Tale of Two Shocks in ASEAN

ASEAN Regional Outlook 2020
Since 2018, the global economy encountered two massive shocks. First, the US-China trade war, followed almost immediately by the COVID-19 pandemic. These back-to-back shocks significantly disrupted global supply chains and stoked fears of a massive wave of trade deglobalization. The tightly coupled nature of world trade through global value chains, interacting with changes in behaviours and lifestyles, leads to disruptive outcomes for the world economy. These economic changes will have profound impacts on the region.

In this Regional Outlook, we predict the magnitude of aggregate output losses as a result of these shocks on the Association of Southeast Asian Nations (ASEAN) bloc of economies. Our predictions, based on a Computable General Equilibrium (CGE) model, show that the intensification of COVID-19 appears to completely erase any plausible growth gains from the trade war shock.
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Introduction

Since 2018, the global economy has experienced two pivotal shocks. The bitter bilateral trade war between the US and China came first. The conflict seemingly caught a break in the form of a shaky consensus in January 2020, but lingering concerns remain regarding how long this truce will last. Before the world could heave a sigh of relief, the rapidly spreading COVID-19 pandemic dealt a near-fatal blow to our global economy. These two back-to-back shocks significantly disrupted global supply chains and now stoke fears of a massive wave of trade deglobalization.

The first shock had deep roots in international politics, while second is rooted in the failure of public health systems to adapt to changing patterns of life due to urbanization, travel, and the interconnected nature of world trade through global value chains. The resulting uncertainty about when, how, and even if the pandemic will ease raises the specter of a severe global recession. Some observers fear that this will be far worse than the global financial crisis of 2008.

Spiking Global Uncertainties

One of the crucial transmission channels for such shocks on the global economy originates in an alarming rise in uncertainty that throws normal life out of gear. Be it for household consumption patterns, private investments or trading across borders, heightened uncertainty is a significant impediment to smooth economic decision-making. The relationship among severe global economic shocks and rises in global uncertainty is very close. Figure 1 uses the Chicago Board Options Exchange Volatility Index (VIX) to illustrate trends in uncertainty since the global financial crisis of 2007-09. Widely used in academic and policy research, the VIX index is a broad proxy for measuring investors’ perceptions of the volatility of the S&P500.

The chart depicts spikes in the VIX index during catastrophic times. For instance, the November 2008 collapse of the Lehman brothers resulted in a sharp spike in the VIX index. Other global shocks, including the Eurozone crisis, the Brexit referendum, and the trade war generated notable surges in the VIX index. However, the magnitude of those increases is less than the 2008 spike. As COVID-19 fears intensified, a new normal emerged. The spike in the VIX in March 2020 surpassed its previous 2008 high, and coincided with awareness of the spread of COVID-19 and its likely global ramifications.

Yet another comprehensive indicator of global uncertainty comes from the World Uncertainty Index (WUI) constructed by Ahir, Bloom, and Furceri (2018). The index is constructed by tracking the frequency of use of the word “uncertainty” and its close variants in the country reports compiled by the Economist Intelligence Unit (quarterly). Similar to patterns noted with the VIX index, Figure 2 shows the WUI on an...
Appendix 1) is widely employed both in the academic and policy world to understand ex-ante economic impacts of global shocks under different scenarios. The simulations generated by the model provide a picture of how the economies would respond to different shocks. These models offer a convenient way to represent all the agents in an economy and their complex interactions with each other. The model captures the general equilibrium effects in the form of a mathematical system. The model shows when shocks disturb an economy in equilibrium, the potential effects, the direction, and the magnitude of such shocks. The reliability of the results is largely dependent on the fundamental assumptions underlying the scenarios. These are discussed in the sections that follow.

**Trade War Scenario**

We model all tariff escalations to date by the US and China versus each other in this scenario. We factor in all the tariff hikes between 2016 and 2020. No further assumptions were made to reduce or increase non-tariff barriers and other trade costs.

**COVID-19 Scenario**

Given the global nature of this shock and that several countries have already announced lockdowns, we assume that the production shutdown is enforced in several countries such as the EU (including the UK), China, India, Bangladesh, and New Zealand for two months. It is reflected in the model by a reduction in productivity across all industries in these countries. This efforts such as imposing total lockdowns have brought much economic activity to a near standstill. With factories and borders shut at the same time, there are genuine concerns that the amplification of both demand-side and supply-side shocks due to uncertainties could destroy lives and livelihoods. Given this scenario, can we formulate a reasonable prediction about the magnitude of these losses at the macro level?

### Figure 2: Global Uncertainty Index

![Global Uncertainty Index](image)

*Source: Authors based on Ahir, Bloom, and Furceri (2018).*

We attempt to quantify the (ex-ante) potential macroeconomic impacts of both these shocks for the Association of Southeast Asian Nations (ASEAN). Using a global computable general equilibrium (CGE) model, we offer our predictions about the expected short-run changes in key macroeconomic variables such as gross domestic product (GDP), aggregate consumption, and exports and imports.

The Global Trade Analysis Project (GTAP) model (see uptrend until the trade war phase hit its peak, then spiked with the onset of COVID-19. Unsurprisingly, the fever of uncertainty appears to have gripped the Asian region, which was at the very center of both shocks. With uncertainty here to stay, policymakers across the world scramble for ways to mitigate the effects of these shocks, especially COVID-19. Containment
reduction occurs uniformly in all sectors by order of 50 percent as most industries work on half-capacity while the essential goods and services may still work in full capacity. It translates into an annual shock of approximately eight percent in each sector in the model. We do not assume any further additional shocks to trade costs or labor force because we assume that they respond to the production shutdown based on a combination of forward and backward supply-chain linkages as well as behavioral responses.

We must exercise a word of caution before moving forward. We fully recognize that these assumptions appear quite conservative. Many countries will adopt more stringent measures. From that perspective, we offer our results as the lower bound of what might take place, because in reality, trade costs might increase not only due to production shutdowns but possibly due to the additional imposition of targeted border restrictions, etc. Furthermore the resulting model may also underestimate losses due to reduced productivity and death of workers.

Keeping the above in mind, Figures 3 and 4 capture our predictions as to the growth setback for the ASEAN bloc of economies. We contrast the consequences of both scenarios and how they affect GDP. Figure 3 reports the predicted percentage changes to GDP growth in the short-term\(^1\), while Figure 4 reveals the magnitude of those losses or gains. As we would expect, the growth consequences of COVID-19 in the region appear to be quite severe. Any plausible growth gains that might materialize despite the trade war shock appears to be erased by the arrival of COVID-19. In hindsight, the trade war still presented opportunities for other countries like Vietnam and Malaysia in the ASEAN region to step up and benefit from the substitution of economic activities away from China where possible. However, as no country is left behind to pick up the slack, it is reasonable to expect a negative growth trajectory in the short-run for all countries in the region.

\(^1\) The comparatively static nature of the CGE model applied here prevents us from being more specific about the time frame. The aggregate effects on each of the economies under specific conditions of shocks are to be interpreted as short-run effects.
Our model predicts that the ASEAN region, on the whole, could experience a reduction in GDP growth of one percent (on average), which translates into an average output loss of US$ 4.3 billion. At first glance, while this may not seem overwhelming, apart from keeping in mind that these are conservative lower-bound estimates, the negative impacts on individual countries seem to notably heterogeneous. For instance, with the sole exception of Cambodia, which sees some negligible gains, our model’s predictions show that the Philippines will experience a 5 percent reduction in its GDP growth that implies a potential aggregate loss of US$ 20 billion. While Brunei will experience a 1.5 percent reduction in its GDP growth, Malaysia and Indonesia each are likely to see around 0.8 percent of their GDP growth shaved off in the short-term. In GDP terms, Indonesia stands to experience an economic output loss of around US$10 billion, while Malaysia seems to incur a US$3.5 billion output loss. With the current assumptions, Singapore, Vietnam, Thailand, and Lao PDR are likely to each experience a loss ranging from 0.4 to 0.5 percent of their GDP growth that approximately translates to an economic output loss of US$ 2 billion each in the short-term. In stark contrast, the trade war scenario shows that countries such as Vietnam and Malaysia (to a larger extent), as well as Indonesia and Thailand, stand to gain at the aggregate macro level at the expense of China.

Before discussing the remainder of the results, it is useful to put these numbers in perspective. To date, the closest point of comparison in terms of projections for ASEAN comes from AMRO’s ASEAN+3 Regional Economic Outlook 2020. Their projections (Table 1.1) suggest that ASEAN’s overall economic activity will reduce by 0.7 percentage points in 2020, broadly comparable to our projections. Although AMRO’s projections are based on different modeling assumptions and not strictly comparable to that presented here, it provides a ballpark for comparison. Further, it is also useful to note that the ADB furnished projections in March 2020 on the economic impacts of COVID-19 on a broader set of developing Asian economies. In addition to using a different framework for such predictions, it is notable that the scenarios presented in the analysis do not factor in explicit production shutdown as we do in this outlook. Accordingly, the projected impacts are more conservative and optimistic than those reported here.

The negative repercussions on GDP growth from COVID-19 shock, as well as the potential output gains from trade war shock, are apparent in the drastic fall in domestic consumption in many of these countries (Figure 5). It is notably the case with the Philippines, for instance. On the flip side, most of the gains for

![Figure 5: Predicted Changes to Consumption Growth (Percent)](image)

Source: Authors’ Computations based on the GTAP Model


countries like Vietnam due to the trade war seem to come from predictions of sharp increases in domestic consumption.

On the external front, the trade environment in the ASEAN bloc was quite sober even before the start of the trade war. It is clear that international trade remains the lifeline of the region, and its external orientation was the main driver for much of the East Asian growth story over the last two decades. Consequently, strains to the global trading system fueled by the trade war and further amplified by the closing of international borders to trade as a response to COVID-19 may well pose further challenges to the region in mounting a swift growth recovery.

Figure 6 shows the predicted effects of changes in the growth of exports and imports for the ASEAN economies. Interestingly, we can observe that the predicted changes to trade growth due to the trade war shock seem quite positive and significant for several countries in the region, including Vietnam, Malaysia, Thailand, and the Philippines. It is understandable given the expected trade diversion from China.

However, the model also shows some scope for possible trade gains to be realized in the COVID-19 scenario. It might seem unrealistic if the prolonged shutdown continues, which will eventually adversely affect every crucial sector connected to global value chains in the region. However, it is also plausible to argue that some countries in the region could benefit from exports in specific sectors. Pharmaceuticals appears to have experienced a surge in demand in the context of the greater need for production and exports of surgical masks as a result of the COVID-19 pandemic.

An increasing number of countries in the region have funded significant stimulus packages to prevent their economies from falling into a protracted economic slowdown. Some countries, with the notable exceptions of Singapore and Malaysia, lag in their stimulus responses despite their high participation in GVCs. However, as Figure 7 also shows, Indonesia and the Philippines have not responded strongly with stimulus programs despite being severely affected by the COVID-19 pandemic. Note that our scenarios do not incorporate such stimulus responses, which will likely alter the actual outcomes.

It remains an open question whether these economies have sufficient fiscal space (as does Singapore) to soften the overall macroeconomic impacts. Still, it is likely that without such policy intervention, the expected macroeconomic impacts could be worse than our conservative estimates.
Conclusions

In this regional outlook, we predicted the magnitude of aggregate output losses for ASEAN as a result of these shocks. We relied on a Computable General Equilibrium (CGE) modeling framework to predict the effects on each country’s macroeconomic structure. These results stem from specific assumptions underlying the trade war and COVID-19 scenarios. Our simulation results show that any plausible growth gains that might have materialized despite the trade war shock appear to be entirely erased by the COVID-19 shock. While the trade war presented opportunities for countries like Vietnam and Malaysia to benefit from the substitution of economic activities away from China, the impact of COVID-19 simply does not generate any winners.

The timing of the COVID-19 blow could not have been worse for the ASEAN region, which was already adjusting to the unsettling developments surrounding the US-China trade war. Now, the unprecedented nature of the COVID-19 crisis, which has brought with it both severe demand-side and supply-side shocks, complicates policymaking even further. Economies in the region not only must worry about dealing with the immediate effects of the health and economic crisis, but must also focus on rebuilding their economies after the initial storm passes, which will be a daunting task.

As the gravity of the situation intensifies, policymakers desperately seek measures to mitigate the slowdown induced by the pandemic. This episode presents many valuable lessons in crisis management that will help the ASEAN region emerge stronger in a post-COVID-19 world.

First, as the predictions show, although the region’s slowdown is inevitable, the severity of the pain varies notably across countries. The varied policy responses, ranging from full lockdowns (as in the Philippines) to circuit breakers (as in Singapore), reveal that countries could benchmark and learn from other governments’ best practices. Singapore took a measured yet systematic policy response to control the infections that would offer lessons for others, e.g., the Philippines and Indonesia, which have a high number of cases and deaths to date.

Second, given that such pandemics tend to come unannounced, investing in appropriate state capacity to deal with such a large-scale health and economic crisis during normal times is paramount. The ASEAN should focus on crisis preparedness both in terms of healthcare capacity and quality, and on reserving the financial firepower needed to provide timely stimulus injections to prevent economies from collapsing. This is evident from the modest stimulus responses by hard-hit Philippines and Indonesia. While they may lack the cushion of deep reserves possessed by Singapore, it is undeniable that these reserves resulted from...
sustained prudent and pragmatic fiscal policies over the years. This is a valuable lesson for other countries. Further, as reiterated in the recent ASEAN plus Three (APT) Summit on COVID-19, the region needs greater commitment towards regionally pooling resources to deal with future shocks and strengthening regional financial arrangements like the Chiang Mai Initiative Multilateralisation (CMIM). These arrangements would go a long way toward scaling the crisis-preparedness curve of the countries in the region.

Lastly, the current crisis makes it painfully clear that ASEAN countries must come together to deepen their regional integration and cooperation. This will ensure the smooth functioning of the regional supply chains for critical supplies, such as food, medicine, and medical equipment. Fostering greater regional integration would enable the region to handle such shocks in the future.
Appendix 1: Features of the GTAP CGE Model

The GTAP database is a publicly funded project based on the Center for Global Trade Analysis, Purdue University, USA. The GTAP database is a multi-country, multi-sector dataset, which captures the input-output linkages between sectors and trade linkages between countries and regions across the world, while also taking into account several policies governing production, consumption, and trade.

The key features of a standard GTAP model are:

- All sectors of the economy are factored into the computations, and all global regions are modeled, with the flexibility to decide the level of aggregation.

- The model assumes perfect competition in all markets with price adjustments to ensure that all markets clear simultaneously.

- A regional household collects all the income in its region and spends it over three expenditure types: private household (consumer), government, and savings, over a Cobb-Douglas utility function.

- A representative firm maximizes profits in a perfectly competitive market for each industry/sector in each region. It pays income to the local household for utilizing the endowments (i.e., land, labor, capital, and natural resources).

- In an open economy, firms also export the tradable commodities and import the intermediate inputs from the rest of the world.

- The model follows the Armington assumption to account for product heterogeneity for outputs produced in different regions, implying that there is imperfect substitution between domestic and imported goods.

- Market clearing is assumed, which implies that the total value of output is equal to the total value of domestic consumption and exports.

This description draws on standard academic literature on CGE models. For more, see the GTAP webpage accessible from https://www.gtap.agecon.purdue.edu/resources/tech_papers.asp. For a recent application, see Rosen, D.H., Gloudeman, L. and Gopalakrishnan, B.N. 2019. “Assessing the Costs of Tariffs on the US ICT Industry,” US Chamber of Commerce, Rhodium Group.

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