



## Final Report

# Estimating the Impact of COVID-19 on Monetary and Multidimensional Poverty in St Lucia using a Microsimulation Model

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Under LTA Number: 42106114

Submitted: October 19, 2020

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# Acknowledgements

This report was prepared for the UNICEF Eastern Caribbean Area Office under the project titled: “Modelling the Impact of COVID-19 on Household and Child Poverty in Saint Lucia” commissioned under LTA 42106114. The analysis and writing for the report were carried out in the period June - October, 2020. The report was prepared by two experts at Development Analytics, Dr Meltem Aran and Nazli Aktakke, with analytical inputs provided by Çağla Tabak and two experts from Oxford Poverty & Human Development Initiative (OPHI), Dr Mónica Pinilla-Roncancio and Dr. Ricardo Nogales. The report was commissioned and led on the UNICEF side by Marie-Christina Dankmeyer at the UNICEF Eastern Caribbean Area Office.

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](mailto:research@developmentanalytics.org)

## Interactive Model

The study is accompanied by an interactive microsimulation model which can be viewed at this link: <https://developmentanalytics.shinyapps.io/saintlucia-covid19/>

# Executive Summary

This report aims to provide estimates on the impact of COVID-19 on monetary and multi-dimensional poverty in St Lucia. The study was commissioned by UNICEF St Lucia and provides analysis results 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 compensation that can be provided to households using several cash transfer policy options and their possible impact.

## Data and Methodology

The study builds microsimulation models to estimate the monetary and multi-dimensional poverty impact of COVID-19 and uses the Survey of Living Conditions and Household Budgets (SLC-HBS) 2016 as the primary data source. The sample for SLC-HBS 2016 includes 1,493 households and is representative at the national level. The survey consists of two main modules, household and personal, and 19 sub-modules including: Food and non-food expenditure, health, education, economic activity, shocks and coping strategies.

The monetary microsimulation model focusses on three main transmission mechanisms of the negative impact of COVID-19 on households. These are (i) labour demand, (ii) labour supply and (iii) health expenditures shocks. As a result of the shock, households lose a proportion of their total household labour income, and this proportion is called as household income loss coefficient in the model and it is calculated using the before shock and the after shock total household labour income. The loss of household labour income is then mapped to a decrease in household expenditures through an income elasticity calculation, whereby expenditures are not reduced one-to-one with reductions in income but with the elasticity coefficient. 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. Last shock that hits the households in the model is the health expenditures shock which is randomly applied to individuals who are chronically ill and are not covered by health insurance. Hence these individuals are assumed to be hospitalized and incur health expenditures out of pocket which in turn leads to a decrease in the available resources to the household for other expenditures. For each shock two different impact levels are assumed (a mild and a severe shock). Following the estimation of after-shock household monthly expenditures, measures of poverty, child poverty and inequality in St Lucia are recalculated in the occurrence of a mild shock or a severe shock. In these calculations, the national poverty line of \$6,443 EC Dollars per person per year has been used. Once the negative shocks are applied to the households, and poverty, child poverty and inequality 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.

The strategy to evaluate the possible effects of COVID-19 on multidimensional poverty consists of simulating a random increase in specific deprivations in selected indicators that are

likely to be directly affected by i) the COVID-19 health emergency, and/or ii) the stringent policies aimed at containing the spread of the virus. Given the state of the pandemic as of August 2020, and after discussion with policy makers in St Lucia and with UNICEF- St Lucia, four out of 19 indicators included in the MPI were selected for simulation: (i) Food security, due to possible disruption of food supply chains (nationally and internationally), (ii) Long term unemployment, due to possible job destruction resulting from a severe economic downturn, which might last six months or more, (iii) Youth unemployment, due to possible job destruction concentrated among less experienced workers, (iv) Job quality among all employees, due to possible disruption in access to social and job-related benefits, even where jobs are not destroyed and Job quality among self-employed only, due to possible disruption and/or actively sought avoidance of costs related to social and job-related benefits, even where jobs are not destroyed. In addition to the analysis of these four indicators, an extended MPI was computed including the indicator of school attendance, in order to account for the possible increase in the deprivation of this indicator. To assign the shocks, first, the population subgroup prone to becoming deprived is selected and next randomly selected individuals are assigned the deprivation among the reference population. For each indicator two different impact levels are assumed again (a mild and a severe shock).

### **Results on COVID-19's Monetary Poverty Impact**

As a result of the simulated shocks that is experienced by individuals in the households, monthly per capita expenditure shrinks for households. The largest reduction in the per capita expenditure levels is generated by the labour demand shock (5.5 percent reduction in the occurrence of a mild shock and 11.1 percent reduction in the occurrence of a severe shock), followed by health expenditures shock (1.2 percent reduction in the occurrence of a mild shock and 2.2 percent reduction in the occurrence of a severe shock) and lastly labour supply shock (0.1 percent reduction in the occurrence of a mild shock and 0.3 percent reduction in the occurrence of a severe shock). When applied all together, the shocks lead to a 6.8 percent reduction in per capita expenditures in the occurrence of a mild shock and 13.4 percent reduction when the shock is severe, decreasing average per capita expenditures to 1092.4 ECD and 1015.5 ECD respectively from a baseline level of 1172.4 ECD.

Reductions in monthly household expenditure lead to significant increases in expenditure-based poverty. In the baseline 25.0 percent of the population is living below the national poverty line (i.e. \$6,443 EC Dollars per person per year or \$536.9 EC Dollars per month). When all the shocks are applied together, population poverty increases to 29.3 percent in the occurrence of a mild shock and to 35.1 percent in the occurrence of a severe shock. A similar impact can be observed for child poverty. In the baseline 34.5 percent of children (aged 0-17 years old) are living below the national poverty line. When the shocks are applied all at the same time, child poverty rate increases to 39.0 percent when the shock is mild and to 46.1 percent when it is severe.

Inequality also increases considerably after the shocks. Initially, the Gini index was calculated as 43.2 using households' monthly per capita expenditure levels. Overall, when all shocks are applied, Gini increases to 44.1 in the occurrence of a mild shock and to 45.0 in the occurrence of a severe shock.

### **Results on COVID-19's Multidimensional Poverty Impact**

Increased deprivations in job quality among employees are found to be the shocks generating the highest effects on the incidence of multidimensional poverty. In the severe scenario – which consists of this indicator's deprivation headcount ratio going from 18.2 to 54.7%, job quality

deterioration can result in almost 91% of the population being multidimensionally poor. Long-term unemployment and youth unemployment have the second and third highest effects on poverty incidence. The effects generated by increased deprivations in job quality among self-employed, the results show that they are considerably lower. These low overall effects are the reflection of a small fraction of the overall population at risk of being affected by this shock – as data shows that very few people (1.5% of the workforce) are self-employed according to the definition used in the national MPI for St Lucia.

Non-employment-related shocks are also insightful. Results show poverty incidence is not considerably affected by food security shocks, but to correctly interpret the result, it is important to note that data show that vast majority (more than 90%) of people who are prone to acquire this additional deprivation already live in multidimensional poverty. When it comes to schooling, in the mild scenario, where 12.7% of children stop attending school, the incidence of multidimensional poverty can rise from 83.6% to almost 85%. In the severe scenario, where 26.6% of children are out of school, the marginal further increase of poverty incidence is comparatively lower (up to 85.2%). This means that these deprivations tend to create newly poor people first, and then plays a poverty-exacerbating role.

### **Results of Cash Transfer Policy Scenarios**

After identifying household level shocks and re-estimating monetary poverty figures based on this model (after all three types of shocks are applied), 12 different cash transfer scenarios are modelled with three different transfer levels (transfer level 1, 2, 3) to combat the poverty impact of the COVID-19. Households are distributed a monthly cash transfer amount per household 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. 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 ECD spent). Among the 12 scenarios considered, targeting the bottom 40% creates the highest poverty reduction impact while the universal child grant for 0-17 years old children (Scenario 7) has the highest child poverty reduction impact. Yet these scenarios are also the most expensive ones, due to their high coverage.

When the aim is to reach before shock poverty rates, distributing high enough transfers gains importance. After a mild shock, the lowest cost scenarios to reach closest to the baseline poverty rate turn out to be Scenario 2a that targets families in the bottom 25% (that are not eligible under SL-NET 3.0), and Scenario 3 that targets households in the bottom 25% with children at transfer level 3 (i.e. 400 ECD per household) among all scenarios in all three transfer levels. Scenario 2a decreases the after shock poverty rate to 25.3 percent and Scenario 3 decreases it to 25.5 percent while the baseline poverty rate is 25.0 percent. The coverage of the cash transfers needs to be increased when the shock is more severe. In the occurrence of a severe shock, if the aim is to reach closest to the baseline poverty rate again, then Scenario 4 is the only option. Yet, even Scenario 4, the scenario with highest poverty reduction impact, achieves a poverty rate of 26.1 percent after a severe shock. Scenario 4a that targets households in the bottom 40% (that are not eligible under SLNET 3.0) is also among the scenarios that leads to highest poverty reduction after a severe shock while being the most cost effective or among the most cost effective scenarios depending on the transfer level.

# Introduction

**COVID-19 pandemic, along with 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.<sup>1</sup> ILO estimated that the pandemic will cause job losses equal to 195 million full-time jobs.<sup>2</sup> Due to the contraction in the economic activities an estimated 42-66 million children could fall into poverty.<sup>3</sup>

**Along with the rest of the world, St Lucia is currently dealing with the socio-economic challenges caused by the COVID-19 pandemic.** Although as of October 2020, the country experienced a total of only 27 cases and no COVID related deaths, economic impact of the pandemic is expected to be severe.<sup>4</sup> In 2020, the Latin America and Caribbean region as a whole is forecasted to have a 7.2 percent while St Lucia a 8.8 percent GDP contraction.<sup>5</sup> Poverty is already high in St Lucia with 25.0 percent of the population living under the national poverty line.<sup>6</sup> With the economic downturn caused by the COVID-19 crisis the poverty rates in the country could increase severely and the already poor might be affected the worst.

**Recent data collected by the Central Statistical Office shows that the pandemic already had a serious socio-economic impact on the households and the impact is more severe on the poor.** According to the first-round results of the nationally representative High Frequency Phone Survey (HFPS) collected by Central Statistical Office and the World Bank the pandemic had tremendous effect on the living conditions and livelihoods of households in St Lucia -as of May 2020.<sup>7</sup> 71.2 percent of the respondents reported that their household income decreased while this rate was 76.7 percent for the poor. Moreover, more than 40 percent of the respondents who were working prior to the pandemic reported not working at the time of the survey. Main reason for not working was business closure due to COVID-19. Especially the sectors wholesale, retail, restaurants, and hotel were affected by the pandemic according to the results of the HFPS. Food security of households was also at risk with around 30 percent of households reporting running out of food at least once in the 30-day period before the survey.

**This study estimates the monetary and non-monetary (i.e. multi-dimensional) poverty impact of the COVID-19 pandemic along with an estimation of the impact of possible cash transfer scenarios to alleviate the negative monetary poverty impact.** The study first models the possible impact of COVID-19 on household monetary and non-monetary poverty in Saint Lucia through various channels. Next, the monetary model is used to estimate the possible impact of cash transfers to alleviate the impoverishing effect. The rest of the report is structured in this way: in the Data & Methodology section, the data used for the analysis (SLC-HBS 2016) is described, and the methodology of the simulation models and the assumptions used are explained. This section is followed by the Results section explaining the findings of the models. Lastly, the report ends with the conclusions.

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<sup>1</sup>World Bank, 2020a

<sup>2</sup> ILO, 2020

<sup>3</sup> UN, 2020

<sup>4</sup> <https://www.covid19response.lc/>

<sup>5</sup> World Bank, 2020a

<sup>6</sup> Kairi Consultants, 2018

<sup>7</sup> World Bank, 2020b

The findings presented in this report are for illustrative purposes and rather than being a definitive prediction on changes in poverty, should be treated as an illustration of how certain shocks could lead to poverty and how 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 monetary and non-monetary poverty impact and to constructively discuss options for household assistance to reduce poverty.

## Data & Methodology

### Data

The Survey of Living Conditions and Household Budgetary Survey (SLC-HBS) was collected in St Lucia in 2016. The sample includes 1,493 households and is assumed to be representative at the national level. The survey provides crucial socio-economic and demographic information on the income, expenditure and living conditions of the population. The survey consists of two main modules, household and personal information, and 19 sub-modules including: Food and non-food expenditure, health, education, economic activity, shocks and coping strategies.

### Methodology

In this section, we outline the main steps taken in modelling the impact of COVID-19 on household monetary and non-monetary poverty in St Lucia and the cash transfers to alleviate the monetary poverty impact.

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

COVID-19 may affect communities through various channels ranging from health-related issues to economic instability. We focused on three main transmission mechanisms to show the monetary impact of COVID-19 on households. These are: (i) labour demand shock, (ii) labour supply shock, and (iii) health expenditures shock.

##### a. Labour Demand Shock

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COVID-19 may result in economic instability for businesses and hence labour demand might shrink either through a decrease in number of hours of work demanded or through a decrease in number of jobs due to business closures or lay-offs. Some particular types of jobs/sectors may be more vulnerable than others to this shock. In this respect we construct a labour income loss coefficient which ranges between 0% (no loss) and 100% (total loss of income, i.e. unemployment). The labour income loss coefficient is constructed using sector of employment and employment status of employed individuals.

In this respect, we first assign a prior income loss coefficient by sector to each working individual (See **Error! Reference source not found.**). The sectors (i) Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods, (ii) Transportation, storage and communication and (iii) Accommodation and Food Service were assumed to be hit the hardest, followed by construction and then agriculture sectors whereas those working in public administration and defence and education sectors were assumed to not



lose any of their labour income. We further assumed two levels of shock, mild and severe. In the mild shock, the assumed income loss is half the size of the severe shock.

**Table 1 Prior income loss coefficient based on sector of the main job of the individual**

Sector	Subsector (NACE Rev 2)	Income shock on wage workers (% labour income)- Mild	Income shock on wage workers (% labour income)- Severe
Agriculture	Agriculture, hunting, forestry and fishing	15	30
Manufacturing	Manufacturing	5	10
	Construction	20	40
Services	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	25	50
	Transportation, storage and communication	25	50
	Accommodation and Food Service Activities	25	50
	Public Administration and defence, comp	0	0
	Education	0	0
	Other service activities	5	10
	Activities not adequately defined	5	10

Next, the income loss is further amplified or reduced by the employment status of the individuals within each sector, hence an adjustment is made based on the employment status of the individual (See Table 2). In this respect, self-employed and unpaid family workers are assumed to be the most vulnerable in each sector in terms of labour income loss while regular waged employees who are working as government employees are assumed to be the least vulnerable (i.e. they will not lose any labour income). Regular waged employees working in the private sector and employers are assumed to have a vulnerability level in between these two groups and they will receive the shock as received by the sector since their employment status multiplier is 1.

**Table 2 Employment status multiplier**

Employment Status	Multiplier Coefficient
Regular employee (Wage and salary earner) – Government Employee	0
Regular employee (Wage and salary earner) – Other	1
Self-employed	2
Employer	1
Unpaid family worker	2
Other	1

Next, income loss coefficient is calculated for each employed individual by multiplying prior income loss coefficient with the employment status multiplier as follows<sup>8</sup>:

$$\text{Income loss coefficient} = \text{Sectoral income loss coefficient} \\ * \text{Employment status Multiplier}$$

Using this coefficient, the after-shock individual labour income is calculated for each employed person as follows:

<sup>8</sup> Example: If an individual is working in the sector “Wholesale and retail trade” as a self-employed person, her income loss coefficient is calculated as 25%\*2=50% in the occurrence of a mild shock and 50%\*2=100% in the occurrence of a severe shock. Hence, she will lose 50 percent of her labour income in the occurrence of a mild shock while she will be unemployed and lose all of her labour income in the occurrence of a severe shock.

$$\text{After labour demand shock individual labour income} = \text{Baseline labour income} * (1 - \text{Income loss coefficient})$$

Baseline labour income is calculated as multiplying the pay period with the reported salary income at the main job.<sup>9</sup> All the reported income is turned into monthly income. Hence it is multiplied by 30 when it is reported as daily, by 4 when reported as weekly, by 2 when reported as fortnightly, divided by 6 if reported as semi-annually and by 12 if reported as annually.

Baseline labour income was missing for 6 employed individuals in the dataset. For those individuals who do not have a reported income in the data, baseline labour income is imputed based on the following regression model:

#### *Baseline Labour Income*

$$= \beta_0 + \beta_1 \text{age} + \beta_2 \text{age}^2 + \beta_3 \text{employment status} + \beta_4 \text{sector} + \beta_5 \text{gender} + \beta_6 \text{education level completed} + u$$

Next, after shock total household labour income is calculated by adding up the total labour income of each individual after they receive the shock. This is calculated separately for each of the shock levels. **Then, as a result of the shock, households lose a proportion of their total household labour income which is calculated as follows:**

#### *Household Income Loss Coefficient*

$$= \frac{\text{Before Shock Household Labour Income} - \text{After Shock Household Labour Income}}{\text{Before Shock Household Labour Income}}$$

Household income loss coefficient is calculated for both the mild and the severe shock.

In most cases, loss in income is not equal to a one-to-one decline in expenditures and this ‘income elasticity’ is calculated using the cross-sectional data. Hence as a last step, decrease in household labour income leads to a decrease in household expenditures and the decrease in household expenditures is identified using income elasticities calculated using the baseline data. In this respect the decrease in monthly household expenditure is calculated using the following regression:

$$\begin{aligned} \ln(\text{household expenditure}) \\ = \beta_0 + \beta_1 \ln(\text{household labour income}) + \beta_2 \text{household size} \\ + \beta_3 \text{location (urban - rural)} \end{aligned}$$

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

$$\text{After Shock Household Expenditure} = (1 - \widehat{\beta}_1 * (\text{Household Income Loss Coefficient})) * \text{Baseline Household Expenditure}$$

where the household income loss coefficient ranges between 0 and 1 and changes based on mild or severe shock and types of sector and employment status of individuals in the household as depicted in Table 1 and Table 2 and  $\widehat{\beta}_1$  is calculated as 0.377 (See Annex 1a for the

<sup>9</sup> In SLC-HBS, labour income is collected with the question “How much did you receive in wages and salary - last pay period from main job (gross pay) - include overtime, tips and bonuses, income tax and NIS”.

regression results) which can be interpreted as a 100% reduction in household income being associated with a 37.7% reduction in household expenditures. The after-shock household expenditure is calculated separately for each level of the shock.

### **b. Labour Supply Shock**

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COVID-19 may result in the illness of household members, which will have implications on household income when the people who get sick are employed household members. In the model, labour supply shock is applied to employed individuals with chronic illness. The individuals who get sick are chosen randomly using a uniform distribution. The individuals who get sick are assumed to lose half of their monthly labour income assuming they will be not be able to work for two weeks.

Number of people to be affected change by the shock level (mild or severe). In the occurrence of a mild shock half of labour income is taken away from a randomly selected 5% of the chronically ill and employed while in the occurrence of a severe shock this proportion is increased to 10%.

In this respect, the after-shock individual labour income is calculated for the employed individuals receiving the shock as follows:

$$\text{After labour supply shock individual labour income} = \text{Baseline labour income} * 0.5$$

Next, after shock total household labour income is calculated by adding up the total labour income of each individual after they receive the shock. And the proportion of the total household labour income that is lost is calculated. Then total monthly household expenditure after the shock is recalculated again and is equal to:

$$\text{After Shock Household Expenditure} = (1 - \widehat{\beta}_1 * (\text{Household Income Loss Coefficient})) * \text{Baseline Household Expenditure}$$

### **c. Increase in Health Expenditures**

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COVID-19 could also result in an increase in health expenditures of the household, if the members get sick and need to be hospitalized and their costs are not covered by a health insurance. In the model, a randomly selected group of individuals who are chronically ill (could be of all ages) and without health insurance are assumed to get COVID-19 and stay in hospital for 8 days. Number of people to be affected change by the shock level (mild or severe). In the occurrence of a mild shock a randomly selected 5% of the chronically ill and without a health insurance are assumed to get sick and hospitalized and in the occurrence of a severe shock this proportion is increased to 10%.

The resulting increase in health expenditures result in a reduction of the overall consumption available to the household on other items – hence reduce the overall monetary welfare of the household and increase poverty rates.<sup>10</sup>

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<sup>10</sup> Unit cost assumptions on health care costs during hospital stays are based on ‘Estimates of Unit Costs for Patient Services for Saint Lucia’ as reported by WHO (<https://www.who.int/choice/country/lca/cost/en/>). Cost

Hence reduced household expenditure after shock through increased health expenditures is equal to:

$$\text{Household expenditure after shock} = \text{Baseline household expenditure} - \text{number of hospitalized individuals in the household} * \text{average hospital costs} * 8 \text{ days}$$

We also estimated the after shock household expenditures and poverty when multiple shocks hit the households at the same time. In this case, the shocks occur in the order presented here. Hence for instance for labour supply shock occurring after labour demand shock, “baseline labour income” in the equation becomes “after labour demand shock income”. And when the health expenditure shock is added, the total hospital costs is then subtracted from the household expenditure after the labour demand and labour supply shocks’ effects are calculated. Hence the shocks build on each other by taking the after shock values as the baseline.

After estimating the monthly household expenditure, the outcome variables like expenditure-based poverty, child poverty and inequality were recalculated in the occurrence of a mild or severe shock. For calculating poverty rates, an annualized poverty line of \$6,443 EC Dollars per person has been used.<sup>11</sup>

## 2. Simulating the Multidimensional Poverty (Increasing) Impact of COVID-19

### a. Measuring Multidimensional Poverty

Since 2016, the St Lucia Report on Living Conditions includes a monetary assessment of poverty complemented with a multidimensional approach to this concept (Kairi Consultants, 2018). The present report is aligned with this vision, and multidimensional poverty is measured by means of a Multidimensional Poverty Index (MPI) calculated using the Alkire-Foster dual cut-off counting approach method (Alkire & Foster, 2011).

The indicator definitions and some of the main parameters of the MPI for St Lucia are presented in Table 1. The MPI includes both objective and subjective indicators that complement each other to capture people’s livelihoods on a daily basis. Each dimension is given the same weight (one-fifth or 20% each) reflecting their equal relative importance to gauge poverty, and every indicator has the same weight within dimension.

The unit of identification is the household, which means that all household members are assigned identical deprivation status in every indicator. The unit of analysis, however, is the individual, and thus it is possible to assess overlapping deprivations suffered for each person in the dataset.

**Table 3 Structure of the SLC-HBS-MPI**

Dimension	Indicator	Deprivation cut-off
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per bed is reported as 103.48 ECD for primary level, 135.00 ECD for secondary level and 184.39 ECD for tertiary level at 2005 prices. These amounts are inflated to 2016 prices using inflation rate information as reported by The Central Statistical Office of Saint Lucia (<https://www.stats.gov.lc/subjects/economy/prices-and-price-indices/>) in the file “Inflation rate 1970 to 2019”. The rates from year 2006 to 2016 are as follows: 3.6, 2.8, 7.2, -0.2, 3.3, 2.8, 4.2, 1.5, 3.5, -1.0, -3.1. After the amounts are inflated average of these (179.1 ECD) is taken as the cost per day in the simulations.

<sup>11</sup>This poverty line was used to be in line with the results of the SLC-HBS 2016 Report “Saint Lucia National Report of Living Conditions 2016” as the report is using this poverty line as well (Kairi Consultants, 2018).

		<b>A person is deprived if they live in a household where...</b>	<b>Dimension weight</b>	<b>Indicator weight</b>
Education	Education attainment	no one aged 15 or older has completed as least secondary school		1/15
	ICT	there is no computer or internet connection	1/5	1/15
	Financial literacy/numeracy	no one has a bank account or a credit union account		1/15
Living Standards and Security	Assets	there are no more than four small assets <sup>a</sup> and not a single large asset <sup>b</sup>		1/30
	Housing	any part of the outer walls is made of plywood or other less durable material		1/30
	Toilet facility	there is no toilet facility of it consists of a pit latrine	1/5	1/30
	Overcrowding	there are more than 3 individuals per room		1/30
	Feeling safe	fear of crime is expressed		1/30
	Crime victim	a crime has been committed against any member or their property		1/30
Employment	Long term unemployment	any person aged 29 or older is not employed for more than six months		1/15
	Youth unemployment	any person aged 15-29 is not employed nor do they study	1/5	1/15
	Quality of employment	any working member is not employed in the formal sector		1/15
Health	Access to official health facility	any member was not able to use an official medical facility		1/20
	Full food security	they are moderately or extremely food insecure (i.e. they score 4 or higher in the raw FIES scale)	1/5	1/20
	Chronic illness	any member of the household has a chronic illness <sup>c</sup>		1/20
	Health insurance coverage	no one has health insurance		1/20
Environment and climate change vulnerability	Access to regular water supply	no water supply is received more than three times a week		1/15
	Home ownership insurance on dwelling unit	they did not pay dwelling related insurance in the last 12 months, they are not renting or do not live in a household with wall/roof	1/5	1/15
	Experience climate event	they experienced the effects of shock or climatic event in the past five years		1/15

<sup>a</sup> Small assets include TV, refrigerator, washing machine, stove, iron, air conditioner, telephone, computer, internet, exercise equipment, dryer, vacuum, heater, water tank, security device

<sup>b</sup> Large assets consists of any motor vehicle including car or motorcycle

<sup>c</sup> Chronic illness includes diabetes, high blood pressure, hypertension, asthma, cancer, or a heart condition.

Source: Kairi Consultants, 2018

The MPI is estimated following the Alkire and Foster method (2011) as follows:

- All individuals are assigned binary indicators for each indicator presented in Table 1. A unity value signals deprivation, and zero denotes absence of deprivation. The proportion of people deprived in each indicator is termed the **uncensored headcount ratio**.

- Individual deprivations are added up, weighted by their relative importance in the MPI for St Lucia (for details please see *Table 3*). This sum results in a **deprivation score** denoting the proportion of weighted deprivations suffered by each individual.
- A person is considered **multidimensionally poor** if she or he faces a proportion of weighted deprivation that is equal or greater than 20% of the possible deprivations. This poverty cut-off or multidimensional poverty line represents being deprived in the equivalent of one dimension or more in the structure of the MPI for St Lucia.
- Three aggregate measures are computed to gauge the amount of multidimensional poverty in the population:
  - The **incidence of multidimensional poverty** (H), denoting the proportion of people who are identified as being multidimensionally poor.
  - The **intensity of multidimensional poverty** (A), denoting the average deprivation score among the poor.
  - The value of **MPI**, which is the product of H and A.

Note that the poverty status reflects the existence of a critical number of weighted deprivations. It reflects the overlap (i.e. the simultaneous manifestation) of several deprivations, and how those deprivations are interlinked.

#### **Box 1. Some formal aspect of the Alkire-Foster method (2011)**

Formally, given achievements  $x_{ij}$  for person  $i$  in  $d$  indicators  $j = 1, 2, \dots, d$ , each of which is assigned a deprivation cutoff  $z_j$  and a weight  $w_j$  such that  $\sum_{j=1}^d w_j = 1$ , individual  $i$ 's deprivation score is  $c_i = \sum_{j=1}^d w_j \mathbb{I}(x_{ij} < z_j)$ , where  $\mathbb{I}(\cdot)$  is an indicator function yielding a unity value if individual  $i$  is deprived in indicator  $j$ , and zero otherwise.

If the poverty cut-off is denoted as  $k$ , then individual  $i$  is considered multidimensionally poor if  $c_i \geq k$ . In order to respect the focus axiom of poverty measurement, it is possible to identify each person's censored deprivation score:  $c_i(k) = c_i \mathbb{I}(c_i \geq k)$ , where  $\mathbb{I}(\cdot)$  takes a unity value to denote a multidimensionally poor person and zero otherwise.

Formally, the population-level MPI is then computed as  $MPI = E(c_i(k))$ , which is the average censored deprivation score in the population. To see that MPI is the product of two core subindices, using  $P(\cdot)$  to denote probabilities, we can apply the law of iterated expectations as follows:

$$\begin{aligned}
 IPM &= E(c_i(k)|c_i \geq k)P(c_i \geq k) + E(c_i(k)|c_i < k)P(c_i < k) \\
 &= E(c_i(k)|c_i \geq k)P(c_i \geq k) + 0 \cdot P(c_i < k) \\
 &= E(c_i(k)|c_i \geq k)P(c_i \geq k) \\
 &= A \times H
 \end{aligned}$$

where  $A$  is the intensity of multidimensional poverty, which reflects the average deprivation score among the poor (i.e.  $E(c_i(k)|c_i \geq k)$ ), and  $H$  is the incidence or headcount ratio reflecting the proportion of multidimensionally poor people in the population (i.e.  $P(c_i \geq k)$ ).

Source: (Alkire, Foster, Santos, Roche, & Ballon, 2015)

In 2016, 85.3% of the population in St Lucia was identified as multidimensionally poor, with an average proportion of deprivations or intensity equal to 40.1%. Therefore, poor individuals in St Lucia faced on average deprivations in two or more dimensions, and the resulting national

level of MPI was 0.342. Thus, multidimensionally poor individuals face 34.2% of the possible deprivations that the whole society can suffer if everyone was poor and deprived in all 19 indicators included in the measure (see *Table 4*).

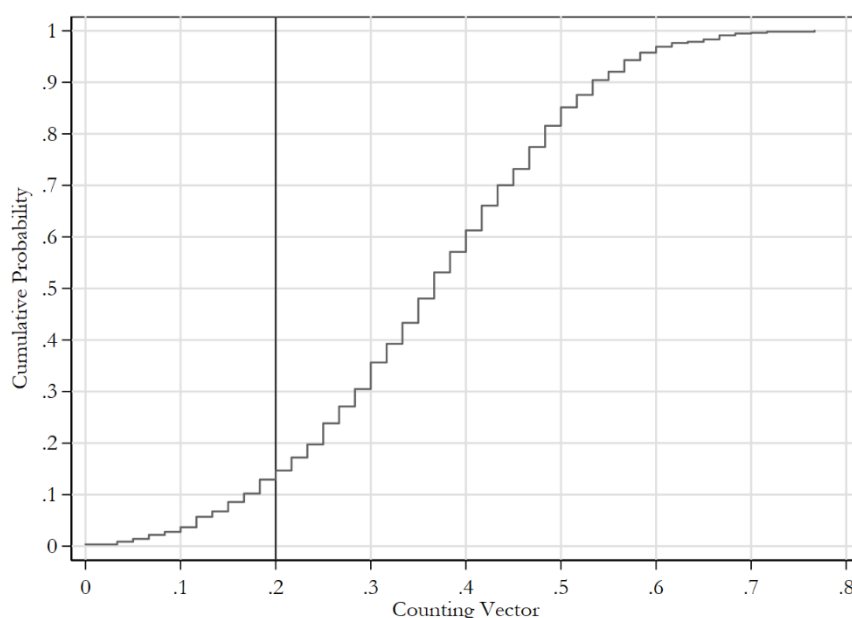
**Table 4 Baseline MPI values**

	Mean	95% Confidence Interval	
		Lower Bound	Upper Bound
H (%)	85.3	84.3	86.4
A (%)	40.1	39.7	40.4
MPI	0.342	0.337	0.347

Source: SLC-HBS 2016, Authors' calculations

*Figure 1* shows that among the non-poor population (approximately 15%), around 10% have a deprivation score between 10% and 20%, and only 5% have a deprivation score lower than 10%. Thus, the majority of the non-poor population is clustered relatively closely to the poverty cut-off, and acquiring one additional deprivation is likely to make them fall into poverty.

**Figure 1 Cumulative distribution of the deprivation scores or counting vector**



Source: SLC-HBS 2016, Authors' calculations

### **b. Simulating COVID-19-induced additional deprivations**

The strategy to evaluate the possible effects of COVID-19 on multidimensional poverty consists of simulating a random increase in specific deprivations in selected indicators that are likely to be directly affected by i) the COVID-19 health emergency, and/or ii) the stringent policies aimed at containing the spread of the virus.

Given the state of the pandemic as of August 2020, and after discussion with policy makers in St Lucia and with UNICEF- St Lucia, four out of 19 indicators included in the MPI were selected for simulation:

- **Food security**, due to possible disruption of food supply chains (nationally and internationally).
- **Long term unemployment**, due to possible job destruction resulting from a severe economic downturn, which might last six months or more.
- **Youth unemployment**, due to possible job destruction concentrated among less experienced workers.
- **Job quality among all employees**, due to possible disruption in access to social and job-related benefits, even where jobs are not destroyed and **Job quality among self-employed only**, due to possible disruption and/or actively sought avoidance of costs related to social and job-related benefits, even where jobs are not destroyed.

In addition to the analysis of these four indicators, an extended MPI was computed including the indicator of **school attendance**, in order to account for the possible increase in the deprivation of this indicator. The deprivation cut-off is defined as: “A person is deprived in school attendance if she or he lives in a household where at least one school-aged child (5-15) does not have continued access to physical, remote or virtual formal education”.<sup>12</sup> All the indicators in the Education dimension are reweighted following the inclusion of school attendance indicator in the extended MPI. Thus, in this version of the MPI, each indicator in the Education dimension receives a weight of 1/20 instead of 1/15 as presented in *Table 4*. It is important to emphasize that this reweighting is solely carried out for evaluation of effects on school attendance, and it does not apply to the analysis of effects on any other indicator considered for simulation.

To sum up, a total of five transmission mechanisms are considered in this report. Four of them correspond to four indicators pertaining the official structure of the MPI and one –school attendance – is assessed by means of an extended version of the MPI for St Lucia.

The simulation procedure considers only one indicator at a time, thus isolating the effects on each one of them. This allows operationalizing the hypothesis of independence between possible effects, and effectively corresponds to a partial analysis where everything is held constant, except for changes in the indicator under scrutiny. This allows us to confidently uncover definitive lower bounds for each scenario. For each indicator in turn, the simulation procedure consists of the following steps:

1. The population subgroup prone to becoming deprived is selected. This is the reference population and its precise indicator-specific definition is presented in *Table 5*.
2. Random additional deprivations in the indicator of interest are assigned among the reference population following a uniform distribution.
3. Two scenarios are considered, characterized by the proportion of reference population affected by the simulated increase in the specific deprivation: a mild scenario (25% of the reference population are deprived, in addition to the effectively observed deprivations), and a severe scenario (75% of the reference population are deprived in addition to the effectively observed deprivations).
4. The MPI and its component sub-indices are recomputed allowing simulated deprivations to naturally interact with those effectively observed across indicators.
5. The AF method is applied to compute four aggregate statistics: i) the uncensored headcount ratio for the simulated indicator, ii) the MPI, iii) the incidence (H), and iv) the intensity of multidimensional poverty (A).

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<sup>12</sup> Individuals living in households without children are considered as non-deprived.



6. The steps above are repeated a hundred times to generate an empirical distribution of each aggregate statistic.

To interpret the results of this simulation procedure, it is important to stress that added deprivations can have one of three effects on each person depending on how they interact with the effectively observed deprivations they suffer.

- **A person is assigned an additional deprivation, but not pushed into multidimensional poverty.** This happens when deprivations affect household suffering from none –or very few – pre-existing deprivations in the other indicators. Both incidence (H) and intensity (A) are irresponsive to added deprivations among these individuals.
- **A person is assigned an additional deprivation, but they are already multidimensionally poor.** In this case, an added deprivation will not change their poverty status, thus leaving the incidence (H) unaffected by added deprivations among these individuals. However, the intensity (A) in which they suffer multidimensional poverty will be responsive to the added deprivation; intensity will unequivocally increase, and so will the MPI. This situation denotes an exacerbation of multidimensional poverty.
- **A person is assigned an additional deprivation, which makes them fall into multidimensional poverty.** This happens for individuals who are vulnerable to multidimensional poverty in the sense that they are relatively close to the poverty cut-off (20%). Additional deprivations among these people will unambiguously yield an increase in poverty incidence (H). They will also yield a change in intensity of poverty (A), but the effect is ambiguous. If the newly poor individuals are, on average, less poor than those who already live in multidimensional poverty, then intensity will fall. Otherwise, intensity will increase.

The simulation results will be the reflection of all these three effects combined; it is beyond the scope of this study to separate them. However, given that a high proportion of the population is in multidimensional poverty at the baseline (H is equal to 85.3%), and that they experience a high proportion of weighted sum of deprivations (A is equal to 40.1%), it is reasonable to anticipate that the simulations will yield relatively small impacts. In effect, it is important to consider that there is only 14.7% of the population who are at risk of being pushed into multidimensional poverty. A more detailed explanation can be found in Box 2.

**Table 5 Detailed deprivation cut-offs and reference population for each indicator included in the simulation exercises**

Dimension	Indicator	Deprivation cutoff (detailed)	Reference population	
			Definition	Frequency in total population
Employment	Unemployment	A household is deprived if any member aged 29 or older is unemployed for 6 months or more	A working age person working in the restauration/accommodation or undefined (presumably informal) economic sector	20.2%
	Youth unemployment	A household is deprived if any member aged 15-29 is unemployed for 6 months or more	Any person aged 15-29 currently employed	15.3%

	Job Quality (employees)	A household is deprived if any working member is employed in a company with no benefits (a contract, annual leave, sick leave, etc.)	People in working age working in a company, receiving benefits (a contract, annual leave, sick leave, etc.).	47.1%
	Job Quality (self-employed)	A household is deprived if any working member is self-employed in a company where no records are kept or is unregistered	People self-employed in a company that is registered and keeps official records	1.5%
Health	Food Security	A household is deprived if they experience moderately or extremely food insecurity – defined as having less than four responses indicating food insecurity on the raw FIES score.	People living in households with 1-3 responses indicating food insecurity on the raw FIES score	17.4%
Education	School Attendance	This indicator enters as the fourth indicator in the Education dimension. The weights of all the other indicators in that dimension are adjusted accordingly, leaving all other indicators and dimensions unchanged. A household is deprived if there is any child aged 5-15 who is not attending primary school	Children aged 5-15 years old currently attending primary school, but living in a household with no internet access or where access is only at the parents' workplace	10.3%

Source: Own elaboration based upon Kairi Consultants, 2018

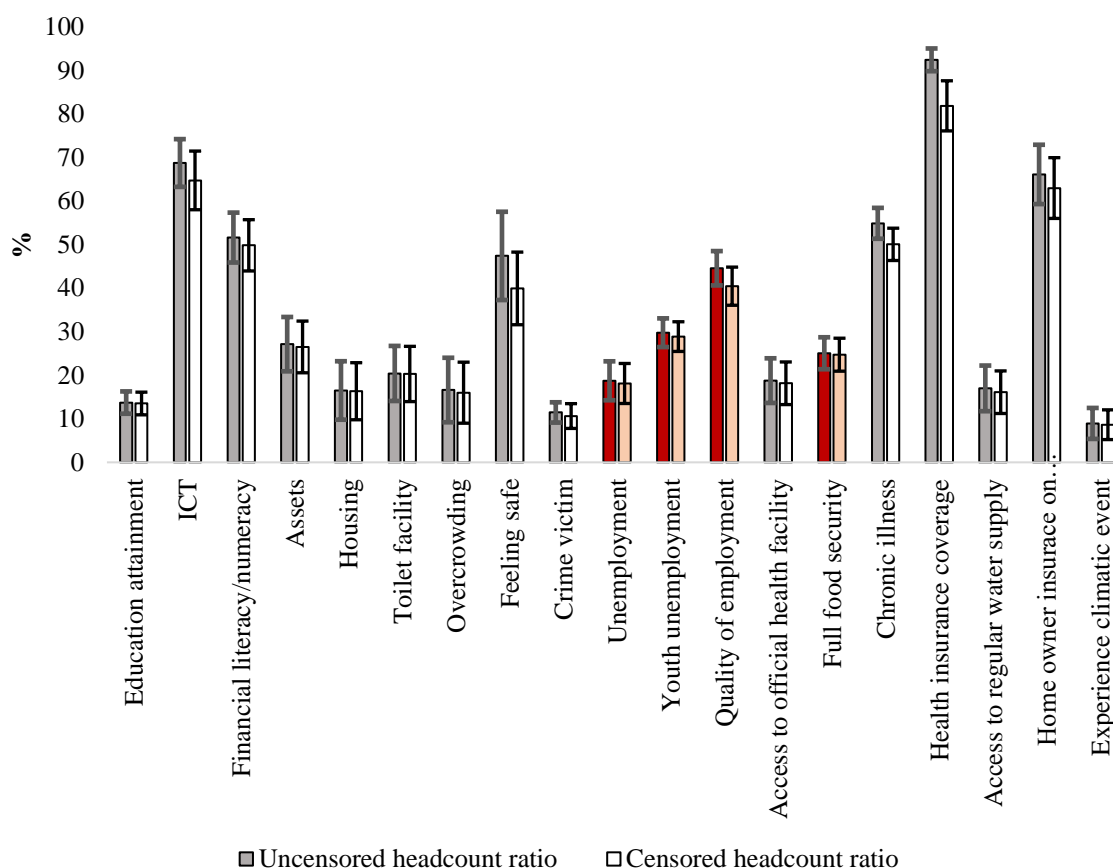
Importantly, note that the proportion of people (over the total population) that is at risk of being affected by each shock varies greatly. While 47.1% of the population are employees who risk experiencing deterioration of their job quality, only 1.5% of the population are self-employed workers facing a similar risk. These proportions critically define the magnitude of the anticipated risks. Naturally, the larger the population at risk, the larger the population-level impact yielded by the adopted simulation strategy.

## **Box 2. How do the simulations affect individual deprivation profiles? An intuitive explanation**

The high level of poverty at baseline according to the MPI combined with the frequency of deprivation for each indicator among the poor allows having an idea of how simulated additional deprivations will affect individuals in the data. Note that for all the indicators that we consider in the simulations, deprivations tend to be present most regularly among the poor (see Figure 2).

To exemplify, let us consider the unemployment indicator; 18.7% of the population are deprived in this indicator – this is the uncensored headcount ratio, and 18.1% of the population are **poor and deprived** in this indicator – this is the censored headcount ratio. In a general way, such small differences between the censored and the uncensored deprivation headcount ratios indicate that very few people are deprived in that indicator without being poor. Given that 85.3% of the population is multidimensionally poor, it is most likely that simulated deprivations in unemployment will affect people who are already poor, so one can expect changes in incidence (H) to be small. Undoubtedly, some people may fall into poverty due to the additional deprivation, but they are likely to be, on average, less poor than those who already suffer that condition. This situation will not affect incidence (H), and it is likely to **reduce** the average intensity (A). This can be expected for all simulations and not only the ones related to the unemployment indicator, as there tends to be small differences between the censored and uncensored deprivation headcounts generally (see Figure 2).

**Figure 2 Censored (k=20%) and uncensored deprivation headcount ratios by indicator**



Source: SLC-HBS 2016, Authors' calculations

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

After the household level shocks occur and monetary poverty rates are re-estimated based on the model, various targeting cash transfer scenarios are 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.

We simulate 12 different cash transfer scenarios in three different transfer levels (transfer level 1, 2 and 3). The transfers can be per household or per child and the targeted groups change from being universal to targeting by sub-groups of households. Household transfer are 100 ECD, 200 ECD and 400 ECD while child level transfers are 50 ECD, 100 ECD and 200 ECD respectively for transfer levels 1, 2 and 3.

The newly updated social transfer targeting instrument of Saint Lucia, SL-NET 3.0 was also used in this analysis in identifying target groups. Saint Lucia’s National Eligibility Test (SL-NET) was designed and implemented by Ministry of Equity, Social Justice, Empowerment, Youth Development, Sports and Local Government (MOESJ) and has been used as a targeting mechanism for social transfers. The instrument’s latest version was SL-NET 2.0 and is currently being updated as SL-NET 3.0 by the World Bank. SL-NET 3.0 ranks the households from most deprived and poor to least deprived and non-poor by building a score composed of a multidimensional poverty and monetary poverty dimensions. For this analysis we also make use of this targeting mechanism since this will be the targeting tool for St Lucia in the very near future. In this respect, households in the priority group as defined in World Bank’s report<sup>13</sup> - those with an SL-NET score lower than 68 – are assumed to be the eligible group (i.e. 30.2% of the overall population).

The full list of policy scenarios considered for the exercise are listed in Table 6:

**Table 6 Cash transfer scenarios<sup>14</sup>**

Scenario number	Scenario explanation
1	Per household transfer to households already receiving any kind of social protection programme (programmes asked in SLC HBS 2016) <sup>15</sup>
1a	Per household transfer to households that are eligible for social assistance as calculated using SL-NET 3.0
2	Per household transfer to households in the bottom 25% <sup>16</sup>

<sup>13</sup> World Bank (2018).

<sup>14</sup> These cash transfer values are for the year 2019/2020. Since we use the 2016 SLC-HBS in our analysis, to see the poverty and inequality impact of the transfers we moved the cash transfer values from 2019/2020 to 2016 using inflation rates as reported by The Central Statistical Office of Saint Lucia (<https://www.stats.gov.lc/subjects/economy/prices-and-price-indices/>) in the file “Inflation rate 1970 to 2019”:

*the cash transfers valued at 2016*

$$= \text{cash transfers valued at 2019} / (\text{inflation rate for 2019} * \text{inflation rate for 2018} * \text{inflation rate for 2017})$$

to calculate their impact on poverty. The inflation rates for years 2019, 2018 and 2017 are reported as 0.5, 2.6 and 0.1 respectively. Totals costs or cost effectiveness measures are reported for 2020 values of the transfers.

<sup>15</sup> See Annex 1b for the list of social protection programmes, as asked in SLC-HBS 2016

<sup>16</sup> In the scenarios targeting the bottom 25 percent (or the bottom 40 percent), the population is ranked according to per capita monthly household expenditure in the baseline categories (i.e. before shocks) and divided into 4 (or 5) and the bottom 25 percent (or the bottom 40 percent) corresponds to the poorest 25 percent of the population (or 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.

2a	Per household transfer to households in the bottom 25% (that are not eligible under SL-NET 3.0)
3	Per household transfer to households in the bottom 25% with children
3a	Per household transfer to households in the bottom 25% with children (that are not eligible under SL-NET 3.0)
4	Per household transfer to households in the bottom 40%
4a	Per household transfer to households in the bottom 40% (that are not eligible under SL-NET 3.0)
5	Per household transfer to households in the bottom 40% with children
5a	Per household transfer to households in the bottom 40% with children (that are not eligible under SL-NET 3.0)
6	Per child transfer to all children (0-5 years old)
7	Per child transfer to all children (0-17 years old)

## Results

In this section, the results of the micro-simulation models are presented and explained. The section first starts with the estimated impact of the shocks on poverty, child poverty and inequality. Next, the impact on multi-dimensional poverty of different types of shocks is estimated. Lastly, the impact of various cash transfer scenarios after the shocks is estimated and presented in the third part of the section.

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

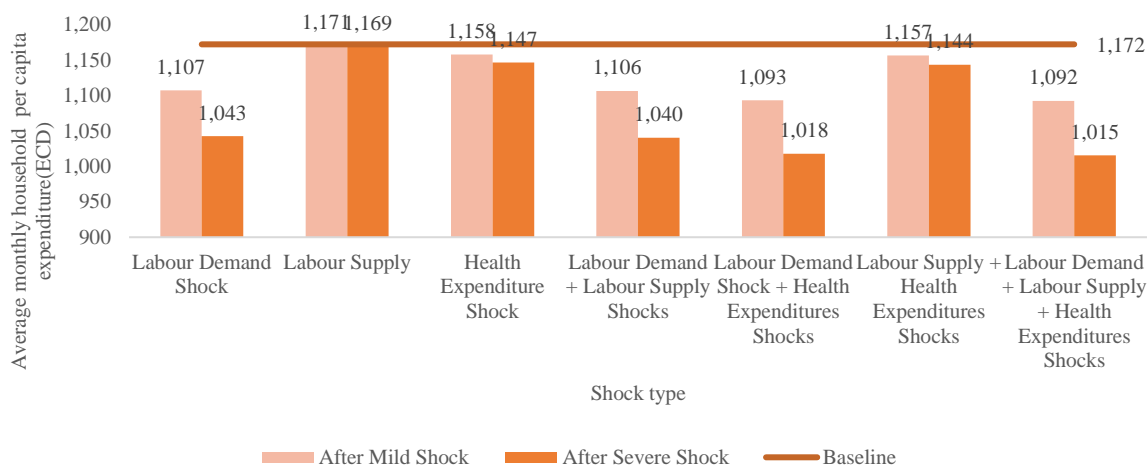
**Monthly per capita expenditure shrinks as a result of different types of shocks that is experienced by the households (See Figure 3).** The largest reduction in the per capita expenditure levels is generated by the labour demand shock (5.5 percent reduction in the occurrence of a mild shock and 11.1 percent reduction in the occurrence of a severe shock), followed by health expenditures shock (1.2 percent reduction in the occurrence of a mild shock and 2.2 percent reduction in the occurrence of a severe shock) and lastly labour supply shock (0.1 percent reduction in the occurrence of a mild shock and 0.3 percent reduction in the occurrence of a severe shock). This is in line with how we defined the shocks in the beginning. Labour demand shock is applied to almost all employed individuals in differing degrees (depending on sector and employment status) while labour supply shock and health expenditures shock are applied to a randomly selected 5% or 10% of a small subgroup of the population (employed and chronically ill for the labour supply shock and chronically ill and not covered by health insurance for the health expenditures shock). In this respect, labour demand shock is experienced by a much larger percent of the population (77.8 percent of the population is living in households with someone receiving this shock) while the other two shocks, labour supply and health expenditure, are experienced by only 1.3 percent and 4.1 percent of the population, respectively (i.e. population living with someone receiving the shock). When applied all together, the shocks lead to a 6.8 percent reduction in per capita expenditures in the occurrence of a mild shock and 13.4 percent reduction when the shock is severe, decreasing average per capita expenditures to 1092.4 ECD and 1015.5 ECD respectively from a baseline level of 1172.4 ECD.

**The shocks are experienced more heavily not by the very poor or the very rich but by the households in the middle of the wealth distribution.** When the population is ranked based on their household's per capita expenditure levels and then divided into 5 equally sized groups, and all three types of shocks are applied together to the households, per capita expenditures decrease the most for quintile 2 and quintile 3 and the least for quintile 5 (i.e. the wealthiest 20%). In the occurrence of a mild shock and when all three shocks are applied together average per capita expenditure decreases by 6.1 percent, 8.5 percent, 8.4 percent, 7.7 percent and 5.7

percent respectively for quintiles 1-5 in the occurrence of a mild shock. A similar trend is observed when the shock is severe. In the occurrence of a severe shock average per capita expenditure decreases by 14.0 percent, 16.9 percent, 15.4 percent, 14.7 percent and 11.4 percent respectively for quintiles 1-5.

**Figure 3 Shocks lead to decreases in the monthly per capita expenditure of the households**

*Average per capita expenditure of households in the baseline and after shocks (ECD)*

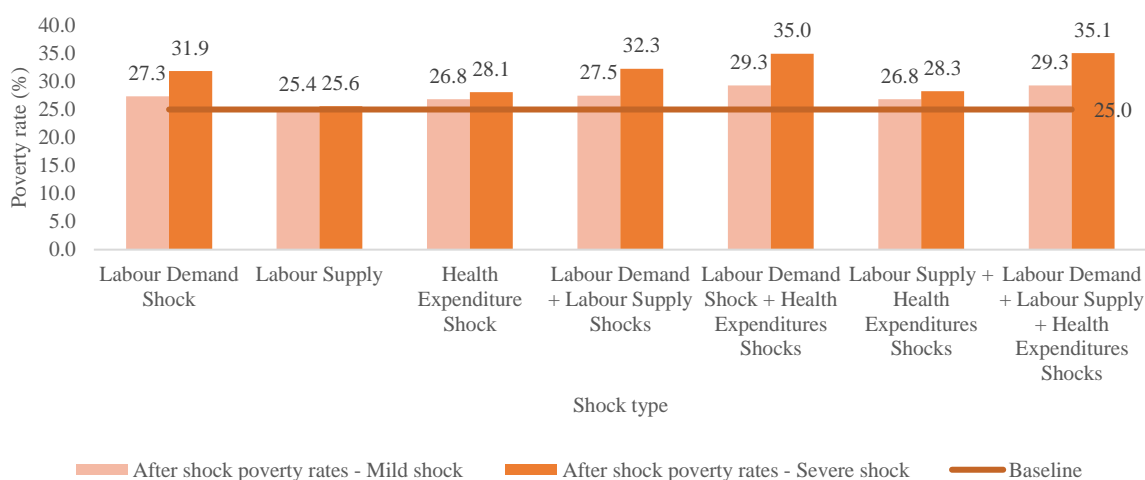


Source: SLC-HBS 2016, Authors' calculations

**Reductions in monthly household expenditure lead to significant increases in expenditure-based poverty (See Figure 4).** In the baseline 25.0 percent of the population is living below the national poverty line (i.e. \$6,443 EC Dollars per person per year or \$536.9 EC Dollars per month). In line with decreases in average per capita expenditure levels, poverty rate is increased the most by the labour demand shock and the least by the labour supply shock. Population poverty rate increases to 27.3 percent, 25.4 percent and 26.8 percent after a mild labour demand, labour supply and health expenditure shocks respectively while it increases to 31.9 percent, 25.6 percent and 28.1 percent if the shocks are severe. When all the shocks are applied together, population poverty increases to 29.3 percent in the occurrence of a mild shock and to 35.1 percent in the occurrence of a severe shock.

**Figure 4 Poverty increases as a result of the shocks**

*Poverty Rate (% of population, at national poverty rate of \$536.9 EC Dollars per month poverty line)*

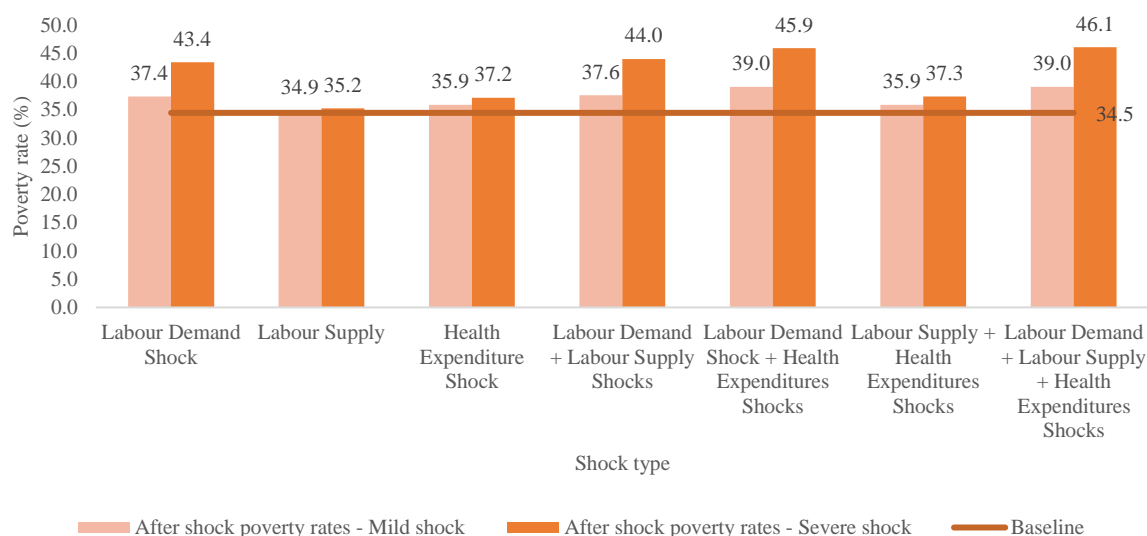


Source: SLC-HBS 2016, Authors' calculations

**A similar impact can be observed for child poverty (See Figure 5).** In the baseline 34.5 percent of children (aged 0-17 years old) are living below the national poverty line (i.e. \$6,443 EC Dollars per person per year or \$536.9 EC Dollars per month). This rate is increased the most by labour demand shock and the least by labour supply shock. In the occurrence of all types of shocks at the same time, child poverty rate increases to 39.0 percent when the shock is mild and to 46.1 percent when it is severe.

**Figure 5 Similar to population poverty, child poverty also increases after the shocks**

*Child Poverty Rate (% of children (0-17 years old), at national poverty rate of \$536.9 EC Dollars per month poverty line)*



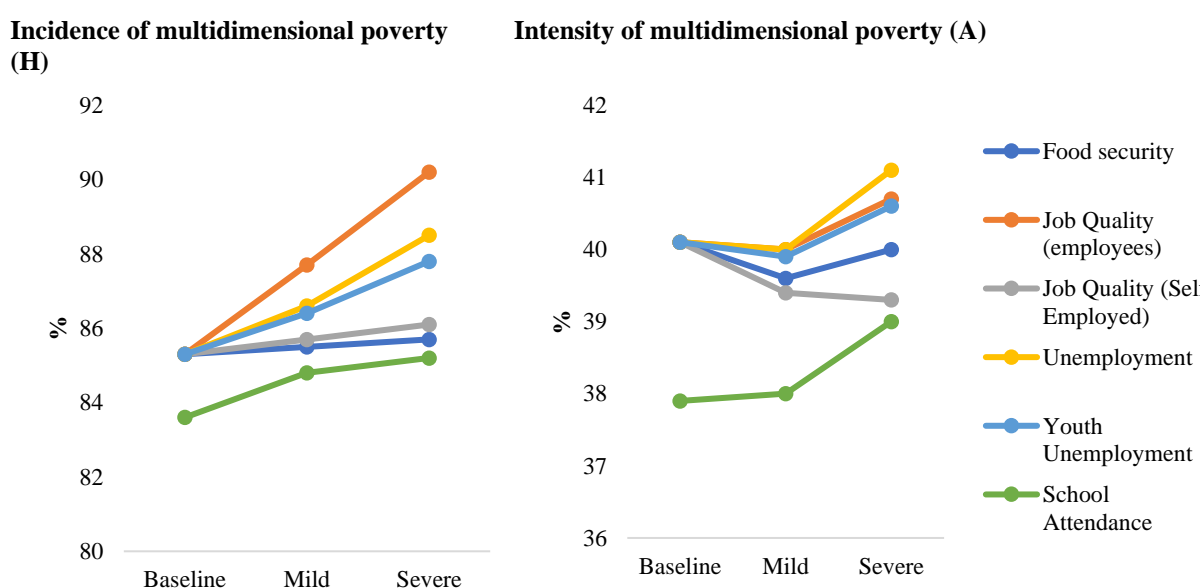
Source: SLC-HBS 2016, Authors' calculations

**The shocks also lead to increases in inequality.** In the baseline Gini is 43.2 for Saint Lucia. Different than the impact on poverty, inequality is increased the most by the health expenditure shock. Gini rises to 43.9 after a mild health expenditure shock while it increases to 43.3 after a mild labour demand or a labour supply shock. In the occurrence of a severe shock Gini rises to 44.3 when only health expenditure shock is observed and to 43.7 and 43.3 respectively when only labour demand and labour supply shocks are observed respectively. The reason why health expenditure shock is leading to higher inequality is that it hits the households with individuals with chronic illness and no health insurance and it turns out that households in quintile 1 are 1.34 times more likely to be hit by this shock compared to households in quintile 5 while the other two shocks do not create such difference between the bottom and the top quintiles. Health expenditure shock is received by 2.4 percent of the population in the bottom quintile while it is received by 1.8 percent of the population in the top quintile. Labour demand shock is almost as likely to hit the bottom and the top quintile with 69.1 percent of households in the bottom 20 percent and 70.5 percent in the top 20 percent receiving it. On the other hand, labour supply shock is not received by any of the households in the bottom quintile and it is received by only 0.01 percent of the population in the top quintile. Overall, when all shocks are applied together, Gini increases to 44.1 in the occurrence of a mild shock and to 45.0 in the occurrence of a severe shock.

## 2. Simulating the Multidimensional Poverty (Increasing) Impact of COVID-19

Increased deprivations in job quality among employees are found to be the shocks generating the highest effects on the incidence of multidimensional poverty (H) (See *Figure 6*, and for the detailed simulation results see Annex 2b).<sup>17</sup> In the severe scenario – which consists of this indicator’s deprivation headcount ratio going from 18.2 to 54.7%, job quality deterioration can result in almost 91% of the population being multidimensionally poor. Long-term unemployment and youth unemployment have the second and third highest effects on poverty incidence (H), respectively (see *Figure 6*). These results go on to show the amount of newly poor people that can result from shocks affecting employers’ capacity to maintain workers in the workplace. No doubt, policy measures to counter the negative effects of the pandemic need to preserve people’s purchasing power, but these results compellingly show that they must be coupled with stimulus to firms and employers. Crucially, even if they are already high, these results only represent direct effects and do not consider potential indirect effects that may only become visible over time. Failure to prevent these shocks from happening may yield medium- and long-term damage to the productive tissue, and potentially harm the country’s overall productivity.

**Figure 6** Increased deprivations affect the Incidence and Intensity of multi-dimensional poverty



Source: SLC-HBS 2016, Authors’ calculations

**Omitting to consider that these negative shocks may affect firms and employers in sectors that satisfy internal demand (i.e. retail, domestic services, and import of goods) may generate inflation pressures, thus posing considerable efficiency threats to demand-enhancing policies such as cash transfers.** Among others, Pototschnik et al., (2020), have pointed out the fragility of small and medium-sized firms satisfying internal demand in Latin America<sup>18</sup> to adjust their activities during economic downturn. This is related to the limited

<sup>17</sup> Recall that simulated additional deprivations in each indicator are independent, so the results represent partial analysis in contexts where everything else is held constant except for changes in the specific indicator.

<sup>18</sup> See <https://www.bcg.com/publications/2020/covid-19-impacts-small-businesses-latin-america>



capacity of such firms to keep their production process unaltered after negative revenue shocks of devastating magnitude such as the ones that come along relatively long lockdown periods.

In addition, negative shocks affecting firms that satisfy external demand related to exports or tourism may reduce the country's overall productivity over time and exacerbate the negative results that we make a case for here. Indeed, it is well documented that firms in the sectors of tourism, hotels and restaurants, and even traditional cultural industries are likely to suffer 'severe' impacts (the highest according to their analyses) caused by the ongoing economic crisis in the region (see e.g. (ECLAC, 2020)).

Examples of stimulus that are currently being designed and implemented in the region include liquidity transfers to employers, increased flexibility/availability of loans and credits, deferral of fiscal obligations – or even partial/full exonerations, public absorption of employment protection costs, including temporary subsidized contributions to social security systems (see (ECLAC, 2020) for a detailed analysis). One crucial aspect that remains to be defined due to the ongoing nature of the pandemic is how long these measures should be in place. Even if high uncertainty remains, the results that we present here provide clear and objective estimates of the magnitude of these shocks, and may thus inform budget allocation decisions.

**Turning now to the effects generated by increased deprivations in job quality among self-employed, the results show that they are considerably lower** (see *Figure 6*). However, the reasons for this are different. In the case of job quality among self-employed, the low overall effects are the reflection of a small fraction of the overall population at risk of being affected by this shock – as data shows that very few people are self-employed according to the definition used in the national MPI for St Lucia. This may become an advantage for policy decisions in the context of limited resources. As these workers often work in precarious or informal positions, not considering them in a policy plan to reactivate the productive sector may increase social and economic gaps in the country (see Ferreira & Schoch, 2020<sup>19</sup>). However, in the context of St Lucia, self-employed people can be the object of effective targeting, and specific job protective measures may be set in place. Some policy measures against this threat consist of protective temporary unemployment subsidies in the form of cash transfers, on top of the more universal cash transfers programs to stimulate aggregate demand (OECD, 2020<sup>20</sup>).

**In the case of food security, our results show poverty incidence is not considerably affected by this shock.** To correctly interpret the result, it is important to note that data show that vast majority (more than 90%) of people who are prone to acquire this additional deprivation are already poor. Although there are reports warning about a generalized increase in food prices in the region<sup>21</sup>, the risk of this situation disproportionately affecting the poor is also well documented. The WFP, for instance, warns about more than 10 million **more** people in severe food insecurity in Latin America and the Caribbean due to the ongoing pandemic, where poor and vulnerable segments of the population are overrepresented<sup>22</sup>. From a policy perspective, this shows the need to set up measures countering potential disruption of food supply chains in order to prevent welfare-deteriorating effects that are most likely to affect those who already face overlapping deprivations in other livelihood aspects.

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<sup>19</sup> See <https://blogs.worldbank.org/developmenttalk/covid-19-latin-america-pandemic-meets-extreme-inequality>

<sup>20</sup> <https://www.oecd.org/coronavirus/policy-responses/covid-19-in-latin-america-and-the-caribbean-regional-socio-economic-implications-and-policy-priorities-93a64fde/>

<sup>21</sup> See <https://reliefweb.int/report/world/caribbean-covid-19-food-security-livelihoods-impact-survey-regional-summary-report-july>

<sup>22</sup> See <https://www.wfp.org/news/covid-19-millions-risk-severe-food-insecurity-latin-america-and-caribbean>

**Focusing now on the poverty-increasing mechanism triggered by additional deprivations in school attendance, results show that it operates differently compared to the other indicators.** In the mild scenario, these deprivations generate a sharp increase of poverty incidence (H), while the marginal further increase of incidence moving from the mild to the severe scenario is comparatively lower. This means that these deprivations tend to create newly poor people first, and then plays a poverty-exacerbating role. This can be corroborated by the small increase in the intensity (A) in the mild scenario, as opposed to the sharp marginal intensity increase going from the mild to the severe scenario. This result highlights that even in the mild-scenario disruption of school attendance, failure to prevent children from going back to receiving formal education may disrupt people's lives by pushing them into poverty. Here again, it is important to highlight that these results capture only direct, immediate impoverishing effects, and do not grasp longer, potentially more harmful longer terms effects on children's lives. For one, it is well known that disruptions in the process of skill formation at the early stages of life may harm children's ability to acquire human capital later on (see e.g. (Heckman & Mosso, 2014)). This negative situation can also be accentuated by increased school gaps. Furthermore, it is important to stress that it would be overly simplistic to assume that this effect is entirely transitory, and that re-opening schools or establishing online/virtual classrooms will suffice to revert these deprivations. There is also a latent risk of increased child labour in the region (see ECLAC-ILO report<sup>23</sup>), which is likely to imply children being taken out of school permanently. In the event of this actually happening, human development processes at the later stages of these children's lives will also be interrupted. This stresses the importance of interpreting the results that we find here as a clear lower bound in the short term.

**Finally, turning to some important results on poverty intensity (A), note that there is 'u-shaped' evolution going from mild to severe shocks in food security, long term unemployment, youth unemployment and job quality** (particularly among the employees, see *Figure 6*). This shows that in the mild scenario, increased deprivations in these indicators tend to affect people suffering a relatively low number of weighted deprivations – hence the reduction of the intensity. In the severe scenario, these additional deprivations tend to affect multiply deprived people as well – hence the increase in intensity. This result indicates that additional deprivations in these indicators are likely to be suffered by either non-poor people or people facing a relatively low number of weighted pre-existing deprivations. Recall that in this context of overall welfare deterioration, poverty intensity, which is the average number of weighted deprivations *suffered by those who are identified as poor*, can only decrease if people who fall into poverty are on average less poor than the ones that were already poor. This is precisely what happens with these indicators in the mild scenario. This goes in line with documents pointing out to the important effects of the ongoing pandemic on non-poor people, or even people in the middle class.<sup>24</sup> This represents a major challenge for policymaking against the pandemic, as it makes clear that countering the effects on poverty requires more than focusing solely on those who already suffer that condition.

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<sup>23</sup> See [https://www.ilo.org/americas/sala-de-prensa/WCMS\\_747672/lang--en/index.htm](https://www.ilo.org/americas/sala-de-prensa/WCMS_747672/lang--en/index.htm)

<sup>24</sup> See <https://www.telegraph.co.uk/global-health/science-and-disease/developing-worlds-burgeoning-middle-class-risk-wiped-coronavirus/>

<https://www.inquirer.com/health/coronavirus/coronavirus-covid-19-economy-poverty-middle-class-20200508.html>

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

#### Impact on Poverty

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After a mild shock, with the highest transfer level (transfer level 3), most of the scenarios achieve a return back to the baseline poverty rate while with lower levels of transfer only Scenario 4 which targets all the households in the bottom 40% achieves getting closest to the baseline poverty rate (See *Figure 7* Error! Reference source not found.). After a mild shock, transfer level 1 (i.e. 100 ECD for Scenarios 1-5a, 50 ECD for Scenarios 6, 7) cannot achieve much of a decline in after shock poverty rates. The highest poverty reduction is achieved with Scenario 4 which targets all the households in the bottom 40%. Yet, even with this scenario poverty rate declines from an after shock level of 29.3 percent to only 27.5 percent while the baseline poverty rate was 25.0 percent. Doubling the transfer level (to 200 ECD per household), achieves getting closest to the baseline poverty rate again for this scenario (to 25.7 percent) while for the rest of the scenarios poverty reduction impact is improved but still the baseline rate cannot be achieved. On the other hand, doubling the transfer levels once more (i.e. to 400 ECD per household and 200 ECD per child) leads to a successful poverty reduction effort for most of the scenarios except Scenario 1 (targeting households which are already social protection beneficiaries), Scenario 3a (targeting households in the bottom 25% with children (that are not eligible under SL-NET 3.0)), Scenario 5a (households in the bottom 40% with children (that are not eligible under SL-NET 3.0)) and Scenario 6 (universal child grant to children aged 0-5 years old). Even with high transfer levels, these scenarios do not lead to a return to the baseline rate, mainly due to their low coverage, poor targeting or both (See the next section about coverage and targeting). The rest of the scenarios lead to a decrease in poverty rates to levels very close to the baseline rate or even a lower rate.

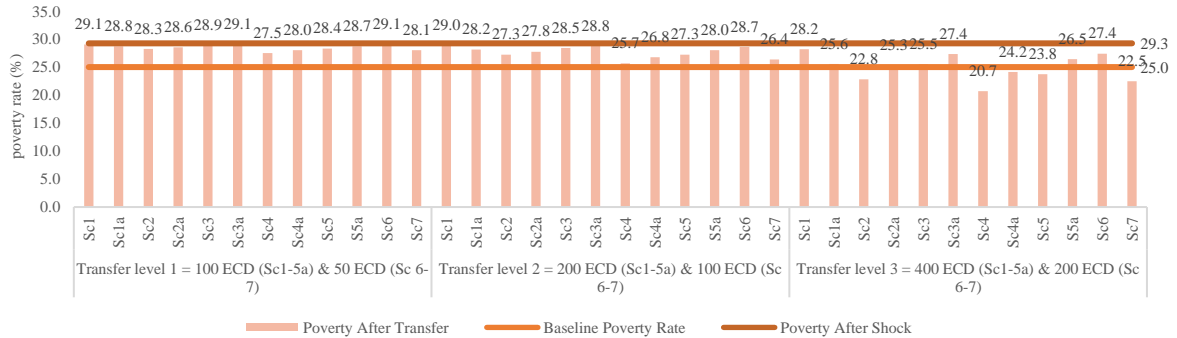
**In the occurrence of a severe shock, none of the cash transfer scenarios are enough to return back to the baseline poverty rate in any of the transfer levels (See *Figure 7* Error! Reference source not found.).** Scenario 4 (targeting all the households in the bottom 40%) in transfer level 3 – 400 ECD per household – achieves getting closest to the baseline poverty rate. After a severe shock poverty increases to 35.1 percent down from 25.0 percent. As in the occurrence of a mild shock, targeting all households in the bottom 40% (Scenario 4) is the scenario that achieves the highest reduction in poverty rates, in all transfer levels. Yet, even this scenario which has the best combination of coverage and targeting cannot achieve the baseline poverty rate even when the transfer level is kept the highest (i.e. 400 ECD per household).

**The transfer scenario (Scenario 1) that targets households who are already beneficiaries of a social protection programme is among the least effective scenarios in terms of poverty reduction due to its low coverage and poor targeting while targeting households that are eligible under SL-NET 3.0 provides a much better poverty reduction impact.** Targeting only the social protection programme beneficiaries (Scenario 1) does not bring sufficient poverty reduction. For instance, after a mild shock targeting only the social protection programme beneficiaries with the highest transfer level (400 ECD per household) leads to a poverty reduction of only 1.0 percentage points while the poverty is increased by 4.2 percentage points after the shock. On the other hand, targeting SL-NET 3.0 eligible households (Scenario 1a) leads to a much higher poverty reduction with 3.7 percentage points.

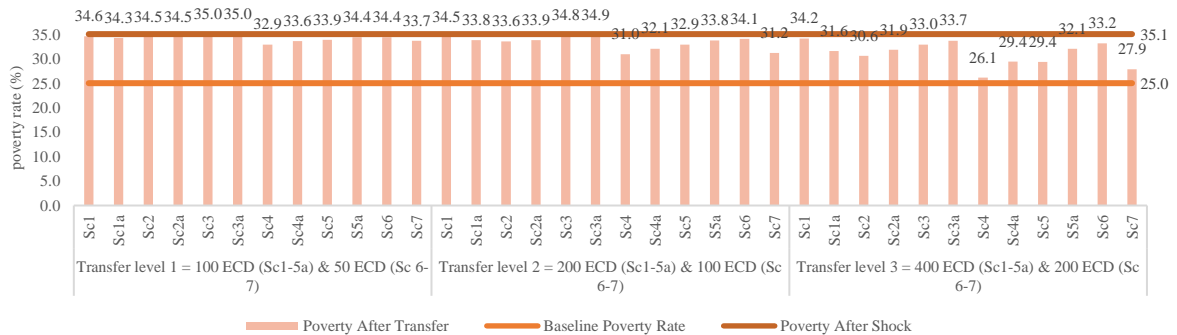
**Figure 7 Poverty reduction impact of cash transfer scenarios differ for different shock and transfer levels**

*Poverty Rate (% of population, at national poverty line of \$536.9 EC Dollars per month)*

**Mild Shock**



**Severe Shock**



Source: SLC-HBS 2016, Authors' calculations

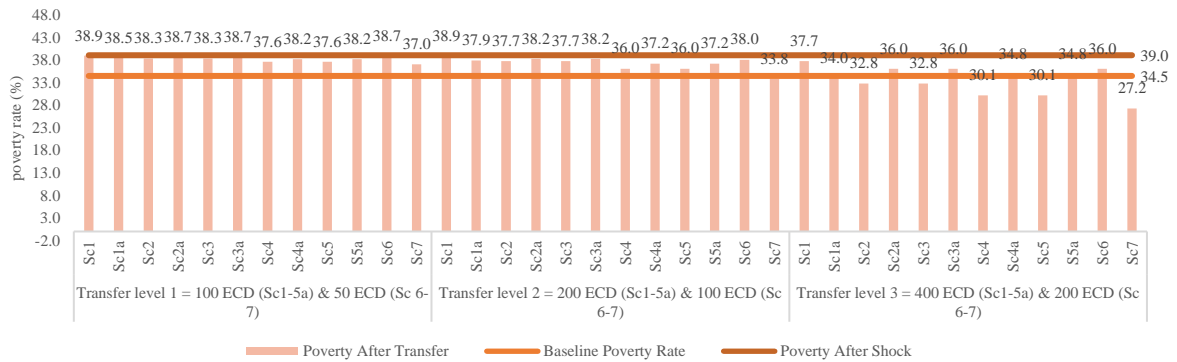
**In terms of poverty reduction impact universal child grants targeting children aged 0-17 (Scenario 7) provides (except for transfer level 1 after a severe shock) the second highest poverty reduction impact.** After a mild shock universal child grants decrease the poverty rate down to 22.5 percent at transfer level 3 (i.e. 200 ECD per child) and down to 27.9 percent after a severe shock with the same level of cash transfer. On the other hand, targeting only the children aged 0-5 years old does not create this level of poverty reduction impact due to a lower coverage. With the same transfer level, targeting a sub-group of children (i.e. 0-5 year olds) universally, decreases poverty rate down to 27.4 percent after a mild shock and to 33.2 percent after a severe shock.

**With respect to child poverty, Scenario 7, universal child grants, is the most successful in creating the largest poverty reduction impact (See Figure 8).** In all transfer levels, universal child grant creates the largest child poverty reduction impact compared to other scenarios. After a mild shock, with the highest transfer level (transfer level 3), most of the scenarios achieve a return back to the baseline child poverty rate while with lower levels of transfer only Scenario 7 which targets all children can achieve a return back to the baseline child poverty rate. In the occurrence of a severe shock, none of the cash transfer scenarios are enough to return back to the baseline child poverty rate in any of the transfer levels, except for Scenario 7 again (targeting all children) in transfer level 3 – 200 ECD per child. After Scenario 7, Scenario 4, targeting all households in bottom 40% and Scenario 5, targeting all households with children in bottom 40%, are the most successful scenarios in terms of child poverty reduction impact.

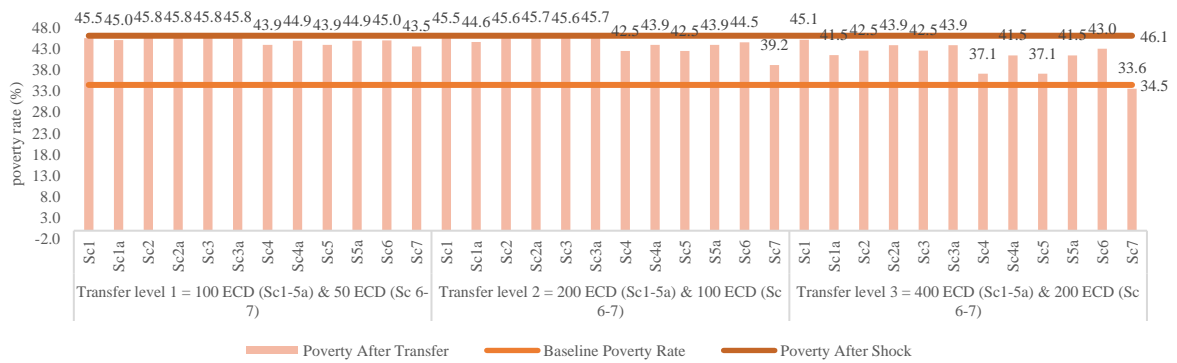
**Figure 8 Child poverty reduction is achieved the most by a universal child grant (Scenario 7)**

*Child Poverty Rate (% of children (0-17 years old), at national poverty line of \$536.9 EC Dollars per month)*

**Mild Shock**



**Severe Shock**

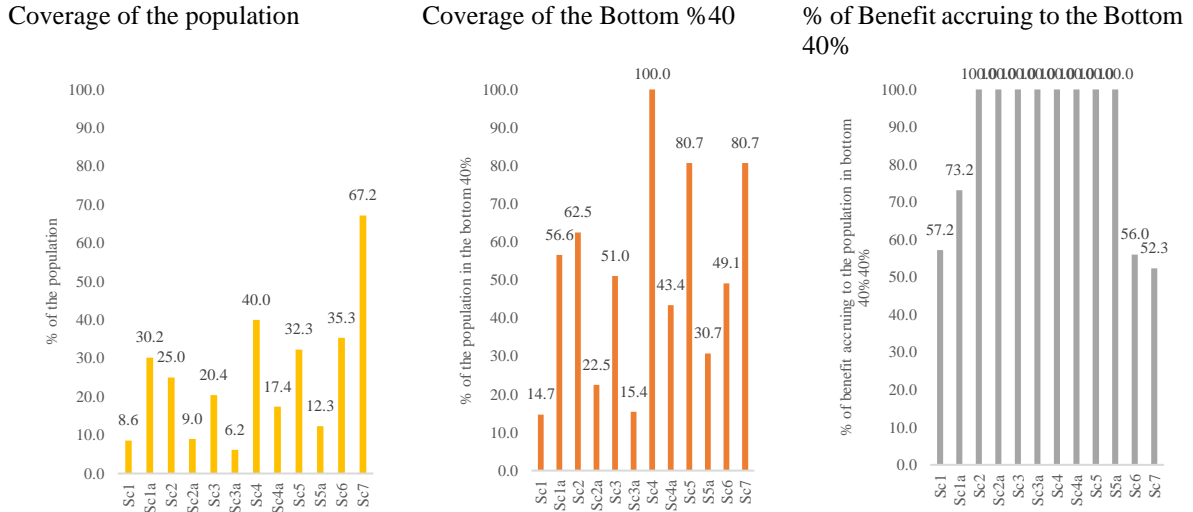


Source: SLC-HBS 2016, Authors' calculations

**Coverage and Benefit Incidence (Targeting)**

Among the cash transfer scenarios, the highest population coverage is provided by Scenario 7 that provides transfers for all children (aged 0-17 years old) (See Figure 9). Scenario 7 covers 67.2 percent of the population, 100 percent of the children, and 80.7 percent of the bottom 40 percent. After Scenario 7, the scenario targeting all households in the bottom 40% (Scenario 4) has the second-highest population coverage (40.0 percent). Coverage of the bottom 40% is also the highest with Scenario 4 then followed by Scenario 5 which targets all households in bottom 40% with children and Scenario 7, universal child grant, which covers 80.7 percent of the population in bottom 40%. As opposed to Scenario 7, the universal child grant scenario targeting children aged 0-5 years old (Scenario 6), have a much lower population coverage (35.3 percent of the population). The scenarios targeting the bottom 25 percent and the 40 percent of households with or without children and SL-NET 3.0 ineligible or all (Scenario 2-Scenario 5a) cover the population ranging between 6.2 percent and 32.3 percent, and the bottom 40 percent ranging between 15.4 percent and 80.7 percent. The transfer scenario that is targeting the households which are already receiving some kind of social protection programme (Scenario 1) covers 8.6 percent of the population, and 14.7 percent of the bottom 40 percent and hence has one of the lowest coverages among the rest of the scenarios (See Annex 2b Table 1 and Table 2). On the other hand, targeting SL-NET 3.0 eligible households (Scenario 1a) provides a much higher coverage with 30.2 percent of the population and 56.6 percent of the bottom 40%.

**Figure 9 Scenarios have varying levels of coverage and targeting-effectiveness**



Source: SLC-HBS 2016, Authors' calculations

**Scenarios have varying levels of being pro-poor in targeting (See Figure 9).** With respect to the benefit accruing to the bottom 40%, Scenarios 2-5a that are targeting households in the bottom 25% or 40%, hence the scenarios where all the benefit already goes to the bottom 40%, perform the best. Hence, these are the most pro-poor scenarios. These scenarios are followed by Scenario 1a which targets households who are SL-NET 3.0 eligible. With this scenario, 73.2 percent of the total benefit is accrued to the bottom 40 percent, showing that it has good pro-poor targeting. On the other hand, the rest of the cash transfer scenarios, i.e. the universal child grants (Scenario 6, 7) and the scenario targeting the households who are already social protection beneficiaries (Scenario 1) do not have as sharp a targeting performance as the rest of the scenarios. This is natural for universal child grants as they are distributed to all children, yet with regards to households which are already social protection beneficiaries (Scenario 1) there seems to be considerable leakage. With Scenario 1, 57.2 percent of the total benefit is accrued to the bottom 40 percent while with the universal child grant to 0-5 year olds this rate is 56.0 percent and with universal child grant to 0-17 year olds it is 52.3 percent.

## Fiscal Costs and Cost Effectiveness

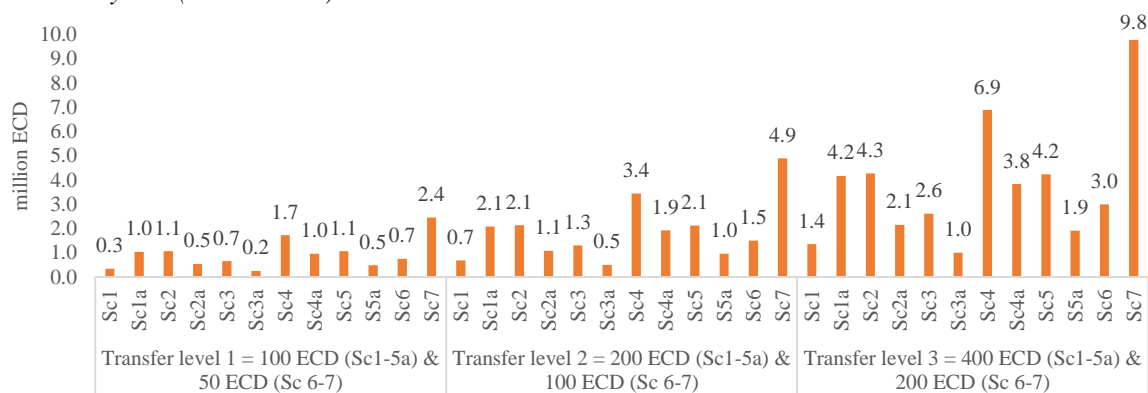
**The universal child grant to all children younger than 18 years old (Scenario 7) is the costliest scenario for all transfer levels (See Figure 10).** In the case of transferring 50 ECD per child, this scenario costs 2.4 million ECD per month and reaches 9.8 million ECD when the transfer is 200 ECD per child. This scenario is followed by the scenario targeting the bottom 40 percent of all households (Scenario 4) in terms of the total cost it generates. Scenario 4 costs 1.7 million ECD a month when 100 ECD per household is transferred and it reaches up to 6.9 million ECD a month when 400 ECD per household is transferred. These two scenarios are the costliest due to the fact that they are the scenarios with the highest coverage.

**The least costly scenario is the scenario targeting households in the bottom 25% with children (that are not eligible under SLNET 3.0) (Scenario 3a) followed by the scenario targeting households which are already social protection beneficiaries (Scenario 1).** Scenario 3a's cost ranges between 0.2 million ECD per month and 1 million ECD per month depending on the transfer level. This scenario is also the one with the lowest coverage and has a small poverty reduction impact. Similarly, Scenario 1 which targets households that are

already social protection beneficiaries has low costs as it is the second scenario with the lowest coverage. Scenario 1 generates between 0.3 million ECD and 1.4 million ECD per month depending on the transfer level.

**Some scenarios lead to a higher poverty reduction with the money spent, and are, therefore, more cost-effective (See Figure 11).** After a mild shock, Scenario 2a that targets households in the bottom 25% (that are not eligible under SLNET 3.0) and Scenario 4a that targets households in the bottom 40% (that are not eligible under SL-NET 3.0) turn out to be the most cost effective policies, among the scenarios distributed at transfer level 1. When the transfer level is increased to transfer level 2 (i.e. 200 ECD per households, 100 ECD per child), Scenario 2a becomes more cost effective than Scenario 4a. And when the transfer level is increased to transfer level 3 (i.e. 400 ECD per households, 200 ECD per child), Scenario 3a that targets households in the bottom 25% with children (that are not eligible under SL-NET 3.0) becomes the most cost effective scenario reducing poverty by 1.9 percentage points per every million ECD spent. Among these scenarios Scenario 4a stands out when poverty reduction impact is considered together with cost effectiveness as performance indicators. For transfer levels 1 and 2, scenario 4a that targets households in the bottom 40% (that are not eligible under SL-NET 3.0) is the most or among the most cost effective and manages to be among the top scenarios in terms of poverty reduction impact. When the transfer level is highest though, level 3, then Scenario 2 that targets households that are in the bottom 25% stands out as the scenario with a high poverty reduction impact and considerable cost-effectiveness.

**Figure 10 The universal child grants for 0-17 year olds scenario (Scenario 7) is the most expensive scenario while targeting households in the bottom 25% with children (that are not eligible under SLNET 3.0) (Scenario 3a) is the least expensive one**  
*Total monthly cost (Million ECD)*



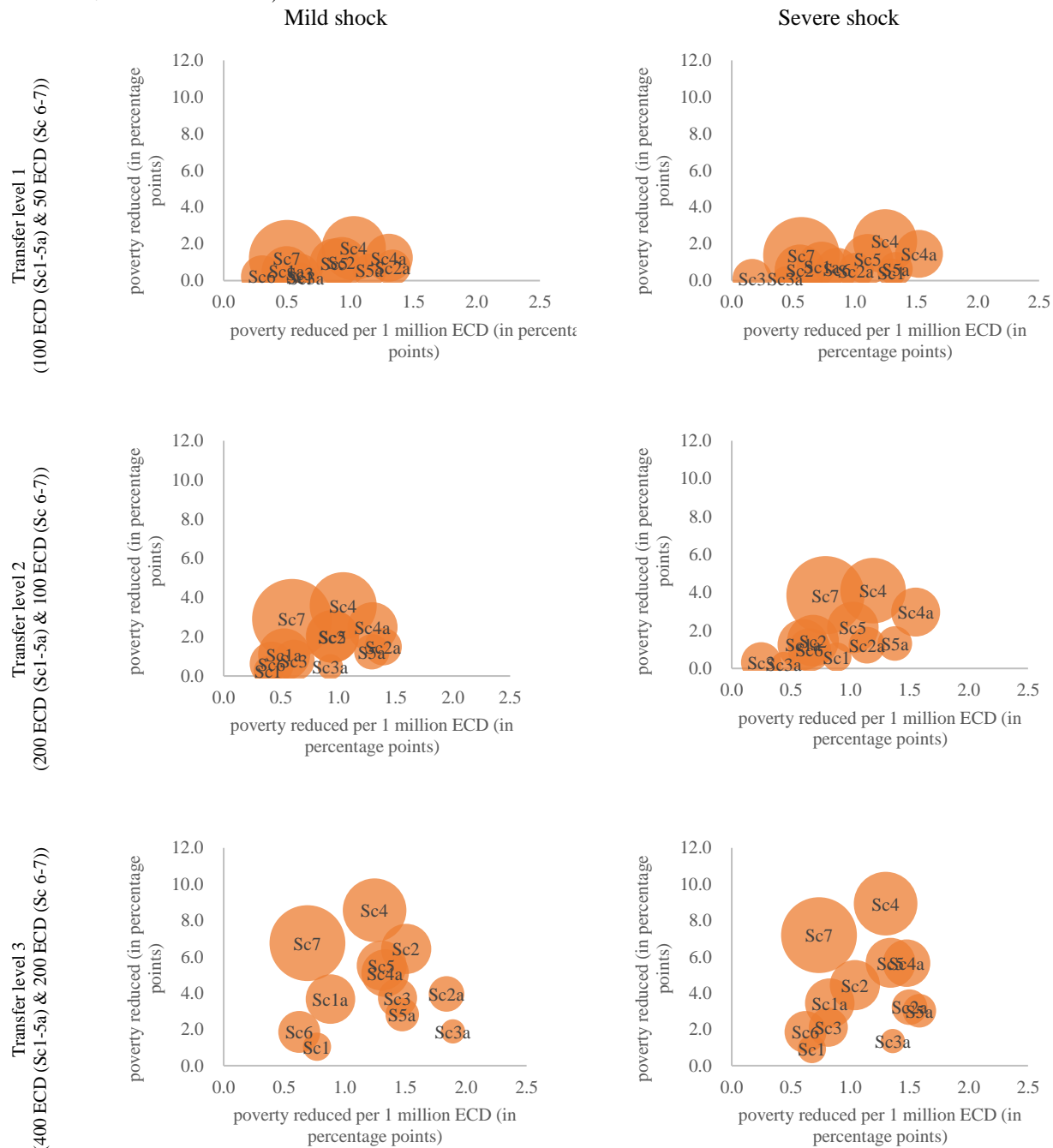
Source: SLC-HBS 2016, Authors' calculations

**Yet after a mild shock the lowest cost scenarios to reach -closest to- the baseline poverty rate are Scenario 2a that targets families in the bottom 25% (that are not eligible under SL-NET 3.0), and Scenario 3 that targets households in the bottom 25% with children at transfer level 3 (i.e. 400 ECD per household) among all scenarios in all three transfer levels.** Scenario 2a decreases the after shock poverty rate to 25.3 percent and Scenario 3 decreases it to 25.5 percent while they cost 2.1 and 2.6 million ECD, respectively, when 400 ECD per household is distributed. For instance, targeting all households in the bottom 40% also decreases poverty rate close to the baseline rate of 25 percent with a lower level household transfer (200 ECD per household) but the total monthly cost of the scenario is much higher with 3.4 million ECD. Hence a higher transfer to the poorest gives the same effect as a lower transfer to a larger number of households at lower total costs.

**If the aim is to reach closest to the baseline poverty rate, after a severe shock as well, then Scenario 4 with transfer level 3 provides the highest poverty reduction impact.** Hence after a severe shock the coverage of transfers need to be expanded to achieve a return back to the baseline poverty rate. Yet even at transfer level 3 (i.e. 400 ECD per household) Scenario 4 leads to a poverty rate of 26.1 percent and costs 6.9 million ECD per month. For a less costly and more cost effective option that also has considerable poverty reduction impact (although smaller) Scenario 4a stands out again costing 3.8 million ECD per month and reducing poverty rate to 29.4 percent.

**Figure 11 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 ECD (and total cost as bubble size – in million ECD)*



Source: SLC-HBS 2016, Authors' calculations



# Conclusions

**COVID-19 pandemic, along with the health-related challenges, has serious socio-economic impact on the households.** Along with the rest of the world, St Lucia is currently dealing with the socio-economic challenges caused by the COVID-19 pandemic with an estimated 8.8 percent GDP contraction in 2020. Recent data collected by the Central Statistical Office shows that the pandemic already had a serious socio-economic impact on the households with 71.2 percent of the survey respondents reporting a decrease in household income and more than 40 percent who were working prior to the pandemic reporting not working at the time of the survey.

**This study estimated the possible monetary and non-monetary impact of COVID-19 via micro-simulation models built using SLC-HBS 2016 dataset.** For the monetary poverty impact, households receive shocks through the channels (i) labour demand, (ii) labour supply and (iii) health expenditures. Labour demand and labour supply shocks decrease the labour income of the households which in turn affects the household expenditure while health expenditures shock leads to a decrease in household wellbeing through a decrease in total expenditures. For the non-monetary poverty shock the channels considered were i) food security, ii) job quality (of employees and job quality of self-employed workers), iii) long term unemployment, and iv) youth unemployment. In addition to the analysis of these four indicators, an extended MPI was computed including the indicator of school attendance, in order to account for the possible increase in the deprivation of this indicator.

**Monetary poverty and inequality increase across the country after the shocks.** In the baseline 25.0 percent of the population is living below the national poverty line (i.e. \$6,443 EC Dollars per person per year or \$536.9 EC Dollars per month). In line with decreases in average per capita expenditure levels after the shocks, poverty rate increases to 27.3 percent, 25.4 percent and 26.8 percent after a mild labour demand, labour supply and health expenditure shocks respectively while it increases to 31.9 percent, 25.6 percent and 28.1 percent if the shocks are severe. When all the shocks are applied together, population poverty increases to 29.3 percent in the occurrence of a mild shock and to 35.1 percent in the occurrence of a severe shock. A similar impact can be observed for child poverty. In the baseline 34.5 percent of children (aged 0-17 years old) are living below the national poverty line and in the occurrence of all three shocks at the same time, child poverty rate increases to 39.0 percent when the shock is mild and to 46.1 percent when it is severe. The shocks also lead to increases in inequality. In the baseline Gini is 43.2 for Saint Lucia. Different than the impact on poverty, inequality is increased the most by the health expenditures shock. Overall, when all shocks are applied together, Gini increases to 44.1 in the occurrence of a mild shock and to 45.0 in the occurrence of a severe shock.

**The pandemic poses considerable non-monetary threats to people's lives, which go beyond short-medium run harm.** A multidimensional approach to poverty that captures deprivation overlaps shows that many people in St. Lucia already face high pre-existing levels of simultaneous burdens – 85.3% incidence and 40.1% intensity. The ongoing pandemic risks creating newly poor population segments, but also exacerbating the negative experience of those who are already poor. Job quality deterioration among employees may see the deprivation headcount ratio of job quality soar from 18.2 to 54.7%, resulting in almost 91% of the

population being multidimensionally poor. Even if some workers are able to preserve their jobs, a recovery policy that is compatible with sustainable human development cannot overlook that this short-term monetary security may come in the form of informal, unstable jobs. When it comes to schooling, even in the mild scenario where 12.7% of children stop attending school, the incidence of multidimensional poverty can rise from 83.6% to almost 85%. Interrupting the process of skill formation in the early stages of life risks severely hindering the prospects of expanded human capital in adulthood for a whole generation of children in St Lucia. An efficient recovery plan cannot wait to take action now against long-term harm to the economic development and human progress that were so hardly won over the last decades.

**Cash transfers are helpful in alleviating poverty but the transfer levels should be at a considerable level to achieve a meaningful impact.** The highest poverty reduction is achieved with Scenario 4 which targets all the households in the bottom 40%. This is followed by the universal child grant for 0-17 years old children (Scenario 7) which achieves the second highest overall poverty reduction and the highest child poverty reduction rate. Yet none of the scenarios achieve a return back to the baseline poverty rate with transfer level 1 (i.e. 100 ECD for Scenarios 1-5a, 50 ECD for Scenarios 6, 7) or transfer level 2 (i.e. 200 ECD for Scenarios 1-5a, 100 ECD for Scenarios 6, 7) after a mild or a severe shock. After a mild shock, doubling the transfer level (to 200 ECD per household), achieves getting an almost return back to the baseline poverty rate only for Scenario 4 while doubling the transfer levels once more (i.e. to 400 ECD per household and 200 ECD per child) leads to a successful poverty reduction effort for all the scenarios except Scenario 1 (targeting households which are already social assistance beneficiaries), Scenario 3a (targeting households in the bottom 25% with children (that are not eligible under SLNET 3.0)), Scenario 5a (households in the bottom 40% with children (that are not eligible under SL-NET 3.0)) and Scenario 6 (universal child grant to children aged 0-5 years old). In the occurrence of a severe shock, none of the cash transfer scenarios are enough to return back to the baseline poverty rate in any of the transfer levels. Scenario 4 (targeting all the households in the bottom 40%) in transfer level 3 – 400 ECD per household achieves getting closest to the baseline poverty rate.

**When cost effectiveness and total costs of scenarios are considered together with poverty reduction impact, more targeted scenarios could be considered.** After a mild shock, the lowest cost scenarios to reach -closest to- the baseline poverty rate are Scenario 2a that targets families in the bottom 25% (that are not eligible under SLNET 3.0), and Scenario 3 that targets households in the bottom 25% with children at transfer level 3 (i.e. 400 ECD per household) among all scenarios in all three transfer levels. However, the coverage of the cash transfers needs to be increased when the shock is more severe. To reach closest to the baseline poverty rate, then Scenario 4 is the main option after a severe shock. However, Scenario 4a that targets households in the bottom 40% (that are not eligible under SLNET 3.0) turns out to be the most cost effective or among the most cost effective scenarios for all three transfer levels and it is also among the scenarios that leads to the highest poverty reduction after a severe shock.

# ANNEXES

## Annex 1: About Data and Methodology

### Annex 1a: Regression for income elasticity

Monthly household 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:

$$\ln(\text{monthly Household Expenditure}) = \beta_0 + \beta_1 \ln(\text{monthly Household Labour income}) + \beta_2 \text{household size} + \beta_3 \text{urban} + u$$

**Annex 1a Table 1 Regression results**

VARIABLES	ln(monthly household expenditure)
ln(monthly household labour income)	0.377*** (0.026)
Household size	0.086*** (0.009)
Urban	0.168*** (0.041)
Constant	7.149*** (0.199)
Observations	1,159
R-squared	0.385

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: SLC-HBS 2016, Authors' calculations

### Annex 1b: Variable used in SLC-HBS 2016 on being a social protection beneficiary

[47] p3a\_1: 3A Are you/ls .....recipient or participant in any of the following programmes?

Options: 1:HOPE (Holistic Opportunities for Personal Empowerment), 2:BNTF - Basic Needs Trust Fund, 3:Koudmen Ste. Lisi, 4:STEP (Short Term Employment Programme), 5:PAP (Public Assistance Programme), 6:Education Assistance (SSDF), 7:Caretaker Maintenance Scheme, 8:Housing Assistance (SSDF), 9:Second Chance Programme, 10:Community After School Programme (CASP), 11:Ministry of Education - School Feeding Programme, 12:Ministry of Education - Student Support Services, 13:Ministry of Education - Scholarship/Bursary, 14:Ministry of Education - School Transportation Programme, 15:Ministry of Education - Special Education Unit, 16:Ministry of Education - Community Day Care, 17:Ministry of Education - Roving CareGivers, 18:National Apprenticeship and Placement Programme (NICE), 19:The Small Business Targeted Assisted Program (NICE), 20:The Constituency Projects & Infrastructure Program (NICE), 21:Single Mothers in Life Empowerment Project (SMILE), 22:Skills for Inclusive Growth Project (OECS), 23:None of the Above,

## Annex 2: Results Tables

### Annex 2a Impact of the COVID-19 shock on household expenditures, poverty and inequality

Annex 2a Table 1 Average per capita household monthly expenditures, poverty and inequality rates in baseline and after each shock

	Baseline	Mild Shock							Severe Shock						
		Labour Demand Shock	Labour Supply	Health Expenditure Shock	Labour Demand + Labour Supply Shocks	Labour Demand Shock + Health Expenditures Shocks	Labour Supply + Health Expenditures Shocks	Labour Demand + Labour Supply + Health Expenditures Shocks	Labour Demand Shock	Labour Supply	Health Expenditure Shock	Labour Demand + Labour Supply Shocks	Labour Demand Shock + Health Expenditures Shocks	Labour Supply + Health Expenditures Shocks	Labour Demand + Labour Supply + Health Expenditures Shocks
<b>Average Monthly Household Per Capita Expenditure (ECD)</b>															
Overall	1,172.4	1,107.4	1,170.8	1,157.9	1,106.4	1,093.4	1,156.8	1,092.4	1,042.8	1,168.8	1,146.8	1,040.4	1,017.7	1,143.8	1,015.5
Quintile 1	342.2	325.5	342.2	338.0	325.5	321.3	338.0	321.3	308.8	341.8	328.0	308.4	294.6	327.5	294.2
Quintile 2	592.1	560.1	591.1	574.3	559.3	542.3	573.3	541.5	528.1	590.0	557.2	526.4	493.3	555.6	492.0
Quintile 3	824.7	775.4	822.7	806.4	773.7	757.1	804.4	755.4	726.1	821.5	799.0	723.7	700.5	795.8	698.0
Quintile 4	1,173.9	1,102.2	1,173.2	1,155.0	1,101.8	1,083.6	1,154.7	1,083.5	1,030.6	1,171.5	1,144.5	1,029.6	1,001.7	1,142.6	1,000.9
Quintile 5	2,931.5	2,777.9	2,929.2	2,920.2	2,775.7	2,766.7	2,918.0	2,764.4	2,624.3	2,923.7	2,909.5	2,617.8	2,602.4	2,901.8	2,595.9
<b>Poverty &amp; Inequality</b>															
Poverty Rate	25.0	27.3	25.4	26.8	27.5	29.3	26.8	29.3	31.9	25.6	28.1	32.3	35.0	28.3	35.1
Poverty Gap	7.5	8.6	7.5	8.5	8.6	9.6	8.6	9.7	9.9	7.6	9.5	10.0	12.3	9.7	12.5
Poverty Severity	3.4	3.9	3.4	3.9	3.9	4.5	4.0	4.5	4.5	3.4	4.7	4.5	6.3	4.9	6.4
Child Poverty	34.5	37.4	34.9	35.9	37.6	39.0	35.9	39.0	43.4	35.2	37.2	44.0	45.9	37.3	46.1
Gini	43.2	43.3	43.3	43.9	43.3	44.0	43.9	44.1	43.7	43.3	44.3	43.7	44.9	44.4	45.0

Source: SLC-HBS 2016, Authors' calculations

## Annex 2b Impact of the COVID-19 shock on multidimensional poverty

Annex 2b Table 1: Simulation results effects of increasing of deprivations in the MPI for St Lucia

Indicators	Scenario	Uncensored			Incidence, H (%)			Intensity, A (%)			MPI		
		headcount ratio (%)			(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
		(a)	(b)	(c)									
Food Security	Baseline	24.7	23.4	26.0	85.3	84.3	86.4	40.1	39.7	40.4	0.342	0.337	0.347
	Mild	29.4	28.2	30.6	85.5	85.4	85.7	39.6	39.5	39.7	0.339	0.338	0.339
	Severe	38.1	36.8	39.4	85.7	85.6	85.9	40.0	40.0	40.1	0.343	0.343	0.344
Job Quality (employees)	Baseline	45.7	44.3	47.2	85.3	84.3	86.4	40.1	39.7	40.4	0.342	0.337	0.347
	Mild	62.4	60.1	64.6	87.7	87.0	88.4	40.0	39.7	40.2	0.351	0.348	0.353
	Severe	83.6	82.3	84.9	90.2	89.8	90.6	40.7	40.5	40.8	0.367	0.366	0.368
Job Quality (Self Employed)	Baseline	45.7	44.3	47.2	85.3	84.3	86.4	40.1	39.7	40.4	0.342	0.337	0.347
	Mild	45.2	44.8	45.7	85.7	85.4	86.0	39.4	39.3	39.4	0.337	0.336	0.338
	Severe	46.4	46.0	46.8	86.1	85.9	86.3	39.3	39.3	39.4	0.338	0.338	0.339
Long-term Unemployment	Baseline	18.2	17.0	19.3	85.3	84.3	86.4	40.1	39.7	40.4	0.342	0.337	0.347
	Mild	32.3	30.4	34.2	86.6	86.1	87.2	40.0	39.8	40.2	0.347	0.345	0.348
	Severe	54.7	53.0	56.4	88.5	88.0	89.0	41.1	41.0	41.3	0.364	0.363	0.366
Youth Unemployment	Baseline	30.8	29.5	32.2	85.3	84.3	86.4	40.1	39.7	40.4	0.342	0.337	0.347
	Mild	40.4	38.5	42.2	86.4	85.8	86.9	39.9	39.7	40.1	0.345	0.343	0.346
	Severe	55.9	54.4	57.3	87.8	87.4	88.3	40.6	40.5	40.7	0.357	0.355	0.358
School Attendance	Baseline	1.2	0.9	1.6	83.6	82.5	84.7	37.9	37.6	38.2	0.317	0.312	0.322
	Mild	12.7	10.6	14.8	84.8	84.6	85.0	38.0	37.8	38.2	0.322	0.321	0.324
	Severe	26.6	25.2	28.0	85.2	84.9	85.4	39.0	38.9	39.1	0.332	0.331	0.333

Notes: (a)=mean point estimate, (b)=95% confidence interval lower bound; (c)=95% confidence interval upper bound. Source: SLC-HBS 2016, Authors' calculations

## Annex 2c Outcomes after the cash transfers

Annex 2c Table 1 Outcomes of cash transfer scenarios when transfers are distributed after a mild shock (Poverty Line: \$6,443 ECD per person per year or \$536.9 ECD per month)

	Baseline	After Mild Shock	Transfer level 1 = 100 ECD (Sc1-5a) & 50 ECD (Sc 6-7)												Transfer level 2 = 200 ECD (Sc1-5a) & 100 ECD (Sc 6-7)												Transfer level 3 = 400 ECD (Sc1-5a) & 200 ECD (Sc 6-7)													
			Sc1	Sc1a	Sc2	Sc2a	Sc3	Sc3a	Sc4	Sc4a	Sc5	S5a	Sc6	Sc7	Sc1	Sc1a	Sc2	Sc2a	Sc3	Sc3a	Sc4	Sc4a	Sc5	S5a	Sc6	Sc7	Sc1	Sc1a	Sc2	Sc2a	Sc3	Sc3a	Sc4	Sc4a	Sc5	S5a	Sc6	Sc7		
<b>Poverty and Inequality</b>																																								
P0	25.0	29.3	29.1	28.8	28.3	28.6	28.9	29.1	27.5	28.0	28.4	28.7	29.1	28.1	29.0	28.2	27.3	27.8	28.5	28.8	25.7	26.8	27.3	28.0	28.7	26.4	28.2	25.6	22.8	25.3	25.5	27.4	20.7	24.2	23.8	26.5	27.4	22.5		
P1	7.5	9.7	9.5	9.1	8.6	9.2	9.0	9.4	8.5	9.1	8.9	9.4	9.4	8.7	9.4	8.5	7.6	8.7	8.4	9.2	7.5	8.6	8.2	9.1	9.0	7.8	9.1	7.5	6.1	8.1	7.2	8.8	5.9	8.0	7.0	8.7	8.4	6.2		
P2	3.4	4.5	4.4	4.1	3.9	4.3	4.1	4.4	3.8	4.3	4.1	4.4	4.3	3.9	4.3	3.8	3.3	4.1	3.7	4.3	3.3	4.0	3.7	4.3	4.1	3.4	4.2	3.2	2.6	3.8	3.1	4.2	2.4	3.8	3.0	4.1	3.7	2.5		
Child poverty	34.5	39.0	38.9	38.5	38.3	38.7	38.3	38.7	37.6	38.2	37.6	38.2	38.7	37.0	38.9	37.9	37.7	38.2	37.7	38.2	36.0	37.2	36.0	37.2	38.0	33.8	37.7	34.0	32.8	36.0	32.8	36.0	30.1	34.8	30.1	34.8	36.0	27.2		
Gini	43.2	44.1	43.9	43.6	43.5	43.8	43.7	43.9	43.2	43.6	43.5	43.8	43.8	43.3	43.8	43.2	42.9	43.5	43.3	43.8	42.4	43.2	43.0	43.6	43.6	42.6	43.7	42.4	41.8	43.0	42.6	43.5	40.8	42.5	42.0	43.2	43.1	41.3		
<b>Coverage</b>																																								
Population Coverage	.	.	8.6	30.2	25.0	9.0	20.4	6.2	40.0	17.4	32.3	12.3	35.3	67.2	8.6	30.2	25.0	9.0	20.4	6.2	40.0	17.4	32.3	12.3	35.3	67.2	8.6	30.2	25.0	9.0	20.4	6.2	40.0	17.4	32.3	12.3	35.3	67.2		
Coverage of children	.	.	11.6	42.9	34.5	9.4	34.5	9.4	52.3	18.2	52.3	18.2	56.4	100.0	11.6	42.9	34.5	9.4	34.5	9.4	52.3	18.2	52.3	18.2	56.4	100.0	11.6	42.9	34.5	9.4	34.5	9.4	52.3	18.2	52.3	18.2	56.4	100.0		
Q1	.	.	21.0	66.7	100.0	33.3	81.9	22.6	100.0	33.3	81.9	22.6	53.6	81.9	21.0	66.7	100.0	33.3	81.9	22.6	100.0	33.3	81.9	22.6	53.6	81.9	21.0	66.7	100.0	33.3	81.9	22.6	100.0	33.3	81.9	22.6	53.6	81.9		
Q2	.	.	8.4	46.4	25.0	11.8	20.1	8.2	100.0	53.6	79.4	38.9	44.7	79.4	8.4	46.4	25.0	11.8	20.1	8.2	100.0	53.6	79.4	38.9	44.7	79.4	8.4	46.4	25.0	11.8	20.1	8.2	100.0	53.6	79.4	38.9	44.7	79.4		
Q3	.	.	5.3	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.3	70.0	5.3	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.3	70.0
Q4	.	.	7.3	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	63.0	7.3	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	63.0
Q5	.	.	0.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	41.7	0.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	41.7
Bottom 40%	.	.	14.7	56.6	62.5	22.5	51.0	15.4	100.0	43.4	80.7	30.7	49.1	80.7	14.7	56.6	62.5	22.5	51.0	15.4	100.0	43.4	80.7	30.7	49.1	80.7	14.7	56.6	62.5	22.5	51.0	15.4	100.0	43.4	80.7	30.7	49.1	80.7		
<b>Benefit incidence</b>																																								
Q1	.	.	38.7	42.5	80.3	77.1	79.7	74.8	49.9	43.3	49.0	39.1	33.2	28.0	38.7	42.5	80.3	77.1	79.7	74.8	49.9	43.3	49.0	39.1	33.2	28.0	38.7	42.5	80.3	77.1	79.7	74.8	49.9	43.3	49.0	39.1	33.2	28.0		
Q2	.	.	18.5	30.6	19.7	22.9	20.3	25.2	50.1	56.7	51.0	60.9	22.9	24.3	18.5	30.6	19.7	22.9	20.3	25.2	50.1	56.7	51.0	60.9	22.9	24.3	18.5	30.6	19.7	22.9	20.3	25.2	50.1	56.7	51.0	60.9	22.9	24.3		
Q3	.	.	13.9	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	20.2	13.9	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	20.2
Q4	.	.	23.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	16.1	23.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	16.1
Q5	.	.	5.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	11.4	5.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	11.4	
Bottom 40%	.	.	57.2	73.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	56.0	52.3	57.2	73.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	56.0	52.3
<b>Costs</b>																																								
Average hh transfer	.	.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	62.5	95.2	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	250.0	380.6
Average pc transfer	.	.	38.4	27.5	40.4	52.1	22.0	26.8	38.9	47.6	22.4	25.6	13.3	21.1	76.9	55.0	80.9	104.2	44.1	53.6	77.8	95.2	44.7	51.2	26.6	42.2	153.8	110.0	161.7	208.5	88.1	107.1	155.6	190.3	89.5	102.5	53.1	84.4		
Cost per child reached	.	.	59.6	49.7	63.5	117.5	38.6	54.6	67.3	107.4	41.4	53.6	27.1	50.0	119.3	99.5	126.9	235.0	77.3	109.2	134.6	214.9	82.8	107.2	54.2	100.0	238.6	198.9	253.8	470.1	154.6	218.4	269.2	429.7	165.5	214.5	108.4	200.0		
Cost per person reached	.	.	22.9	20.0	24.7	34.6	18.5	23.4	24.9	31.9	19.0	22.5	12.2	21.1	45.8	40.0	49.5	69.1	36.9	46.9	49.8	63.9	38.0	45.1	24.5	42.1	91.6	80.0	99.0	138.3	73.8	93.8	99.6	127.7	75.9	90.1	49.0	84.2		
Total additional cost(millions)	.	.	0.3	1.0	1.1	0.5	0.7	0.2	1.7	1.0	1.1	0.5	0.7	2.4	0.7	2.1	2.1	1.1	1.3	0.5	3.4	1.9	2.1	1.0	1.5	4.9	1.4	4.2	4.3	2.1	2.6	1.0	6.9	3.8	4.2	1.9	3.0	9.8		
<b>Cost Effectiveness (per Million)</b>																																								
% Headcount Ratio Reduction	.	.	0.6	0.5	0.9	1.3	0.6	0.7	1.0	1.3	0.9	1.2	0.3	0.5	0.4	0.5	0.9	1.4	0.6	0.9	1.0	1.3	1.0	1.3	0.4	0.6	0.8	0.9	1.5	1.8	1.4	1.9	1.2	1.3	1.3	1.5	0.6	0.7		
% Poverty Gap Reduction	.	.	0.5	0.6	1.0	1.0	1.0	1.0	0.7	0.6	0.7	0.6	0.4	0.4	0.5	0.6	1.0	0.9	1.0	1.0	0.6	0.6	0.7	0.6	0.4	0.4	0.4	0.5	0.8	0.7	1.0	0.9	0.6	0.4	0.6	0.5	0.4	0.4		
% Poverty Severity Reduction	.	.	0.3	0.4	0.6	0.5	0.7	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.6	0.4	0.6	0.5	0.4	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.5	0.3	0.6	0.4	0.3	0.2	0.4	0.2	0.3	0.2		

Source: SLC-HBS 2016, Authors' calculations

Annex 2c Table 2 Outcomes of cash transfer scenarios when transfers are distributed after a severe shock (Poverty Line: \$6,443 ECD per person per year or \$536.9 ECD per month)

	Baseline	Transfer level 1 = 100 ECD (Sc1-5a) & 50 ECD (Sc 6-7)												Transfer level 2 = 200 ECD (Sc1-5a) & 100 ECD (Sc 6-7)												Transfer level 3 = 400 ECD (Sc1-5a) & 200 ECD (Sc 6-7)												
		After Severe Shock	Sc1	Sc1a	Sc2	Sc2a	Sc3	Sc3a	Sc4	Sc4a	Sc5	S5a	Sc6	Sc7	Sc1	Sc1a	Sc2	Sc2a	Sc3	Sc3a	Sc4	Sc4a	Sc5	S5a	Sc6	Sc7	Sc1	Sc1a	Sc2	Sc2a	Sc3	Sc3a	Sc4	Sc4a	Sc5	S5a	Sc6	Sc7
<b>Poverty and Inequality</b>																																						
P0	25.0	35.1	34.6	34.3	34.5	34.5	35.0	35.0	32.9	33.6	33.9	34.4	34.4	33.7	34.5	33.8	33.6	33.9	34.8	34.9	31.0	32.1	32.9	33.8	34.1	31.2	34.2	31.6	30.6	31.9	33.0	33.7	26.1	29.4	29.4	32.1	33.2	27.9
P1	7.5	12.5	12.3	11.8	11.4	11.9	11.8	12.2	11.1	11.8	11.6	12.1	12.1	11.3	12.1	11.2	10.4	11.5	11.1	11.9	9.9	11.2	10.8	11.8	11.7	10.3	11.8	10.0	8.7	10.8	9.9	11.5	8.0	10.4	9.4	11.2	10.9	8.4
P2	3.4	6.4	6.3	5.9	5.6	6.1	5.9	6.2	5.5	6.0	5.8	6.2	6.1	5.6	6.2	5.4	5.0	5.8	5.4	6.1	4.8	5.7	5.3	6.0	5.9	4.9	6.0	4.7	4.0	5.5	4.7	5.9	3.7	5.3	4.4	5.7	5.4	3.8
Child poverty	34.5	46.1	45.5	45.0	45.8	45.8	45.8	45.8	43.9	44.9	43.9	44.9	45.0	43.5	45.5	44.6	45.6	45.7	45.6	45.7	42.5	43.9	42.5	43.9	44.5	39.2	45.1	41.5	42.5	43.9	42.5	43.9	37.1	41.5	37.1	41.5	43.0	33.6
Gini	43.2	45.0	44.9	44.7	44.5	44.7	44.6	44.8	44.3	44.6	44.5	44.8	44.8	44.3	44.8	44.2	43.9	44.4	44.2	44.7	43.4	44.1	44.0	44.5	44.6	43.5	44.6	43.4	42.8	43.9	43.5	44.4	41.8	43.4	42.9	44.1	44.0	42.1
<b>Coverage</b>																																						
Population Coverage	.	.	8.6	30.2	25.0	9.0	20.4	6.2	40.0	17.4	32.3	12.3	35.3	67.2	8.6	30.2	25.0	9.0	20.4	6.2	40.0	17.4	32.3	12.3	35.3	67.2	8.6	30.2	25.0	9.0	20.4	6.2	40.0	17.4	32.3	12.3	35.3	67.2
Coverage of children	.	.	11.6	42.9	34.5	9.4	34.5	9.4	52.3	18.2	52.3	18.2	56.4	100.0	11.6	42.9	34.5	9.4	34.5	9.4	52.3	18.2	52.3	18.2	56.4	100.0	11.6	42.9	34.5	9.4	34.5	9.4	52.3	18.2	52.3	18.2	56.4	100.0
Q1	.	.	21.0	66.7	100.0	33.3	81.9	22.6	100.0	33.3	81.9	22.6	53.6	81.9	21.0	66.7	100.0	33.3	81.9	22.6	100.0	33.3	81.9	22.6	53.6	81.9	21.0	66.7	100.0	33.3	81.9	22.6	100.0	33.3	81.9	22.6	53.6	81.9
Q2	.	.	8.4	46.4	25.0	11.8	20.1	8.2	100.0	53.6	79.4	38.9	44.7	79.4	8.4	46.4	25.0	11.8	20.1	8.2	100.0	53.6	79.4	38.9	44.7	79.4	8.4	46.4	25.0	11.8	20.1	8.2	100.0	53.6	79.4	38.9	44.7	79.4
Q3	.	.	5.3	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.3	70.0	5.3	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.3	70.0	5.3	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.3	70.0
Q4	.	.	7.3	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	63.0	7.3	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	63.0	7.3	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	63.0	
Q5	.	.	0.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	41.7	0.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	41.7	0.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	41.7	
Bottom 40%	.	.	14.7	56.6	62.5	22.5	51.0	15.4	100.0	43.4	80.7	30.7	49.1	80.7	14.7	56.6	62.5	22.5	51.0	15.4	100.0	43.4	80.7	30.7	49.1	80.7	14.7	56.6	62.5	22.5	51.0	15.4	100.0	43.4	80.7	30.7	49.1	80.7
<b>Benefit incidence</b>																																						
Q1	.	.	38.7	42.5	80.3	77.1	79.7	74.8	49.9	43.3	49.0	39.1	33.2	28.0	38.7	42.5	80.3	77.1	79.7	74.8	49.9	43.3	49.0	39.1	33.2	28.0	38.7	42.5	80.3	77.1	79.7	74.8	49.9	43.3	49.0	39.1	33.2	28.0
Q2	.	.	18.5	30.6	19.7	22.9	20.3	25.2	50.1	56.7	51.0	60.9	22.9	24.3	18.5	30.6	19.7	22.9	20.3	25.2	50.1	56.7	51.0	60.9	22.9	24.3	18.5	30.6	19.7	22.9	20.3	25.2	50.1	56.7	51.0	60.9	22.9	24.3
Q3	.	.	13.9	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	20.2	13.9	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	20.2	13.9	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	20.2
Q4	.	.	23.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	16.1	23.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	16.1	23.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	16.1	
Q5	.	.	5.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	11.4	5.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	11.4	5.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	11.4	
Bottom 40%	.	.	57.2	73.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	56.0	52.3	57.2	73.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	56.0	52.3	57.2	73.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	56.0	52.3
<b>Costs</b>																																						
Average hh transfer	.	.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	62.5	95.2	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	125.0	190.3	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	250.0	380.6	
Average pc transfer	.	.	38.4	27.5	40.4	52.1	22.0	26.8	38.9	47.6	22.4	25.6	13.3	21.1	76.9	55.0	80.9	104.2	44.1	53.6	77.8	95.2	44.7	51.2	26.6	42.2	153.8	110.0	161.7	208.5	88.1	107.1	155.6	190.3	89.5	102.5	53.1	84.4
Cost per child reached	.	.	59.6	49.7	63.5	117.5	38.6	54.6	67.3	107.4	41.4	53.6	27.1	50.0	119.3	99.5	126.9	235.0	77.3	109.2	134.6	214.9	82.8	107.2	54.2	100.0	238.6	198.9	253.8	470.1	154.6	218.4	269.2	429.7	165.5	214.5	108.4	200.0
Cost per person reached	.	.	22.9	20.0	24.7	34.6	18.5	23.4	24.9	31.9	19.0	22.5	12.2	21.1	45.8	40.0	49.5	69.1	36.9	46.9	49.8	63.9	38.0	45.1	24.5	42.1	91.6	80.0	99.0	138.3	73.8	93.8	99.6	127.7	75.9	90.1	49.0	84.2
Total additional cost(millions)	.	.	0.3	1.0	1.1	0.5	0.7	0.2	1.7	1.0	1.1	0.5	0.7	2.4	0.7	2.1	2.1	1.1	1.3	0.5	3.4	1.9	2.1	1.0	1.5	4.9	1.4	4.2	4.3	2.1	2.6	1.0	6.9	3.8	4.2	1.9	3.0	9.8
<b>Cost Effectiveness (per Million)</b>																																						
% Headcount Ratio Reduction	.	.	1.3	0.7	0.6	1.0	0.2	0.4	1.2	1.5	1.1	1.3	0.9	0.6	0.9	0.6	0.7	1.1	0.2	0.4	1.2	1.6	1.0	1.4	0.7	0.8	0.7	0.8	1.0	1.5	0.8	1.4	1.3	1.5	1.3	1.6	0.6	0.7
% Poverty Gap Reduction	.	.	0.5	0.6	1.0	1.0	1.0	0.8	0.7	0.8	0.8	0.5	0.5	0.5	0.5	0.6	1.0	0.9	1.0	1.0	0.7	0.6	0.8	0.7	0.5	0.4	0.5	0.6	0.9	0.8	1.0	1.0	0.6	0.5	0.7	0.7	0.5	0.4
% Poverty Severity Reduction	.	.	0.4	0.5	0.7	0.6	0.8	0.6	0.5	0.4	0.6	0.4	0.4	0.3	0.3	0.5	0.7	0.5	0.7	0.6	0.5	0.4	0.5	0.4	0.4	0.3	0.3	0.4	0.6	0.4	0.7	0.5	0.4	0.3	0.5	0.3	0.3	0.3

Source: SLC-HBS 2016, Authors' calculations

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