



# Policy Brief

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\* This policy brief is an outgrowth of a project undertaken by the Brac Institute of Governance and Development (BIGD). The authors are respectively, Professorial Fellow, BIGD; Research Director, Policy Research Institute (PRI) and Visiting Fellow, BIGD; Lecturer in Economics, Jagannath University, Research Fellow, Research and Policy Integration for Development; and Senior Research Fellow, BIGD. Any views expressed and limitations in this paper are those of the authors and in no way should be attributed to the institutions named.

## SOCIO-ECONOMIC IMPACT OF COVID-19 AND POLICY IMPLICATIONS FOR BANGLADESH

### BACKGROUND

The COVID-19 pandemic is causing an unprecedented health and economic crisis for global economies, including Bangladesh. In the absence of a vaccine or effective treatment, governments worldwide implemented large-scale containment measures such as limiting economic activities to the essential. Coupled with the social distancing measures taken by the citizens to avoid contagion from the virus and

economic shutdown measures, these actions have resulted in huge short-term economic losses. After the withdrawal of lockdown measures, economic activities are gradually resuming, although it is not clear when a full-swing recovery will be possible.

The impact of COVID-19 on the economy of Bangladesh has been transmitting through two

main channels: (i) depressed domestic demand and supply disruptions in the local economy, and (ii) slowdown in global economic activities affecting global trade and international financial flows. This policy brief summarises the main findings of a study by the Brac Institute of Governance and Development (BIGD) that utilises the Global Trade Analysis Project (GTAP) model—a multi-region/multi-country computable general equilibrium framework—to explore Coronavirus-induced disruptions for Bangladesh. It also explores the likely impact of the government’s stimulus package to mitigate the adverse consequences.

## METHODOLOGY

Utilising the GTAP framework, two different approaches to study the impact of COVID-19 on Bangladesh have been considered. In the first approach, the consumption demand shocks along with international trade and tourism disruptions are introduced for all global economies, including Bangladesh. In the second approach, a more Bangladesh-focused model is adopted in which the global economic slowdown or recession induced by COVID-19 is considered as an external shock, representing the lower combined gross domestic product (GDP) growth of all countries other than Bangladesh. Along with this, domestic disruptions are introduced through aggregate demand shocks arising from reduced consumption, investment, and trade transactions. In other words, while the first approach analyses the impact of the global slowdown on all economies in the model, the second approach analyses the impact on Bangladesh’s economy only. This is explained further below.

More specifically, the global modelling approach incorporates—based on the review of different transmission channels—four sets of shocks: (i) consumption demand shock for all economies, (ii) an oil price shock, (iii) a tourism shock that reduces domestic and international tourism and related activities, and (iv) a trade shock that raises the costs of exports and imports.

The demand prospects for global economies have been obtained from different studies to define three shock scenarios, i.e. low, medium, and high. For the demand shocks introduced, domestic private consumption is considered to decline by 2%, 3.5%, and 5% under the low, medium, and high shock scenarios, respectively.<sup>1</sup> From a review of various existing analyses, oil prices are thought to be 10%, 15%, and 20% weaker under the three different scenarios; this can have both positive and negative impacts depending on whether a country is a net importer or exporter of petroleum products. The decline in global tourism activities is modelled as a consumption tax on tourism-related services, i.e. transport, accommodation, and recreation services.<sup>2</sup> Finally, global trade disruptions are modelled by considering higher trade costs for exports and imports. It is assumed that trade costs rise by 1.5%, 2.5%, and 5% in the low, medium, and high shock scenarios, respectively.<sup>3</sup>

In the Bangladesh-focused modelling exercise, the exogenous shock has been introduced based on GDP growth forecasts for individual economies by the World Bank and the International Monetary Fund (IMF). The domestic disruptions have been incorporated using the consumption and investment shocks as well as tourism shocks based on the government and the authors’ assessments. The total investment is assumed to decline by 10%, 20%, and 25% in the low, medium, and high shock scenarios, respectively. The shocks for consumption, tourism, oil price, and international trade flows are the same for Bangladesh as those used in the global model described in the preceding paragraph.

<sup>1</sup> This has been set based on the review of various studies and the authors’ assessment of demand contraction for the whole year rather than the peak crisis period only. The demand contractions for other global economies are based on a survey of the existing studies and analyses.

<sup>2</sup> The cost of tourism-related services is increased by raising the tax rates by 10% for domestic tourism and 20% for international tourism under the low shock scenario. The corresponding tax rates are increased by 15% and 30% under the medium shock scenario and by 20% and 40% under the high shock scenario. It is worth pointing out that international tourist arrivals are anticipated to decline by 58-78% in 2020 (UNWTO, 2020).

<sup>3</sup> ADB (2020) and Maliszewska et al. (2020) have used similar trade costs. The global trade is anticipated to fall by 13-32% in 2020 (WTO, 2020).

Finally, policy response simulations have been performed under each scenario to assess the impact of government interventions through fiscal stimulus packages. Most global economies have rolled out sizeable fiscal and financial schemes to support their producers, consumers, and workers. As a part of this paper, all such support has been categorised into direct income support to consumers, working capital assistance to firms, and wage support and other incentives to enterprises. These are used in the model as support to consumers (as subsidy), labour (as wage input into production) and producers (e.g. as working capital to firms contributing to production).

The results derived from the GTAP analysis were inputted into a social accounting matrix multiplier model to analyse the impact on various types of households. The resulting income shortfalls are then compared with the Household Income and Expenditure Survey (HIES) data to obtain poverty implications.

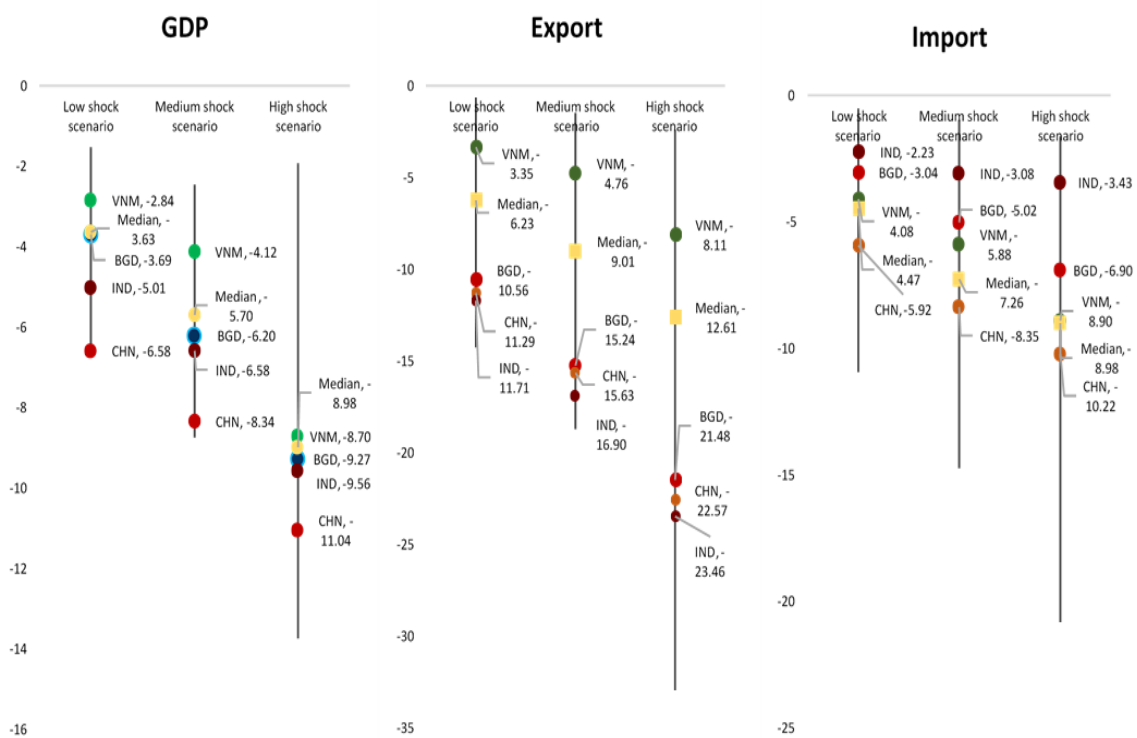
The GTAP model (version 10) has an integrated database with 2014 as the base year, which

has been updated to 2020 by the authors to undertake the policy simulation. The model has 65 sectors (45 goods and 20 services sectors) and 141 regions/countries. The authors have aggregated these to 27 regions/countries and 24 sectors to closely reflect the context of Bangladesh.

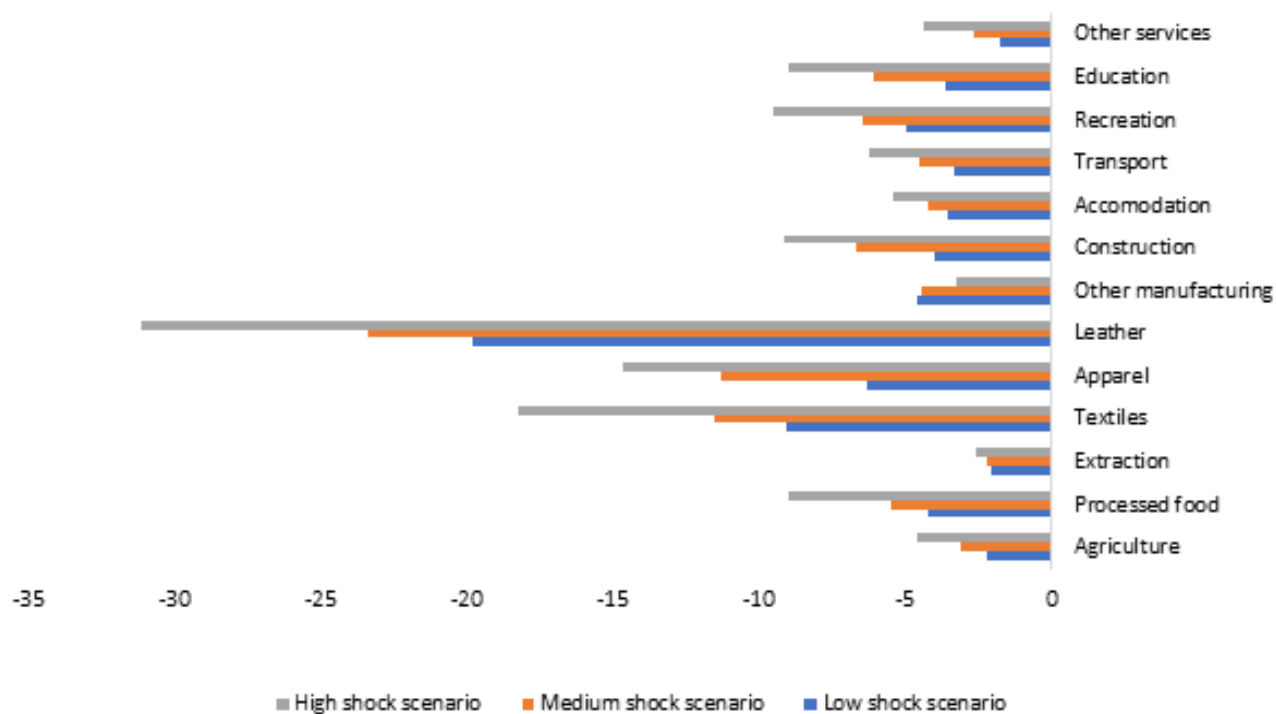
## SIMULATION RESULTS

The results obtained from the first approach—introducing shocks to all individual global economics—suggest that under a low-shock scenario, in the absence of public policy interventions, the simulated GDP impact for Bangladesh in 2020 is \$11 billion—(3.7%) lower than the baseline level in the absence of COVID-19 (Figure 1). The impacts under medium and high shock scenarios are much higher—6.2% and 9.3% lower than the baseline for Bangladesh. The impact on GDP for China and India would be in the range of 6.6-11% and 5-9.6%, respectively, under different shock scenarios.

Figure 1. A summary of COVID-19 impacts on GDP, exports and imports (% deviation from the baseline)



**Figure 2. Impact on sectoral GDP (%)**



Source: Authors’ simulations

Considering disaggregated sectoral outputs, the leather sector is likely to be hit the hardest with the sector’s output declining between 20% and 31% from the pre-COVID baseline (Figure 2). It is followed by apparel (9-18%) and textile (6-15%) decline in output. Agricultural production is found to be 2.2-4.6% lower than the baseline output.

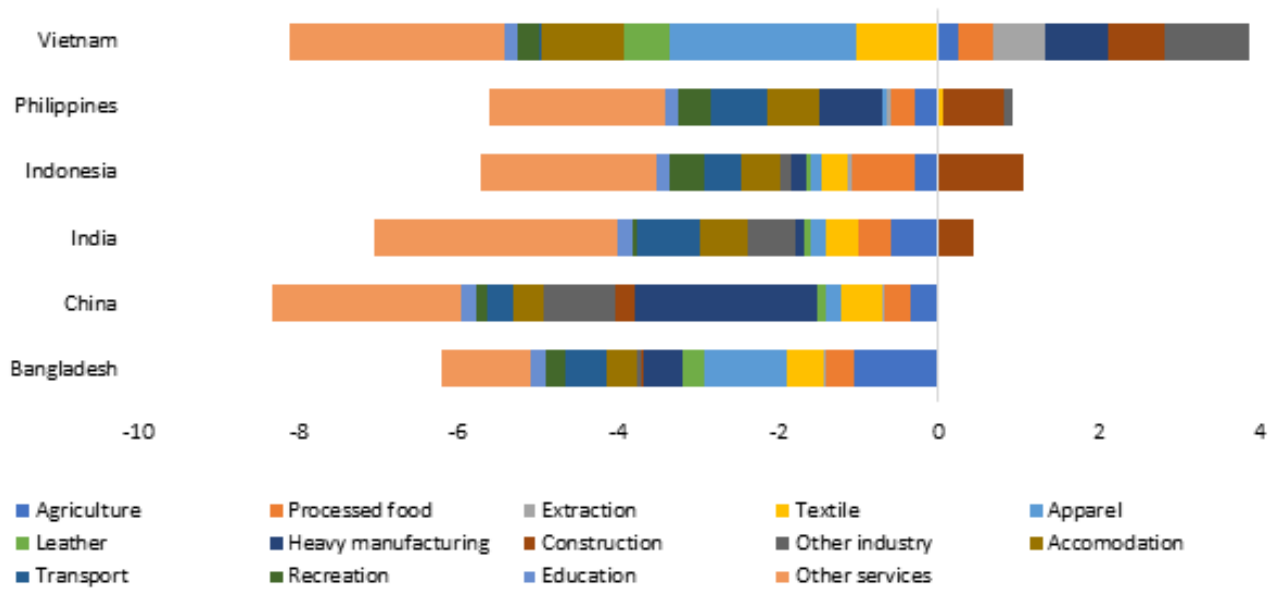
The overall growth contraction can be decomposed into changes in sector-specific outputs. In the case of Bangladesh, of the overall 6.2% reduction in GDP under the medium shock scenario, agriculture (including crop and non-crop), apparel, and other services contribute around 1% each (Figure 3).<sup>4</sup> Bangladesh and China do not have any sectors that post positive growth; and for India, Indonesia, and the Philippines, sectors with increased outputs are negligible.

<sup>4</sup> Other services include utility, communications, insurance and financial services, health, trade, warehousing and support activities, real estate activities, business services, public administration and defense, and dwellings.

Bangladesh’s overall trade volume without any policy intervention is simulated to decline by 6.1%, 9%, and about 14%, respectively, under the low, medium, and high shock scenarios. Bangladesh’s exports could decline by \$4.6 billion under the low shock scenario, which rises to \$9.4 billion under the high shock scenario (i.e. a decline in the range of 10.6-21.5% from the baseline of no COVID-19 situation). Apparel items for Bangladesh are estimated to experience the largest absolute export contraction, by 8-15% from the baseline (Figure 4). In terms of percentage changes from the baseline, exports of textile products could decline by 34.5% to 58%, while the corresponding changes in leather and leather goods exports would be 28% to 56.3% under low to high shock scenarios. The overall contraction in exports in Bangladesh is comparable with China, India, Indonesia, and Pakistan, while Cambodia and Vietnam are simulated to have a lower contraction in terms of percentage changes.

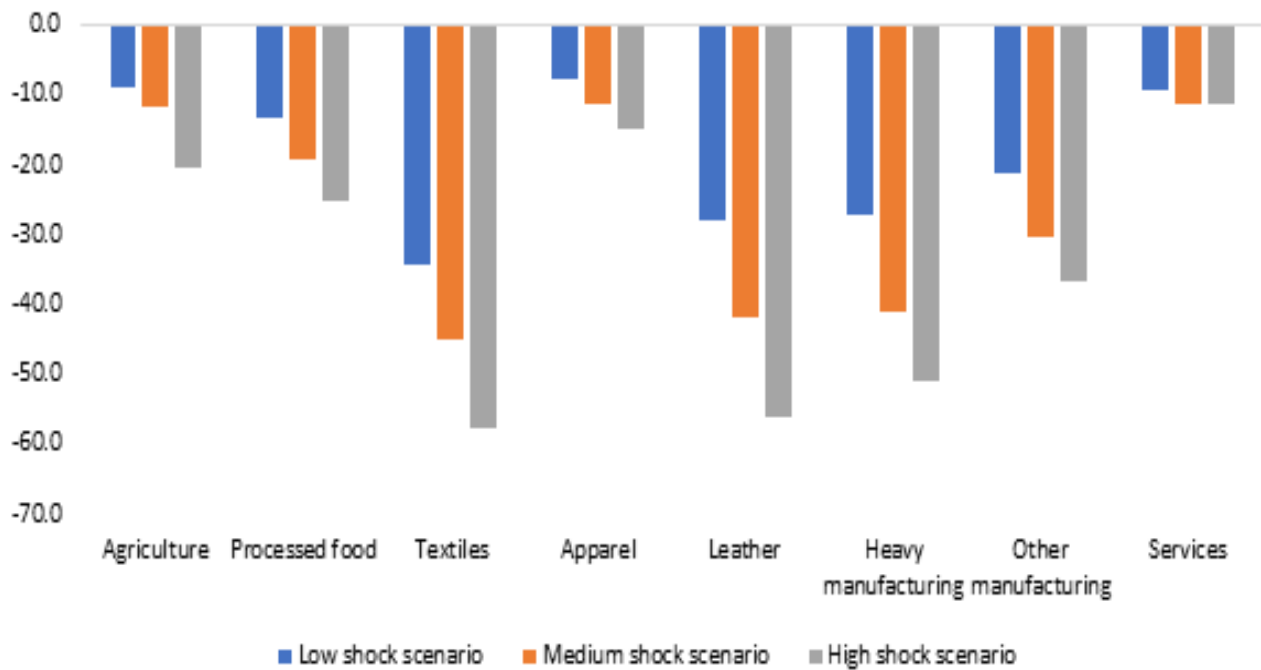
The simulation results from the Bangladesh-focused modelling exercise on the impacts on GDP and exports are comparable with the

**Figure 3. Medium shock scenario: sectoral contribution to GDP contraction (%)**



Source: Authors' simulations

**Figure 4. Impact on exports by sector (%)**





results reported using the modelling of individual economies. Bangladesh's GDP is simulated to fall short of the baseline value by 3.5% under the low shock scenario which could increase to 6.3% under the medium shock scenario and 8.2% under the high shock scenario. Overall, goods and services imports could shrink by 11.1-23.4% in comparison with the baseline imports, whereas such impact on exports could be 10.2-23% of exports depending on the alternative shock scenarios. The impact on remittance, simulated from "GMig" database, would be 3.8%, 6%, and 7.7% under low, medium, and high shock scenarios, respectively.

## POLICY IMPLICATIONS AND CONCLUSION

The COVID-induced public actions and the requirement of extreme social distancing have resulted in large short-term economic losses, affecting domestic economic activities, earnings of households and firms, employment, and international trade (exports and imports), and investment. While several analyses and micro surveys in Bangladesh have highlighted the immediate impact of lockdown on income and poverty of poor and vulnerable households, this paper considers a macro approach in assessing the implications for the full year of 2020 against a baseline without the pandemic-related disruptions (in which case, Bangladesh would register an estimated 8% GDP growth).

When the sectoral output shocks obtained from GTAP simulations are introduced in the 2020 social accounting matrix (SAM) of Bangladesh to assess the overall yearly impact on household income, the multiplier effects seem to suggest income contractions of 3.5%, 5.7%, and 7.5% (for household types listed in Table 1) under low, medium, and high shock scenarios. This could

increase the share of the population living in poverty to 22.7% from the immediate pre-COVID rate of 20.5% under low shock scenario (Table 1).<sup>5</sup> The corresponding figures could be 24% and 25.7% under medium and high shock scenarios, respectively.

**Table 1. Impact of COVID-19 on headcount poverty incidences by household types in Bangladesh**

Household Type	Pre-COVID baseline	Low-shock scenario	Medium-shock scenario	High-shock scenario
<b>Rural households (%)</b>				
Small farmer	36.4	39.9	41.6	43.9
Medium farmer	17.9	20.4	21.6	23.6
Large farmer	11.8	13.8	14.5	17.4
Non-farm self-employed	16.5	18.8	19.9	21.3
Non-farm wage-employed	23.3	25.7	27.6	29.8
<b>Urban households (%)</b>				
Day labourer	29.1	31.6	32.9	35.2
Salaried	11.2	12.5	13.2	14.6
Self-employed	10.8	12.1	12.7	13.3
<b>Overall</b>	<b>20.5</b>	<b>22.7</b>	<b>24.0</b>	<b>25.7</b>

Note: Small farmers also incorporate day labourers working in the rural agriculture sector.

Source: Authors' estimation

When the stimulus package spending (3.6% of GDP) is incorporated into the second model, the simulation results show the adverse impact of COVID-19 on the economy to fall to 2.9-7.2% of GDP under the three alternative shock scenarios (Figure 5). That means, because of government policy measures, the impact on overall GDP would be 0.6 percentage point lower under the low shock case and under both medium and high shock scenarios the impact would be around 1 percentage point lower (Figure 5). On exports, the impact of the stimulus package is between 3 and 5 percentage points while for imports the comparable impacts are in the range of 2.5-3.9 percentage points.

Most of the stimulus package schemes are subsidized loan programmes channelled through public and private banks. Therefore, the net injection into the

<sup>5</sup> The household income loss obtained from the SAM multiplier model has been introduced in the Household Income and Expenditure Survey (HIES) 2016 data to estimate the impact on poverty.

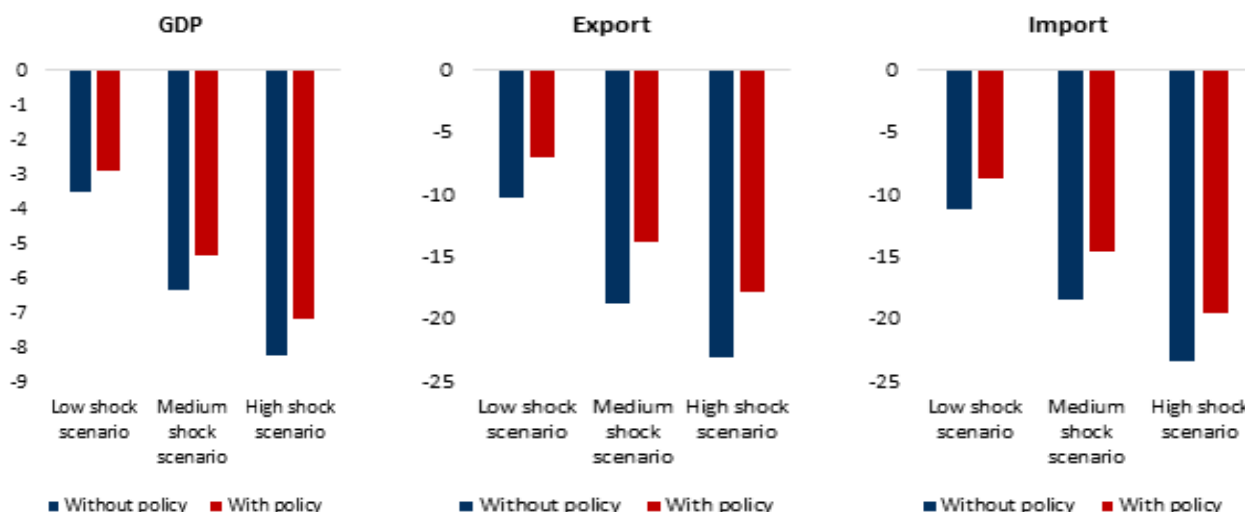
economy is substantially lower than the overall monetary value of the package announced. Furthermore, the proportion of direct support for poor households in the stimulus package is negligible, even though it can have instant and significant impact on poverty reduction.

In the stimulus package, there is an allocation of BDT 4,819 crore for providing a one-off transfer to vulnerable households and for expanding social security programs including old-age allowance, support for the widowed, deserted, and destitute women, and open market sale of rice and wheat at subsidised prices. The multiplier effects of this direct transfer obtained from the SAM-based model can offset half a percentage point reduction in overall household income with slightly higher impacts of about 0.8 percentage point and 1.05 percentage point for small farmers and day labourers, respectively. This, in turn, can reduce the headcount poverty incidence by 0.4

percentage point under the low shock scenario. The poverty impact of the stimulus is low due to the relatively small size of direct transfers. Increasing such transfers to households can substantially contribute to poverty reduction. Higher household cash support can generate enough economic activities to bring the poverty incidence level down to the pre-COVID situation under the low shock scenario. It is estimated that Bangladesh can restore the pre-COVID baseline poverty rate of 20.5% under the low shock scenario by spending only 1% of GDP as direct cash transfer to low-income households, in addition to the current social security spending.

Boosting private demand should constitute a major policy target now as the economy starts to recover. This can also indirectly stimulate the supply-side response, contributing to income enhancement, as well as jobs and livelihood opportunities for low- and middle-income households who were hit hard by the pandemic.

**Figure 5. Impact of COVID-19 on Bangladesh GDP, exports and imports with and without the stimulus package (% deviation from the baseline)**



Source: Authors' simulations

Finally, this study shows the potential of model-based analyses in deepening the understanding of the impacts of the COVID-19 pandemic and providing informed policy inputs. The approach taken here combines the disruptions in the global economies with those in the domestic economy to obtain a comprehensive view. The GTAP framework used also allows for cross-country comparisons to gain further insights.

It is, however, important to consider caveats of such exercises. Model building necessarily involves simplification of more complex systems to enable analysis. The GTAP Framework or model is also a stylized representation of complex economic interactions, and hence involves both theoretical and operational assumptions. The results of the policy simulations based on the

model thus depend on these assumptions. The model and its two variants have been designed to analyse the economic impacts mentioned above and the results have been presented above. Issues such as institutional effectiveness or the quality of public spending in delivering the targeted outcomes, therefore will be difficult to consider using this model. These caveats notwithstanding, the analyses based on the model are useful not only for understanding the economic impacts of the crisis but also for policymakers to consider alternative options and scenarios within a well-founded analytical framework. Given the evolving nature of the pandemic, the scenarios should be updated periodically to analyse appropriate policy options.





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