Chapter 3
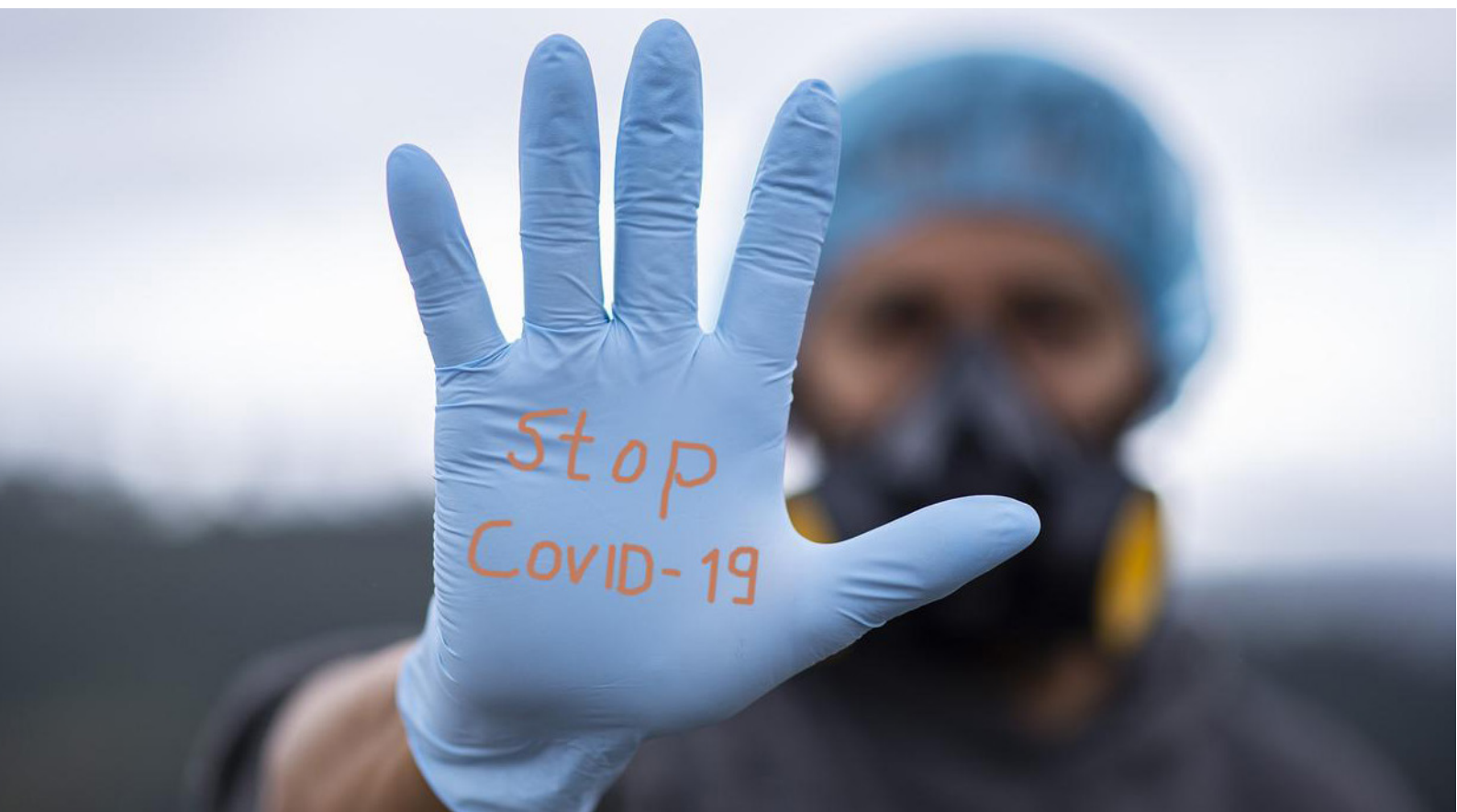
COVID-19 IMPACT ON HOUSEHOLD INCOME

EVIDENCE FROM GEORGIA AND MONGOLIA

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3.1 INTRODUCTION

Pictures from: https://rabbit.bigbigwork.com/home

The COVID-19 pandemic has impacted almost all countries and parts of population. However, societies with lower income economies faced higher social and economic pressure brought about by COVID-19 (Baena-Díez et al. 2020). The effects of the pandemic have severely affected population groups — such as young people and women — who have been in a vulnerable position facing the COVID-19 challenges (Bundervoet, Dávalos, and Garcia 2022).

The economic downturn during COVID-19 has had a significant impact on the labor market, decreasing employment and restricting labor mobility. Social distancing and lockdown measures to prevent the spread of the virus have had a substantial negative effect on sectors where females are actively employed. Moreover, increased online education practices and staying at home during the lockdown have caused females to spend more time on childcare and family work (Alon et al. 2020). Although economic recovery perspectives appeared recently to give hope for improvement, there is a risk that the recovery process will not be experienced equally by rich and lower income countries and, even, by groups of the population within a country (Sánchez-Páramo et al. 2021). Recent empirical studies show that, during the recovery process from the COVID-19 shock, low income countries are falling significantly behind and the efficiency of government interventions to reduce inequality in developing countries is vague (Brussevich, Liu, and Papageorgiou 2022). Given the potential risk of slow recovery, continuing supply-chain disruptions, and learning losses caused by the COVID-19 restrictions, the impact of inequality may persist beyond the short-term period (Narayan et al. 2022). Moreover, Furceri et al. (2022) argue that the inequality impact of the COVID-19 pandemic can be seen to be greater than that of past economic crises.

Empirical evidence asserts about differential impacts by gender too. In their compre-hensive review, Flor et al. (2022) note that women frequently reported employment loss and that pre-existing gender gaps intensified during the COVID-19 pandemic. This is supported by Hoehn-V elasco et al. (2022) who state that men recovered in employment terms faster than women. Vicari, Zoch, and Bächmann (2022), examining wellbeing at the beginning of the COVID-19 pandemic in Germany, note that there is a significant decline in the wellbeing of working mothers. Besides, children in the household are affected by the low wellbeing of parents. Analogously, Christl et al. (2022) found that labor market shock caused by the pandemic has been more evident among poor households; however, government policies were able to offset this negative effect. In general, government

policy to support employment opportunities and income is reflected in the provision of tax relief, unemployment and social cash transfers, and so on. Although, the potential of developing countries to increase government budget expenditure is restricted by less fiscal space (UNESCAP 2020).

On the other hand, along with a broad consensus on the importance of government policy in the provision of economic recovery with equal opportunities, evidence in developing countries is mixed. Although there are a growing number of empirical studies on the impact of COVID-19, there is a little empirical evidence in the CAREC economies.

Among this evidence, Azhgaliyeva et al. (2022) is one of the studies on this topic for the CAREC region. Using data collected by computer-assisted telephone interviews (CATI) in ten countries from the CAREC region, they indicate that, because of the COVID-19 pandemic, households with waged income have had a higher probability of experiencing income decline. Also, households with less educated household heads were more likely to experience income decline, whereas female-headed households are found to have less likelihood. Murakami (2022), based on nationally representative monthly survey in Tajikistan before and after the outbreak of the COVID-19 pandemic, indicates that with COVID-19 household employment and income dropped, and food insecurity worsened. However, the extent of this impact varied by location, prepandemic income levels, and household size; thus, urban households faced employment and income shock to a larger extent. Larger households experienced income decline compared to smaller households, which is explained by the self-employment of large household members.

Although, these studies provide insights on the impact of pandemic, they do not focus on details of income decline such as the magnitude of income fall and evolution of income

change over two (or more) periods of the survey. Moreover, more studies on other CAREC countries are needed to understand income dynamics at household level in the region.

This study aims to empirically examine household characteristics associated with income decline during COVID-19 in two CAREC countries: Georgia and Mongolia. For this purpose, a binary response probit regression model is applied based on data from the two waves of the UNICEF MICS Plus household survey. The empirical model estimates probability of income decline, magnitude of income loss, and the change of income over two waves of the survey. Thus, this study enriches existing literature with empirical evidence from developing countries and sheds light on perspectives of the post-COVID recovery.
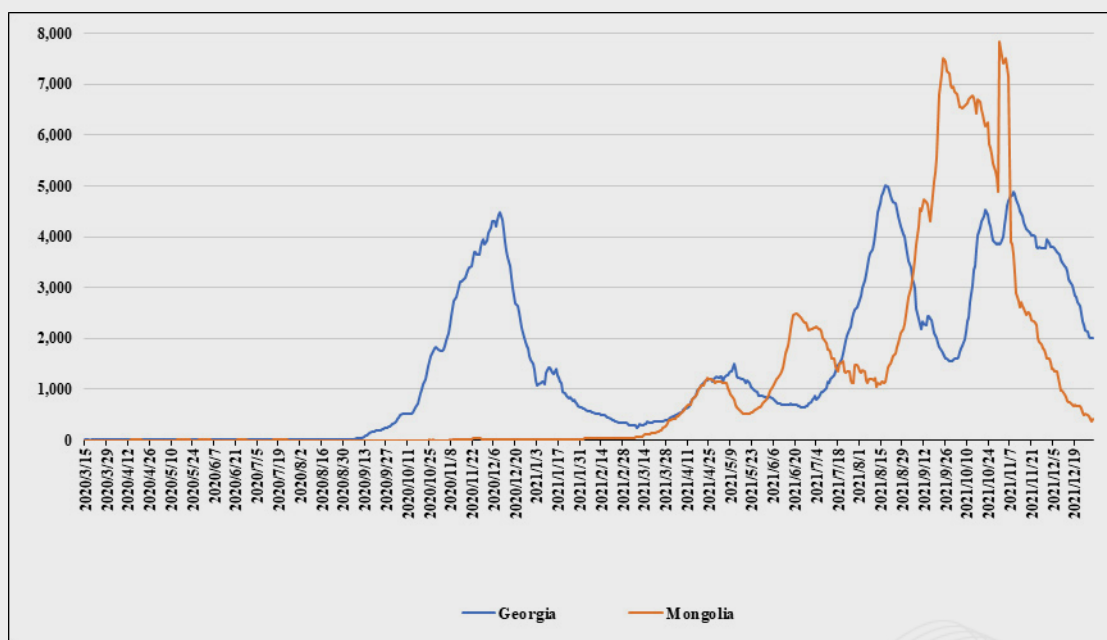
This chapter is structured as follows: the next section describes COVID-19 and macroeconomic development in two economies. Section three presents data source and descriptive statistics, and section four describes methodology. Section five presents estimation results and the last section concludes.

3.2 COVID–19 AND MACROECONOMIC DEVELOPMENT IN GEORGIA AND MONGOLIA

The first COVID-19 cases in Georgia appeared in late February 2020 and in Mongolia just before the second half of March 2020. The two countries experienced different paths of the pandemic waves in 2020 and 2021. The highest numbers of new cases in Georgia were registered in November to December 2020, achieving more than 4,000 cases by seven-day rolling average. However, Mongolia maintained a low number of new cases

in 2020 and experienced a peak in September to October 2021, with more than 7,000 new cases (Figure 3.1). Although, Georgia saw another substantial increase in COVID-19 cases in August to November 2021. Therefore, based on COVID-19 case statistics, Georgia has been more exposed to the pandemic; this was also reflected in the number of deaths. After a high number of deaths in Georgia in December 2020, the resurgence was in September and November 2021, where the number of deaths reached about 80. The number of death cases in Mongolia was substantially lower — about 11 cases in July 2020, with slightly higher increases in October 2021 — around 18 cases. Also, Mongolia differed from Georgia in its progress of vaccination against COVID-19; as of 28 February, the population share vaccinated in Georgia was 31 percent, while in Mongolia it was 68 percent. [1]

Figure 3.1. Daily new confirmed COVID-19 cases, seven-day rolling average

Source: John Hopkins University CSSE COVID-19 data. Available at:
https://ourworldindata.org/coronavirus/country/georgia?country=GEO~MNG (accessed 21 February 2022)

[1] https://ourworldindata.org/covid-vaccinations

Figure 3.2. Daily new confirmed COVID-19 deaths, seven-day rolling average

Source: John Hopkins University CSSE COVID-19 data. Available at:
https://ourworldindata.org/coronavirus/country/georgia?country=GEO~MNG (accessed 21 February 2022)

The CAREC economies saw their deepest dip in GDP owing to COVID-19 — a fall not seen since the early 1990s,[2] — and Georgia and Mongolia were no exception. The pandemic changed the economic dynamics of both countries, causing a substantial decline in GDP by the end of 2020. Contraction in Georgia and Mongolia was recorded at 6.6 percent and 4.6 percent, respectively (Figure 3.3). Preliminary estimates of economic growth for 2021 indicate recovery in Georgia and Mongolia by 10.6 percent[3] and 1.4 percent[4], respectively.

[2] CAREC Quarterly Economic Monitor No 2, April 2021, p6.
https://www.carecinstitute.org/publications/carec-quarterly-economic-monitor-no-2/ (accessed 25 February 2022)

[3] https://www.geostat.ge/en/single-news/2461/rapid-estimates-of-economic-growth-january-2022

[4] http://www.1212.mn/stat.aspx?LIST_ID=976_L05

Figure 3.3. Annual real GDP growth rates in Georgia and Mongolia
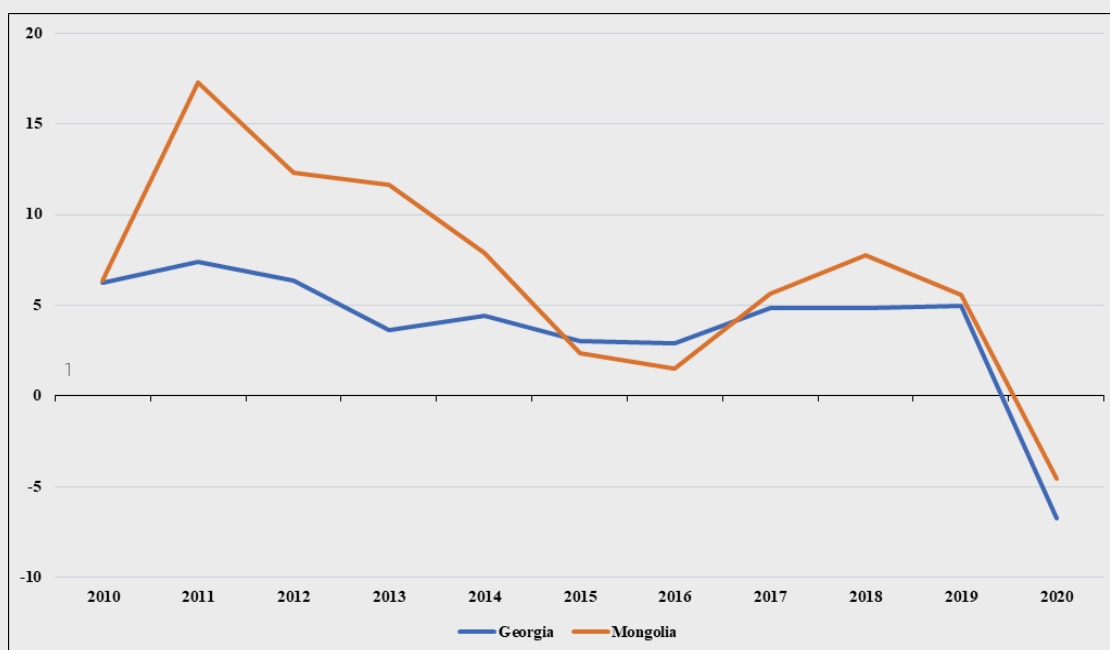
Source: World Bank, World Development Indicators

The economic decline in Mongolia appeared in the first quarter of 2020, reaching 7.3 percent year on year, and then accelerated further to 7.7 percent year on year in the second quarter of 2020 (Figure 3.4). Georgia saw the deepest slump of GDP growth in the second quarter of 2020, by 13.6 percent year on year. During the following quarters, slow economic recovery was observed in both economies: in the first quarter of 2021 growth in Mongolia was positive at 15.1 percent year on year, although decline appeared by the third quarter of 2021. Georgia experienced positive growth rates in the second and third quarters of 2021 at 31.5 percent and 9.1 percent year on year, respectively.

Figure 3.4. Real GDP growth in Georgia and Mongolia (year on year, constant prices)
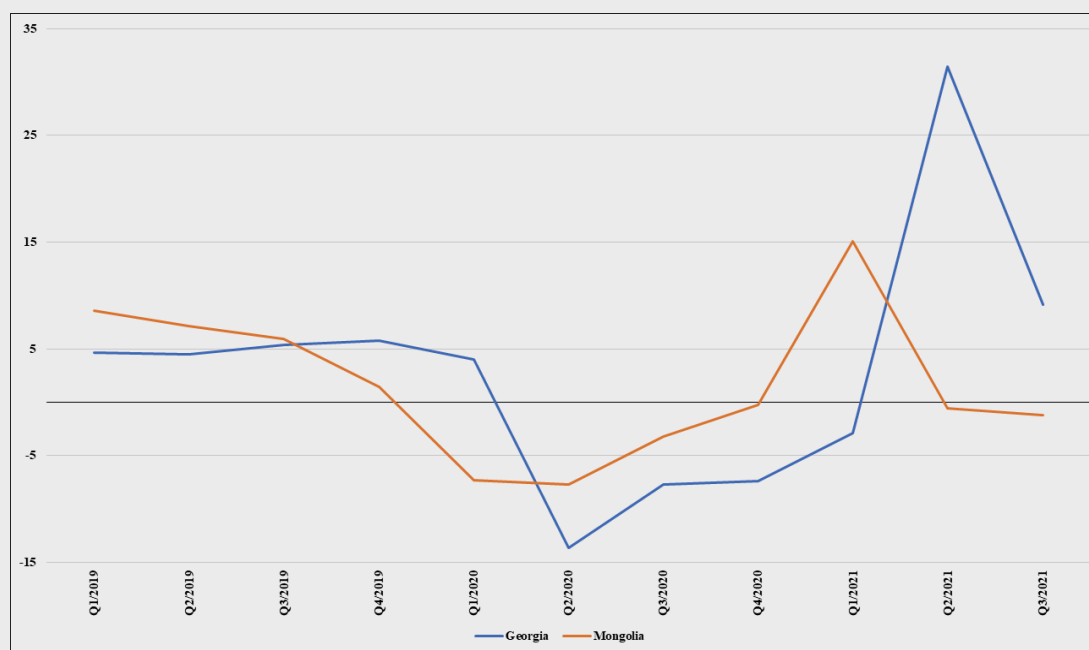
Source: National Statistics Office of Georgia, National Statistics Office of Mongolia

Decline of GDP and the following recovery process has been reflected in household employment and income. Interestingly, the unemployment statistics of these countries show that the unemployment rate in Georgia increased sharply in 2020, while in Mongolia it decreased in comparison to 2019, although still high in comparison to 2018 (Figure 3.5). The quarterly data on unemployment indicates that a general increasing trend was observed in both countries, especially in 2020. Georgia saw the highest growth of unemployment from 17 percent in the third quarter of 2020 to 22 percent in the second quarter of 2021. Mongolia experienced relatively slow growth, from 6.6 percent in the second quarter of 2020 to 8.8 percent in the first quarter of 2021. By the third quarter of 2021, the available data indicates a decrease in unemployment rates in both economies.

Figure 3.5. Annual unemployment rate in Georgia and Mongolia (2010-2020)
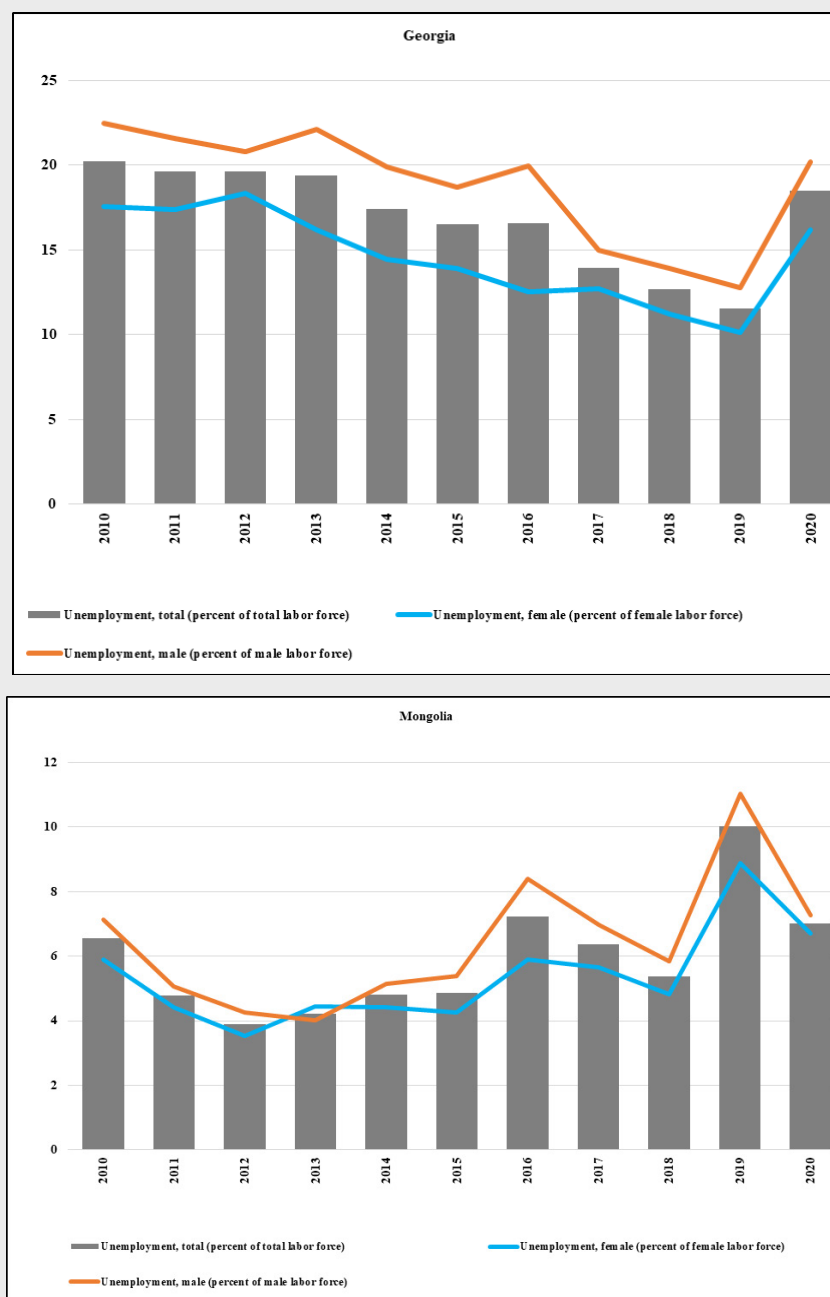
Source: World Development Indicators (accessed 20 February 2022)

Figure 3.6. Quarterly unemployment rate in Georgia and Mongolia
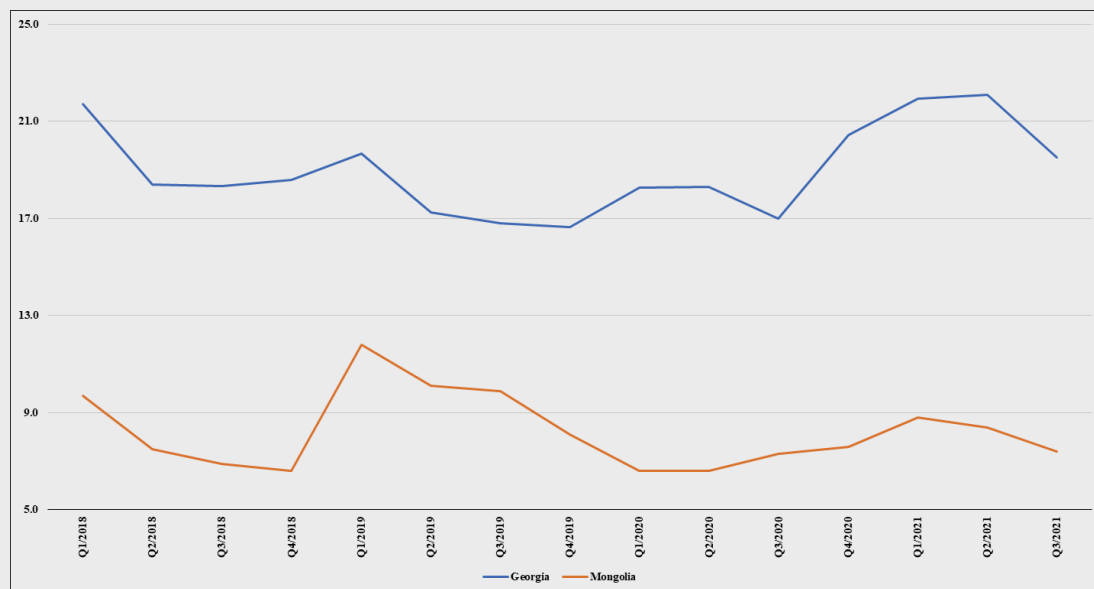
Source: National Statistics Office of Georgia, National Statistics Office of Mongolia

Despite the adverse impact of COVID-19 on the labor market, household consumption both in per capita terms and as a share in GDP increased in 2020 (Figure 3.7). This was more evident in Georgia, where per capita consumption measured on constant prices increased to USD3,728 in 2020 from USD3,532 in 2019, whereas in Mongolia consumption remained almost the same, around USD2,750. Also, as a share of GDP, Georgia saw a sharp increase in final consumption expenditure from 70 percent to 80 percent, and there was a moderate increase in Mongolia from 57 percent to 60 percent of GDP. Changes in household consumption levels are related to the economic dynamics associated with the impact of COVID-19 and government measures to combat the economic consequences of the pandemic. There is a high probability that government measures to support household loss of income and limited employment opportunities are important for sustaining levels of household final consumption.

Figure 3.7. Household final consumption expenditure in Georgia and Mongolia
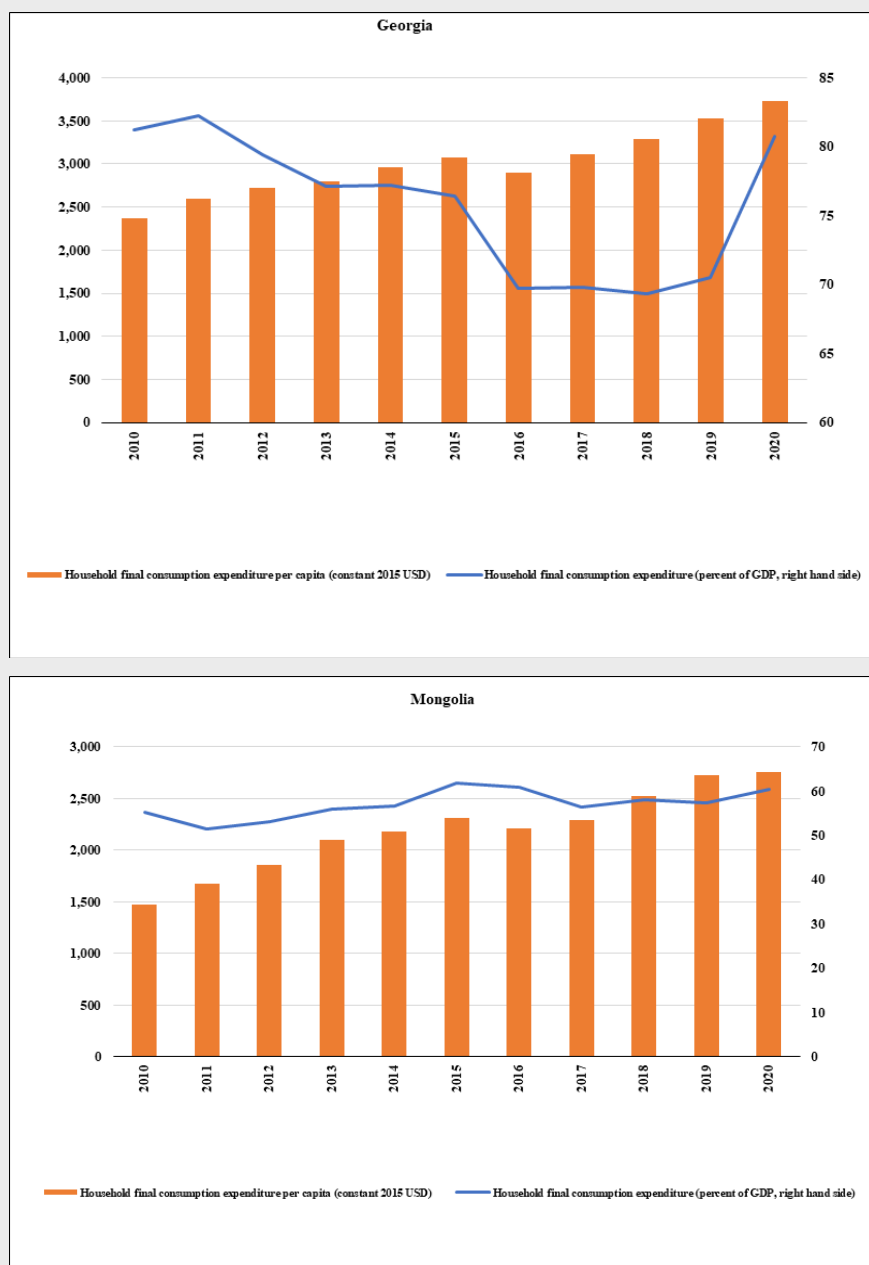
Source: World Bank, World Development Indicators (accessed 15 February 2022)

The ADB COVID-19 Policy Database shows the monetary amounts of announced or estimated measures to combat COVID-19 (Felipe and Fullwiler 2020). According to this data, financial support provided to individuals and businesses during the pandemic in Georgia achieved USD3,235.31 million (20.11 percent), which amounts to USD869.62 per capita (Table 3.1). In Mongolia this amount was USD1,223.96 per capita. Also, in Mongolia the value of the total package as a percentage of GDP is higher than in Georgia — 29.4 percent and 20.1 percent, respectively.

Table 3.1. Value of policy response to COVID-19 measures (total package)

	Georgia	Mongolia
Total package (millions of USD)	3,235.31	3,947.48
Percentage of GDP (2020)	20.11%	29.44%
Package per capita (USD)	869.62	1,223.96

Source: ADB COVID-19 Policy Database
https://covid19policy.adb.org/policy-measures/GEO
and https://covid19policy.adb.org/policy-measures/MON (accessed 21 February 2022)

In the database, monetary and fiscal policy measures and sources of funds are specified. According to this information, the main source of funds to mitigate the risks of the COVID-19 pandemic in Georgia was the international assistance received to the amount of USD1,333 million, where almost 41.42 percent was received from the Asian Development Bank (Table 3.2). A large amount of financial assistance was directed to money markets and short-term finance, and government income support as tax and contribution rate reductions and subsidies to households. For citizens' credit repayment deferrals, various tax cuts and monetary assistances were provisioned, while for business sector property and income taxes of companies were deferred and long-term loans offered.

Government policy in Mongolia to reduce the negative impact of the COVID-19 pandemic included tax exemption on certain imported goods; exemption from income tax, personal income tax and social security contributions; increasing child benefit and unemployment benefit; and waiving utility expenses (electricity, heating, water, and waste disposal) (IMF, Policy Responses to COVID-19).[5] According to the ADB COVID-19 Policy Database, the main source of funds was the Central Bank currency swaps and repurchase agreement facility for official foreign accounts, international grants, and loans. These funds were reallocated mostly to health and income support, and long-term direct lending and liquidity support.

Following the first cases of COVID-19 in both countries, government policy was associated with strict measures to control the spread of the disease by restricting mobility, launching quarantine measures, and suspending educational processes. As mentioned earlier, COVID-19 cases were lower in Mongolia in 2020 compared to Georgia. In the later stages of the pandemic, government policy in both countries was related to the gradual lifting of restrictions and supporting the economy.

Table 3.2. Economic measures to combat COVID-19

	Georgia		Mongolia	
Measure	**Amount (local)**	**Amount (USD)**	**Amount (local)**	**Amount (USD)**
Liquidity support Short-term lending Support policies for short-term lending Forex operations	3,524,208,689 3,524,208,689	1,159,000,000 1,159,000,000	1,084,000,000,000 760,000,000,000 324,000,000,000	393,249,627 275,710,071 117,539,556
Credit creation Financial sector lending/funding Loan guarantees	930,000,000 600,000,000 330,000,000	305,847,382 197,320,891 108,526,490	347,504,234,118 240,000,000,000 107,504,234,118	126,066,338 87,066,338 39,000,000
Direct long-term lending Long-term lending Forbearance			2,663,000,000,000 2,000,000,000,000 663,000,000,000	966,073,577 725,552,818 240,520,759

[5] https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19

Health and income support	4,883,500,000	1,606,027,622	6,786,791,800,907	2,462,087,958
Health support	828,500,000	272,467,264	198,193,703,412	71,900,000
Income support	2,763,000,000	908,662,705	6,588,598,097,495	2,390,187,958
Tax and contribution rates reduction	1,495,000,000	491,657,888	890,585,175,966	323,083,292
Subsidies to individuals and households	1,178,000,000	387,406,683	1,694,156,468,941	614,600,000
Subsidies to businesses	90,000,000	29,598,134	3,353,856,452,588	1,216,700,000
No breakdown (income support)			650,000,000,000	235,804,666
No breakdown (health and income support)	1,292,000,000	424,897,653		
International assistance received	4,053,748,445	1,333,148,761	8,678,812,557,894	3,148,468,454
Swaps			6,000,000,000,000	2,176,658,454
International loans/grants	4,053,748,445	1,333,148,761	2,678,812,557,894	971,810,000
Asian Development Bank	1,679,001,132	552,170,000	1,023,578,134,741	371,330,000
Other	2,374,747,313	780,978,761	1,655,234,423,153	600,480,000

Source: ADB COVID-19 Policy Database
https://covid19policy.adb.org/policy-measures/GEO
and https://covid19policy.adb.org/policy-measures/MON (accessed 20 February 2022)

3.3 DATA

This study is based on data available from the Multiple Indicator Cluster Survey (MICS) Plus Survey on the impact of COVID-19 on the wellbeing of families and children by the United Nations Children's Fund (UNICEF). The data is collected via telephone interviews with households and represents the high frequency phone survey, which in turn provides longitudinal data.[6] Owing to the availability of the variables of our interest, our dataset covers the second and third waves for Mongolia, and the first and third waves for Georgia. The second wave for Mongolia and the first wave for Georgia were implemented in November and December 2020. While the third waves for both countries were implemented between 15 February and 28 June 2021 (Table 3.1).

To simplify the interpretation of the analysis, we redefined the wave numbers. The first wave of Georgia and the second wave of Mongolia are used as the first wave. The third waves of Mongolia and Georgia in our dataset are indicated as the second wave. For empirical purposes, households in two waves of the survey for each country were identified by their unique identification code. Therefore, our final sample consists of observations that exist in both waves. The total sample size of our dataset is 7,018 observations. The sample is distributed among the countries, Mongolia and Georgia, with 3,722 and 3,296 observations, respectively. As dataset balanced panel data, each wave includes 3,509 observations.

Table 3.3. Survey waves and sample size

	Mongolia	Georgia
Original wave number	Wave 2	Wave 1
Wave number after redefinition	Wave 1	Wave 1
Survey period	1-14 December 2020	24 November-21 December 2020
N	1,861	1,648
Original wave number	Wave 3	Wave 3
Wave number after redefinition	Wave 2	Wave 2
Survey period	15 February-1 March 2021	10-28 June 2021
N	1,861	1,648
Total (N) by country	3,722	3,296

Source: UNICEF. MICS Plus. 2020-2021.
https://mics.unicef.org/mics-plus/mics-plus-results (retrieved 23 January 2022)

Mean values of variables across the samples are given in Table 3.4. Mean values for the first wave reported in Table 3.4 revealed that more than half (53 percent to 55 percent) of interviewed households experienced a decline in income. While, in the second wave, 43 percent and 39 percent of observed households were faced with income reduction. The available job loss data for Georgia shows that during November to December 2020, 32 percent of households stated that at least one household member experienced job loss. In June 2021, this rate decreased to 13 percent, suggesting that there was some recovery during the second year of the pandemic.

As regards government support, on average, households received about 1.9 types of government benefit. However, this indicator is available only for the first wave of the sample. Households in Georgia in the first wave of the survey received an average of 2.55 government payments, while in Mongolia the average was 1.23. However, it should be noted that the amount of public assistance received does not reflect the monetary value of benefits. Indicators denoting the average number of types of internet equipment show higher mean values among households in Georgia. In addition, households in Mongolia are larger and have more children.

Table 3.4. Descriptive statistics (mean values)

Variables	Total				Mongolia			Georgia		
	N	Tota sample	Wave 1	Wave 2	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2
		mean	mean	mean	mean	mean	mean	mean	mean	mean
Decline in income (0-1)	6,984	0.463	0.533	0.393	0.486	0.541	0.431	0.438	0.525	0.352
Scale of decline in income (1-6)	2,988	3.382	3.428	3.322	3.430	3.384	3.484	3.326	3.475	3.107
Evolution of income decrease (1-4)	6,950	2.320	2.320	2.320	2.403	2.403	2.403	2.229	2.229	2.229
Number of types of internet connection	7,018	1.084	1.116	1.052	0.908	0.894	0.923	1.282	1.367	1.197
Number of types of asset household has	7,018	11.702	11.63	11.77	11.34	11.34	11.34	12.11	11.96	12.25
Gender of household head	7,018	0.758	0.760	0.757	0.813	0.816	0.811	0.696	0.697	0.695
Age of household head	7,018	53.131	52.99	53.27	47.26	47.17	47.36	59.76	59.56	59.95
Household size	7,018	3.732	3.733	3.732	4.006	3.997	4.015	3.423	3.434	3.412
Area of residence	7,018	0.536	0.535	0.537	0.581	0.580	0.582	0.486	0.485	0.486
Number of children below the age of 17	7,018	1.187	1.180	1.194	1.544	1.530	1.557	0.785	0.785	0.784
Government support	3,509		1.853			1.224		0.226	2.563	0.132
Any member of the household lost job (1-yes)	3,296								0.321	

Source: UNICEF. MICS Plus. 2020-2021.
https://mics.unicef.org/mics-plus/mics-plus-results (retrieved 23 January 2022). N: number of observations

3.4 METHODOLOGY

In this study we investigate the impact of various household characteristics on the average monthly income changes caused by COVID-19. The dependent variable in our model is a discrete variable, which takes the value 1 if income of the household is declined and 0 if it is not. Therefore, the binary response probit regression model is used (Horowitz and Savin 2001). The following probit regression model is specified:

$$P_i(y = (1 \mid x_i) = F(\beta_0 + \beta_k x_k) \quad (1)$$

where y_i is the dependent variable that indicates whether the average household income has decreased owing to COVID-19 or not. x_k is the set of explanatory variables that include household characteristics. F(.) is the cumulative density function of the normally distributed error term, evaluated at given values of the independent variables (Long and Freese 2014). Two waves of the survey data are used for each country. Empirical estimations are carried out for each wave sample. Therefore, a cross-sectional approach is used. One may argue that with the available two waves of the survey panel data, estimation techniques would be appropriate for analysis. However, it should be noted that fixed effects within panel data approach would not allow one to measure the impact of time-invariant household characteristics. Moreover, being the type of high-frequency household survey data, households in the survey do not demonstrate a large variability of characteristics over two waves.

Another dependent variable, the scale of income decline, is modeled as a categorical variable taking the values of 1, 2, 3, 4, 5, and 6, and reflecting the percentage decline in income in the interval 0 percent to 10 percent, 11 percent to 25 percent, 26 percent to 50

percent, 51 percent to 75 percent, 76 percent to 99 percent and 100 percent, respectively. As the categorical outcome variable is ordered, it is appropriate to use an ordered probit model. The model is specified as follows (equation 2):

$$y_i^* = x_i' \beta + e_i \quad (2)$$

y_i^* is a latent variable that is a linear combination of some predictors and error term. e_{im} is an error term that is assumed to follow a normal distribution with a mean of 0 and a standard deviation of 1, that is:

$$e_i \sim N(0,1) \quad (3)$$

This refers to the probability of outcome — that is, scale of the income decreasing — being in category$_i$ m. If y is observed as outcome variable, then the ordered probit regression model also may be specified as:

$$y_i = m \quad \text{if} \quad y_{im}^* = \begin{cases} m & \text{if} \ \alpha_{m-1} < y_{im}^* < \alpha_m \\ 0 & \text{otherwise} \end{cases} \quad (4)$$

for i = 1, 2, 3, ..., N; and m = 1, 2, 3, ..., M-1; and where α_m=2,3,4,5 and 6, which are threshold parameters. This probability of each ordinal outcome variable can be considered as:

$$P(y_i = m \mid x_i) = P(\alpha_{m-1} < x_i' \beta + e_i < \alpha_m) = \Phi(\alpha_m - x_i' \beta) - \Phi(\alpha_{m-1} - x_i' \beta) \quad (5)$$

where α_m = 2, 3, 4, 5, which represents the threshold parameter. $\Phi(.)$ represents the cumulative probability in the standardized normal distribution.

Also, we alternatively estimated with the multinomial probit model (Wooldridge 2002) in which the outcome variable consists of four alternative status of income decline. We modeled the probability of the decrease of household income in Mongolia and Georgia in the two survey waves. For this purpose, the outcome variable — that is, a measure of the evolution of income decline — is created. It has four mutually exclusive potential outcomes: household income did not decrease during both survey waves (1); income decreased in wave 1, but did not decrease in wave 2 (2); income did not decrease in wave 1, but decreased in wave 2 (3); and income decreased in both waves of the survey (4). The evolution of household income is categorized as m if y^*_{im} is highest for m, that is:

$$y_i = m \quad \text{if} \quad y^*_{im} = \begin{cases} m & \text{if } y^*_{im} = \max \left(y^*_{i1}, y^*_{i2,\ldots,} y^*_{iM} \right) \\ 0 \end{cases} \qquad (6)$$

$$y^*_{im} = x'_i \beta_m + e_{im} \qquad (7)$$

where m = 1, 2, 3, or 4; e_{im} is an error term that assumed the following multivariate normal distribution with mean 0 and covariance matrix $\sum$, namely:

$$e_{im} \sim N(0,\textstyle\sum) \qquad (8)$$

Then the probability of a household being in category m can be written as:

$$P(y_i = m | x_i) = P(y^*_{im} > y^*_{i1,\ldots,} y^*_{im} > y^*_{i(m-1)} > y^*_{i(m+1),\ldots,} y^*_{im} > y^*_{iM}) \qquad (9)$$
$$= P(e_{im} - e_{i1}) > x'_i(\beta_1 - \beta_m)_{,\ldots,}(e_{im} - e_{i(m-1)})$$
$$> x'_i(\beta_{(m-1)} - \beta_m),(e^*_{im} - e^*_{i(m+1)}) > x'_i(\beta_{m+1} - \beta_m)_{,\ldots,}(e_{im} - e_{iM})$$
$$> x'_i(\beta_M - \beta_m)$$

According to the specification of our model, it is assumed that the explanatory variables can explain the probability of a decrease in household income owing to the COVID-19 pandemic. Explanatory variables can be divided into two groups. Household characteristics variables reflecting household size, place of residence, and number of children in a household up to the age of 17. The gender and age of the head of household are also included in the model as other household characteristics. The other group of variables includes the number of types of asset owned by the household, the number of pieces of equipment used to access the internet, the number of types of government benefit received by the household, and a dummy variable indicating whether any household member experienced a job loss (Table 3.5).

Table 3.5. Description of variables

Dependent variables	
Decline in income	Household average monthly income has declined owing to COVID-19 (1 = yes, 0 = no)
Scale of decline in income	Household average monthly income has declined owing to COVID-19 (1 = 0-10%; 2 = 11-25%; 3 = 26-50%; 4 = 51-75%; 5 = 76-99%, and 6 = 100%)
Evolution of income decrease	Categorical variable which is equal to: 1 if household income did not decrease during both survey waves; 2 if income decreased in wave 1, but not in wave 2; 3 income did not decrease in wave 1, but decreased in wave 2; 4 income decreased in both waves of the survey.

Explanatory variables	
Access to internet	Number of types of internet connection
Assets	Number of assets household has (such as household appliances, electronic or digital devices, and motor vehicles)
Gender of household head	Gender of household is (1 = male, 0 = female)
Age of household head	Household head age in years
Area of residence	If household residence area is urban (1 = urban, 0 = rural)
Household size	Number of members in the observed household
Number of children	Number of children in household aged below 17 years
Government support	Number of types of government benefit received as part of COVID-19 mitigation, such as child benefit
Losing job	If any member of the household has lost her/his job since March or December 2020 (1 = yes, 0 = no)

Source: UNICEF. MICS Plus. 2020-2021.
https://mics.unicef.org/mics-plus/mics-plus-results (retrieved 23 January 2022)

The age of the household head may be important for household income. Older household heads — owing to longer work experience — may have a relatively stable job place, a secure income level, and better management of household finances. Also, in line with previous studies, the gender of the household head might be an important factor affecting income as male household heads can secure higher and more stable incomes (Pavanan et al 2022, Chen et al 2022).

Larger household size can be associated with higher income, as more members — namely, working adults — may increase the total household income. On the other hand, job loss by working adults increases the probability of income decline too. Also, large households may include more children, but a smaller proportion of working-age adults; this, in turn, can lead to a lower household income. However, social benefit payments by government may indicate a positive correlation between the number of children and household income. Therefore, the net effect of household size and number of children on the household income trend remains vague.

Government social payments — such as, pensions, and benefits for children and elderly persons — can support household income during the economic crisis. Therefore, variable government support is used in the model indicating the number of types of government benefit received by household members. These payments are monetary or financial assistance or support from the government in the form of allowances or child money, subsidized electricity and natural gas bills, assistance to those who have lost their income or job, exemption from social security payments, cashmere allowance in the case of Mongolia, and other benefits provided by the state under social protection programs.

The number of assets that a household possesses — such as, household appliances, electronic/digital devices, and motor vehicles — is used to assess potential differences

in income changes by household income level. If the household owns various assets, then the variable takes a higher value. The definition of this variable assumes that the more types of asset a household has, the wealthier the household is. It is expected that households with a higher number of assets demonstrate stronger resilience to the income shocks of COVID-19. In a similar vein, the variable reflecting the number of pieces of equipment used by households to access the internet is used. The more types of equipment used to access the internet, the wider the household's access to the internet. The variable takes a value from 0 to 5 depending on which of the following gadgets are used by household members: desktop computer, laptop, tablet, smartphone, and smart TV. If a household uses more types of equipment, then the variable takes a value close to 5. More assets may inform about the wealthier status of a household. On the other hand, households with more types of equipment are expected to have more opportunity to work remotely and be less affected by income decline. Also, a dummy variable that is equal to 1 if at least one household member has lost his/her job is included among the explanatory variables; however, this variable is available for Georgia only. Other variables to control for residential characteristics are included too.

3.5 EMPIRICAL RESULTS

The coefficient estimates for probit regression models for the nine samples are presented in Table 3.6. The marginal effects are given in Table 1A in the Appendix. Results show that the age of the household head has a negative and statistically significant effect on the probability of income decline. The results of this study are in line with the main evidence in the literature and confirm that age has a positive effect on income (Kartseva and Kuznetsova 2020; Haley and Marsh 2021; Belot et al. 2021; Midões and

Seré 2022; Bundervoet, Dávalos, and Garcia 2022; Ge et al. 2022). Our finding suggests that households with an older household head are less likely to experience reduced income owing to COVID-19. Presumably, older heads have more stable jobs and sources of income than their counterparts, as they have more working and housekeeping experience. In addition, assets accumulated during working age can now be used to generate additional income for older households. From this standpoint, younger individuals might be more vulnerable to income decline during the economic downturn.

Another important characteristic in explaining the probability of income fall is the gender of the household head. Empirical results show that households with a male household head are more likely to experience income decline. It coincides with some other empirical studies (Brewer and Tasseva 2021, Marchal et al. 2021, Azhgaliyeva et al. 2022). However, in the model results, the underlining variable is not statistically significant for some waves. For the first wave in Mongolia, it shows a statistically significant effect of male household head on income reduction, whereas this effect is not statistically significant for Georgia. This may inform us about the potential gender difference in the labor market in these two countries. Some sectors of Mongolia's economy — such as mining, construction, and transportation — are male-dominated and have relatively high importance for production (Ariunzaya and Munkhmandakh 2019). Lockdown measures and a decrease of economic activity may have a strong negative effect on these sectors, which in turn affects income decline in households. However, in the model of the subsequent wave of the survey, this effect is not statistically significant, suggesting potential adaptation of the economy and labor market to new realities.

Household size has a strong impact on income decline in all models. This effect is consistent with Murakami (2022), who notes that larger households with more adults are more exposed to job loss and income decline. Another household characteristic used in estimations is the number of children in a household aged below 17 years. Almost all

coefficients of this variable are negative and significant. This might be related to the fact that households with more children are more likely to receive government benefit and, to some extent, to have a secure level of income (Kartseva and Kuznetsova 2020, Li et al. 2022).

On the other hand, the variable on government support reflecting the number of types of government benefit received by households, shows a positive impact on the probability of income reduction. Putting it another way, households receiving a higher number of types of government payment are more likely to see a fall in income. These results are consistent with Brewer and Gardiner (2020), who note the importance of the state measure for income protection. This finding can be explained by the fact that government policy to support household income during the crisis is oriented to vulnerable households. It supports the view that government support mechanisms are well-targeted (Cantó et al. 2022).

Income shock may differ by household income level. We attempt to measure this by including the number of household assets and the number of pieces of equipment used to access the internet. Assets include household appliances, electronic/digital devices, and motor vehicles. Empirical results show that in Mongolia households with a higher number of assets have a lower probability of income reduction, although this effect was evident only in the first wave of the survey. Accumulated assets can be used to smooth the consumption caused by employment and income shocks. This is in line with findings by Bundervoet, Dávalos, and Garcia (2022), who using the data for 31 countries assert that the impact of COVID-19 on vulnerable households may have been very negative as they do not have enough savings to protect against income shock. Therefore, this result indicates that the income reduction effect of COVID-19 was not equal over the households. This is consistent with previous studies arguing that households with lower income were more affected (Belot et al. 2021, Marchal et al. 2021, Almeida et al. 2021, Azhgaliyeva et al. 2022).

Table 3.6. Estimation results for probit models on probability of income reduction (coefficients)

Variables	Total			Mongolia			Georgia		
	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2
Gender of household head	0.117*** (0.041)	0.168*** (0.057)	0.066 (0.059)			0.051 (0.088)	0.119* (0.062)	0.075 (0.090)	0.162* (0.089)
Age of household head	-0.014*** (0.001)	-0.013*** (0.002)	-0.015*** (0.002)	-0.025*** (0.002)	-0.026*** (0.003)	-0.020*** (0.003)	-0.009*** (0.002)	-0.008*** (0.003)	-0.008*** (0.003)
Household size	0.190*** (0.014)	0.181*** (0.021)	0.187*** (0.020)	0.358*** (0.026)	0.361*** (0.038)	0.198*** (0.030)	0.124*** (0.023)	0.100*** (0.034)	0.148*** (0.032)
Number of types of internet connection	0.083*** (0.024)	0.096*** (0.031)	0.052 (0.039)	-0.183*** (0.044)	-0.175*** (0.062)	0.109** (0.052)	0.029 (0.037)	0.087** (0.044)	-0.080 (0.066)
Number of types of household asset	-0.015*** (0.005)	-0.017*** (0.007)	-0.009 (0.007)	0.078*** (0.008)	0.076*** (0.011)	-0.010 (0.008)	-0.010 (0.010)	-0.012 (0.013)	0.001 (0.018)
Area of residence	0.036 (0.038)	-0.003 (0.053)	0.087 (0.054)	-0.257*** (0.063)	-0.250*** (0.091)	0.245*** (0.075)	-0.310*** (0.062)	-0.466*** (0.091)	-0.204** (0.088)
Number of children below age of 17	-0.109*** (0.021)	-0.145*** (0.030)	-0.096*** (0.029)	-0.247*** (0.034)	-0.262*** (0.050)	-0.120*** (0.039)	-0.054 (0.037)	-0.091 (0.057)	-0.054 (0.051)
Government support		0.131*** (0.023)		0.028 (0.043)				0.107*** (0.038)	
Losing job							2.402*** (0.102)	2.163*** (0.116)	3.042*** (0.272)
Wave dummy (wave 2 = 1)	-0.374*** (0.031)			-0.005 (0.052)			-0.173*** (0.053)		
Country dummy (Georgia = 1)	-0.432*** (0.087)	-0.629*** (0.130)	-0.477*** (0.124)						
Regional dummy	+	+	+	+	+	+	+	+	+
Constant	0.539*** (0.112)	0.340** (0.157)	0.232 (0.160)	0.631*** (0.170)	0.610** (0.243)	0.273 (0.214)	-0.335* (0.203)	-0.420 (0.298)	-0.776** (0.303)
Observations	6,984	3,492	3,492	3,722	1,861	1,844	3,295	1,647	1,648
Pseudo R-squared	0.0959	0.0944	0.0899	0.176	0.174	0.104	0.327	0.362	0.279
LR	924.5	455.5	420.7	629.2	309.9	262.8	1476	824.6	597.2
Prob > chi 2	0	0	0	0	0	0	0	0	0
Log likelihood	-4360	-2185	-2130	-1477	-734.3	-1129	-1521	-727.3	-770.4

Note: Standard errors are given in parenthesis. ***, **, and * indicate the significance levels at 1 percent, 5 percent, and 10 percent, respectively.

Source: Authors' estimations based on household level MICS Plus data (UNICEF 2021) for 2020-2021. https://mics. unicef.org/mics-plus/mics-plus-results (retrieved 23 January 2022).

Interestingly, equipment used for internet access demonstrates mixed effects. In the first wave of data for Mongolia, it increases the probability of reduced income. However, in the second wave of data for Georgia, it shows a negative impact, indicating a decreasing probability of falling income. These findings can be related to the fact that internet access indicates not only overall welfare of households, but also provides an opportunity to access online education and remote working (Mubarak, Suomi, and Kantola 2020, Martínez-Domínguez and Mora-Rivera 2020). Nevertheless, the negative effect of this variable in the subsequent waves might suggest a risk related to unequal recovery from the COVID-19 pandemic.

To control the effect of household location, area of residence as rural–urban or capital–noncapital city, and dummy variables for regions in each country are included in the model. Rural and urban locations indicate different results for the two countries. In Mongolia, households in urban areas have a higher likelihood of being exposed to income reduction, which is statistically significant in both waves of the survey data and in line with Murakami (2022) and Azhgaliyeva et al. (2022). In contrast to this, urban households in Georgia compared to rural households are less likely to experience a decrease in income. Although the scope of this study does not provide detailed analysis on urban and rural populations in the COVID-19 impact, this finding suggests a different position of rural households in the face of income and job loss shock during COVID-19. Also, households residing in the capital city in both countries suffer from a decrease in income at a higher magnitude, possibly owing to the stricter measures that exist in capital cities.

Job loss owing to restrictions during the pandemic could result in a considerable drop in income. In the survey data used in this study, questions on job loss are available for Georgia only. Therefore, it was included in model estimations based on survey data for

Georgia. Empirical results show that the job loss of a household member has a strong and statistically significant impact on income reduction. This confirms the results in some studies in the literature (Beirne et al. 2020, Morgan and Trinh 2021). This effect is strong in both waves, stating that recovery from the negative impact of COVID-19, providing employment opportunities, and sustaining income level would be critical for long-term policy perspectives.

The magnitude of the drop in income is given by the results of the ordered probit model presented in Tables 3.7 and 2A. Results show that female-headed households were less likely to experience a considerable — 50 percent to 100 percent — drop in income during a pandemic. Along with the results of the previous model, indicating that households with female-headed households are more likely to see income decline, results of the ordered probit model show that they are also less likely to experience income decline at higher magnitudes. Similarly, household management by older heads and a larger size of household are associated with income decline at lower rates.

Estimated marginal effects for the number of household asset types in all models (except Wave 2 for Georgia) significantly associated with a lower rate of income decrease. In contrast to these results, the number of children and job loss are significantly associated with higher rates of income loss. For example, the loss of a job by any household member increases the probability of a decrease in income of 76 percent to 99 percent by 10.75 percentage points.

Results of the multinomial probit models (Tables 3.8 and 3A) show that, for the total sample, female-headed households are less likely to retain income. According to estimated marginal effects, households headed by elders, with more assets and children,

are more likely to avoid loss of income in both waves. In contrast, households with more household members, more types of internet connection, those receiving government assistance, with at least one member losing their job, are more likely to experience a decline in income in both waves.

Table 3.7. Estimation results for ordered probit model estimates for different income reduction rate (coefficients)

Variables	Total			Mongolia			Georgia		
	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2
Gender of household head	-0.040 (0.053)	-0.154** (0.071)	0.104 (0.081)	-0.053 (0.081)	-0.215* (0.115)	0.096 (0.117)	0.008 (0.071)	-0.102 (0.091)	0.166 (0.113)
Age of household head	-0.002 (0.002)	-0.003 (0.002)	-0.000 (0.003)	-0.001 (0.003)	-0.001 (0.004)	-0.001 (0.004)	0.000 (0.002)	-0.002 (0.003)	0.003 (0.004)
Household size	-0.021 (0.017)	-0.033 (0.023)	0.002 (0.026)	-0.007 (0.026)	-0.020 (0.037)	0.014 (0.039)	-0.06*** (0.024)	-0.09*** (0.032)	-0.023 (0.036)
Number of types of internet connection	-0.021 (0.029)	-0.037 (0.035)	-0.018 (0.050)	0.004 (0.045)	0.002 (0.063)	0.011 (0.066)	-0.073* (0.038)	-0.060 (0.043)	-0.089 (0.079)
Number of types of household asset	-0.02*** (0.006)	-0.019** (0.007)	-0.024** (0.010)	-0.02*** (0.007)	-0.019* (0.010)	-0.022** (0.011)	-0.026** (0.010)	-0.024** (0.012)	-0.028 (0.022)
Number of children below age of 17	0.037 (0.025)	0.047 (0.034)	0.020 (0.037)	0.019 (0.034)	0.035 (0.048)	0.013 (0.050)	0.084** (0.038)	0.141*** (0.053)	0.026 (0.057)
Government support		-0.009 (0.025)			-0.067 (0.041)			-0.026 (0.034)	
Losing job							0.598*** (0.061)	0.667*** (0.081)	0.550*** (0.098)
Country dummy (1 = Georgia)	-0.189* (0.110)	0.035 (0.154)	-0.422** (0.172)						
Wave dummy (1 = wave 2)	-0.12*** (0.039)			0.055 (0.054)			-0.24*** (0.061)		
Regional dummies	+	+	+	+	+	+	+	+	+
α_2	-2.69*** (0.140)	-2.76*** (0.187)	-2.47*** (0.210)	-2.41*** (0.194)	-2.76*** (0.271)	-2.19*** (0.279)	-2.60*** (0.236)	-2.78*** (0.309)	-2.12*** (0.404)
α_3	-1.72*** (0.134)	-1.79*** (0.177)	-1.48*** (0.204)	-1.65*** (0.188)	-1.93*** (0.259)	-1.47*** (0.273)	-1.36*** (0.228)	-1.61*** (0.296)	-0.79** (0.396)
α_4	-0.35*** (0.132)	-0.349** (0.174)	-0.178 (0.201)	-0.120 (0.185)	-0.245 (0.254)	-0.118 (0.269)	-0.099 (0.226)	-0.355 (0.292)	0.487 (0.394)
α_5	0.238* (0.132)	0.237 (0.174)	0.425** (0.201)	0.456** (0.185)	0.337 (0.254)	0.462* (0.269)	0.536** (0.226)	0.272 (0.292)	1.156*** (0.395)
α_6	0.953*** (0.133)	0.956*** (0.176)	1.158*** (0.204)	1.043*** (0.187)	0.863*** (0.256)	1.120*** (0.272)	1.496*** (0.231)	1.240*** (0.297)	2.152*** (0.414)

Observations	2,988	1,702	1,286	1,620	887	733	1,368	815	1,702
Pseudo R-squared	0.0155	0.0145	0.0268	0.00973	0.00982	0.0156	0.0505	0.0497	0.0145
LR	133.6	70.02	101.9	44.25	22.91	34.13	203.2	121.2	70.02
Prob > chi 2	0	0	0	0	0.0182	0.000176	0	0	0
Log likelihood	-4,256	-2,377	-1,851	-2,252	-1,154	-1,080	-1,911	-1158	-2,377

Note: Standard errors are given in parenthesis. ***, **, and * indicate the significance levels at 1 percent, 5 percent, and 10 percent, respectively.

Source: Authors' estimations based on household level MICS Plus data (UNICEF 2021) for 2020-2021. https://mics.unicef.org/mics-plus/mics-plus-results (retrieved 23 January 2022).

Table 3.8. Estimation results for multinomial probit models on probability: income reduction across waves (coefficients)

Variables	Total			Mongolia			Georgia		
	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2
Outcome 1: Household income didn't decrease in both waves (base outcome)									
Outcome 2: Household income decreased in wave 1, but not in wave 2									
Gender of household head	0.218***	0.230***	0.212**	0.230**	0.236*	0.220	0.243***	0.230*	0.216*
	(0.062)	(0.089)	(0.088)	(0.096)	(0.137)	(0.135)	(0.087)	(0.130)	(0.121)
Age of household head	-0.014***	-0.012***	-0.013***	-0.015***	-0.014***	-0.015***	-0.010***	-0.008*	-0.012***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.005)	(0.004)
Household size	0.220***	0.212***	0.206***	0.189***	0.196***	0.172***	0.196***	0.134***	0.224***
	(0.023)	(0.033)	(0.032)	(0.034)	(0.049)	(0.047)	(0.034)	(0.051)	(0.047)
Number of types of internet connection	0.129***	0.100**	0.165***	0.172***	0.164*	0.182**	0.054	0.042	0.107
	(0.037)	(0.047)	(0.060)	(0.059)	(0.084)	(0.083)	(0.052)	(0.064)	(0.093)
Number of types of household asset	-0.031***	-0.031***	-0.031***	-0.043***	-0.042***	-0.043***	-0.009	-0.022	0.005
	(0.008)	(0.010)	(0.012)	(0.010)	(0.013)	(0.013)	(0.015)	(0.019)	(0.024)
Number of children below age of 17	-0.165***	-0.204***	-0.150***	-0.164***	-0.189***	-0.146**	-0.113**	-0.091	-0.137*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	(0.033)	(0.048)	(0.046)	(0.044)	(0.064)	(0.062)	(0.055)	(0.086)	(0.075)
Country dummy (1 = Georgia)	-0.246* (0.131)	-0.572*** (0.198)	-0.221 (0.185)						
Wave dummy (1 = wave 2)	0.020 (0.049)			0.000 (0.069)			0.295*** (0.077)		
Government support		0.160*** (0.036)			0.076 (0.055)			0.079 (0.056)	
Losing job(1 = yes)							2.321*** (0.158)	2.746*** (0.178)	0.235 (0.637)
Regional dummy	+	+	+	+	+	+	+	+	+
Constant	-0.016 (0.173)	-0.109 (0.241)	-0.031 (0.246)	0.266 (0.236)	0.154 (0.332)	0.319 (0.331)	-0.978*** (0.289)	-1.075** (0.439)	-0.765* (0.424)

Outcome 3: Household income decreased in wave 2, but not in wave 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender of household head	0.057 (0.074)	0.052 (0.106)	0.066 (0.105)	-0.067 (0.109)	-0.070 (0.155)	-0.068 (0.154)	0.211** (0.106)	0.195 (0.153)	0.307** (0.156)
Age of household head	-0.016*** (0.002)	-0.016*** (0.004)	-0.015*** (0.004)	-0.024*** (0.004)	-0.024*** (0.005)	-0.022*** (0.005)	-0.009** (0.004)	-0.009* (0.005)	-0.009 (0.005)
Household size	0.225*** (0.027)	0.224*** (0.039)	0.215*** (0.038)	0.188*** (0.040)	0.175*** (0.058)	0.188*** (0.056)	0.222*** (0.040)	0.231*** (0.058)	0.212*** (0.058)
Number of types of internet connection	0.024 (0.044)	-0.005 (0.057)	0.063 (0.071)	0.094 (0.069)	0.062 (0.099)	0.130 (0.097)	-0.071 (0.061)	-0.063 (0.075)	-0.164 (0.115)
Number of types of household asset	-0.018* (0.009)	-0.015 (0.012)	-0.020 (0.014)	-0.022** (0.011)	-0.020 (0.016)	-0.024 (0.016)	-0.011 (0.018)	-0.009 (0.023)	0.006 (0.031)
Number of children below age of 17	-0.164*** (0.040)	-0.185*** (0.057)	-0.154*** (0.055)	-0.194*** (0.053)	-0.207*** (0.077)	-0.190** (0.074)	-0.084 (0.065)	-0.113 (0.097)	-0.080 (0.093)
Government support		0.073* (0.044)			0.100 (0.065)			0.044 (0.066)	
Losing job(1 = yes)							1.939*** (0.173)	0.751*** (0.249)	3.464*** (0.484)
Country dummy (1 = Georgia)	-0.546*** (0.154)	-0.683*** (0.234)	-0.540** (0.218)						
Wave dummy (1 = wave 2)	0.011 (0.059)			0.004 (0.081)			0.194** (0.091)		
Regional dummy	+	+	+	+	+	+	+	+	+
Constant	-0.135 (0.201)	-0.157 (0.281)	-0.160 (0.286)	0.470* (0.271)	0.472 (0.382)	0.389 (0.381)	-1.516*** (0.347)	-1.492*** (0.518)	-1.706*** (0.536)

Outcome 4: Household income decreased in both waves

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender of household head	0.202*** (0.063)	0.203** (0.090)	0.206** (0.090)	0.275*** (0.095)	0.295** (0.136)	0.251* (0.135)	0.222** (0.094)	0.170 (0.138)	0.296** (0.133)
Age of household head	-0.027*** (0.002)	-0.026*** (0.003)	-0.027*** (0.003)	-0.033*** (0.003)	-0.033*** (0.004)	-0.033*** (0.004)	-0.018*** (0.003)	-0.016*** (0.005)	-0.018*** (0.005)
Household size	0.362*** (0.023)	0.342*** (0.032)	0.357*** (0.032)	0.346*** (0.033)	0.334*** (0.047)	0.351*** (0.046)	0.315*** (0.035)	0.276*** (0.052)	0.334*** (0.049)
Number of types of internet connection	0.155*** (0.037)	0.138*** (0.048)	0.175*** (0.059)	0.275*** (0.057)	0.280*** (0.080)	0.270*** (0.080)	0.024 (0.055)	0.033 (0.067)	-0.046 (0.099)
Number of types of household asset	-0.023*** (0.008)	-0.022** (0.010)	-0.023** (0.011)	-0.028*** (0.009)	-0.029** (0.013)	-0.028** (0.013)	-0.023 (0.016)	-0.031 (0.020)	-0.005 (0.026)
Number of children below age of 17	-0.204*** (0.032)	-0.247*** (0.046)	-0.190*** (0.044)	-0.212*** (0.042)	-0.224*** (0.061)	-0.204*** (0.059)	-0.159*** (0.056)	-0.192** (0.085)	-0.164** (0.077)
Government support		0.196*** (0.035)			0.059 (0.053)			0.164*** (0.057)	
Losing job (1 = yes)							3.134*** (0.158)	2.850*** (0.180)	3.900*** (0.478)
Country dummy (1 = Georgia)	-0.861*** (0.132)	-1.270*** (0.200)	-0.828*** (0.187)						
Wave dummy (1 = wave 2)	0.024 (0.049)			-0.002 (0.067)			0.499*** (0.082)		
Regional dummy	+	+	+	+	+	+	+	+	+
Constant	0.671*** (0.168)	0.564** (0.234)	0.644*** (0.238)	0.898*** (0.226)	0.862*** (0.318)	0.882*** (0.317)	-1.177*** (0.307)	-1.287*** (0.453)	-1.053** (0.456)
Observations	6,950	3,475	3,475	3,656	1,828	1,828	3,294	1,647	1,647
LR	1,222	639.6	612.2	640	321	323.1	836.6	538.8	348.9
Prob > chi 2	0	0	0	0	0	0	0	0	0
Log likelihood	-8,247	-4,105	-4,123	-4,309	-2,155	-2,152	-3,550	-1,657	-1,739

Note: Standard errors are given in parenthesis. ***, **, and * indicate the significance levels at 1 percent, 5 percent, and 10 percent, respectively.

Source: Authors' estimations based on household level MICS Plus data (UNICEF 2021) for 2020-2021. https://mics.unicef.org/mics-plus/mics-plus-results (retrieved 23 January 2022).

3.6 CONCLUSION

This study examined household characteristics in explaining the probability of income decline experienced during the COVID-19 pandemic in two CAREC economies: Georgia and Mongolia. Two waves of the UNICEF MICS Plus household survey data were used for empirical investigations. Given the dummy variable as an indicator of whether a household income is declining, the binary response probit model was applied. Furthermore, a scale of income decline was explored using the ordered probit model.

Generally, empirical findings are in line with the results of other studies. The results show that families with an older household head are better able to deal with a decline in income, while those with a male household head are more likely to experience income decline, which is probably related to job loss practices. The estimation results underline the positive effect of government benefit payments in sustaining income. This is consistent with studies that emphasize the role of government benefit payments for income protection (Brewer and Gardiner 2020, Cantó et al. 2022).

The income level of households approximated by the number of assets shows that wealthier families are less exposed to the risk of income reduction, which indicates the unequal effect of the pandemic. Low-income households may not have enough savings to protect them from income fall (Bundervoet, Dávalos, and Garcia 2022). The empirical model on the magnitude of income decline indicated that households headed by a female were less likely to experience a considerable drop in income. To some extent, this contradicts other empirical studies that state that female-headed households are more exposed to income shocks; this might be related to the wage employment of females. Indeed, one of the main limitations of this study is that it does not include detailed

information about household income sources and employment types. This would allow us to disaggregate households and examine income shock by types of household and government payments. Further research on this topic using pre- and post-COVID data would provide more evidence on income and employment shocks.

Another interesting result is that rural and urban locations show different results for the two countries: in Mongolia, households in urban areas have a higher probability of income decline; while in Georgia, by contrast, they are less likely to experience a drop in income. Although the scope of this study does not provide a detailed analysis of urban and rural populations under the conditions of the COVID-19 impact, this finding suggests that rural households hold a different position in the face of income and job loss shock during COVID-19.

The empirical findings of this study have several policy implications. First, although analysis does not include the monetary value of government benefits, evidence informs about the critical importance of government support mechanisms in sustaining household income during the crisis and the post-pandemic recovery. In the context of the post-pandemic recovery, social support policies should continue so as not to exacerbate the income shock effect. Second, the varied effects of income decline over the wealth position of households emphasize the potential risk of unequal recovery from the COVID-19 pandemic. The potential growth of inequality highlights the importance of government policy with a strong focus on inclusion and empowerment. The effects of income decline by gender and household location necessitates a focus on inclusive growth and recovery in designing government policy. Third, although this study is based on survey data during the pandemic and can therefore be considered a short-term effect of the crisis, over a longer period economic trends may indicate gradual adaptation and recovery. However, the loss of learning during the pandemic increases the probability of inequality in the longer term; this requires government measures in the field of access to education with a special focus on vulnerable groups.

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ANNEX

Table 1A. Estimation results for probit models on probability of income reduction (average marginal effects)

Variables	Total			Mongolia			Georgia		
	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2
Gender of household head	0.040*** (0.014)	0.060*** (0.020)	0.020 (0.020)			0.012 (0.031)	0.039** (0.016)	0.033 (0.022)	0.047** (0.023)
Age of household head	-0.005*** (0.000)	-0.005*** (0.001)	-0.005*** (0.001)	-0.006*** (0.000)	-0.006*** (0.001)	-0.007*** (0.001)	-0.002*** (0.001)	-0.002** (0.001)	-0.002*** (0.001)
Household size	0.067*** (0.005)	0.065*** (0.007)	0.064*** (0.007)	0.081*** (0.008)	0.080*** (0.008)	0.068*** (0.010)	0.035*** (0.006)	0.028*** (0.008)	0.042*** (0.008)
Number of types of internet connection	0.031*** (0.008)	0.034*** (0.011)	0.021 (0.013)	-0.045*** (0.010)	-0.042*** (0.014)	0.047*** (0.018)	0.000 (0.009)	0.012 (0.011)	-0.026 (0.017)
Number of types of household asset	-0.005*** (0.002)	-0.006*** (0.002)	-0.003 (0.003)	0.016*** (0.002)	0.016*** (0.002)	-0.003 (0.003)	-0.004 (0.003)	-0.005 (0.003)	-0.001 (0.005)
Number of children below age of 17	-0.038*** (0.007)	-0.052*** (0.011)	-0.033*** (0.010)	-0.056*** (0.008)	-0.059*** (0.011)	-0.041*** (0.014)	-0.016 (0.010)	-0.023 (0.014)	-0.016 (0.014)
Wave number = 2	-0.135*** (0.011)			-0.001 (0.012)			-0.046*** (0.014)		
Government support		0.047*** (0.008)			0.010 (0.009)			0.022** (0.009)	
Losing job (1 = yes)							0.625*** (0.021)	0.545*** (0.020)	0.796*** (0.066)
Regional dummy	+	+	+	+	+	+	+	+	+
Observations	6,984	3,492	3,492	3,722	1,861	1,844	3,295	1,647	1,648

Note: Standard errors are given in parenthesis. ***, **, and * indicate the significance levels at 1 percent, 5 percent and 10 percent, respectively.

Table 2A. Estimation results of ordered probit models on probability of income reduction (conditional marginal effects)

Percentage of household total income lost	Total			Mongolia			Georgia		
	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2
Gender of household head									
0-10 percent	0.0023 (0.003)	0.0074** (0.004)	-0.0072 (0.006)	0.0035 (0.005)	0.0108* (0.006)	-0.0076 (0.009)	-0.0003 (0.003)	0.0037 (0.003)	-0.0093 (0.007)
11-25 percent	0.0075 (0.010)	0.0267** (0.012)	-0.0210 (0.016)	0.0076 (0.012)	0.0306* (0.016)	-0.0138 (0.017)	-0.0017 (0.016)	0.0206 (0.018)	-0.0443 (0.030)
26-50 percent	0.0051 (0.007)	0.0235** (0.011)	-0.0100 (0.008)	0.0087 (0.013)	0.0350* (0.019)	-0.0156 (0.019)	-0.0007 (0.007)	0.0154 (0.014)	-0.0010 (0.003)
51-75 percent	-0.0049 (0.006)	-0.0182** (0.008)	0.0134 (0.010)	-0.0063 (0.010)	-0.0276* (0.015)	0.0103 (0.013)	0.0010 (0.009)	-0.0116 (0.010)	0.0259 (0.018)
76-99 percent	-0.0062 (0.008)	-0.0239** (0.011)	0.0158 (0.012)	-0.0070 (0.011)	-0.0245* (0.013)	0.0144 (0.018)	0.0014 (0.013)	-0.0205 (0.018)	0.0239 (0.016)
100 percent	-0.0039 (0.005)	-0.0154** (0.007)	0.0090 (0.007)	-0.0064 (0.010)	-0.0243* (0.013)	0.0123 (0.015)	0.0004 (0.004)	-0.0076 (0.007)	0.0048 (0.004)
Age of household head									
0-10 percent	0.0001 (0.000)	0.0001 (0.000)	0.0000 (0.000)	0.0001 (0.000)	0.0001 (0.000)	0.0001 (0.000)	-0.0000 (0.000)	0.0001 (0.000)	-0.0002 (0.000)
11-25 percent	0.0003 (0.000)	0.0005 (0.000)	0.0000 (0.001)	0.0002 (0.000)	0.0002 (0.001)	0.0002 (0.001)	-0.0000 (0.001)	0.0004 (0.001)	-0.0008 (0.001)
26-50 percent	0.0002 (0.000)	0.0004 (0.000)	0.0000 (0.000)	0.0002 (0.000)	0.0002 (0.001)	0.0002 (0.001)	-0.0000 (0.000)	0.0003 (0.000)	-0.0000 (0.000)
51-75 percent	-0.0002 (0.000)	-0.0003 (0.000)	-0.0000 (0.000)	-0.0001 (0.000)	-0.0002 (0.000)	-0.0002 (0.000)	0.0000 (0.000)	-0.0002 (0.000)	0.0005 (0.001)
76-99 percent	-0.0002 (0.000)	-0.0004 (0.000)	-0.0000 (0.000)	-0.0001 (0.000)	-0.0002 (0.000)	-0.0002 (0.001)	0.0000 (0.000)	-0.0004 (0.001)	0.0005 (0.001)
100 percent	-0.0001 (0.000)	-0.0003 (0.000)	-0.0000 (0.000)	-0.0001 (0.000)	-0.0002 (0.000)	-0.0002 (0.001)	0.0000 (0.000)	-0.0002 (0.000)	0.0001 (0.000)

Household size

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0-10 percent	0.0012 (0.001)	0.0016 (0.001)	-0.0002 (0.002)	0.0005 (0.002)	0.0010 (0.002)	-0.0011 (0.003)	0.0027** (0.001)	0.0033** (0.001)	0.0013 (0.002)
11-25 percent	0.0039 (0.003)	0.0057 (0.004)	-0.0004 (0.005)	0.0010 (0.004)	0.0028 (0.005)	-0.0021 (0.006)	0.0145*** (0.005)	0.0181*** (0.006)	0.0061 (0.010)
26-50 percent	0.0027 (0.002)	0.0050 (0.004)	-0.0002 (0.002)	0.0012 (0.004)	0.0032 (0.006)	-0.0023 (0.006)	0.0060** (0.002)	0.0135*** (0.005)	0.0001 (0.001)
51-75 percent	-0.0025 (0.002)	-0.0039 (0.003)	0.0003 (0.003)	-0.0008 (0.003)	-0.0025 (0.005)	0.0015 (0.004)	-0.0084*** (0.003)	-0.0102*** (0.004)	-0.0036 (0.006)
76-99 percent	-0.0032 (0.003)	-0.0051 (0.004)	0.0003 (0.004)	-0.0009 (0.003)	-0.0023 (0.004)	0.0022 (0.006)	-0.0113*** (0.004)	-0.0180*** (0.006)	-0.0033 (0.005)
100 percent	-0.0020 (0.002)	-0.0033 (0.002)	0.0002 (0.002)	-0.0009 (0.003)	-0.0022 (0.004)	0.0018 (0.005)	-0.0035** (0.001)	-0.0067*** (0.002)	-0.0007 (0.001)

Number of types of internet connection

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0-10 percent	0.0012 (0.002)	0.0018 (0.002)	0.0012 (0.003)	-0.0003 (0.003)	-0.0001 (0.003)	-0.0009 (0.005)	0.0031* (0.002)	0.0022 (0.002)	0.0050 (0.005)
11-25 percent	0.0040 (0.005)	0.0065 (0.006)	0.0036 (0.010)	-0.0006 (0.006)	-0.0002 (0.009)	-0.0016 (0.010)	0.0167* (0.009)	0.0121 (0.009)	0.0237 (0.021)
26-50 percent	0.0027 (0.004)	0.0057 (0.005)	0.0017 (0.005)	-0.0007 (0.007)	-0.0003 (0.010)	-0.0018 (0.011)	0.0069* (0.004)	0.0090 (0.007)	0.0005 (0.002)
51-75 percent	-0.0026 (0.003)	-0.0044 (0.004)	-0.0023 (0.006)	0.0005 (0.005)	0.0002 (0.008)	0.0012 (0.007)	-0.0097* (0.005)	-0.0068 (0.005)	-0.0138 (0.012)
76-99 percent	-0.0033 (0.004)	-0.0058 (0.006)	-0.0027 (0.008)	0.0005 (0.006)	0.0002 (0.007)	0.0017 (0.010)	-0.0131* (0.007)	-0.0120 (0.009)	-0.0128 (0.011)
100 percent	-0.0021 (0.003)	-0.0038 (0.004)	-0.0016 (0.004)	0.0005 (0.005)	0.0002 (0.007)	0.0014 (0.008)	-0.0040* (0.002)	-0.0045 (0.003)	-0.0026 (0.002)

Number of types of household asset

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0-10 percent	0.0013*** (0.000)	0.0009** (0.000)	0.0016** (0.001)	0.0013*** (0.000)	0.0010* (0.001)	0.0018** (0.001)	0.0011** (0.000)	0.0009* (0.000)	0.0015 (0.001)
11-25 percent	0.0041*** (0.001)	0.0032** (0.001)	0.0048** (0.002)	0.0029*** (0.001)	0.0027* (0.001)	0.0032** (0.002)	0.0060** (0.002)	0.0048** (0.002)	0.0074 (0.006)
26-50 percent	0.0028*** (0.001)	0.0028** (0.001)	0.0023** (0.001)	0.0034*** (0.001)	0.0031* (0.002)	0.0036** (0.002)	0.0025** (0.001)	0.0036** (0.002)	0.0002 (0.001)
51-75 percent	-0.0026*** (0.001)	-0.0022** (0.001)	-0.0031** (0.001)	-0.0025*** (0.001)	-0.0024* (0.001)	-0.0024** (0.001)	-0.0035** (0.001)	-0.0027** (0.001)	-0.0043 (0.003)
76-99 percent	-0.0033*** (0.001)	-0.0029** (0.001)	-0.0036** (0.001)	-0.0027*** (0.001)	-0.0022* (0.001)	-0.0034** (0.002)	-0.0047** (0.002)	-0.0047** (0.002)	-0.0040 (0.003)
100 percent	-0.0021*** (0.001)	-0.0019** (0.001)	-0.0021** (0.001)	-0.0025*** (0.001)	-0.0021* (0.001)	-0.0029** (0.001)	-0.0014** (0.001)	-0.0018* (0.001)	-0.0008 (0.001)

Number of children below age of 17

0-10 percent	-0.0021 (0.001)	-0.0023 (0.002)	-0.0014 (0.003)	-0.0013 (0.002)	-0.0017 (0.002)	-0.0010 (0.004)	-0.0036** (0.002)	-0.0051** (0.002)	-0.0015 (0.003)
11-25 percent	-0.0069 (0.005)	-0.0082 (0.006)	-0.0040 (0.007)	-0.0028 (0.005)	-0.0049 (0.007)	-0.0019 (0.007)	-0.0194** (0.009)	-0.0284*** (0.011)	-0.0069 (0.015)
26-50 percent	-0.0046 (0.003)	-0.0072 (0.005)	-0.0019 (0.004)	-0.0032 (0.006)	-0.0056 (0.008)	-0.0021 (0.008)	-0.0080** (0.004)	-0.0212** (0.008)	-0.0002 (0.001)
51-75 percent	0.0044 (0.003)	0.0056 (0.004)	0.0026 (0.005)	0.0023 (0.004)	0.0044 (0.006)	0.0014 (0.005)	0.0113** (0.005)	0.0160*** (0.006)	0.0041 (0.009)
76-99 percent	0.0056 (0.004)	0.0074 (0.005)	0.0030 (0.006)	0.0025 (0.005)	0.0039 (0.006)	0.0019 (0.008)	0.0151** (0.007)	0.0283*** (0.011)	0.0037 (0.008)
100 percent	0.0036 (0.002)	0.0048 (0.003)	0.0017 (0.003)	0.0023 (0.004)	0.0039 (0.005)	0.0017 (0.006)	0.0046** (0.002)	0.0105** (0.004)	0.0008 (0.002)

Wave dummy (1 = wave 2)

0-10 percent	0.0074*** (0.002)			-0.0035 (0.003)			0.0110*** (0.003)		
11-25 percent	0.0234*** (0.007)			-0.0078 (0.008)			0.0559*** (0.014)		
26-50 percent	0.0152*** (0.005)			-0.0090 (0.009)			0.0206*** (0.006)		
51-75 percent	-0.0151*** (0.005)			0.0065 (0.006)			-0.0325*** (0.009)		
76-99 percent	-0.0190*** (0.006)			0.0072 (0.007)			-0.0423*** (0.011)		
100 percent	-0.0119*** (0.004)			0.0066 (0.007)			-0.0128*** (0.004)		

Government support

0-10 percent		0.0004 (0.001)			0.0033 (0.002)			0.0010 (0.001)	
11-25 percent		0.0016 (0.004)			0.0095 (0.006)			0.0053 (0.007)	
26-50 percent		0.0014 (0.004)			0.0109 (0.007)			0.0039 (0.005)	
51-75 percent		-0.0011 (0.003)			-0.0086 (0.005)			-0.0030 (0.004)	
76-99 percent		-0.0014 (0.004)			-0.0076 (0.005)			-0.0052 (0.007)	
100 percent		-0.0009 (0.003)			-0.0075 (0.005)			-0.0019 (0.003)	

Losing job(1 = yes, 0 = no)									
0-10 percent							-0.0259*** (0.005)	-0.0242*** (0.006)	-0.0307*** (0.008)
11-25 percent							-0.1378*** (0.015)	-0.1340*** (0.018)	-0.1462*** (0.028)
26-50 percent							-0.0571*** (0.010)	-0.1003*** (0.016)	-0.0033 (0.011)
51-75 percent							0.0802*** (0.010)	0.0756*** (0.012)	0.0855*** (0.018)
76-99 percent							0.1075*** (0.012)	0.1334*** (0.018)	0.0789*** (0.016)
100 percent							0.0331*** (0.005)	0.0495*** (0.009)	0.0159*** (0.006)
Observations	2,988	1,702	1,286	1,620	887	733	1,368	815	553

Note: Standard errors are given in parenthesis. ***, **, and * indicate the significance levels at 1 percent, 5 percent, and 10 percent, respectively.

Source: Authors' estimations based on household level MICS Plus data (UNICEF 2021) for 2020-2021. https://mics.unicef.org/mics-plus/mics-plus-results (retrieved 23 January 2022)

Table 3A. Estimation results for multinomial probit models on probability of income reduction (average marginal effects)

Income of household is decreased	Total			Mongolia			Georgia		
	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2	Total	Wave 1	Wave 2
Gender of household head									
In neither of the two waves (base).	-0.0552***	-0.0564**	-0.0556**	-0.0593**	-0.0625*	-0.0547*	-0.0654***	-0.0565*	-0.0794***
	(0.015)	(0.022)	(0.022)	(0.023)	(0.033)	(0.033)	(0.021)	(0.031)	(0.031)
In wave 1, but not in wave 2.	0.0335**	0.0365*	0.0311	0.0310	0.0305	0.0310	0.0344	0.0372	0.0128
	(0.014)	(0.020)	(0.019)	(0.020)	(0.029)	(0.028)	(0.021)	(0.031)	(0.028)
In wave 2, but not in wave 1.	-0.0097	-0.0110	-0.0084	-0.0317**	-0.0333*	-0.0303	0.0089	0.0081	0.0226
	(0.009)	(0.013)	(0.013)	(0.014)	(0.020)	(0.020)	(0.014)	(0.018)	(0.021)
In both waves.	0.0315**	0.0309	0.0329	0.0600**	0.0653*	0.0540	0.0221	0.0112	0.0439
	(0.015)	(0.021)	(0.021)	(0.024)	(0.034)	(0.034)	(0.021)	(0.031)	(0.032)
Age of household head									
In neither of the two waves (base).	0.0061***	0.0057***	0.0059***	0.0075***	0.0074***	0.0074***	0.0037***	0.0031***	0.0042***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
In wave 1, but not in wave 2.	-0.0002	-0.0000	-0.0001	0.0005	0.0007	0.0004	-0.0006	0.0001	-0.0010
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
In wave 2, but not in wave 1.	-0.0005	-0.0006	-0.0004	-0.0011**	-0.0012*	-0.0009	0.0000	-0.0002	0.0002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
In both waves.	-0.0054***	-0.0051***	-0.0053***	-0.0069***	-0.0068***	-0.0069***	-0.0032***	-0.0031***	-0.0033***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Household size									
In neither of the two waves (base).	-0.0857***	-0.0820***	-0.0828***	-0.0788***	-0.0771***	-0.0777***	-0.0700***	-0.0581***	-0.0796***
	(0.006)	(0.008)	(0.008)	(0.008)	(0.012)	(0.012)	(0.008)	(0.012)	(0.012)
In wave 1, but not in wave 2.	0.0120**	0.0118*	0.0094	0.0049	0.0083	0.0004	0.0104	-0.0041	0.0157
	(0.005)	(0.007)	(0.007)	(0.007)	(0.010)	(0.010)	(0.008)	(0.012)	(0.010)
In wave 2, but not in wave 1.	0.0063*	0.0073	0.0057	0.0024	0.0008	0.0028	0.0088*	0.0127*	0.0056
	(0.003)	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)	(0.005)	(0.007)	(0.008)
In both waves.	0.0675***	0.0629***	0.0677***	0.0715***	0.0680***	0.0745***	0.0508***	0.0495***	0.0583***
	(0.005)	(0.007)	(0.007)	(0.008)	(0.011)	(0.011)	(0.007)	(0.011)	(0.011)

Number of types of internet connection

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
In neither of the two waves (base).	-0.0368*** (0.009)	-0.0297** (0.012)	-0.0458*** (0.015)	-0.0619*** (0.014)	-0.0601*** (0.020)	-0.0643*** (0.020)	-0.0056 (0.013)	-0.0062 (0.015)	0.0029 (0.023)
In wave 1, but not in wave 2.	0.0166** (0.008)	0.0122 (0.010)	0.0224* (0.013)	0.0113 (0.012)	0.0100 (0.017)	0.0127 (0.017)	0.0166 (0.012)	0.0111 (0.015)	0.0397* (0.021)
In wave 2, but not in wave 1.	-0.0087 (0.005)	-0.0108 (0.007)	-0.0056 (0.009)	-0.0067 (0.009)	-0.0113 (0.012)	-0.0018 (0.012)	-0.0147* (0.008)	-0.0115 (0.009)	-0.0279* (0.016)
In both waves.	0.0289*** (0.009)	0.0283** (0.011)	0.0290** (0.014)	0.0573*** (0.014)	0.0614*** (0.020)	0.0533*** (0.019)	0.0037 (0.012)	0.0066 (0.015)	-0.0147 (0.023)

Number of types of household asset

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
In neither of the two waves (base).	0.0077*** (0.002)	0.0073*** (0.003)	0.0077*** (0.003)	0.0097*** (0.002)	0.0095*** (0.003)	0.0097*** (0.003)	0.0041 (0.004)	0.0066 (0.005)	-0.0003 (0.006)
In wave 1, but not in wave 2.	-0.0049*** (0.002)	-0.0050** (0.002)	-0.0047* (0.003)	-0.0066*** (0.002)	-0.0064** (0.003)	-0.0067** (0.003)	0.0006 (0.003)	-0.0022 (0.004)	0.0016 (0.006)
In wave 2, but not in wave 1.	-0.0002 (0.001)	0.0001 (0.002)	-0.0006 (0.002)	-0.0001 (0.001)	0.0002 (0.002)	-0.0004 (0.002)	-0.0001 (0.002)	0.0011 (0.003)	0.0009 (0.004)
In both waves.	-0.0026 (0.002)	-0.0025 (0.002)	-0.0025 (0.003)	-0.0029 (0.002)	-0.0032 (0.003)	-0.0026 (0.003)	-0.0046 (0.003)	-0.0055 (0.004)	-0.0022 (0.006)

Number of children below age of 17

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
In neither of the two waves (base).	0.0550*** (0.008)	0.0665*** (0.012)	0.0510*** (0.011)	0.0575*** (0.011)	0.0627*** (0.015)	0.0544*** (0.015)	0.0356*** (0.013)	0.0380* (0.020)	0.0408** (0.019)
In wave 1, but not in wave 2.	-0.0155** (0.007)	-0.0205** (0.010)	-0.0135 (0.010)	-0.0114 (0.009)	-0.0157 (0.013)	-0.0082 (0.013)	-0.0108 (0.013)	0.0015 (0.020)	-0.0158 (0.017)
In wave 2, but not in wave 1.	-0.0071 (0.005)	-0.0066 (0.007)	-0.0069 (0.007)	-0.0108 (0.007)	-0.0111 (0.010)	-0.0112 (0.009)	0.0005 (0.009)	-0.0027 (0.011)	0.0022 (0.013)
In both waves.	-0.0324*** (0.007)	-0.0394*** (0.011)	-0.0306*** (0.010)	-0.0352*** (0.010)	-0.0359** (0.015)	-0.0350** (0.014)	-0.0253** (0.012)	-0.0368** (0.018)	-0.0272 (0.017)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Wave dummy (1 = wave 2)									
In neither of the two waves (base).	-0.0060 (0.012)			0.0001 (0.017)			-0.1002*** (0.018)		
In wave 1, but not in wave 2.	0.0022 (0.011)			0.0001 (0.014)			0.0200 (0.018)		
In wave 2, but not in wave 1.	-0.0003 (0.007)			0.0006 (0.010)			-0.0091 (0.012)		
In both waves.	0.0041 (0.011)			-0.0008 (0.016)			0.0892*** (0.018)		
Government support									
In neither of the two waves (base).	-0.0485*** (0.009)			-0.0217 (0.013)			-0.0304** (0.013)		
In wave 1, but not in wave 2.	0.0186** (0.008)			0.0086 (0.011)			0.0017 (0.013)		
In wave 2, but not in wave 1.	-0.0050 (0.005)			0.0084 (0.008)			-0.0047 (0.008)		
In both waves.	0.0349*** (0.008)			0.0047 (0.013)			0.0333*** (0.012)		
Losing job(1 = yes)									
In neither of the two waves (base).							-0.7284*** (0.037)	-0.6976*** (0.039)	-0.7135*** (0.132)
In wave 1, but not in wave 2.							0.2225*** (0.025)	0.4204*** (0.032)	-0.4775*** (0.107)
In wave 2, but not in wave 1.							0.0276* (0.016)	-0.1434*** (0.022)	0.3288*** (0.046)
In both waves.							0.4783*** (0.024)	0.4206*** (0.031)	0.8622*** (0.086)
Observations	6,950	3,475	3,475	3,656	1,828	1,828	3,294	1,647	1,647

Note: Standard errors are given in parenthesis. ***, **, and * indicate the significance levels at 1 percent, 5 percent, and 10 percent, respectively.

Source: Authors' estimations based on household level MICS Plus data (UNICEF 2021) for 2020-2021. https://mics.unicef.org/mics-plus/mics-plus-results (retrieved 23 January 2022)