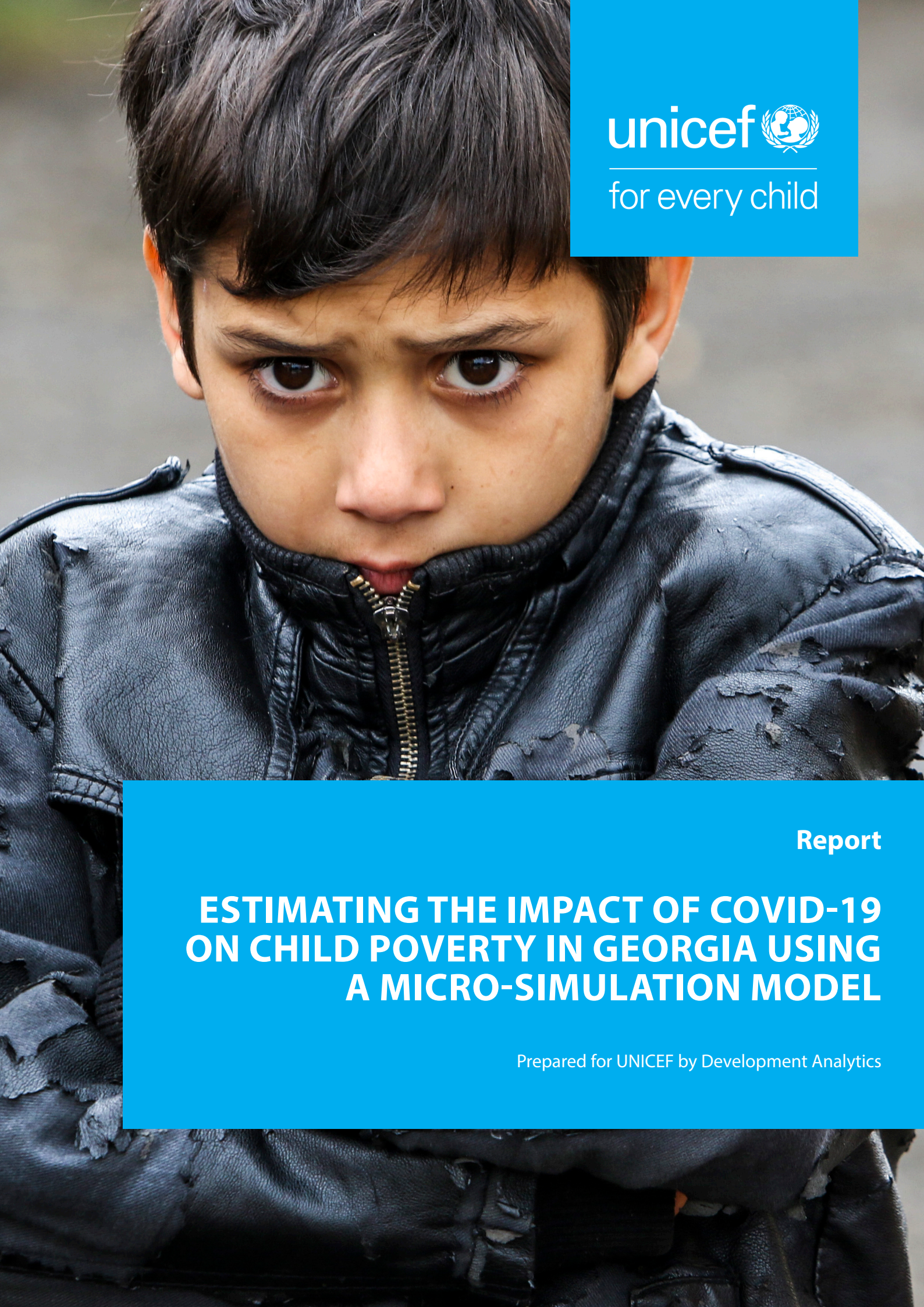

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Report

ESTIMATING THE IMPACT OF COVID-19 ON CHILD POVERTY IN GEORGIA USING A MICRO-SIMULATION MODEL

Prepared for UNICEF by Development Analytics

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The report does not reflect the official views of UNICEF, and any errors in text remain that of the authors. For further comments and questions on the analysis, or to replicate similar analyses in other country contexts, please contact: research@developmentanalytics.org

EXECUTIVE SUMMARY

This report aims to provide some preliminary estimates on the impact of COVID-19 on household and child poverty in Georgia, through its effects on the labour market. The study was commissioned by UNICEF Georgia country office and provides inputs on the poverty impact of the COVID crisis, as well as the poverty-reducing impact of several cash transfer scenarios targeting different groups in the population and at varying benefit levels.

The model presented, and the results in this report are for illustrative purposes only and should not be taken as a definitive prediction on changes in poverty rates as a result of COVID-19. Rather, the exercise is meant to serve as a facilitation tool for discussions around the distributional impact of COVID-19 on poverty and the labour market and the compensation that can be provided to households using several cash transfer policy options.

The study builds a microsimulation model to estimate poverty impact and uses the Welfare Monitoring Survey (WMS) 2017 as the primary data source. The survey was conducted from July to August 2017 and includes a sample of 4,697 households. WMS 2017 is representative at the national level and was carried out by UNICEF to provide relevant information for monitoring the welfare status of the children and their families in Georgia. In this respect, the survey offers crucial socio-economic and demographic data of the population.

This microsimulation model focusses on the transmission mechanisms through a loss of jobs and reduced labour income to show the impact of COVID-19 on households taking into consideration three different impact level assumptions (under a low, medium and severe shock). The model assumes that some types of jobs may be more vulnerable than others to this shock and vulnerability within a job may also vary depending on the skills attainment of the individual. In the analysis, COVID job vulnerability levels are assigned to each working individual by dividing the employment types reported in the survey into three groups (low vulnerability, medium vulnerability and high vulnerability). Next, COVID job vulnerabilities are weighted by the education levels of individuals, such that higher levels of educational attainment in the same type of job receives a lower level of vulnerability score in the model.

Using the Job and Skills COVID Vulnerability Index for individuals, a household COVID Vulnerability Index is then created by taking the average of the individual level vulnerability indices for each working member in the household. Households are divided then into three groups based on their household COVID vulnerability index: Low, medium and high vulnerability. According to this classification, around half of the population (53.0 percent) live in an average (medium) COVID vulnerable household while those living in a high COVID vulnerable household constitute the smallest group (12.1 percent). The labour income for these households are assumed to be reduced by certain percentages considered in the model and this, in turn, is transmitted to household expenditures through an income elasticity calculation, whereby expenditures are not reduced one-to-one with reductions in income. The income elasticity calculations are carried out using a regression model that establishes the associated changes between household income and expenditures in the baseline data.

Following the estimation of after-shock monthly expenditures, measures of poverty, child poverty and inequality in Georgia are recalculated in the occurrence of a low shock, medium shock or a severe shock. In these calculations, poverty lines used are 1.25 USD, 2.5 USD and 5.5 USD per day per adult equivalent. The first two poverty lines were used to follow and be in line with the WMS 2017 report.

Once the negative shock is applied to the households, and poverty levels are recalculated, several cash transfer models are added to the microsimulation to look at changes in poverty levels under each scenario. These policy scenarios all cover short-term cash transfer scenarios with different benefit levels and targeting options.

Results on COVID-19 Poverty Impact

As a result of the simulated income shock that is experienced by households depending on their COVID job vulnerability category, monthly per adult equivalent expenditure shrinks for all households in Georgia. After a low shock average monthly per adult equivalent expenditure is estimated to decrease by 4.4 percent, reaching 341 GEL up from 357 GEL in the baseline. At the same time, after a medium shock, average monthly per adult equivalent expenditure is estimated to decrease by 7.3 percent, reaching 331 GEL and a severe shock leads to a decrease of 14.5 percent reducing the average monthly per adult equivalent expenditure further down to 305 GEL.

High COVID vulnerability households (which already have low expenditure levels) experience the steepest percentage decline in expenditures. In the occurrence of a low shock, the average per adult equivalent expenditure shrinks by 8.7 percent for high COVID vulnerability households. In contrast, this rate is 6.5 and 2.2 percent for the medium and low COVID vulnerability households, respectively.

Reductions in monthly household expenditure lead to significant increases in poverty. In the baseline, 21.7 percent of the population and 27.6 percent of children were living below the 2.5 USD per day per adult equivalent poverty line (i.e. 166 GEL a month). From its baseline rate, poverty increases to 24.0 percent after a low shock, 26.0 percent after a medium shock and to 30.7 percent after a severe shock. Concurrently, child poverty increases from its baseline rate of 27.6 percent to 30.8 percent in the case of a low shock, to 32.7 percent in the case of a medium shock and to 37.8 percent in the case of a severe shock in the model. Extreme poverty (i.e. living below 1.25 USD per day or 83 GEL a month) also increases after the shocks.

Poverty increases more in rural areas and different poverty dynamics are observed in different regions with some being affected more severely. As a result of the shocks, urban areas end up with higher inequality levels, though overall inequality level is not affected much as the shock hits all households in the model and around half of the population live in households in the medium risk category.

Results of Cash Transfer Policy Scenarios

After identifying household level shocks and re-estimating poverty figures based on this model, 12 different cash transfer scenarios are modelled with two different transfer levels (low and high) to combat the poverty impact of the COVID-19. Households are distributed a monthly cash transfer amount per household, per person, per worker or per child depending on the scenario. This amount is directly added to the after-shock total monthly household expenditure and assumed to be directly spent rather than saved.

Cash transfer scenarios range from being per household to being per child and the targeted groups change from being universal to targeting a subgroup the population or of TSA beneficiaries. While all cash transfer scenarios lead to poverty reductions, some are more successful than others in reducing poverty. Scenarios also differ in cost, coverage and benefit incidence levels.

The analysis in the report compares the scenarios based on metrics such as poverty reduction, total cost, targeting effectiveness (benefit incidence), coverage of the poorest quintiles and cost effectiveness (i.e. percentage points of poverty reduced per 1 million GEL spent). Among the 12 scenarios considered, targeting the bottom 40 percent non-TSA households (Scenario 2a) is the most successful in terms of poverty reduction while the most cost effective strategy is targeting the bottom 40 percent non-TSA households with children (Scenario 2b). The marginal scenarios (Scenario 1, 4, 8 and 9) that are targeting a small percent of the population are the least costly but are the least effective scenarios in terms of poverty reduction. Universal child grants for 0-17-year-old children (Sc 3b) are poverty reducing and at

a reasonable cost effectiveness level in terms of poverty reduced per million GEL spent, however they also represent the most expensive scenario. Sc 5 and Sc 6 that target the assumed unemployed in job types "wage earners" and "self-employed" respectively end up not being well targeted and hence have low poverty reduction impact. They are also not cost-effective in terms of percentage points of poverty reduced per 1 million GEL spent.

Given that there is very high vulnerability to poverty in Georgia and a high percentage of the population is just above the poverty line, the crisis can have a strong and large impact on headcount poverty rates, pushing households below the poverty line. Policies and transfers that widely target the bottom 40% of the distribution are therefore more likely to have an impact on reducing poverty in a cost effective manner, rather than those that are very narrowly targeted (only TSA beneficiaries), that target the unemployed or that are too widely distributed such as universal child grants.

INTRODUCTION

As with the rest of the World, Georgia is combatting the COVID-19 pandemic and it has been five months now since the first patient was diagnosed. The first patient was diagnosed in Georgia on February 26th 2020 and a state of emergency was declared on March 21st introducing measures such as closure of borders, closure of schools and restricting inter-city travel.[1] A further nationwide curfew was declared on March 31st and a lock-down of four major cities on April 15th. As the state of emergency has ended on May 23rd, the restrictions are gradually being lifted. Georgia had a total of 1,306 cases and 17 deaths since the beginning of the pandemic. [2]

COVID-19 pandemic, apart from the health-related challenges, has serious socio-economic impact on the households. The pandemic is predicted to cause the worst economic recession in decades with a forecasted 5.2 percent contraction in global GDP. [3] ILO recently estimated that the pandemic will cause job losses equal to 195 million full-time jobs. [4] Due to the contraction in economic activities, globally, an estimated 42-66 million children could fall into poverty. [5]

Georgia is forecasted to experience a significant recession because of the pandemic and given high rates of vulnerability to poverty, this will have a strong impact on the poverty and child poverty rates. In 2020, the ECA region is forecasted to have a 4.7 percent and Georgia a 4.8 percent GDP contraction.[6] The poverty rate is 21.7 percent in Georgia (as of 2017) using the 2.5 USD poverty line. However, vulnerability to poverty is exceedingly high, where it is common for households to fall into poverty and escape poverty within the course of a few years in a dynamic way. In fact, it is estimated that as high as 70 percent of the population fell under the 2.5 USD per day poverty line at least once between years 2009 and 2017.[7]

1 UN Office for the Coordination of Humanitarian Affairs & UN Resident and Humanitarian Coordinator for Georgia 2020. COVID-19 Georgia: Situation Report # 9 as of 5 June 2020. Retrieved from: *https://reliefweb.int/report/georgia/covid-19-georgia-situation-report-9-5-june-2020*

2 As of August 14, 2020, as reported in government's official COVID 19 tracking website: *https://stopcov.ge/en*

3 World Bank 2020. The Global Economic Outlook During the COVID-19 Pandemic: A Changed World. Washington D.C.: World Bank Retrieved from: *https://www.worldbank.org/en/publication/global-economic-prospects#firstLink11645*

4 *https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_740893/lang--en/index.htm*

5 UN (2020) Policy Brief: The Impact of COVID-19 on children. Geneva: United Nations. Retrieved from *https://unsdg.un.org/sites/default/files/2020-04/160420_Covid_Children_Policy_Brief.pdf*

6 World Bank 2020. The Global Economic Outlook During the COVID-19 Pandemic: A Changed World. Washington D.C.: World Bank Retrieved from: *https://www.worldbank.org/en/publication/global-economic-prospects#firstLink11645*

7 Estimated by looking at the panel sample of households followed by the five rounds of WMS data collected by UNICEF. Source: UNICEF 2019. A Detailed Analysis of Targeted Social Assistance and Child Poverty and Simulations of The Poverty-Reducing Effects of Social Transfers

Employment and type of employment is significantly linked with poverty status in Georgia and COVID-19 is expected to have an impact on poverty through a labour market transmission. Since employment is the primary source of income for households, number of employed and employment type of household members were also found to be associated with the likelihood of being in poverty.[8] In UNICEF (2019), an additional employed person was found to decrease the likelihood of being in poverty by 1.8 percentage points and the number of wage employees in the household was found to reduce it by 8.2 percentage points. Given the dynamic nature of poverty in the country, coupled with the link between poverty and employment, the recession could lead many households to fall into poverty through job or labour income losses.

The Government is addressing the economic challenges of households and businesses with a wide range of measures.[9] On April 24th, 2020 the Government of Georgia announced a 3.5 billion GEL anti-crisis plan. The plan includes cash transfer measures such as 200 GEL per month support to people who lost their jobs or who are on unpaid leave, and transfers to households with a rating score at or below 100,000 as well as transfers to people with disabilities among many other measures. In this respect, it will be an informative exercise to look at possible impact of COVID-19 on household poverty and impact of cash transfers to households to remedy the negative effects.

This study estimates the poverty impact of the COVID-19 pandemic along with an estimation of the impact of possible cash transfer scenarios to alleviate the negative impact. The study first builds a micro-simulation model to estimate the possible impact of COVID-19 on household poverty, child poverty and inequality in Georgia through the labour market channel. Next, the same model is used to estimate the possible impact of cash transfers to alleviate this negative effect. The rest of the report is structured in this way: the data used for the analysis (Welfare Monitoring Survey 2017) is described, and the methodology of the micro-simulation model and the assumptions used are explained in the Data & Methodology section. This section is followed by the Results section explaining the findings of the model. Lastly, the report ends with the conclusions summarizing the poverty impact, coverage, targeting, and costs involved under various policy scenarios.

The model presented in this report is prepared for illustrative purposes and rather than being a definitive prediction on changes in poverty, should be treated as an illustration of how certain policies can reduce/alleviate poverty in the post-COVID era. The model has strong assumptions in its inputs and hence estimates presented here should not be taken as precise predictions, rather should be used to facilitate a debate around the distributional impact of COVID-19's labour market and poverty impact and to constructively discuss options for household assistance to reduce poverty.

DATA & METHODOLOGY

Data

In the microsimulation model, the Welfare Monitoring Survey (WMS) 2017 is used as the main data source. The survey was conducted from July to August 2017 and includes a sample of 4,697 households. WMS 2017 is representative at the national level and was carried out by UNICEF to provide relevant information for monitoring the welfare status of the children and their families in Georgia. In this respect, the survey provides crucial socio-economic and demographic information of the population. The survey consists of 9 modules including: Household roster, housing conditions, household assets, household income, access to education, access to health care, access to social services, household's coping strategies and household expenditures. Household roster collects data on individuals living in the household and includes information such as age, educational attainment, employment status and employment type of each individual. Labour income of each individual is also collected separately.

8 UNICEF 2019. A Detailed Analysis of Targeted Social Assistance and Child Poverty and Simulations of The Poverty-Reducing Effects of Social Transfers
9 https://agenda.ge/en/news/2020/1273

For microsimulation modelling purposes, various aspects of the same household must be combined in the same household survey and this was the reason why WMS was preferred over other data sources. For this study, other surveys collected at the national level, such as the Geostat Household Survey, Labour Force Survey and Multiple Indicator Cluster Survey (MICS), were also examined by the team and WMS was found to be the most suitable in terms of providing relevant information needed to construct the model that will estimate the effect of COVID-19 from the labour market channel. For instance, the Labour Force Survey, while providing detailed information on labour force participation, does not include information on expenditures, and hence would not be useful for modelling a shock through the labour market on poverty. Similarly, while the MICS has valuable information on child outcomes and service utilization, it does not include enough information on labour force participation, labour income and expenditures and hence would not be useful for modelling the impact of COVID-19 through economic channels. For this reason, WMS proves to be the best data source for the exercise. The expenditure, labour and income modules in the data are detailed enough to enable researchers to build a simulation model looking at changes in income and expenditures as a result of COVID-19.

METHODOLOGY

In this section, we outline the main steps taken in modelling the impact of COVID-19 on household welfare and poverty in Georgia and highlight some of the basic assumptions that serve as inputs in our model:

1. Simulating the Poverty (Increasing) Impact of COVID-19

COVID-19 may affect already vulnerable communities through various channels ranging from health-related issues to economic instability. In this study we focus on the transmission mechanisms through loss of jobs and reduced labour income to show the impact of COVID-19 on households.

The COVID-19 may result in a temporary reduction in household income and hence household expenditure through a loss of jobs or reduced labour income. Some types of jobs/sectors may be more vulnerable than others to this shock. The labour module and the educational attainment data in the WMS are used to construct a job vulnerability index to reflect COVID vulnerability. While the sectors of employed individuals are not provided in WMS, there is an employment status question which combines type of work (i.e. regular waged employee, self-employed, temporary employee, etc.) and sector of work (agriculture/non-agriculture) in one question under the Household Roster (Question A12) (The variables (employment status and educational attainment) that were used for constructing the **"Job and Skills COVID Vulnerability Index"** are provided in Annex 1a).

In the analysis, we first assign a COVID job vulnerability level to each working individual by dividing the employment types reported in the survey (A12) into three groups (low vulnerability, medium vulnerability and high vulnerability) (See Table 1). In this grouping, being a regular waged employee was assumed the least vulnerable category. Being an employer or being self-employed was assumed in the medium vulnerable category and lastly having a temporary job or working for others but not in a regular waged job or working without pay were categorized as the most vulnerable group. [10]

10 There was no information for actual job type of 7 individuals who answered, "Has a job, but could not work during past 7 days because of illness; leave, study, temporary shutdown of the industry, weather or other reasons". These individuals were also categorized as "High COVID vulnerable" assuming they have a higher likelihood of not being working.

Regarding agricultural workers engaged in their own land or working for themselves, if the household has agricultural income (i.e. income from selling domestic animals or their products (milk, eggs, meat, cheese, butter, wool, etc.) or income from selling other agricultural products or goods processed from the latter (wine, vodka, vegetable oil, flour, dried fruit, etc.)), the individual was assumed in medium COVID vulnerability while if the household does not have agricultural income then the individual is assumed to be in low COVID vulnerability group since they are assumed to consume what they themselves produce.[11]

Table 1 Individual COVID Job Vulnerability Levels

Low COVID vulnerability jobs (1)	Medium COVID vulnerability jobs (2)	High COVID vulnerability jobs (3)
● Worked in a private or public (budgetary) institution/ organization on salary or earning ● Working in agriculture with no agricultural income o Worked on his/her own land plot/took care of own livestock, poultry; o Hunted/fished, gathered mushrooms, berries, chestnuts and other forest fruit for own consumption or selling o Was engaged in building/ refurbishing of own living or agricultural facilities(property) o Was engaged in processing of own agricultural products (milling cereals, wine-making, cheese, butter making, canning food, etc) for own consumption or for sale	● Worked individually ● Was engaged in individual professional activity (tutoring, private medical practice, etc.) ● Working in agriculture with agricultural income o Worked on his/her own land plot/took care of own livestock, poultry; o Hunted/fished, gathered mushrooms, berries, chestnuts and other forest fruit for own consumption or selling o Was engaged in building/ refurbishing of own living or agricultural facilities(property) o Was engaged in processing of own agricultural products (milling cereals, wine-making, cheese, butter making, canning food, etc) for own consumption or for sale	● Gathered scrap metal, bottles for changing them for money at respective reception points; ● Had a temporary, non-agricultural job with remuneration (loader, nanny, nurse, etc.); ● Did agricultural work (spading, hoeing, shepherding etc.) with cash remuneration; ● Had a temporary job with remuneration in kind (food/goods/boarding) ● Has a job, but could not work during past 7 days because of illness, leave, study, temporary shutdown of the industry, weather or other reasons; ● Was engaged in without pay activity in a factory or home business belonged to his/her household or was engaged in no pay activity for neighbour or relative.

11 In the sample, 1,303 individuals working in agriculture who are engaged in their own land or working for themselves do not live in a household with agricultural income while 991 individuals work in agriculture who are engaged in their own land or working for themselves and live in a household with agricultural income

Next, we weight these COVID job vulnerabilities by the education levels of individuals, such that the individual COVID vulnerability level is multiplied with 1 when the individual is a university graduate while it is multiplied with 4 when he is illiterate, hence increasing the vulnerability (See Table 2).[12] The following equation is used for the calculation of the Jobs and Skills Vulnerability Index at the individual level.

Job and Skills Vulnerability Index = Job Vulnerability index * Education Vulnerability Index

Table 2 Education Vulnerability Index levels

Education level	Education level
Illiterate	4
Incomplete secondary; School student	3
Secondary; Vocational; Incomplete higher (ceased higher education); A student of higher education institution [13]	2
Higher	1

Table 3 provides the distribution of the working population across the different COVID job vulnerability cells. The highest number of individuals are those who have a secondary education degree and in low COVID vulnerable jobs.

Table 3 The distribution of the working population across the different COVID job and skills vulnerability cells

	Higher education (1)	Secondary education (2)	Incomplete Secondary education or lower (3)	Illiterate (4)
In low COVID vulnerable jobs (1)	1,395	2,416	198	5
In medium COVID vulnerable jobs (2)	223	1,259	84	4
High COVID vulnerability jobs (3)	41	260	33	0

12 Examples: A person is working in a public institution with a salary (1) and he is a university graduate (1), hence his job and skills COVID vulnerability index is equal to 1*1 =1. A person is working as a shepherd with renumeration (3) and has not finished secondary school (3), then his job and skills COVID vulnerability index is equal to 3*3 =9.

13 Being a vocational school graduate takes the same weight as being a secondary school graduate and not the weight as a university graduate since the employment rates were closer in WMS 2017 for the first two (38.6 percent and 44.2 percent respectively) while higher education graduates were more likely to be employed (56.5 percent) among the population who are 15 years old or older.

Next, using the Job and Skills COVID Vulnerability Index for individuals, a household COVID Vulnerability Index is created by taking the average of the individual level vulnerability indices for each working member in the household. Households are divided then into 3 groups based on their household COVID vulnerability index: Low vulnerability (index is equal to 1), medium vulnerability (index is higher than 1 and lower than 5) and high vulnerability households (index is higher than 5).[14] According to this classification, about half of the population (53.0 percent) live in a medium COVID vulnerable household while those living in a high COVID vulnerable household constitute the smallest group with 12.1 percent of the population living in these households (See Table 4).

Table 4 About half of the population (53.0 percent) live in a medium COVID vulnerable household

Household COVID Job Vulnerability (% of population)

Household COVID Job Vulnerability	Households in the WMS (Number)	Overall
Low vulnerability	1,732	34.9
Medium vulnerability	2,351	53.0
High vulnerability	614	12.1

Source: WMS 2017, weighted, authors' calculations

Households are then assumed to lose a proportion of their total household labour income (calculated as a sum of salary income and income from private activities) given their household COVID vulnerability. Three levels of shocks are assumed, low, medium and severe. In the case of a low shock the shock levels are assigned to reach a specific rate of decrease in the average total household monthly expenditure (average of all households in the sample). The rate of the estimated GDP contraction 4.8% for the year 2020 due to COVID-19 pandemic (as predicted by World Bank)[15] was taken as this specific decrease rate. This rate is achieved by giving the income shocks as depicted in Table 5. Medium vulnerability households receive a shock three times as strong while high vulnerability households receive a shock four times as strong as the shock received by low vulnerable households. Apart from this shock that creates the same contraction in average household consumption as the predicted contraction in Georgia GDP for year 2020, two other higher shocks are also created to see the differing poverty and inequality impact on households.

All types of households (low, medium, or high vulnerability) are assumed to lose a part of their income as a result of the shocks. The lost income proportions change depending on the shock level and household COVID vulnerability as depicted in Table 5.

Table 5 Assumptions for income reduction based on the shock level and household COVID vulnerability

	Low vulnerability hh	Medium vulnerability hh	High vulnerability hh
Low shock	6.1%	18.3%	24.4%
Medium shock	10%	30%	40%
Severe shock	20%	60%	80%

14 In 1,584 households out of 4,697, no one is working. 452 of these are below the poverty line (2.5 USD per day), and in accordance they are assumed as highly vulnerable (3), and the rest (1,132) are assumed to be in the least vulnerable group.
15 Source: World Bank 2020. The Global Economic Outlook During the COVID-19 Pandemic: A Changed World. Washington D.C.: World Bank Retrieved from: https://www.worldbank.org/en/publication/global-economic-prospects#firstLink11645

In the model, the loss of labour income was mapped to a decrease in household expenditures using the income elasticities. In most cases, loss in income is not equal to a one-to-one decline in expenditures and this 'income elasticity' is calculated in this analysis using a regression analysis on the cross-sectional data (See Annex 1b for information on household expenditures). The income elasticity of households in the dataset was calculated using the following regression:

$$ln(\text{household expenditure}) = \beta_0 + \beta_1 \, ln(\text{household labour income}) + \beta_2 \, \text{household size} + \beta_3 \, \text{location (urban-rural)} + \beta_4 \, \text{location (Tbilisi-non-Tbilisi)} + u$$

Hence total monthly household expenditure after the shock is equal to:

$$\text{Household expenditure after shock} = \text{Baseline household expenditure} * (1 - \text{shock level} * \beta_1)$$

where the shock level ranges between 0.06 and 0.8 based on low/medium/severe and household vulnerability group as depicted in Table 5 and $\hat{\beta}_1$ is equal to 0.356 (See Annex 1c for the regression results) which can be interpreted as a 100 % reduction in household income being associated with a 35.6 % reduction in household expenditures.

After the monthly household expenditure is re-estimated, poverty and inequality in Georgia was recalculated in the occurrence of a low, medium or severe shock. In these calculations, poverty lines used are 1.25 USD, 2.5 USD and 5.5 USD per day per adult equivalent. The first two poverty lines were used to follow and be in line with the WMS 2017 report. The poverty line 5.5 USD is used by the World Bank for upper middle income countries and hence has been added to the analysis results.

The poverty lines' corresponding GEL amounts were reported in the WMS 2017 report as 82.8 GEL and 165.5 GEL respectively per month per adult equivalent for 1.25 USD and 2.5 USD lines. These amounts were used in our analysis as they are in the WMS report. Hence for 5.5 USD poverty line, the exchange rate is taken as used in the WMS 2017 report (which was calculated as 2.208 GEL/USD by our team) and the corresponding monthly amount is calculated as 364.3 GEL per month for the 5.5 USD per day poverty line.

2. Simulating the Poverty (Reducing) Impact under Various Cash Transfer Policy Scenarios

After the household level shocks occur and poverty rates were re-estimated based on the model, various targeting cash transfer scenarios were applied to see their poverty alleviating impact. Such benefits are modelled targeting a range of beneficiary groups and for different benefit levels based on discussions with UNICEF staff.

We simulate 12 different cash transfer scenarios in two different transfer levels (low and high). These scenarios range from being per household to being per child and the targeted groups change from being universal to targeting a subgroup of the population or TSA beneficiaries. The full list of policy scenarios considered for the exercise are listed in Table 6.

16 https://www.unicef.org/georgia/media/1051/file/WMS.pdf
17 https://blogs.worldbank.org/developmenttalk/richer-array-international-poverty-lines
18 A consultation meeting on policy scenarios for the simulation was held with the UNICEF on May 18, 2020. Further inputs were also received by the governmental stakeholders and additional scenarios were added to the model in August 2020.
19 See Annex 1d for questions in the survey that were used to identify TSA beneficiaries and their scores

Table 6 Cash transfer scenarios

Transfer level	Scenario number	Scenario explanation
Low transfer	0	Per household transfer of 50 GEL to families already receiving TSA
	1	Per household transfer of 50 GEL to families receiving TSA and with a score below 100 000 and with 1 or 2 children (0-15 years old)
	2a	Per household transfer of 50 GEL to families in the bottom 40% and not TSA beneficiaries [20]
	2b	Per household transfer of 50 GEL to families in the bottom 40% and not TSA beneficiaries and with children (0-15 years old)
	3a	Per child transfer of 30 GEL to all children (0-4 years old)
	3b	Per child transfer of 30 GEL to all children (0-17 years old)
	4	Per child transfer of 50 GEL to children aged 16-17 in TSA beneficiary households
	5	Per person 100 GEL per month transfer for randomly selected 20% of people in job type "Worked in a private or public (budgetary) institution/organization on salary or earning" [21]
	6	Per person 150 GEL per month transfer for randomly selected 20% of people in job type "worked individually", "was involved in individual professional activities". [22]
	7	Per person 35 GEL for 1 member households, per person 22.5 GEL for 2 member households, and per person 17.5 GEL for households with 3 or more members for families with 65000-100000 social rating point
	8	Per household 50 GEL transfer for families with 0-100000 social rating scores who have 3 children or more and under 16 years of age
	9	Per household 50 GEL transfer for households who are already receiving social assistance for disabled children
High transfer	0	Per household transfer of 100 GEL to families already receiving TSA
	1	Per household transfer of 100 GEL to families receiving TSA and with a score below 100 000 and with 1 or 2 children (0-15 years old)
	2a	Per household transfer of 100 GEL to families in the bottom 40% and not TSA beneficiaries
	2b	Per household transfer of 100 GEL to families in the bottom 40% and not TSA beneficiaries and with children (0-15 years old)
	3a	Per child transfer of 50 GEL to all children (0-4 years old)
	3b	Per child transfer of 50 GEL to all children (0-17 years old)
	4	Per child transfer of 60 GEL to children aged 16-17 in TSA beneficiary households
	5	Per person 200 GEL per month transfer for randomly selected 20% of people in job type "Worked in a private or public (budgetary) institution/organization on salary or earning"
	6	Per person 300 GEL per month transfer for randomly selected 20% of people in job type "worked individually", "was involved in individual professional activities".
	7	Per person 70 GEL for 1 member households, per person 45 GEL for 2 member households, and per person 35 GEL for households with 3 or more members for families with 65000-100000 social rating point
	8	Per household 100 GEL transfer for families with 0-100000 social rating scores who have 3 children or more and under 16 years of age
	9	Per household 100 GEL transfer for households who are already receiving social assistance for disabled children

We assume that the cash transfers will be spent directly rather than saved since this is a crisis and households are already impoverished. Hence the transfers are directly added to after-shock monthly household expenditure and the outcomes such as poverty and inequality are recalculated using the increased household expenditure levels.

20 In the scenarios targeting the bottom 40 percent, the population is divided into 5 categories based on household's per adult equivalent expenditure in the baseline and the bottom 40 percent corresponds the poorest 40 percent of the population. This categorization stays the same whether there is an income shock or there is a cash transfer to the household since it is based on the baseline expenditure levels. In this report "TSA bottom 40% and not TSA beneficiaries" means that bottom 40% of the population are taken and then TSA beneficiaries are excluded from them.
21 20 percent of sampled individuals in the job category are randomly selected without using sampling weights. This corresponds to 21% of the individuals in the job category when weighted using sampling weights.
22 20 percent of sampled individuals in the job category are randomly selected without using sampling weights. This corresponds to 20% of the individuals in the job category when weighted using sampling weights.

RESULTS

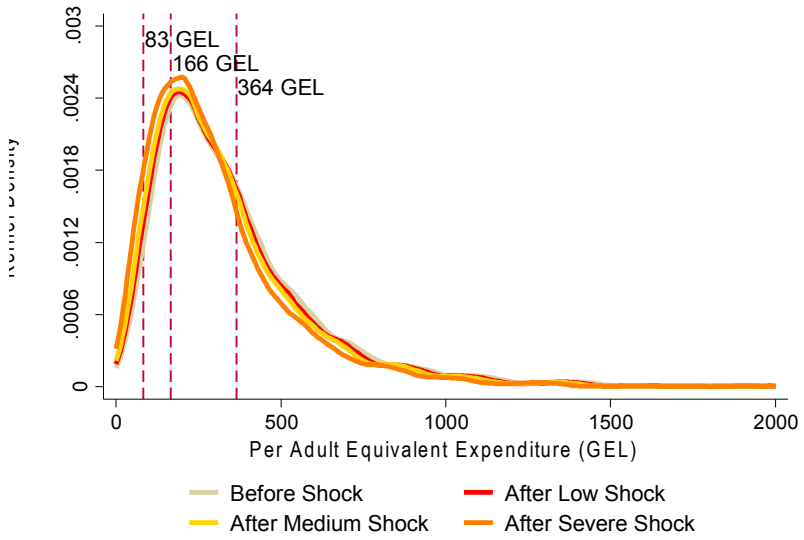
In this section the results of the micro-simulation model are presented and explained. The section first starts with the estimated impact of the shocks on poverty and inequality. Next, the impact of various cash transfer scenarios after the shocks is estimated and presented in the second part of the section.

1. Simulating the Poverty (Increasing) Impact of COVID-19

As a result of the simulated income shock that is experienced by households depending on their COVID job vulnerability category, monthly per adult equivalent expenditure shrinks for all households in Georgia (See Figure 1). After a low shock average monthly per adult equivalent expenditure is estimated to decrease by 4.4 percent, reaching 341 GEL up from 357 GEL in the baseline, after a medium shock, average monthly per adult equivalent expenditure is estimated to decrease by 7.3 percent, reaching 331 GEL while a severe shock leads to a decrease of 14.5 percent reducing the average monthly per adult equivalent expenditure further down to 305 GEL (See **Figure** 2).[23]

Figure 1 Monthly per adult equivalent expenditure shrinks for all households in Georgia after the shocks, pushing some households below the poverty lines

Distribution of households by their per adult equivalent expenditure in the baseline and after shocks



Source: WMS 2017, weighted, authors' calculations

High COVID vulnerability households (which already have low expenditure levels) experience the highest decline in expenditure. In the occurrence of a low shock, average per adult equivalent expenditure shrinks by 8.7 percent for high COVID vulnerability households whereas this rate is 6.5 and 2.2 percent for the medium and low COVID vulnerability households, respectively. This is indeed due to the different shock levels we assigned for each group, as we assumed the high vulnerability group would experience a higher income loss. In the occurrence of a medium shock, average per adult equivalent expenditure shrinks by 14.3, 10.7 and 3.6 percent for the high, medium and low COVID vulnerability households, respectively while in the occurrence of a severe shock these rates are 28.5, 21.4 and 7.1 percent, respectively.

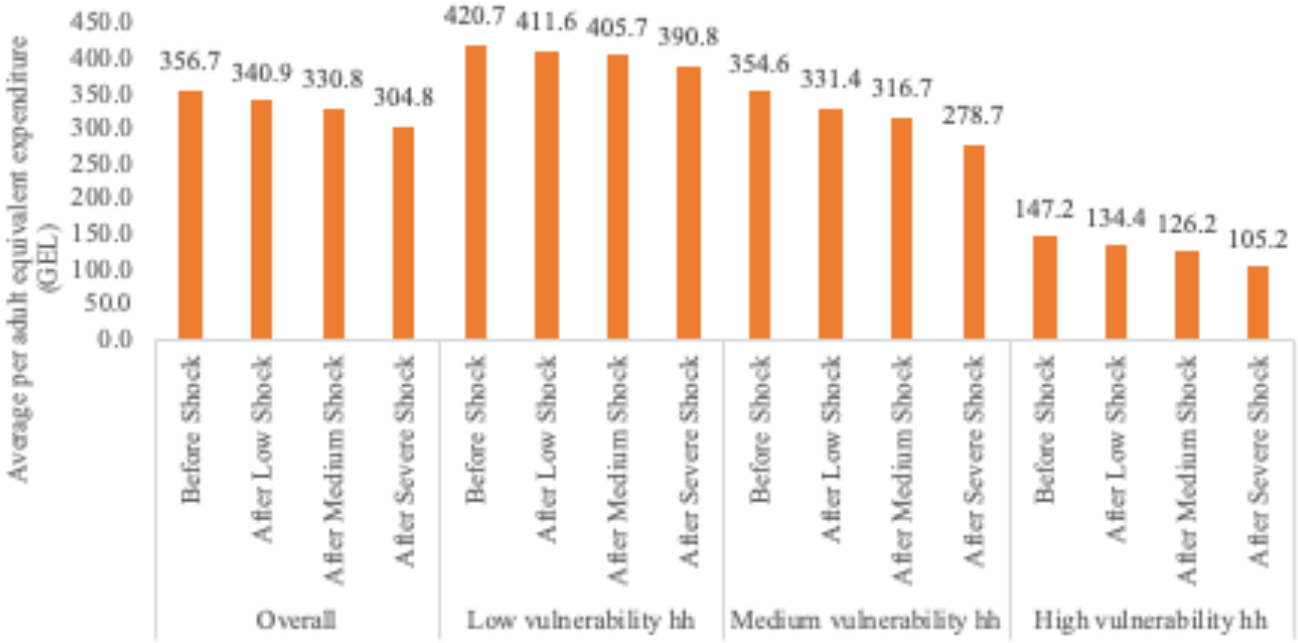
Reductions in monthly household expenditure lead to significant increases in poverty. In the baseline 21.7 percent of the population and 27.6 percent of children are living below the 2.5 USD per day per adult equivalent poverty line (i.e. 166 GEL a month). Population poverty rate increases to 24.0 percent after a low shock, to 26.0 percent after a mild shock and to 30.7 percent after a severe shock (See **Figure** 3). Similarly, child poverty increases to 30.8%, to 32.7 percent and to 37.8 percent after a low, a medium and a severe shock, respectively (See Annex 2a Table 1). Not only poverty headcount rate but also poverty gap (P1) and poverty severity (P2) increase after the shocks (See Annex 2a Table 1).

23 Note that to mimic the predicted GDP contraction of 4.8 percent, 4.8 percent contraction as a result of the low shock is in average household expenditures, and not average per capita expenditures. It can also be thought as total weighted sum of household monthly expenditures decreases by 4.8 percent.

Extreme poverty (i.e. living below 1.25 USD per day or 83 GEL a month) also increases after the shocks. 5.0 percent of the population and 6.8 percent of children are living below the extreme poverty threshold in the baseline (See Annex 2a Table 1). After a low shock, the share of the population living below the extreme poverty threshold increases to 5.7 percent while after a medium shock, it increases to 6.5 percent and it reaches 9.4 percent after a severe shock. Percent of children living under the extreme poverty threshold increases as well, reaching 7.7, 8.6 and 12.3 percent respectively after a low, medium and a severe shock.

Figure 2 High COVID vulnerability households (which already have low expenditure levels) experience the highest decrease in expenditure

Average per adult equivalent expenditure of households in the baseline and after shocks (GEL)



Source: WMS 2017, weighted, authors' calculations

Both poverty and extreme poverty become worse in rural areas compared to urban areas after the shocks. In the baseline 19.5 percent of the urban population and 23.8 percent of the rural population is living below the 2.5 USD per day poverty line (See **Figure** 3). These rates increase to 21.5 and 26.5 percent after a low shock for the population in urban and rural areas, respectively. After a medium shock, these rates become 22.4 and 29.5% percent, while after a severe shock 25.9 percent of the population in urban areas and 35.3 percent of the population in rural areas, end up under the poverty line. Hence in the occurrence of a low shock poverty increases by 1.9 percentage points (and by 10.0 percent) in urban areas and 2.7 percentage points (and by 11.2 percent) in rural areas while in the occurrence of a medium shock poverty increases by 2.9 percentage points (and by 14.7 percent) in urban areas and 5.7 percentage points (and by 23.9 percent) in rural areas and in the occurrence of a severe shock poverty increases by 6.4 percentage points (and by 32.5 percent) in urban areas and 11.5 percentage points (and by 48.4 percent) in rural areas. Poverty increases more in rural areas since a higher percentage of the population in urban areas are living in low COVID vulnerability households (46.6 percent) compared to rural areas (23.4 percent) (See Figure 3).

Figure 3 Reductions in the household expenditure leads to significant increases in poverty

Population poverty (%) (Poverty line: USD 2.5 per day)

Source: WMS 2017, weighted, authors' calculations

Compared to severe increases in poverty rates, inequality increases by much less. Initially, the Gini index was calculated as 35.5 using households' monthly per adult expenditure levels. This rate increases to 35.8 after a low shock, to 36.1 after a medium shock and to 36.9 after a severe shock (See Annex 2a Table 1). The reason behind a low increase in inequality is connected to two facts which are about the model: (i) every household receives an income shock, hence household income decreases for all households and (ii) population living in medium COVID vulnerable households constitute about half of the population (53.0 percent) and receive a shock quite similar to a shock received by a high COVID vulnerability household (30% of labour income loss vs 40% of labour income loss, respectively, in the case of a medium shock). As the population living in medium and high vulnerability households then constitute most of the population, these in turn lead to a lower increase in inequality indicators.

After the shocks, urban areas end up with higher consumption inequality compared to rural areas. In the baseline, urban areas and rural areas have almost the same inequality as depicted by their Gini coefficient (35.08 in rural areas and 35.14 in urban areas). Yet the inequality increases are different after the shocks. In urban areas after a low shock Gini coefficient reaches 35.5, and after a mild shock Gini coefficient reaches 35.8 while after a severe shock it reaches 36.7. In rural areas Gini coefficient reaches 35.3, 35.5 and 36.0 after a low, medium and a severe shock, respectively (See Annex 2a Table 1). The difference in inequality trends is again due to the different distributions of the population in households based on their COVID vulnerability type in urban and rural areas. In urban areas it is more common to be living in a low COVID vulnerable household with 46.6 percent of the population living in these households. In comparison, this rate is much lower in rural areas with 23.4 percent. 42.5 percent of the population in urban areas are living in a medium COVID vulnerable household as opposed to 63.2 percent in rural areas. And 10.9 percent of the population in urban areas live in a high COVID vulnerability household as opposed to 13.4 percent in rural areas. When the medium vulnerability group has a higher share in the population that puts a brake in the increase in inequality. Hence the difference between the percent population living in medium and low vulnerability households in urban and rural areas is driving the diverging trends regarding inequality.

2. Simulating the Poverty (Reducing) Impact under Various Cash Transfer Policy Scenarios

To combat the poverty impact of the COVID-19 a number of different cash transfer scenarios are modelled as described in the Methodology section. Households are distributed a monthly cash transfer amount per household, per person, per child or per unemployed worker [25] depending on the scenario. This amount is directly added to the total monthly household expenditure and assumed to be directly spent rather than saved. 12 scenarios with two different transfer levels are modelled after a low, medium and a severe shock separately, making a total of 24 scenarios for each shock (See Table 6 Cash transfer scenarios). Outcome variables like poverty, inequality after the transfers and total monthly cost of the scenarios are calculated (See Annex 2b Table 1, Table 2 and Table 3 for the results in detail). Coverage and benefit incidence of the 12 scenarios are also calculated (These do not change based on transfer level or which shock they are distributed after). The findings are presented in more detail in the rest of this section.

Impact on Poverty and Inequality

After a low shock, among the low transfer scenarios Sc 2a (transfers for the bottom 40% and non-TSA households) and Sc 3b (universal child grants for 0-17 year olds) can achieve a return to the baseline poverty rate (i.e. poverty rate before shock). The scenarios that are targeting the bottom 40 percent non-TSA households (Sc 2a) along with Sc 3b which is the universal child grant to 0-17 year old children are the scenarios that achieve the highest reduction in poverty rates whether they are providing a high or a low transfer. Among the high transfer scenarios targeting bottom 40 percent non-TSA beneficiaries and only those with children (Sc 2b) join the scenarios Sc 2a and Sc 3b in reaching and even getting a lower than the baseline poverty rate (21.7 percent). Moreover, Sc 3b decreases child poverty from baseline 27.6% to 24.7% and 20.3% in case of low and high transfers respectively.

After a mild shock, none of the low transfer scenarios can achieve a return to the baseline poverty rate (i.e. poverty rate before shock). The scenarios that are targeting the bottom 40 percent non-TSA households (Sc 2a and 2b) along with Sc 3b (the universal child grant to 0-17 year old children) are the scenarios that achieve the highest reduction in poverty rates again, both in the case of a high and low transfer. Among the high transfer scenarios targeting bottom 40 percent non-TSA beneficiaries (Sc 2a) and universal child grant to 0-17 year old children (Sc 3b) are the only scenarios achieving poverty rates (18.4 and 21.0 percent) lower than the baseline poverty rate (21.7 percent). Moreover, Sc 3b decreases child poverty from baseline 27.6% to 27.0% and 22.4% in case of low and high transfers respectively.

In the occurrence of a severe shock neither the low transfer scenarios nor the high transfer scenarios are enough to return to the baseline poverty rate. After a severe shock poverty increases to 30.7 percent down from 21.7 percent and again the same scenarios as in the case of the low or medium shock are the most successful in poverty reduction, which are Sc 2a, 2b, 3b. Yet, even with a high transfer, these scenarios achieve a poverty reduction of 8.5, 3.7 and 5.1 percentage points respectively. In comparison, the poverty increase is in fact higher with 9.0 percentage points after the severe shock. The only scenario that can return child poverty to its baseline 27.6% is the Sc 3b in case of high transfer.

25 Randomly selected among the workers in the job type.

Among the rest of the scenarios, the marginal scenarios Sc 1 and Sc 4 that are targeting a subgroup of TSA beneficiaries and Sc 8 and Sc 9 which are targeting small proportions of the population and Sc 6 which targets -the assumed- unemployed self-employed are the least successful in terms of poverty reduction due to their low coverages. Targeting only the TSA beneficiaries (Sc 0) already does not cause sufficient poverty reduction and the scenarios (1 and 4) that target a sub-group of the TSA beneficiaries creates a lower poverty reduction impact. [26] For instance, after a low shock targeting only TSA beneficiaries with a low transfer (50 GEL per household) (Sc 0) leads to a poverty reduction of only 0.8 percentage points. Scenarios 1 and 4 which are targeting smaller groups under TSA beneficiaries lead to a poverty reduction of 0.3 and 0.2 percentage points respectively in the case of a low transfer and 0.8 and 0.3 in the case of a high transfer after a low shock. Scenario 8 (that targets families with 0-100000 social rating scores who have three children or more) has a population coverage of only 2.6 percent (as opposed to the population coverage of TSA, with 12.0 percent) while Scenario 9 (targeting households who are already receiving social assistance for disabled children) has a population coverage of only 0.4 percent. Hence these scenarios do not create much poverty reduction impact in return. Scenario 6 (which targets the unemployed self-employed) also has very low coverage (3.1 percent), hence has little poverty reduction impact. The other scenario that is targeting the unemployed, Scenario 5 (which targets unemployed waged earners) has a better poverty reduction impact compared to these marginal scenarios, mostly due to its comparatively higher coverage (15.6 percent).

In all cases (low transfer, high transfer, after all shocks), a universal child grant to 0-17 year olds (Sc 3b) or targeting bottom 40 percent scenarios (Sc 2a-2b) creates a better poverty reduction effect compared to targeting only TSA beneficiary households (Sc 0) while scenarios like targeting the unemployed wage earners (Sc 5) or targeting children who are 0-4 year old also occasionally create better results than Sc 0 depending on transfer level and shock level. For instance, after a medium or a severe shock, a high transfer unemployment grant for waged employees (Sc 5) -with the given assumptions (i.e. distributed to the 20% of the people in the work category) - creates a higher poverty reduction than a higher transfer grant to TSA beneficiaries. A universal child grant of 30 GEL per child (Sc 3a) leads to a close to but higher poverty reduction after each shock type compared to cash grants for TSA households (Sc 0) at the amount of 50 GEL per household. When the transfer level is increased poverty reduction effect is higher though for Sc 0 compared to Sc 3a. (See Annex 2b for results).

Coverage and Benefit Incidence (Targeting)

Among the cash transfer scenarios coverage of the population is highest in the universal child grant scenario (Sc 3b), by far, but coverage of the bottom 40 percent is highest with Sc 2a which targets the bottom 40 percent non-TSA households. Sc 3b covers 56.5 percent of the population, 100 percent of the children and 64.6 percent of the bottom 40 percent. But coverage of the bottom 40 percent is highest with Sc 2a (targeting non-TSA households in the bottom 40 percent) which is also the scenario that has the second highest population coverage. With this scenario 28.0 percent of the population and 29.8 percent of children are covered but targeting the poor is better with 75.3 percent of the bottom 40 percent covered. In terms of coverage of the population Sc 3b and Sc 2a is followed by Sc 3a which covers 24 percent of the population and 43.7 percent of the children. The rest of the scenarios cover a much smaller percent of the population ranging between 15.6 percent and 0.4 percent.

26 TSA benefits are generally well targeted, with 46% of benefits accruing to the bottom quintile of the population. However, reaching this group with an additional benefit does not reduce the poverty headcount significantly, though it does have some impact on poverty gap and severity measures (See Annex 2b).

Scenarios range between being pro-poor and pro-rich depending on their target group. The most pro-poor scenarios are Sc 2a and 2b since they are already targeting the bottom 40 percent. In these scenarios, 100 percent of the benefit is accrued to the bottom 40 percent with no leakage. These scenarios are followed by Sc 4 which provides child grants to TSA beneficiaries with children who are 16 or 17 years old. With this scenario, 83.5 percent of the total benefit is accrued to the bottom 40 percent. Sc 4 is followed by Sc 1 which is again targeting a sub-group of the TSA beneficiaries. With this scenario 81.4 percent of the benefit accrues to the bottom 40 percent. Sc 0 which targets all the households who are already TSA beneficiaries is also pro-poor with 70 percent of the benefit going to the bottom 40 percent. Sc 8 (transfer for families with 0-100000 social rating scores who have 3 children or more and under 16 years of age) and Sc 9 (transfer for households who are already receiving social assistance for disabled children) are also pro-poor with 81.3 and 65.1 percent of the benefit accruing to the bottom 40 percent, respectively. The universal child grant scenarios do not have a good targeting and that is natural due to their universality. [27] With Sc 3a, 42.7 percent and with Sc 3b 44.4 percent of the benefit goes to the bottom 40 percent. Sc 7 (providing transfers for families with 65000-100000 social rating point, depending on their household size) is also not pro-poor with only 46.8 percent of the benefit accruing to the bottom 40 percent. Hence along with the universal child grant scenarios (Sc 3a, Sc 3b), Sc 7 also does not have a good targeting. (See Annex 2 b for results). Among all the scenarios, the targeting is worse for Sc 5 and Sc 6 which are targeting randomly selected group of employees (that are assumed to be unemployed). For Sc 5, that provides cash grants for waged employees – 20 percent of whom are randomly selected to be unemployed-, only 19.7 percent and for Sc 6 that provides cash grants for the self-employed – 20 percent of whom are randomly selected to be unemployed-, only 19.9 percent of the total benefit ends up in the bottom 40 percent.

Fiscal Costs and Cost Effectiveness

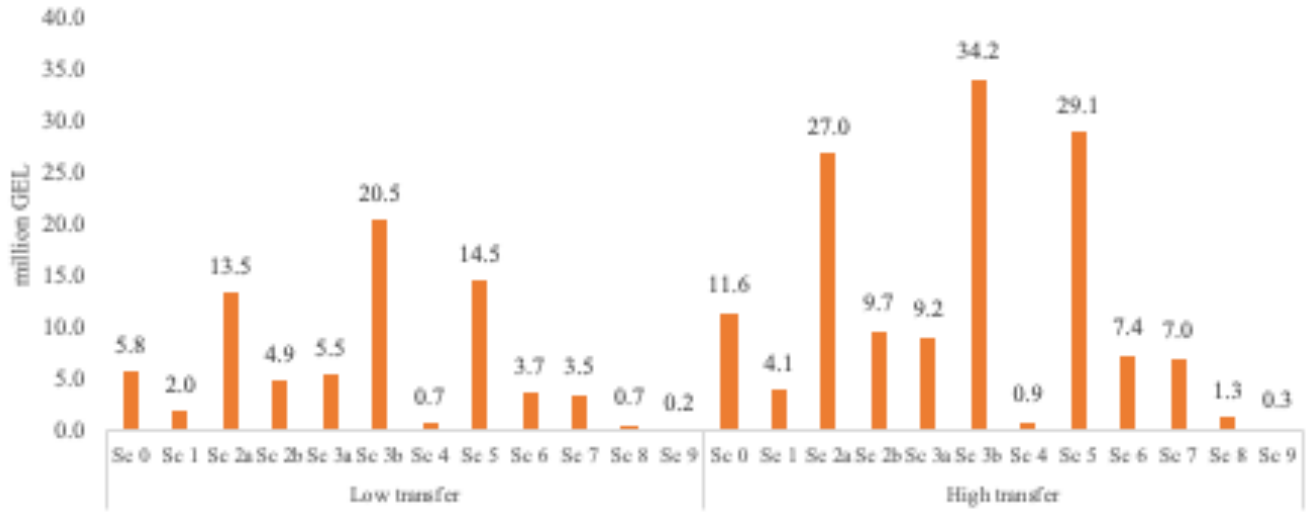
Universal child grant to all children younger than 18 years old (Sc 3b) is the costliest scenario. In the case of transferring 30 GEL per child, this scenario costs 20.5 million GEL per month and when transferring 50 GEL, it costs 34.2 million GEL per month. This scenario is followed by the scenario targeting -assumed to be- unemployed waged employees (Sc 5) in terms of the total cost it generates. Sc 5 costs 14.5 million GEL a month when 100 GEL per employee is transferred and it costs 29.1 million GEL a month when 200 GEL per employee is transferred. While the former scenario targeting all children has the highest coverage (56.5 percent of the population) as well as the second highest poverty reduction (2.8 percentage points, with low transfer in the case of a low shock), which naturally causes it to be the costliest, the latter scenario has a comparatively lower coverage (15.6 percent of the population) and a low poverty reduction effect (0.7 percentage points, with low transfer in the case of a low shock) due to its ineffective targeting.

The least costly scenarios are the ones targeting a subgroup of the TSA beneficiaries, hence Sc 1 and Sc 4 or Sc 8 and 9 which are targeting very specific segments in the population and hence have very low coverages. Sc 1 costs 2 million GEL per month when 50 GEL is transferred per household and 4.1 million GEL per month when 100 GEL is transferred per household. Sc 9 is the least costly among all others, with 0.2 million GEL when 50 GEL is transferred per household and costs 0.3 million GEL when 100 GEL is transferred per household. Yet these scenarios are also among the ones with the lowest coverage and accordingly have the lowest poverty reduction impact.

27 While in most developing countries, a universal child grant tends to be automatically progressive, given the household demographics and distribution across quintiles, in Georgia it seems a universal child grant (as in Scenario 3b) would only reach 23.6% of the bottom quintile (20%) of the population, which is only mildly progressive. (See Annex Table 2b for a detailed Benefit Incidence Analysis for each scenario.)

Figure 4 Universal child grants (Sc 3b) is the most expensive scenario while the marginal scenarios (Sc 1, Sc 4, Sc 8 and Sc 9) are the least expensive ones

Total cost (million GEL)



Source: WMS 2017, weighted, authors' calculations

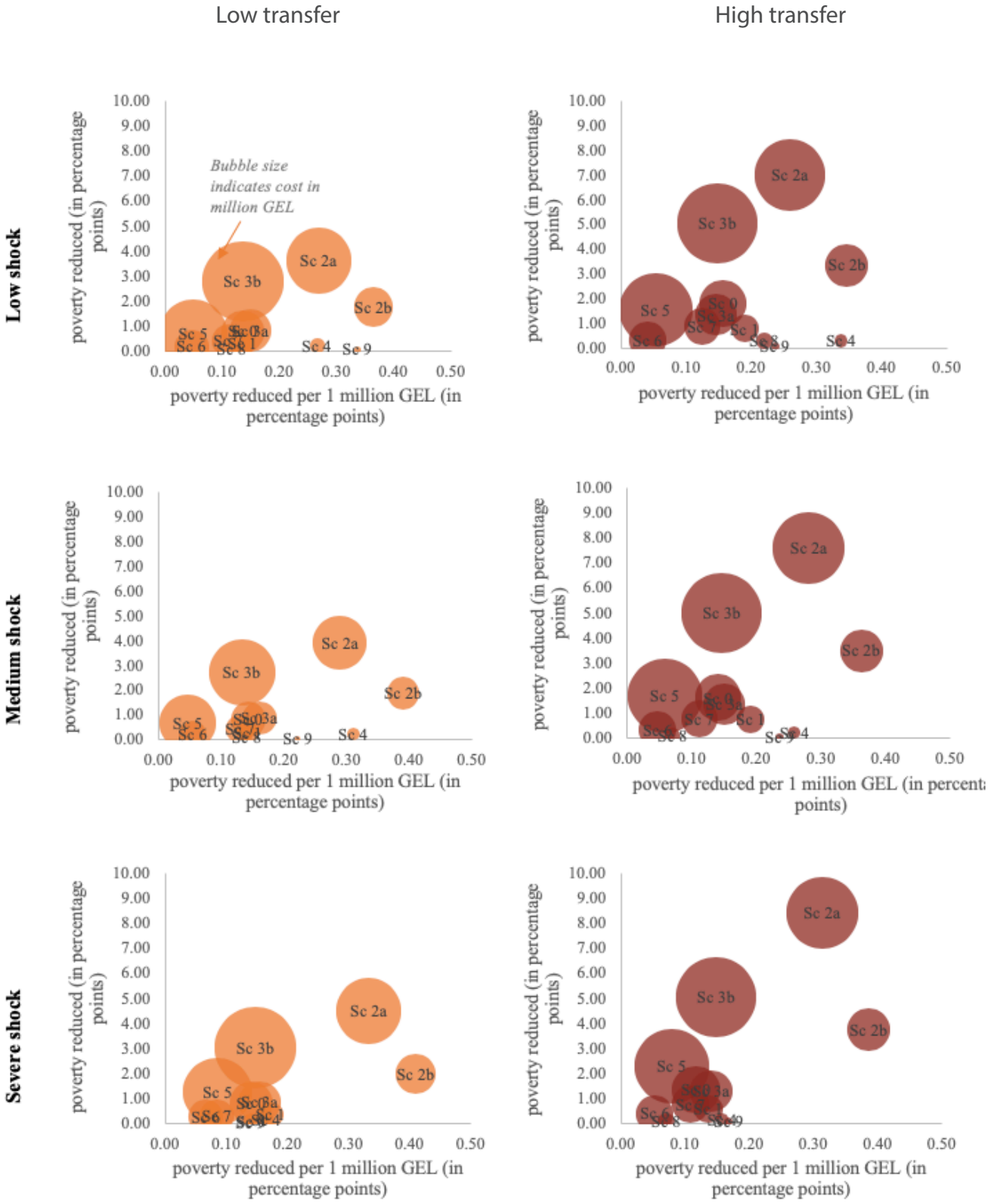
While all cash transfer scenarios lead to poverty reductions, some are more successful than others in reducing poverty. After all kinds of shocks (low, medium or severe), the scenario targeting the bottom 40 percent non-TSA households (Sc 2a) lead to highest poverty reduction rates whether it provides a low transfer or a high transfer (See Figure 5). Yet this scenario is also among the most expensive policy scenarios.

Some scenarios lead to higher poverty reduction with lower costs, and are, therefore, more cost-effective. Scenario 2b targeting the bottom 40 percent non-TSA households with children, turns out to be the most cost-effective scenario in terms of poverty reduced (in percentage points) per 1 million GEL spent for levels of the shock (See **Figure 5**). In terms of cost-effectiveness, Sc 2b is followed by Sc 2a, hence targeting all non-TSA households in the bottom 40 percent. And in some cases, depending on the shock and transfer level Sc 4 and Sc 9 also turn out to be cost-effective. Yet note that these marginal scenarios are cost-effective primarily due to them being very low coverage and hence low cost compared to other scenarios.

In general, **scenarios under 2** (2a, 2b) that provide benefits to those in the bottom 40% of the distribution and who are not TSA beneficiaries, provide more poverty reduction (in terms of headcount poverty) for each GEL spent and hence ***present the most cost-effective scenarios in terms of poverty reduction.*** They should be preferred to other more costly scenarios that bring about the same decrease in poverty levels, for instance, such as Scenario 0 (providing additional benefits to TSA beneficiaries).

Figure 5 All cash transfer scenarios lead to poverty reduction yet some scenarios are more cost-effective in terms of poverty reduced given the budget spent

Poverty reduction (in percentage points) vs percentage point poverty reduced per 1 million GEL (and total cost as bubble size – in million GEL)



Source: WMS 2017, weighted, authors' calculations

CONCLUSION

Georgia is combatting the COVID-19 pandemic for nearly five months now. COVID-19 pandemic is forecasted to have a serious economic impact on the economy in the country. 4.8 percent contraction in GDP is forecasted to occur because of the pandemic.[28] Vulnerability to poverty is already high in Georgia with households falling into poverty and escaping poverty in a dynamic way. 70 percent of the population fell under the 2.5 USD per day poverty line at least once between years 2009 and 2017.[29] Hence, given the already existing vulnerability of the households, the recession could lead many households to fall into poverty through job or labour income losses. The Government is currently addressing the economic challenges of households and businesses with an anti-crisis plan announced in April 2020.[30] The plan includes cash transfer measures to households along with many other measures.

This study estimated the possible impact of COVID-19 using a micro-simulation model and WMS 2017 dataset to shed light on the issue for policymakers. The potential impact of COVID-19 on households through the labour channel is modelled in this study by first categorizing working individuals and then households into COVID job vulnerability groups. Next, each COVID vulnerability household group was assigned a different income shock which then translates into a contraction in the household expenditure that, in turn, affects poverty of the households and inequality in the country.

Poverty and inequality increase across the country after the income shocks. As a result of the simulated income shock that is experienced conditional on households' COVID job vulnerability category, monthly per adult equivalent expenditure decreases for all households. Subsequently, from a baseline rate of 21.7 percent, poverty increases to 24.0 percent after a low shock, 26.0 percent after a medium shock and to 30.7 percent after a severe shock. Concurrently, extreme poverty rises to 5.7 percent after a low shock, 6.5 percent after a medium shock while it reaches 9.4 percent after a severe shock. Child poverty is estimated to increase to 30.8 percent after a low shock, 32.7 percent after a medium shock and 37.8 percent after a severe shock, up from a baseline child poverty rate of 27.6 percent. Poverty increases more in rural areas. In contrast, inequality does not increase much, and urban areas end up with higher inequality levels.

Cash transfers help alleviate poverty. Targeting the bottom 40 percent non-TSA households (Sc 2a) is the most successful strategy to reduce poverty. This is a function of the expenditure distribution with high levels of vulnerability to poverty and a high percentage of households just above the poverty line. In contrast, the marginal transfer scenarios (Sc 1, Sc4, Sc 8 and Sc 9) that target a small percent of the population are the least costly but least effective scenarios in terms of poverty reduction, mainly due to their low coverage. Universal child grants for 0-17-year-old children (Sc 3b) are poverty reducing and at a reasonable cost effectiveness level in terms of poverty reduced per million GEL spent, however they also represent the most expensive scenario.

28 World Bank 2020. The Global Economic Outlook During the COVID-19 Pandemic: A Changed World. Washington D.C.: World Bank Retrieved from: *https://www.worldbank.org/en/publication/global-economic-prospects#firstLink11645*

29 Estimated by looking at the panel sample of households followed by the five rounds of WMS data collected by UNICEF. Source: UNICEF 2019. A Detailed Analysis of Targeted Social Assistance and Child Poverty and Simulations of The Poverty-Reducing Effects of Social Transfers

30 *https://agenda.ge/en/news/2020/1273*

Levels of the cash transfers matter. In the case of a low shock, Sc 2a and Sc 3b manage to return to baseline poverty rates while in the case of a high transfer Sc 2b also manages this impact. Yet, with higher levels of shocks, low transfer scenarios are not enough to turn back to the baseline poverty rate, and in the case of a severe shock, neither low transfer nor high transfer scenarios are enough to return to the initial poverty rate. The universal child grants for 0-17-year-olds can achieve a return to the baseline poverty rate for children. None of the other models can achieve this. Hence higher levels of transfers would be needed to bounce back to initial levels of poverty in the case of more severe shocks.

LIMITATIONS OF THE MODEL

The microsimulation model presented in this report is built for purposes of policy discussion. Rather than being a definitive prediction for how poverty is going to change in Georgia, it is meant to illustrate how the COVID shock may impact different types of households and how specific policy scenarios can reduce the negative impact of the shock.

As in any microsimulation model, there are strong assumptions here, and we transparently highlight these in the methodology section of this report. Of these assumptions, the strongest one is how the levels of the shock are assigned to different categories of households. In the absence of sectoral data on employment at the household level, we are unable to use macroeconomic sectoral growth rates to translate reductions in macro growth parameters by sector to a household level shock. Instead, the model assigns (making some assumptions on the strength of the shock) different rates of reduction in labour income to different categories of the vulnerability of households. These income reduction assumptions (presented in Table 5) become inputs on the model and have a strong bearing on the poverty change estimates presented. Another strong assumption in the microsimulation model is the allocation of the Jobs and Skills Vulnerability index at the household and then individual levels. The steps in the calculation of this index are explained thoroughly in the methodology section of the report. Still, it should be clear that the inputs defined here are somewhat arbitrary and that the authors mainly strive to simplify the complexities of the labour market by allocating groups to certain vulnerability categories and hence determining/simplifying the inputs in the model.

Given that the results are sensitive to these assumptions, we suggest that the model, rather than being used as a definitive guide for estimating new poverty levels, should be used to illustrate the distributional impact and changes in poverty under different levels of the shock. This way, it can serve as a tool for discussions of how cash transfers can be used for mitigating the impact of the shock. The overall distributional impact of the cash transfer scenarios and the comparisons looking at cost-effectiveness is still valid, despite the strong assumptions in the setting up of the microsimulation.

Another limitation of this report is that it was prepared as a rapid simulation exercise, and the analysis was completed within a very short period and mainly looking at one data source. The report hence only considers the simulation model and the cash transfer scenarios as the main policy options. At the same time, other medium to long term policies can also be considered for mitigating the impact of COVID-19. This microsimulation exercise only looks at the short-term effects of the crisis and also the short term and static poverty impact of several cash transfer scenarios. The model does not take into account any dynamic and secondary effects that may arise through changes in the labour market or through adjustments in consumption patterns.

Despite these limitations, the authors hope that the analysis presented here can still be useful as a tool to expand discussions on targeting of social assistance and poverty alleviation strategies in Georgia in the post-COVID era.

ANNEXES

Annex 1: About Data and Methodology

Annex 1a: Variables used in WMS 2017 for predicting Job Vulnerability

A10	**Achieved education level** *(see codes)*								

A10. Achieved education level

1. Illiterate;
2. Incomplete secondary;
3. School student;
4. Secondary
1. Vocational;
2. Incomplete higher (ceased higher education);
3. A student of higher educationa institution;
4. Higher.

A11	**During last week was he/she employed, even only for one hour?** 1=Yes, 2=No > **A13**								
A12	**What type of the job was it?** (see codes) > **A12**								

A12. Employment (activities)

1. Worked in a private or public (budgeratery) institution/organization on salary or earning;
2. Worked on his/her own landplot/took care of own livestock, poultry;
3. Had a temporary, non-agricultural job with remuneration (loader, nanny, nurse.);
4. Did agricultural work (spading, hoeiing, shepherding etc.) With cash remuneration;
5. Had a temporary job with remuneration in kind (food/goods/boarging);
6. Worked individually
   - As a craftsman (carpenter, mason, painter, plumber, electrician, mechanic, blacksmith, etc.);
   - S a trader, broker;
   - As a hairdresser, barber;
   - Engaged in transportation of passengers or cargo by own xar/bus/truck;
   - Engaged in sewing, knitting, embriodery, shoe-making, etc.);
7. Was engaged in individual professional activity (tutoring, private medical practice, etc.);
8. Hunted/fished, gathered mushrooms, berries, chestnuts and other forest fruit for own consumption or selling;
9. Produced hand-made things for selling;
10. Gathered scrap metal, bottles for changing them for money at respective reception points;
11. Was engaged in other activitiy (*indicate*).....
12. Has a job, but could not work during past 7 days because of illness, eave, study, temporary shutdown of the industry, weather or other reasons;
13. Was engaged in building/refurbishing of own living or agricultural facilities (property);
14. Was engaged in processing of own agricultural products (milling cereals, wine-making, cheese, butter making, canning food, etc.) For own consumption or for sale;
15. Was engaged in without pay activity in a factory or home business belonged to his/her household or was engaged in no pay activity for neightboor or relative.

Annex 1b: About the Consumption Aggregate and Adult Equivalence Scales:

Consumption aggregate and the adult equivalence scale and the per adult equivalent consumption which is calculated by dividing the former by the latter have been used as provided and already calculated in the WMS dataset.

A methodology note explaining the calculation of these are provided to us.

According to the methodology note, for calculation of the number of equivalent adults the following table, used by National Statistics Office of Georgia , was applied:

Table 1 Adult equivalence scale

Age	Gender	Equivalent Adult coefficient
<8		0.64
>=8 and <16		1
>=16 and <65	Male	1
>=16 and <60	Female	0.84
>=65	Male	0.88
>=60	Female	0.76

The scale effect exponent was set to 0.8, as done by National Statistics Office of Georgia.

As stated in the methodology note, the total per month consumption expenditure of a household is calculated according to the following formula:

$$C = F12 + E + J1 + J3 + J4 + J5$$

Here ***C*** is the total consumption expenditure of the household, while F12 is health care expenditure per month, E is education expenditure per month, J1 is long-term non-food expenditure per month, J3 is food expenditure in the household per month, J4 is food expenditure outside home per month and J5 – is current non-food expenditure per month.

Annex 1c: Regression for income elasticity

Monthly labour income loss is translated into a decrease in monthly household expenditure by looking at the income elasticity of households in the dataset using the following regression:

$$\ln(\text{household expenditure}) = \beta_0 + \beta_1 \ln(\text{household labour income}) + \beta_2 \text{household size} + \beta_3 \text{location (urban-rural)} + \beta_4 \text{location (Tbilisi-non-Tbilisi)}$$

Note that monthly household labour income is 0 for 2078 households in the dataset.

Table 1 Regression results

VARIABLES	Ln (total expenditure)
Ln (labour income)	0.356***
	(0.0194)
Location (Tbilisi/non-Tbilisi)	-0.0229
	(0.0422)
Household size	0.0924***
	(0.00776)
Location (urban/rural)	-0.0339
	(0.0301)
Constant	4.060***
	(0.115)
Observations	2,619
R-squared	0.298

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Annex 1d: Variables used in WMS 2017 for targeting of social assistance and cash transfers

TSA receivers in the analysis are assumed to be those who answered "Yes" to G10_1.

G10. What types of social assistance do you or your family member receive now or received during the last year? (*Several answers are possible*)

Cash assistance from the program of vulnerable families (TSA)	1
Health insurance from the program of vulnerable families	2
Various benefits (on transport, energy, education etc.) from the program of vulnerable families	3
Social assistance to single pensioners	4
Social assistance to the blind	5
Social assistance to orphans having lost both parents	6
Social assistance to children with disabilities	7
Social assistance to multi-children single parents	8
Reintegration and prevention;	9
Food assistance	10
Assistance with diesel oil	11
Assistance with clothes	12
Assistance with schoolbooks	13
Other non-cash assistance	14
Other Municipality assistance ***(Specify)*** _____	
OTHER *(SPECIFY)*_____	
Difficult to answer	99
Refusal	88

A21 What is your family's ranking score right now? *(Mark the interval which is the appropriate for the household)*

0-30 000	1	
30 001 – 57 000	2	
57 001 – 60 000	3	→ **A21a**
60 001 – 65 000	4	
65 001 – 100 000	5	
100 001 and more	6	
Has not been calculated yet	66	→ **A22**
Difficult to answer	99	
Refusal	88	

ANNEX 2: RESULTS TABLES

Annex 2a Impact of the labour income shock on poverty and inequality

Table 1 Poverty and inequality in the baseline and after each shock

	Overall				Urban				Rural			
	Baseline	After Low Shock	After Medium Shock	After Severe Shock	Baseline	After Low Shock	After Medium Shock	After Severe Shock	Baseline	After Low Shock	After Medium Shock	After Severe Shock
Poverty line 1.25 USD per day (83 GEL per month)												
P0	5.0	5.7	6.5	9.4	5.4	6.0	6.2	8.7	4.6	5.4	6.8	10.1
P1	1.5	1.8	2.0	2.9	1.7	2.0	2.2	3.0	1.4	1.6	1.8	2.8
P2	0.8	0.9	1.0	1.4	0.9	1.0	1.2	1.5	0.7	0.8	0.9	1.3
Child Poverty	6.8	7.7	8.6	12.3	7.5	8.2	8.3	11.2	6.2	7.2	8.8	13.2
Gini Coefficient	35.5	35.8	36.1	36.9	35.1	35.5	35.8	36.7	35.1	35.3	35.5	36.0
Poverty line: 2.5 USD per day (166 GEL per month)												
P0	21.7	24.0	26.0	30.7	19.5	21.5	22.4	25.9	23.8	26.5	29.5	35.3
P1	7.0	8.1	8.9	11.3	6.6	7.6	8.2	10.2	7.4	8.6	9.6	12.5
P2	3.4	4.0	4.4	5.9	3.3	3.9	4.3	5.5	3.4	4.0	4.5	6.2
Child Poverty	27.6	30.8	32.7	37.8	25.5	28.9	29.2	33.1	29.5	32.6	36.0	42.3
Gini Coefficient	35.5	35.8	36.1	36.9	35.1	35.5	35.8	36.7	35.1	35.3	35.5	36.0
Poverty line: 5.5 USD per day (364 GEL per month)												
P0	65.2	68.6	70.6	75.3	58.7	62.0	64.3	69.2	71.6	75.0	76.7	81.2
P1	28.3	30.3	31.7	35.7	25.1	26.8	28.0	31.4	31.3	33.7	35.4	39.9
P2	15.7	17.2	18.3	21.3	14.1	15.3	16.2	18.7	17.3	19.0	20.3	23.9
Child Poverty	71.5	74.4	76.2	80.4	64.2	67.4	70.0	74.5	78.5	81.0	82.0	85.9
Gini Coefficient	35.5	35.8	36.1	36.9	35.1	35.5	35.8	36.7	35.1	35.3	35.5	36.0

Source: WMS 2017, weighted, authors' calculations

Annex 2b Outcomes after the cash transfers

Table 1 Outcomes of cash transfer scenarios when transfers are distributed after a low shock

			Low transfer												Hight transfer									
	Baseline	After Low Shock	Sc 0	Sc 1	Sc 2a	Sc 2b	Sc 3a	Sc 3b	Sc 4	Sc 5	Sc 6	Sc 7	Sc 8	Sc 9	Sc 0	Sc 1	Sc 2a	Sc 2b	Sc 3a	Sc 3b	Sc 4	Sc 5	Sc 6	Sc 7	Sc 8	Sc 9
Poverty and Inequality																										
P0	21.7	24.0	23.2	23.7	20.4	22.2	23.2	21.2	23.8	23.3	23.8	23.6	23.9	23.9	22.2	23.2	17.0	20.6	22.7	18.9	23.7	22.5	23.7	23.1	23.7	23.9
P1	7.0	8.1	7.4	7.8	6.4	7.4	7.7	6.6	8.0	7.7	8.0	7.9	8.0	8.1	6.8	7.5	5.3	6.8	7.4	5.7	8.0	7.6	8.0	7.7	7.9	8.1
P2	3.4	4.0	3.4	3.7	3.0	3.6	3.7	3.0	3.9	3.8	3.9	3.8	3.9	3.9	3.1	3.5	2.4	3.3	3.5	2.5	3.8	3.7	3.9	3.7	3.8	3.9
Child poverty (0-15 year olds)	27.6	30.8	30.1	30.4	27.2	27.2	29.1	24.7	30.6	30.0	30.5	30.4	30.6	30.7	28.7	29.3	24.0	24.0	28.2	20.3	30.5	29.0	30.3	29.9	30.2	30.7
Gini	35.5	35.8	35.2	35.6	34.3	35.2	35.5	34.6	35.7	35.7	35.8	35.6	35.7	35.8	34.8	35.3	32.9	34.6	35.3	33.8	35.7	35.8	35.8	35.4	35.6	35.8
Coverage																										
Population Coverage	.	.	12.0	5.4	28.0	15.3	24.0	56.5	2.0	15.6	3.1	5.2	2.6	0.4	12.0	5.4	28.0	15.3	24.0	56.5	2.0	15.6	3.1	5.2	2.6	0.4
Coverage of children (0-17 year olds)	.	.	17.5	9.5	29.8	27.8	43.7	100.0	4.3	15.7	3.7	4.8	6.7	0.7	17.5	9.5	29.8	27.8	43.7	100.0	4.3	15.7	3.7	4.8	6.7	0.7
Q1	.	.	33.9	15.9	66.1	36.3	29.9	66.8	7.1	8.5	1.8	7.0	7.8	0.8	33.9	15.9	66.1	36.3	29.9	66.8	7.1	8.5	1.8	7.0	7.8	0.8
Q2	.	.	15.9	7.8	84.1	45.8	26.8	62.4	2.1	9.6	1.3	6.3	3.6	0.7	15.9	7.8	84.1	45.8	26.8	62.4	2.1	9.6	1.3	6.3	3.6	0.7
Q3	.	.	9.1	3.3	0.0	0.0	23.7	55.9	1.3	14.5	3.3	7.5	1.3	0.5	9.1	3.3	0.0	0.0	23.7	55.9	1.3	14.5	3.3	7.5	1.3	0.5
Q4	.	.	3.7	1.0	0.0	0.0	20.4	52.9	0.2	20.3	4.3	3.9	0.5	0.2	3.7	1.0	0.0	0.0	20.4	52.9	0.2	20.3	4.3	3.9	0.5	0.2
Q5	.	.	0.9	0.4	0.0	0.0	20.4	46.8	0.1	23.0	4.5	1.8	0.5	0.0	0.9	0.4	0.0	0.0	20.4	46.8	0.1	23.0	4.5	1.8	0.5	0.0
Bottom 40%	.	.	24.8	11.8	75.2	41.1	28.3	64.6	4.6	9.0	1.5	6.6	5.7	0.8	24.8	11.8	75.2	41.1	28.3	64.6	4.6	9.0	1.5	6.6	5.7	0.8
Benefit incidence																										
Q1	.	.	46.5	55.1	43.1	43.9	22.3	23.6	62.7	10.2	10.4	24.2	56.5	32.1	46.5	55.1	43.1	43.9	22.3	23.6	62.7	10.2	10.4	24.2	56.5	32.1
Q2	.	.	23.4	26.3	56.9	56.1	20.3	20.8	20.8	9.4	9.5	22.6	24.8	33.0	23.4	26.3	56.9	56.1	20.3	20.8	20.8	9.4	9.5	22.6	24.8	33.0
Q3	.	.	17.2	12.1	0.0	0.0	19.7	19.2	13.4	16.8	21.7	29.0	11.7	23.3	17.2	12.1	0.0	0.0	19.7	19.2	13.4	16.8	21.7	29.0	11.7	23.3
Q4	.	.	10.2	4.1	0.0	0.0	16.9	18.5	2.3	25.8	25.4	15.6	3.3	11.6	10.2	4.1	0.0	0.0	16.9	18.5	2.3	25.8	25.4	15.6	3.3	11.6
Q5	.	.	2.7	2.4	0.0	0.0	20.7	17.9	0.8	37.7	33.0	8.6	3.7	0.0	2.7	2.4	0.0	0.0	20.7	17.9	0.8	37.7	33.0	8.6	3.7	0.0
Bottom 40% or TSA beneficiary	.	.	100.0	100.0	100.0	100.0	46.0	47.3	100.0	21.3	20.1	56.8	93.5	75.3	100.0	100.0	100.0	100.0	46.0	47.3	100.0	21.3	20.1	56.8	93.5	75.3
Costs																										
Average hh transfer	.	.	50.0	50.0	50.0	50.0	37.7	52.9	51.1	109.1	154.1	63.1	50.0	50.0	100.0	100.0	100.0	100.0	62.8	88.2	61.3	218.3	308.3	126.3	100.0	100.0
Average pc transfer	.	.	20.9	12.4	20.0	9.9	6.9	10.6	12.4	32.7	43.0	22.8	7.8	12.0	41.7	24.8	40.1	19.9	11.5	17.6	14.9	65.4	85.9	45.6	15.5	23.9
Cost per child reached (0-17 year olds)	.	.	48.2	31.2	66.4	25.5	18.4	30.0	24.4	135.5	146.5	106.9	14.3	33.6	96.4	62.5	132.7	51.0	30.7	50.0	29.3	270.9	292.9	213.7	28.5	67.1
Cost per person reached	.	.	13.9	10.9	13.9	9.1	6.6	10.4	10.3	26.9	34.0	19.6	7.4	10.9	27.7	21.8	27.8	18.3	11.0	17.4	12.4	53.8	67.9	39.1	14.7	21.7
Total additional cost (million GEL)	.	.	5.8	2.0	13.5	4.9	5.5	20.5	0.7	14.5	3.7	3.5	0.7	0.2	11.6	4.1	27.0	9.7	9.2	34.2	0.9	29.1	7.4	7.0	1.3	0.3
Cost effectiveness																										
Poverty reduced per 1 million GEL (in percentage points)	.	.	0.14	0.14	0.27	0.36	0.15	0.14	0.27	0.05	0.05	0.11	0.12	0.34	0.16	0.19	0.26	0.35	0.15	0.15	0.34	0.05	0.04	0.12	0.22	0.24
Poverty gap reduced per 1 million GEL (in percentage points)	.	.	0.13	0.16	0.13	0.15	0.08	0.08	0.18	0.03	0.03	0.07	0.19	0.12	0.12	0.15	0.11	0.14	0.08	0.07	0.18	0.02	0.02	0.06	0.19	0.10
Child Poverty reduced per 1 million GEL (in percentage points)	.	.	0.09	0.12	0.07	0.08	0.05	0.05	0.13	0.01	0.02	0.05	0.15	0.07	0.08	0.11	0.06	0.07	0.05	0.04	0.13	0.01	0.01	0.04	0.14	0.06

Source: WMS 2017, weighted, authors' calculations

Table 2 Outcomes of cash transfer scenarios when transfers are distributed after a medium shock

			Low transfer												Hight transfer									
	Baseline	After Medium Shock	Sc 0	Sc 1	Sc 2a	Sc 2b	Sc 3a	Sc 3b	Sc 4	Sc 5	Sc 6	Sc 7	Sc 8	Sc 9	Sc 0	Sc 1	Sc 2a	Sc 2b	Sc 3a	Sc 3b	Sc 4	Sc 5	Sc 6	Sc 7	Sc 8	Sc 9
Poverty and Inequality																										
P0	21.7	26.0	25.2	25.7	22.1	24.1	25.1	23.3	25.8	25.3	25.8	25.5	25.9	26.0	24.4	25.2	18.4	22.5	24.6	21.0	25.8	24.3	25.6	25.2	25.9	25.9
P1	7.0	8.9	8.1	8.6	7.1	8.1	8.4	7.2	8.8	8.5	8.8	8.6	8.8	8.9	7.5	8.3	5.8	7.5	8.1	6.3	8.8	8.4	8.7	8.4	8.7	8.9
P2	3.4	4.4	3.8	4.1	3.3	4.0	4.1	3.3	4.3	4.2	4.3	4.2	4.3	4.4	3.4	3.9	2.7	3.6	3.9	2.8	4.3	4.1	4.3	4.1	4.2	4.4
Child poverty (0-15 year olds)	27.6	32.7	32.0	32.2	28.9	28.9	31.1	27.0	32.5	32.0	32.4	32.1	32.5	32.6	31.0	31.3	25.7	25.7	30.0	22.4	32.5	30.8	32.2	31.8	32.5	32.6
Gini	35.5	36.1	35.5	35.8	34.5	35.4	35.7	34.8	36.0	36.0	36.0	35.8	36.0	36.1	35.0	35.6	33.0	34.8	35.5	34.0	36.0	36.1	36.0	35.6	35.9	36.0
Coverage																										
Population Coverage	.	.	12.0	5.4	28.0	15.3	24.0	56.5	2.0	15.6	3.1	5.2	2.6	0.4	12.0	5.4	28.0	15.3	24.0	56.5	2.0	15.6	3.1	5.2	2.6	0.4
Coverage of children (0-17 year olds)	.	.	17.5	9.5	29.8	27.8	43.7	100.0	4.3	15.7	3.7	4.8	6.7	0.7	17.5	9.5	29.8	27.8	43.7	100.0	4.3	15.7	3.7	4.8	6.7	0.7
Q1	.	.	33.9	15.9	66.1	36.3	29.9	66.8	7.1	8.5	1.8	7.0	7.8	0.8	33.9	15.9	66.1	36.3	29.9	66.8	7.1	8.5	1.8	7.0	7.8	0.8
Q2	.	.	15.9	7.8	84.1	45.8	26.8	62.4	2.1	9.6	1.3	6.3	3.6	0.7	15.9	7.8	84.1	45.8	26.8	62.4	2.1	9.6	1.3	6.3	3.6	0.7
Q3	.	.	9.1	3.3	0.0	0.0	23.7	55.9	1.3	14.5	3.3	7.5	1.3	0.5	9.1	3.3	0.0	0.0	23.7	55.9	1.3	14.5	3.3	7.5	1.3	0.5
Q4	.	.	3.7	1.0	0.0	0.0	20.4	52.9	0.2	20.3	4.3	3.9	0.5	0.2	3.7	1.0	0.0	0.0	20.4	52.9	0.2	20.3	4.3	3.9	0.5	0.2
Q5	.	.	0.9	0.4	0.0	0.0	20.4	46.8	0.1	23.0	4.5	1.8	0.5	0.0	0.9	0.4	0.0	0.0	20.4	46.8	0.1	23.0	4.5	1.8	0.5	0.0
Bottom 40%	.	.	24.8	11.8	75.2	41.1	28.3	64.6	4.6	9.0	1.5	6.6	5.7	0.8	24.8	11.8	75.2	41.1	28.3	64.6	4.6	9.0	1.5	6.6	5.7	0.8
Benefit incidence																										
Q1	.	.	46.5	55.1	43.1	43.9	22.3	23.6	62.7	10.2	10.4	24.2	56.5	32.1	46.5	55.1	43.1	43.9	22.3	23.6	62.7	10.2	10.4	24.2	56.5	32.1
Q2	.	.	23.4	26.3	56.9	56.1	20.3	20.8	20.8	9.4	9.5	22.6	24.8	33.0	23.4	26.3	56.9	56.1	20.3	20.8	20.8	9.4	9.5	22.6	24.8	33.0
Q3	.	.	17.2	12.1	0.0	0.0	19.7	19.2	13.4	16.8	21.7	29.0	11.7	23.3	17.2	12.1	0.0	0.0	19.7	19.2	13.4	16.8	21.7	29.0	11.7	23.3
Q4	.	.	10.2	4.1	0.0	0.0	16.9	18.5	2.3	25.8	25.4	15.6	3.3	11.6	10.2	4.1	0.0	0.0	16.9	18.5	2.3	25.8	25.4	15.6	3.3	11.6
Q5	.	.	2.7	2.4	0.0	0.0	20.7	17.9	0.8	37.7	33.0	8.6	3.7	0.0	2.7	2.4	0.0	0.0	20.7	17.9	0.8	37.7	33.0	8.6	3.7	0.0
Bottom 40% or TSA beneficiary	.	.	100.0	100.0	100.0	100.0	46.0	47.3	100.0	21.3	20.1	56.8	93.5	75.3	100.0	100.0	100.0	100.0	46.0	47.3	100.0	21.3	20.1	56.8	93.5	75.3
Costs																										
Average hh transfer	.	.	50.0	50.0	50.0	50.0	37.7	52.9	51.1	109.1	154.1	63.1	50.0	50.0	100.0	100.0	100.0	100.0	62.8	88.2	61.3	218.3	308.3	126.3	100.0	100.0
Average pc transfer	.	.	20.9	12.4	20.0	9.9	6.9	10.6	12.4	32.7	43.0	22.8	7.8	12.0	41.7	24.8	40.1	19.9	11.5	17.6	14.9	65.4	85.9	45.6	15.5	23.9
Cost per child reached (0-17 year olds)	.	.	48.2	31.2	66.4	25.5	18.4	30.0	24.4	135.5	146.5	106.9	14.3	33.6	96.4	62.5	132.7	51.0	30.7	50.0	29.3	270.9	292.9	213.7	28.5	67.1
Cost per person reached	.	.	13.9	10.9	13.9	9.1	6.6	10.4	10.3	26.9	34.0	19.6	7.4	10.9	27.7	21.8	27.8	18.3	11.0	17.4	12.4	53.8	67.9	39.1	14.7	21.7
Total additional cost (million GEL)	.	.	5.8	2.0	13.5	4.9	5.5	20.5	0.7	14.5	3.7	3.5	0.7	0.2	11.6	4.1	27.0	9.7	9.2	34.2	0.9	29.1	7.4	7.0	1.3	0.3
Cost effectiveness																										
Poverty reduced per 1 million GEL (in percentage points)			0.14	0.14	0.29	0.39	0.16	0.13	0.31	0.05	0.05	0.13	0.14	0.22	0.14	0.19	0.28	0.36	0.15	0.15	0.26	0.06	0.05	0.11	0.07	0.24
Poverty gap reduced per 1 million GEL (in percentage points)			0.13	0.17	0.14	0.16	0.09	0.08	0.19	0.03	0.03	0.08	0.20	0.12	0.12	0.16	0.12	0.15	0.08	0.08	0.19	0.02	0.02	0.07	0.20	0.11
Child Poverty reduced per 1 million GEL (in percentage points)			0.10	0.13	0.08	0.09	0.05	0.05	0.14	0.01	0.02	0.05	0.17	0.08	0.08	0.12	0.06	0.08	0.05	0.05	0.14	0.01	0.01	0.04	0.15	0.07

Table 3 Outcomes of cash transfer scenarios when transfers are distributed after a severe shock

			Low transfer												Hight transfer									
	Baseline	After Severe Shock	Sc 0	Sc 1	Sc 2a	Sc 2b	Sc 3a	Sc 3b	Sc 4	Sc 5	Sc 6	Sc 7	Sc 8	Sc 9	Sc 0	Sc 1	Sc 2a	Sc 2b	Sc 3a	Sc 3b	Sc 4	Sc 5	Sc 6	Sc 7	Sc 8	Sc 9
Poverty and Inequality																										
P0	21.7	30.7	29.8	30.3	26.2	28.7	29.8	27.6	30.5	29.4	30.4	30.4	30.6	30.6	29.3	30.1	22.2	26.9	29.4	25.6	30.5	28.4	30.3	29.9	30.6	30.6
P1	7.0	11.3	10.5	11.0	9.1	10.3	10.8	9.4	11.2	10.9	11.2	11.0	11.2	11.3	9.8	10.6	7.4	9.5	10.4	8.3	11.2	10.6	11.1	10.8	11.1	11.3
P2	3.4	5.9	5.2	5.5	4.4	5.3	5.5	4.5	5.8	5.6	5.8	5.6	5.7	5.9	4.7	5.3	3.6	4.8	5.3	3.8	5.7	5.5	5.7	5.5	5.6	5.8
Child poverty (0-15 year olds)	27.6	37.8	36.9	37.2	33.4	33.4	36.1	31.4	37.8	36.4	37.6	37.5	37.5	37.7	36.6	36.9	30.2	30.2	35.2	27.6	37.7	35.3	37.4	37.0	37.5	37.7
Gini	35.5	36.9	36.3	36.6	35.2	36.2	36.5	35.5	36.8	36.8	36.8	36.6	36.8	36.9	35.7	36.4	33.6	35.5	36.3	34.6	36.8	36.9	36.9	36.4	36.7	36.9
Coverage																										
Population Coverage	.	.	12.0	5.4	28.0	15.3	24.0	56.5	2.0	15.6	3.1	5.2	2.6	0.4	12.0	5.4	28.0	15.3	24.0	56.5	2.0	15.6	3.1	5.2	2.6	0.4
Coverage of children (0-17 year olds)	.	.	17.5	9.5	29.8	27.8	43.7	100.0	4.3	15.7	3.7	4.8	6.7	0.7	17.5	9.5	29.8	27.8	43.7	100.0	4.3	15.7	3.7	4.8	6.7	0.7
Q1	.	.	33.9	15.9	66.1	36.3	29.9	66.8	7.1	8.5	1.8	7.0	7.8	0.8	33.9	15.9	66.1	36.3	29.9	66.8	7.1	8.5	1.8	7.0	7.8	0.8
Q2	.	.	15.9	7.8	84.1	45.8	26.8	62.4	2.1	9.6	1.3	6.3	3.6	0.7	15.9	7.8	84.1	45.8	26.8	62.4	2.1	9.6	1.3	6.3	3.6	0.7
Q3	.	.	9.1	3.3	0.0	0.0	23.7	55.9	1.3	14.5	3.3	7.5	1.3	0.5	9.1	3.3	0.0	0.0	23.7	55.9	1.3	14.5	3.3	7.5	1.3	0.5
Q4	.	.	3.7	1.0	0.0	0.0	20.4	52.9	0.2	20.3	4.3	3.9	0.5	0.2	3.7	1.0	0.0	0.0	20.4	52.9	0.2	20.3	4.3	3.9	0.5	0.2
Q5	.	.	0.9	0.4	0.0	0.0	20.4	46.8	0.1	23.0	4.5	1.8	0.5	0.0	0.9	0.4	0.0	0.0	20.4	46.8	0.1	23.0	4.5	1.8	0.5	0.0
Bottom 40%	.	.	24.8	11.8	75.2	41.1	28.3	64.6	4.6	9.0	1.5	6.6	5.7	0.8	24.8	11.8	75.2	41.1	28.3	64.6	4.6	9.0	1.5	6.6	5.7	0.8
Benefit incidence																										
Q1	.	.	46.5	55.1	43.1	43.9	22.3	23.6	62.7	10.2	10.4	24.2	56.5	32.1	46.5	55.1	43.1	43.9	22.3	23.6	62.7	10.2	10.4	24.2	56.5	32.1
Q2	.	.	23.4	26.3	56.9	56.1	20.3	20.8	20.8	9.4	9.5	22.6	24.8	33.0	23.4	26.3	56.9	56.1	20.3	20.8	20.8	9.4	9.5	22.6	24.8	33.0
Q3	.	.	17.2	12.1	0.0	0.0	19.7	19.2	13.4	16.8	21.7	29.0	11.7	23.3	17.2	12.1	0.0	0.0	19.7	19.2	13.4	16.8	21.7	29.0	11.7	23.3
Q4	.	.	10.2	4.1	0.0	0.0	16.9	18.5	2.3	25.8	25.4	15.6	3.3	11.6	10.2	4.1	0.0	0.0	16.9	18.5	2.3	25.8	25.4	15.6	3.3	11.6
Q5	.	.	2.7	2.4	0.0	0.0	20.7	17.9	0.8	37.7	33.0	8.6	3.7	0.0	2.7	2.4	0.0	0.0	20.7	17.9	0.8	37.7	33.0	8.6	3.7	0.0
Bottom 40% or TSA beneficiary	.	.	100.0	100.0	100.0	100.0	46.0	47.3	100.0	21.3	20.1	56.8	93.5	75.3	100.0	100.0	100.0	100.0	46.0	47.3	100.0	21.3	20.1	56.8	93.5	75.3
Costs																										
Average hh transfer	.	.	50.0	50.0	50.0	50.0	37.7	52.9	51.1	109.1	154.1	63.1	50.0	50.0	100.0	100.0	100.0	100.0	62.8	88.2	61.3	218.3	308.3	126.3	100.0	100.0
Average pc transfer	.	.	20.9	12.4	20.0	9.9	6.9	10.6	12.4	32.7	43.0	22.8	7.8	12.0	41.7	24.8	40.1	19.9	11.5	17.6	14.9	65.4	85.9	45.6	15.5	23.9
Cost per child reached (0-17 year olds)	.	.	48.2	31.2	66.4	25.5	18.4	30.0	24.4	135.5	146.5	106.9	14.3	33.6	96.4	62.5	132.7	51.0	30.7	50.0	29.3	270.9	292.9	213.7	28.5	67.1
Cost per person reached	.	.	13.9	10.9	13.9	9.1	6.6	10.4	10.3	26.9	34.0	19.6	7.4	10.9	27.7	21.8	27.8	18.3	11.0	17.4	12.4	53.8	67.9	39.1	14.7	21.7
Total additional cost (million GEL)	.	.	5.8	2.0	13.5	4.9	5.5	20.5	0.7	14.5	3.7	3.5	0.7	0.2	11.6	4.1	27.0	9.7	9.2	34.2	0.9	29.1	7.4	7.0	1.3	0.3
Cost effectiveness																										
Poverty reduced per 1 million GEL (in percentage points)			0.14	0.17	0.33	0.41	0.15	0.15	0.16	0.09	0.07	0.08	0.14	0.14	0.12	0.14	0.31	0.39	0.14	0.15	0.16	0.08	0.05	0.11	0.07	0.17
Poverty gap reduced per 1 million GEL (in percentage points)			0.15	0.18	0.17	0.21	0.10	0.10	0.21	0.03	0.04	0.09	0.20	0.13	0.13	0.18	0.15	0.19	0.10	0.09	0.20	0.02	0.03	0.08	0.20	0.12
Child Poverty reduced per 1 million GEL (in percentage points)			0.12	0.16	0.11	0.12	0.07	0.07	0.17	0.02	0.03	0.07	0.19	0.10	0.10	0.14	0.09	0.11	0.07	0.06	0.17	0.01	0.02	0.05	0.18	0.09

Source: WMS 2017, weighted, authors' calculations

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