estimated models include several regressors related to the socio-demographic characteristics of the individuals and incorporate wave fixed effects.

Specifically, along with individual demographic characteristics (ethnic background, gender, and age), we consider household structure (family size and presence of a partner) and health disorders as proxies of households' needs, as well as subjective experiences of loneliness since the lack of social networks may undermine the ability to cope with adverse economic circumstances, [37].

Since some relevant variables were not captured in waves 3, 5, and 7 of the Understanding Society COVID-19 study, we only used six survey waves (1, 2, 4, 6, 8 and 9).

Descriptive statistics of the employed variables, computed for the estimation sample, are presented in Table 1.

Table 1. Descriptive statistics of the variables employed in the models

Variable	Obs.	Min	Median	Max	Mean/%	Std. Dev.
Subjective financial situation: Finding it quite or very difficult (persistence)	34525	-1	0	6	0.112	0.541
Not employed nor self-employed (persistence)	34525	-1	0	6	0.732	1.546
Behind with some or all bill payments (persistence)	34525	-1	0	6	0.105	0.566
White (1: yes)	34525	0	1	1	89.1%	
Age	34525	16	50	65	47.75	12.11
Male (1: yes)	34525	0	0	1	38.6%	
Household size	34525	1	3	11	2.815	1.285
Living with a partner (1: yes)	34525	0	1	1	71.6%	
Long-term health condition (1: yes)	34525	0	0	1	45.6%	
Feeling lonely (1: Hardly ever or never; 2: Some of the time; 3: Often)	34525	1	1	3		

As expected, those who are not employed are the ones who most frequently report issues with bill payments (Table 2). In particular, while almost 4.4% of the observations under consideration are classified as being behind with all or some bill payments, this proportion increases to 8.05% when only considering the respondents who are currently not employed nor self-employed, while it decreases to 3.27% when looking at the employed or self-employed individuals.

Table 2. Bill payments and employment status

	Not behind will bill payments	Behind with some or all bill payments	Total
Employed or self-employed	96.73%	3.27%	100%
Not employed nor self-employed	91.95%	8.05%	100%
Total	95.63%	4.37%	100%

Table 3, Table 4 and Table 5 show the matrixes of transition probability (i.e., the likelihood of change between categories over time) between t and t+1 for the given sample, as regards employment status (Table 3), issues with bill payments (Table 4), and reported financial situation (Table 5). Being the diagonal values always the highest, the matrix clearly shows that these variables are particularly stable over time. However, while employment status looks to be highly stable from one wave to another, reported issues with bill payments and individual perceptions of financial conditions appear to be more volatile.

Table 3. Transition probability of employment status between t and t+1

	Employed or self-employed	Not employed nor self-employed	Total
Employed or self-employed	97.52%	2.48%	100%
Not employed nor self-employed	7.76%	92.24%	100%
Total	76.79%	23.21%	100%

Table 4. Transition probability of issues with bill payments between t and t+1

	Not behind will bill payments	Behind with some or all bill payments	Total
Not behind will bill payments	98.50%	1.50%	100%
Behind with some or all bill payments	32.13%	67.87%	100%
Total	95.66%	4.34%	100%

Table 5. Transition probability of subjective financial situation between t and t+1

	Subjective financial situation: Not finding it difficult	Subjective financial situation: Finding it quite or very difficult	Total
Subjective financial situation: Not finding it difficult	97.78%	2.22%	100%
Subjective financial situation: Finding it quite or very difficult	42.40%	57.60%	100%
Total	94.98%	5.02%	100%

Figure 1, Figure 2 and Figure 3 show the average sample values of the three dependent variables across waves. It appears to be increasingly more likely to be non-employed as time goes by, while the probability of being behind with bill payments is especially high during the first period of the pandemic. Respondents' reports of their perceived financial situation are the worst during the first survey period, measured in April 2020.

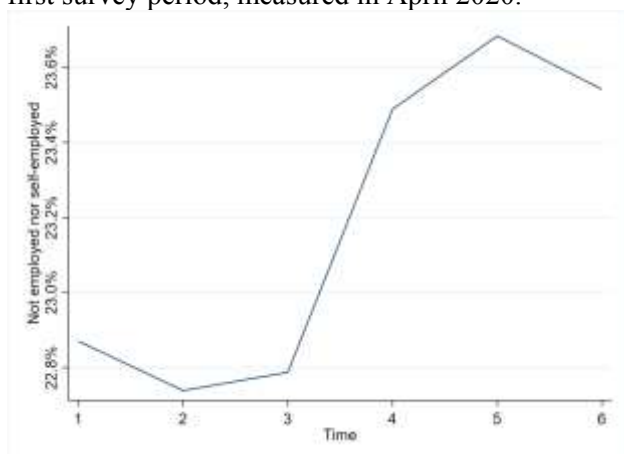


Fig. 1: Proportion of respondents not employed nor self-employed across waves

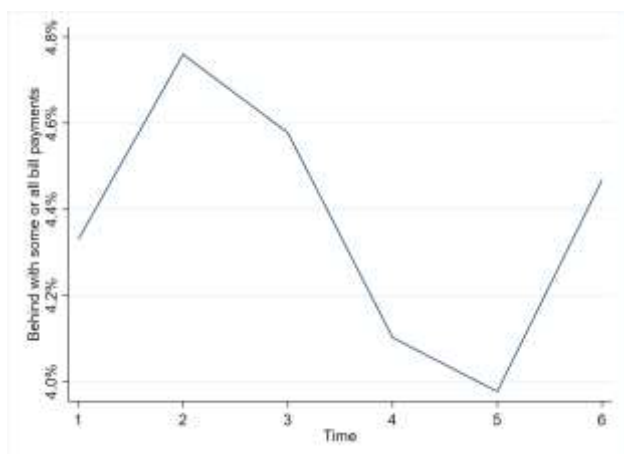


Fig. 2: Proportion of respondents behind with some or all bill payments across waves

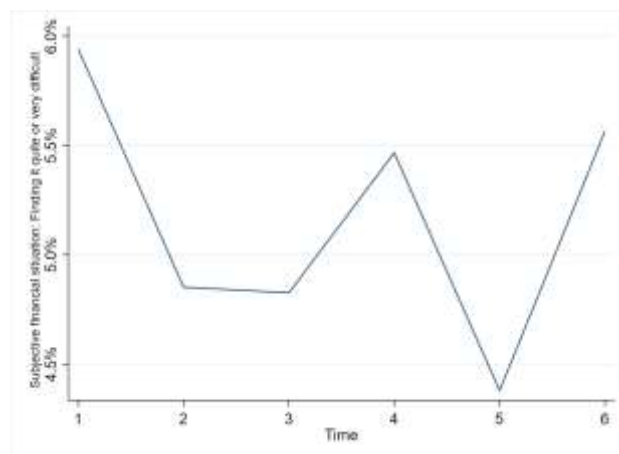


Fig. 3: Proportion of respondents with a quite or very difficult subjective financial situation across waves

3 Main Results

Table 6 shows the results from the first model, in which the outcome is a continuous variable calculated according to formula (1).

White people, compared to Black, Asian, and minority ethnic groups, have a lower probability of not being employed. The same applies to females compared to males. The regressive effects of COVID-19 are thus absolutely evident. Living with a partner decreases the probability of being non-employed while being part of a larger household increases this probability.

Older individuals have a higher probability of not being employed, as well as those with a long-term health disorder and those who are experiencing loneliness. Besides, the lack of employment is positively associated with difficulties in making ends meet, proxied by being behind with bill payments and by perceiving the own financial situation as quite or very difficult. The effects of time (expressed by the wave coefficients) are progressive and signal a worsening of employment conditions throughout the pandemic.

Table 7 shows the results from the second model, in which the outcome is a continuous variable expressing the persistence in a state of economic hardship reflected by the inability to pay some or all bills.

The results from this model are in line with those we got in the previous one, which examined the persistence in a non-employment status. White people have a lower probability of being behind with bill payments. The same is true for older individuals, for which the probability of being behind with payments is lower than that of younger respondents. Gender, on the other hand, does not show a significant association with the dependent

variable. For what concerns household structure, being part of a larger family is associated with an increase in persistence in a state of not being able to pay bills on time; living with a partner, on the other hand, appears to be helpful in this respect. As we could easily expect, also not being employed and perceiving the own financial situation as difficult are positively associated with material difficulties. Feeling lonely is negatively associated with being behind with payments while being affected by a long-term health disorder appears to increase the probability of not making ends meet.

Table 6. Results from Model 1 – Panel regression of being not employed nor self-employed (persistence)

Variable	Coefficient	Std. Error
Behind with some or all bill payments (persistence)	0.200***	0.0155
Subjective financial situation: Finding it quite or very difficult (persistence)	0.149***	0.0161
White	-0.253***	0.0558
Age	0.021***	0.0015
Male	-0.240***	0.0352
Household size	0.027***	0.0091
Living with a partner	-0.178***	0.0254
Long-term health condition	0.115***	0.0259
Feeling lonely: Some of the time	0.052***	0.0130
Feeling lonely: Often	0.099***	0.0251
Time 2	0.202***	0.0136
Time 3	0.395***	0.0136
Time 4	0.565***	0.0137
Time 5	0.742***	0.0138
Time 6	0.910***	0.0139
Intercept	-0.463***	0.0917
Observations	34525	
R-squared (within)	0.210	
R-squared (between)	0.070	
R-squared (overall)	0.102	

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Turning now to the examination of wave coefficients, it should be underlined that, from one wave to another, the coefficients do not show large differences, meaning that the value of the persistence variable is likely steady across time. This can be interpreted as evidence that individuals continuously enter and exit from this state during the COVID-19 period, maybe due to intermittent financial assistance received by the government.

From a comprehensive point of view, the effects of the COVID-19 crisis on households' well-being highlight a regressive effect, that hits the weaker segments of the population – such as BAME and younger citizens – the hardest.

Table 7. Results from Model 2 – Panel regression of being behind with some or all bill payments (persistence)

Variable	Coefficient	Std. Error
Subjective financial situation: Finding it quite or very difficult (persistence)	0.369***	0.0052
Not employed nor self-employed (persistence)	0.024***	0.0019
White	-0.147***	0.0192
Age	-0.001*	0.0005
Male	-0.018	0.0121
Household size	0.010***	0.0031
Living with a partner	-0.020**	0.0088
Long-term health condition	0.065***	0.0090
Feeling lonely: Some of the time	0.002	0.0045
Feeling lonely: Often	-0.017**	0.0087
Time 2	0.022***	0.0047
Time 3	0.037***	0.0048
Time 4	0.044***	0.0049
Time 5	0.050***	0.0050
Time 6	0.057***	0.0051
Intercept	0.153***	0.0316
Observations	34525	
R-squared (within)	0.144	
R-squared (between)	0.222	
R-squared (overall)	0.205	

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

We now move on to the subjective perception of respondents' financial situation (Table 8). It is interesting to compare the results from this regression with the previous ones: indeed, while the first two models employ objective indicators of economic hardship as dependent variables, this model uses a subjective one, for which some caveats may be in order, [20].

White people, compared to BAME, have a lower probability of reporting a bad financial situation. This is in line with the results of the previous models (Table 6 and Table 7), in which White respondents were shown to have a lower probability of suffering economic hardship. A negative association with an unenthusiastic perception of own financial situation can also be pointed out for those living with a partner, which is also in line with the results from the previous models. Being behind with bill payments and being not employed, as expected, are also positively linked with own perceptions of a bad financial situation. Finally, reporting feeling lonely is positively associated with the perception of a bad financial situation, and the deeper the feeling of loneliness, the worse the perceived financial situation.

Contrary to our expectations, we do not get significant coefficients for age, gender, household size, and long-term health issues, which could be seen as an indirect confirmation of the criticism of [20].

Finally, the wave coefficients show little variation across time, but there is a clear monotonical trend that confirms an increase in the

persistence of a difficult financial status throughout the pandemic.

Table 8. Results from Model 3 – Panel regression of quite or very difficult subjective financial situation (persistence)

Variable	Coefficient	Std. Error
Behind with some or all bill payments (persistence)	0.341***	0.0048
Not employed nor self-employed (persistence)	0.017***	0.0018
White	-0.095***	0.0181
Age	0.000	0.0005
Male	-0.003	0.0114
Household size	-0.002	0.0030
Living with a partner	-0.028***	0.0084
Long-term health condition	-0.005	0.0085
Feeling lonely: Some of the time	0.026***	0.0044
Feeling lonely: Often	0.096***	0.0084
Time 2	0.013***	0.0046
Time 3	0.021***	0.0046
Time 4	0.030***	0.0047
Time 5	0.036***	0.0048
Time 6	0.043***	0.0049
Intercept	0.117***	0.0299
Observations	34525	
R-squared (within)	0.136	
R-squared (between)	0.232	
R-squared (overall)	0.210	

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4 Conclusions

In this study, we analyzed the consequences of the pandemic on the UK population, using data from the Understanding Society COVID-19 Study, [14], [15]. We estimated three panel regression models, focusing on three outcome variables: job loss, difficulties in paying bills, and subjective financial situation. Our models considered several socio-demographic characteristics and controlled for the effect of time, as policy measures and their impact on the population have greatly changed throughout the pandemic. Moreover, we took into account the persistence of an economic-hardship status over time.

Among other things, our outcomes highlight the vulnerability of some social groups. It appears that the ethnic component plays a key role in determining the probability of employment loss: Black, Asian, and minority ethnic groups result to be more at risk of losing their jobs. Moreover, such citizens are also more likely to be behind will bill payments and to report a bad financial situation. The same can be pointed out for women, compared to men. Nevertheless, older adults are more likely to lose their jobs than younger individuals but less likely to report being behind with bill payments: this

is probably due to a higher monetary wealth that they might be able to tap into, making them more capable than younger individuals to absorb income shocks. However, this may not be true for all, and policymakers should ensure that older individuals who are financially affected by the pandemic are adequately assisted. We also show that, as time goes by, it becomes increasingly likely for citizens to suffer economic hardship.

As regards future research, further waves of the survey will enable scholars to assess whether the presented results represent longer-term trends.

As uncertainty increases while the world adapts to the pandemic, understanding how people react is crucial to help those in need. By doing so, we will be able to build back better in a post-COVID-19 world.

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