

COVID-19 ECONOMIC AND SOCIAL IMPACT ASSESSMENT IN CAMBODIA

CGE & GTAP Simulation Exercises

October 2020



EXECUTIVE SUMMARY

COVID-19 has had profound socioeconomic impacts on every nation in the world. In South-East Asia, an expected regional contraction of –0.1 percent in gross domestic product (GDP) for 2020 contrasts to a prediction of 4.5 percent growth before the pandemic.

The United Nations Development Programme (UNDP) has assessed socioeconomic impacts specific to Cambodia to refine these estimates. An impact assessment used three models: a static general equilibrium model (CGE), a social accounting matrix (SAM) and a global trade analysis model (GTAP). The SAM allowed the measurement of the social and distributional impacts of the pandemic, including on poverty and employment.

Assumptions applied to the models, carefully consulted with the Ministry of Economy and Finance (MEF) and other partners, included the duration of the pandemic, government response measures related to shifting expenditures on capital schemes into social protection and tax relief, and fallout on key economic sectors such as garments, construction, hotels and restaurants, transportation and communication, and agriculture. Key findings include:

- The baseline business-as-usual (BAU) scenario contemplated 6.5 percent GDP growth, a 0.7 percent unemployment rate and a 9.6 percent poverty rate for 2020. **From this, the CGE model estimated a –4.11 percent contraction in GDP compared to 2019 in the predicted scenario. The GTAP model predicted a –4.60 percent GDP contraction in the predicted scenario.**

- **On unemployment, the CGE model estimated an increase to 4.8 percent of the labour force in the predicted scenario. The poverty rate would rise to 17.6 percent, adding around 8 percentage points to the pre-COVID poverty rate.**
- A social protection stimulus of 3.5 percent of GDP proposed by the UN system could ameliorate many of the impacts of the pandemic. **In the CGE model, this stimulus would limit GDP contraction to –3.33 percent in the predicted scenario. The GTAP model yielded a positive GDP growth estimate of 1.9 percent in the predicted scenario.**
- **Unemployment and poverty estimates fall with a social protection stimulus.** In the predicted scenario of the CGE model, **the unemployment rate would be 4.4 percent and the poverty rate 14.2 percent.** About 570,000 people would avoid sliding back into poverty.

These estimates have informed the UN framework for an immediate socioeconomic response to COVID-19 in Cambodia. The framework upholds three core priorities: prevent and stop the transmission of the virus, and save lives; mitigate the socioeconomic impacts on the most vulnerable; and set the stage for an inclusive, sustainable and equitable recovery. Five pillars comprise placing health first, and proposing additional social measures for social protection, restarting the economy, the macroeconomic response and social cohesion.

1. INTRODUCTION AND BACKGROUND

COVID-19 has taken immense tolls on societies and economies around the world, including through dramatic global impacts on trade, production and other economic activities. The World Bank, International Monetary Fund, Asian Development Bank and United Nations system have all estimated the high costs of COVID-19, but mainly at the regional level, such as for ASEAN (the Association of Southeast Asian Nations). The UN Secretary General Report in April estimated a regional contraction of –0.1 percent in gross domestic product (GDP) for 2020 in South-East Asia, contrasting to the predicted 4.5 percent growth before the pandemic.¹ UNDP Cambodia has undertaken a costing of socioeconomic impacts specific to Cambodia.

Crucially, the crisis operates through both demand and supply channels. Cambodia is highly exposed as it relies on a narrow economic base built from garments, tourism, agriculture and construction. It has a highly open economy, where exports and imports are around 62 percent and 63 percent of gross domestic product (GDP), respectively. Foreign direct investment is 11 percent of GDP. On the supply side, Cambodia is highly reliant on China for raw materials for its garment industry and as a source of tourists. On the demand side, China is an important export destination for agricultural products. Capital inflows from China are key to sectors such as construction. Cambodia's higher value added exports go mainly to Europe. COVID-19 effects will exacerbate the pre-existing loss of trade preferences from the partial suspension of the European Union's Everything But Arms programme, starting in August 2020.

Against this backdrop, UNDP's macroeconomic model-based estimates suggest a range of impacts, with the central projection being a loss of around 0.6 percent in GDP, and the headline year-on-year figure declining to 6.5 percent.

Moreover, the estimates underscore how pre-existing socioeconomic vulnerabilities will exacerbate the welfare and distributional impacts of the crisis. Likely consequences include more people clustering around the poverty line and potentially large increases in the poverty headcount, and high levels of household indebtedness, particularly given weak channels of social protection.

UNDP used computable general equilibrium (CGE) and global trade analysis (GTAP) models to assess the economic and social impacts of COVID-19, based on channels of the Cambodian economy already identified as most affected.² The CGE model, suitable for various types of policy simulation, was anchored in the Social Accounting Matrix (SAM) 2020 and used data from Macroeconomic and Fiscal Policy Framework 2020-2022 of the Ministry of Economy and Finance (MEF)³ for a business-as-usual (BAU) scenario. It captured secondary indirect impacts across all agents of the economy (e.g., households, the government and the rest of the world). The outcomes generated were fed into employment and poverty modules to assess related impacts. The starting points were external (exogenous) demand shocks.

The GTAP model tracks trade flows between Cambodia and representative countries as well as by major economic blocks as classified in the model. By contrast, in the single-country CGE model, import and export trade with Cambodia are treated as single external flows. The latest version of the GTAP model is calibrated to 2014 global data sets. Its main limitation is the use of single households as opposed to multihousehold groups as in the CGE model. This fails to capture important impacts on income distribution. Impact outcomes from the two models, however, supplement each other and enhanced the robustness of the assessment overall.

1. UN Secretary-General's April report.
2. For details please refer to K. Poch and R. C. Marshall, 2020, "Potential Impacts of the COVID-19 Outbreak on the Cambodian Economy".
3. https://www.mef.gov.kh/documents/mustsee/Macroeconomic_and_Fiscal_Policy_Framework_2020-2022.pdf

2. IDENTIFIED CHANNELS AND ASSUMPTIONS

Two scenarios were analysed: BAU and predicted case. BAU scenario is described in Section 3. Table 1 summarizes time frames, the identified channels, and extent of shocks for the predicted case scenario.

Table 1: Description of assumptions

No	Key driver variables	Assumptions of predicted case scenario
1	Duration of the global outbreak impacts (base month is February)	2020 full year
2	Garments (including textiles and footwear)	13.1% output decline (20.1% reduction in export demand)
3	Construction	10.6% output decline (24% reduction in project approval)
4	Hotels and restaurants	13.3% output decline (42% reduction in international tourist arrivals and 30% in domestic tourists)
5	Transportation and communication	1.5% output decline (as above)
6	Agriculture	Based on MEF subsector output data (the agricultural GDP growth rate is estimated at 0.9%)
7	Government response	<p>(1): Estimated government response: social protection +1.9% of GDP, tax relief +0.7% of GDP, savings on capital schemes –3.5% of GDP (net –0.9% of GDP)</p> <p>(2): UN social protection proposals: Government programme (above), plus additional UN social protection proposal⁴ (net +3.5% of GDP)</p>

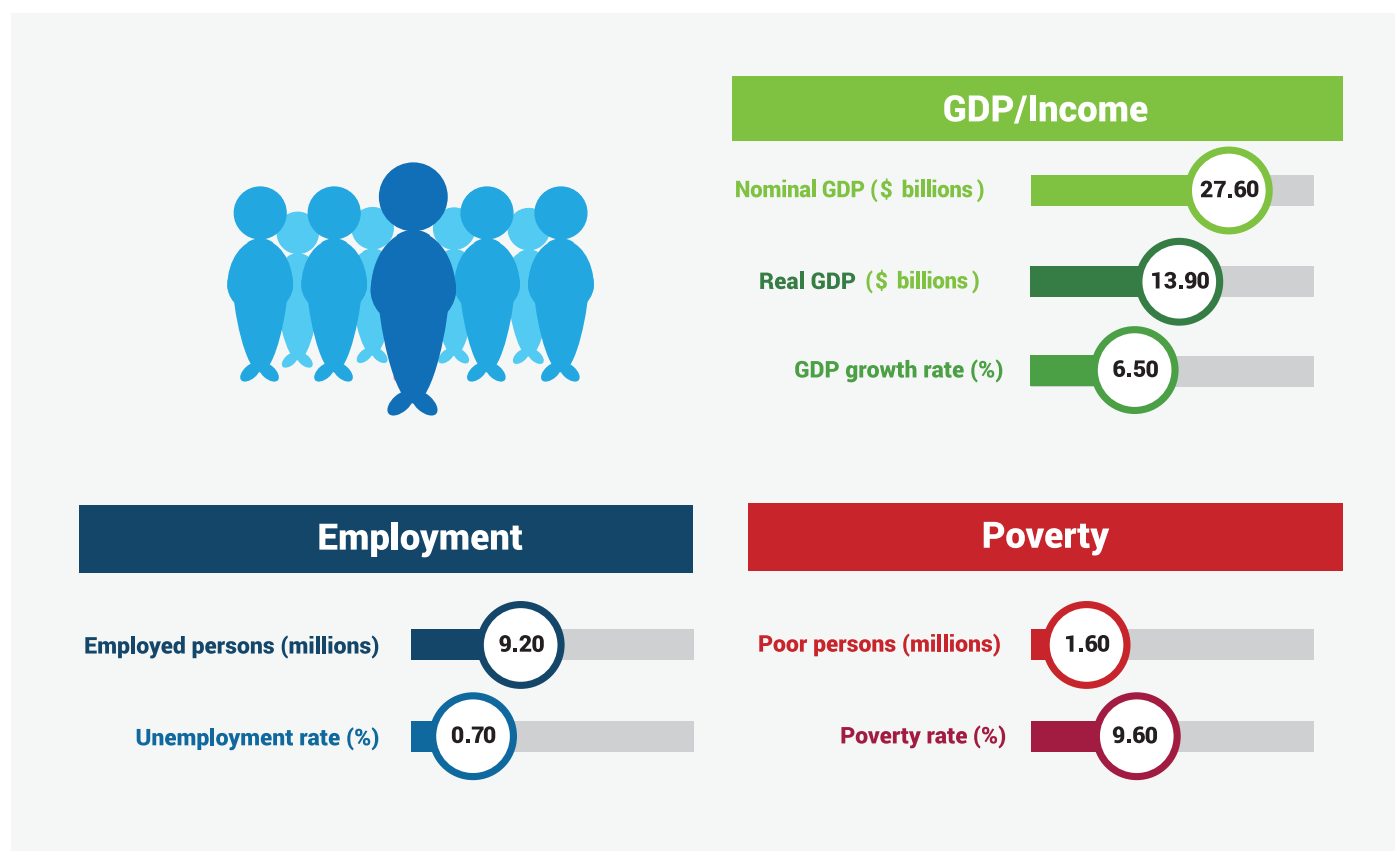
4. The United Nations (April 2020). *Social protection responses to the Covid-19 crisis: Policy options paper for Cambodia*. Unpublished document.

3. BUSINESS-AS-USUAL SCENARIO

Using the CGE model, we generated the BAU scenario using sectoral GDP information for 2020 projected in the MEF's macroeconomic and fiscal policy framework 2020-2022. This was *before* adjustments for the partial suspension of Everything But Arms and provisional COVID-19 impacts⁵ (the former is re-included in the scenarios). The sectoral

GDP estimated under the BAU scenario exactly matched the sectoral GDP reported in the MEF's macroeconomic and fiscal policy framework. The BAU scenario provided benchmark data against which GDP, employment, household consumption and poverty outcomes under the demand shock and stimulus in the predicted case scenario were compared.

Figure 1: Simulated GDP, employment and poverty under the BAU scenario



Source: Cambodia SAM 2000, employment matrix and poverty modules.

BAU scenario key observations: The size of the Cambodian economy was estimated at \$27.6 billion at current prices and \$13.9 billion in constant prices. GDP growth without any demand shock was projected to reach 6.5 percent in fiscal year

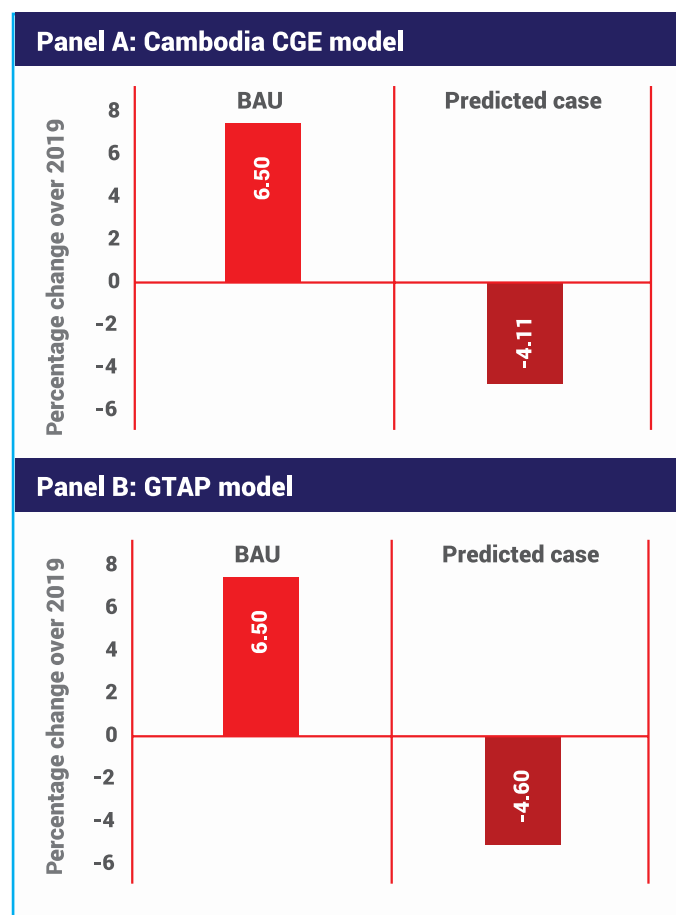
2020. The total number of employed persons was 9.2 million, implying an extremely low unemployment rate of 0.7 percent.⁶ The headcount poverty rate continued to drop to 9.56 per cent of the total population (16.7 million people).

5. COVID-19 will necessarily alter the impacts of the partial suspension of Everything But Arms as the quantity and value of exports will decline prior to the reimposition of some tariffs.
6. These were revised and updated employment statistics based on Cambodia Socio-Economic Survey (CSES) 2017. Given that policymakers prefer this source for employment estimation, previous employment estimates based on the 2012 Labour Force Survey were replaced with employment statistics based on CSES 2017.

4. DEMAND SHOCK

The most widely used and accepted indicator to measure economic well-being is GDP. It is the sum of the values of all goods and services produced in an economy in a given time, usually a quarter or a year.

Figure 2: Simulated impacts on GDP growth rates—CGE and GTAP models (percentage change over 2019)

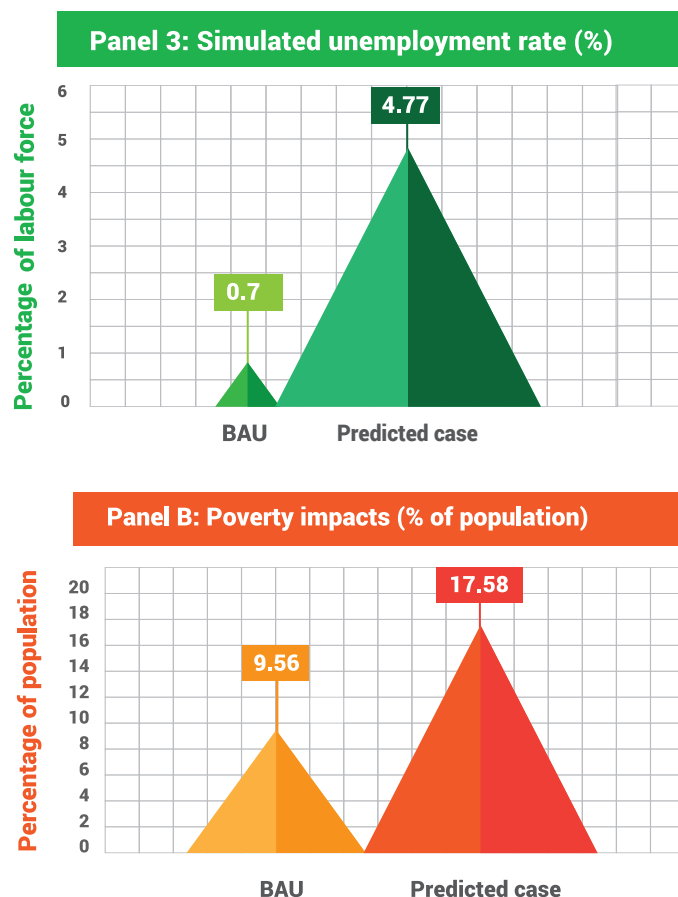


Source: Cambodia Static CGE Model 2020 and GATP Model

GDP Key findings: *Ceteris paribus*, demand shocks of the scale shown in Figure 2 would likely contract the economy severely. The GDP growth rate reduction was large and negative at -4.11 percent under the predicted case scenario. The impact on GDP growth rates was even higher under the GTAP simulation, with a -4.6 percent contraction for the predicted case scenario.

Like many developing nations, Cambodia does not have a robust system to track employment. A large number of workers are clustered in informal sectors with low productivity, mainly in services and agriculture, where on average they work less than 40 hours a week, leading to high rates of underemployment.

Figure 3: Simulated impacts on employment & poverty



Source: Cambodia Static CGE Model 2020, employment and poverty module 2020.

Employment and poverty key findings: *Estimated employment intensities across activities were high, suggesting that a decline in domestic output may spur the unemployment rate. Unemployment rates in the post-COVID-19 period may increase to 4.8 per cent of the total labour force in the predicted scenario. Unemployment rates were even higher under the GTAP model.*

Poverty impacts were high in the post-COVID-19 scenarios, as GDP or national income loss leads to the loss of household income and consumption. As a result, the headcount poverty rate may increase to 17.6 per cent under the predicted case scenario, implying an 8 percentage-point jump in poverty compared to the pre-COVID-19 period. As many as 1.34 million persons may slip back into poverty.

5. STIMULUS

In response to the pandemic, the Government has proposed a series of stimulus packages involving the expansion of social protection and tax relief. According to government budget information, the funds for these measures will likely come from reallocating funds for some capital projects.

5.1. Estimated Government Expenditure Stimulus

GDP, employment, and poverty outcomes under the proposed government stimulus measures are presented in Table 2.

Table 2: Impacts from government stimulus measures

Indicators	Predicted case scenario	Predicted case + estimated stimulus
Cambodia CGE model		
GDP growth rate (percentage over 2019)	-4.11	-4.41
Unemployment rate (percentage of labour force)	4.77	5.02
Household consumption (percentage over BAU)	-15.86	-14.53
Poverty rate (percentage of population)	17.58	16.55
GTAP model		
GDP growth rate (percentage over 2019)	-4.60	-2.50

Source: Cambodia Static CGE Model 2020 and GTAP Model.

Estimated stimulus key findings: *The government stimulus package may not improve already deteriorated social and economic conditions since they do not inject additional funds into the economy. They in fact withdraw resources totalling -0.9 percent of GDP. Even though the GTAP model found some*

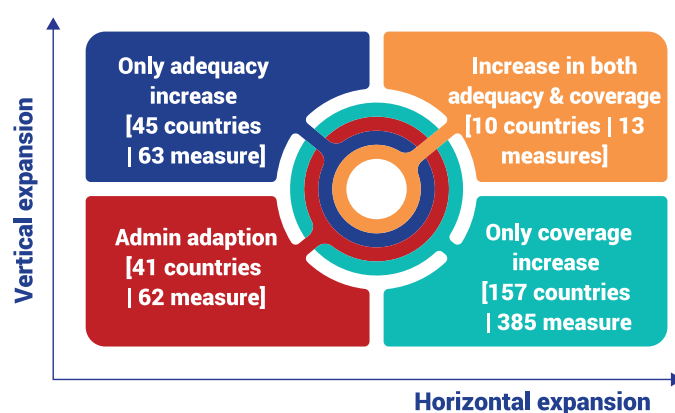
improvements in the GDP growth rate, it would remain in the negative zone (-2.5 percent). When the CGE model is employed, GDP loss worsens. As a result, unemployment rates deteriorate under the stimulus measures compared to the demand shock scenario. Despite worsening income and employment trends, however, headcount poverty improves under the stimulus measures, due mainly to social protection transfers to three kinds of vulnerable household groups.⁷

5.2. Social Protection-Focused Stimulus Package

Social protection—especially social assistance—has emerged as the most important stimulus to protect lives and livelihoods during COVID-19. Rich countries have already allocated around 6 percent of GDP to social protection to mitigate the crisis. Proposals for higher allocations with universal coverage (even on a temporary basis) have come from unlikely sources such as the International Monetary Fund and World Bank. Martin Ravallion⁸ suggested allocating at least 2 percent of GDP to social protection programmes.

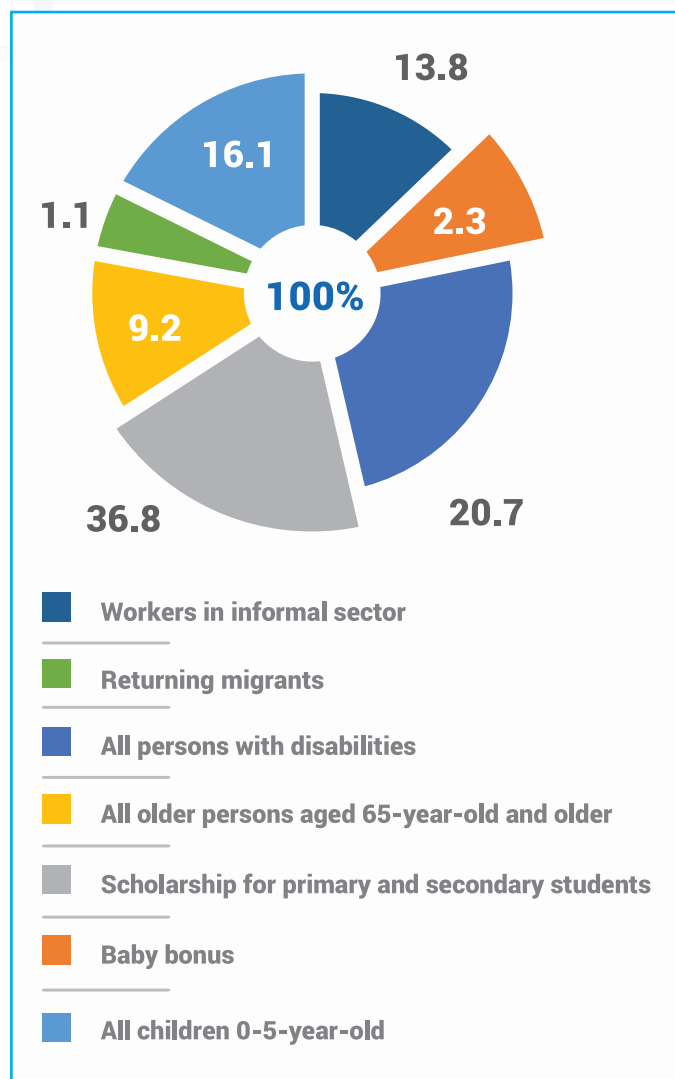
Over the last five months, an unprecedented vertical and horizontal expansion has occurred (Figure 4). Following these developments at the global level, the UN system proposed a 3.5 percent social protection stimulus for Cambodia, meant to both protect lives and livelihoods, and propel the economy.⁹

Figure 4: Social protection programmes during COVID-19



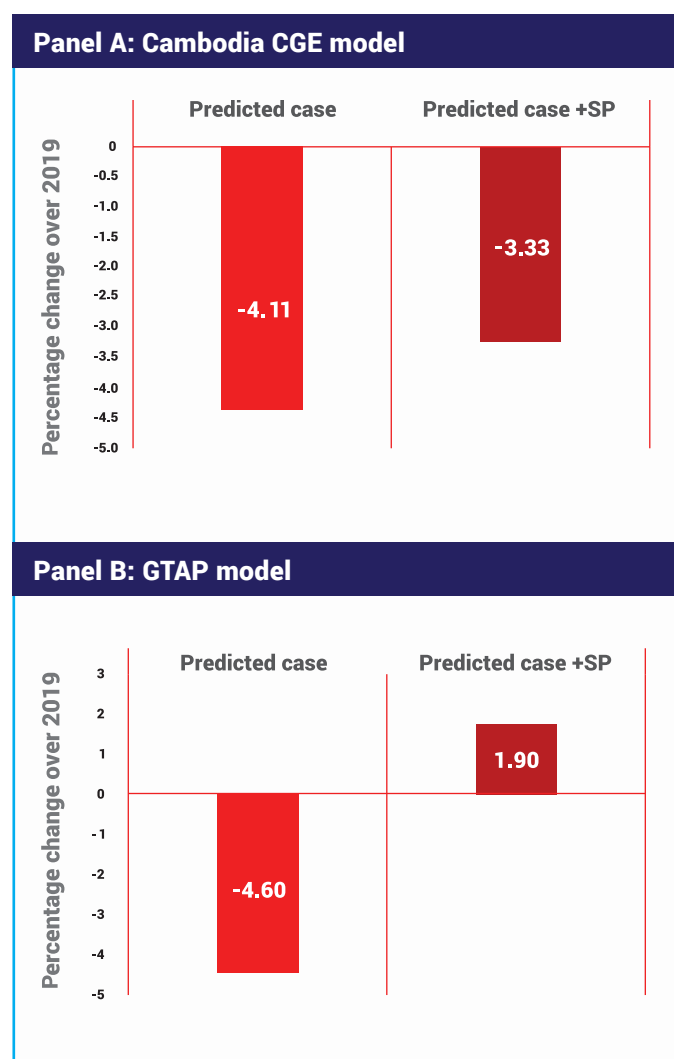
Source: Gentilini et al.¹⁰

7. They are landless, small farmers and low educated household groups.
8. M. Ravallion, 2020, "On the virus and poor people in the world," blog post, 2 April, <https://economicsandpoverty.com/2020/04/02/on-the-virus-and-poor-people-in-the-world/>.
9. The United Nations (April 2020). *Social protection responses to the Covid-19 crisis: Policy options paper for Cambodia*. Unpublished document.
10. U. Gentilini et al., 2020, "Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures," living paper version 12, 10 July.

Figure 5: Distribution of SP stimulus by programmes

Accordingly, a separate scenario with a social protection-focussed stimulus package was modelled. Here we assumed that cash transfers were allocated to all seven representative household groups according to their population share and types of social protection interventions (Figure 5). This is a simplified approach without reference to the ability to deliver transfers in this manner and scale. Modifications of this assumption can be made if needed.

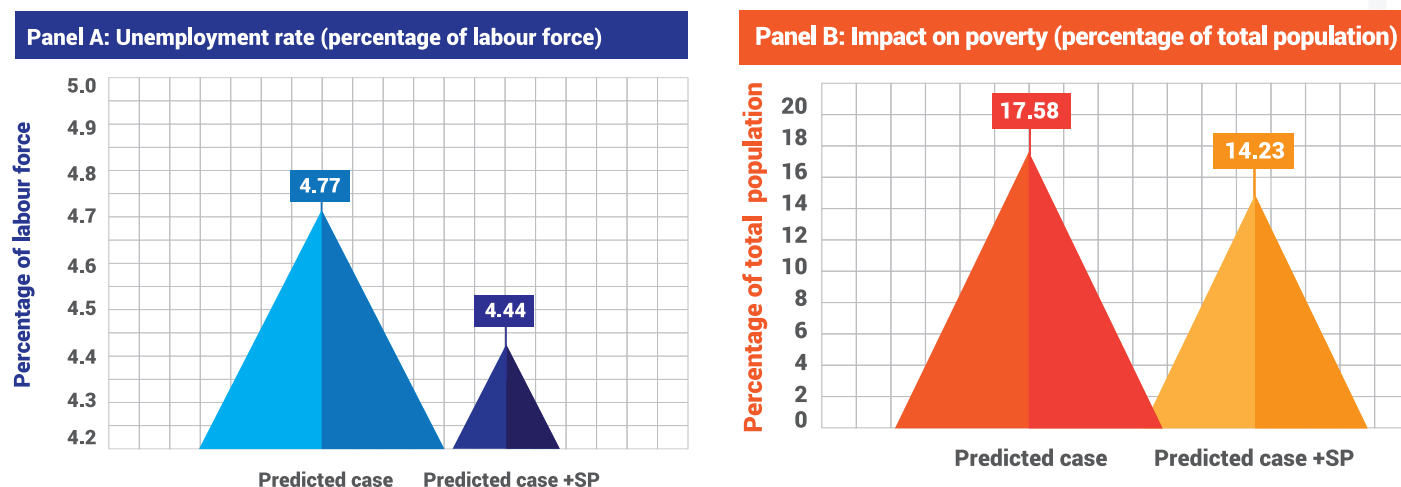
The results and key findings were necessarily provisional, but important differences with the other two results emerged. We saw a small decline in the abatement of GDP losses (around 0.3 percent of GDP). The wider socioeconomic impacts on employment and poverty and the distributional impacts were more positive and, in many cases, significant (Figure 6).

Figure 6: Simulated GDP impact under a social protection stimulus scenario

Source: Cambodia Static CGE Model 2020 and GTAP Model.

GDP growth key findings: The social protection stimulus was found to improve GDP or national income compared to the predicted case scenario. Under the CGE model of the social protection stimulus scenario, impacts on GDP growth rates at -3.33 percent were slightly better than under the demand shock scenario at -4.11 per cent. Under the GTAP simulation, the growth impact of the social protection stimulus scenario was a positive 1.9 percent.

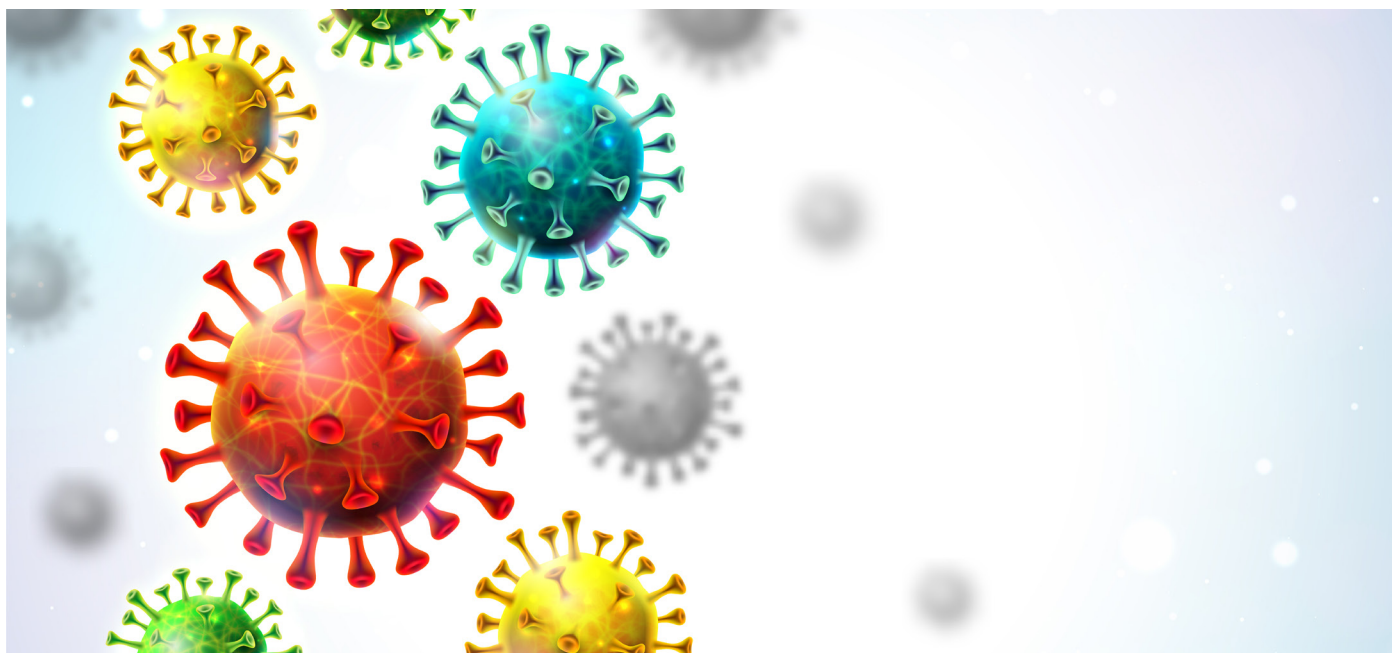
Figure 7: Simulated employment and poverty effects of a social protection stimulus scenario



Source: CGE Model 2020 and Employment and Poverty Modules

Employment and poverty key findings: Due to improvements in GDP under the social protection stimulus, the employment effects were better than under the estimated stimulus of the Government or the demand shock scenarios. With the social protection stimulus, the unemployment rate shrank by around 0.4 percentage points compared to the demand shock scenario in predicted case under the CGE model, and the number of jobless persons declined by 28,500. Employment effects are similarly high in the GTAP simulation.

The overall consumption decline was -4.64 percentage points less under the social protection stimulus compared to the demand shock scenarios. The impacts are higher for rural household groups compared to urban household groups as the current social protection system is overwhelmingly biased towards the rural poor. The poverty rate would be lower, at 14.2 percent compared to 17.6 percent, with 560,000 fewer poor people. This clearly indicates the superiority of the social protection stimulus compared to the demand shock and estimated government stimulus scenarios.





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