Global Value Chains and Disruptions in East Asia
The world economy is grappling with the fallout from two significant social and economic shocks. First, the trade war between US and China. This conflict surfaced in early 2018, escalating until January 2020 when both countries seemed to hit a pause button with completion of their “Phase One” trade deal on 15 January 2020. The second is the evolving crisis stemming from the rampant spread of the “coronavirus” renamed COVID-19, which originated in China but is now a global pandemic.

The rapidly evolving nature of these recent shocks has led to a flurry of dire predictions. Many stakeholders have struggled to understand the ramifications of these global social and economic events. It may be too early to identify and reach consensus on the severity of all the impacts flowing from the disruptive forces unleashed by these shocks. However, analysts appear to agree that these shocks are likely to lead to declining global trade and disrupt global value chains.

Faltering global trade growth has also fueled concerns regarding the emergence of trade deglobalisation across the globe, which could significantly impact the trade-oriented East and Southeast Asian region. Visible over the last few years, this trend has at least partly been due to structural changes in value chains. The large Asian economies like China are rapidly moving up the value chain, as their companies are able to vertically integrate parts of the production process within the country rather than relying on intermediate imports.

Key questions: Are patterns of GVC led integration in the East Asian region shifting, and how have these patterns changed in the wake of the US-China trade war? This issue report surveys the dynamics of GVCs in the East Asian region over the last two decades, based on available data on value-added trade. It also presents insights into emerging patterns of production relocations that follow from the US-China trade war and comments briefly on the potential impacts of the COVID-19 pandemic on global value chains.
# Table of Contents

01 Introduction: Global Shocks and Faltering Trade

02 Disentangling Global Value Chains (GVCs)

03 Trade in Value-Added: The East Asian Story

  3.1 Aggregate Trends

  3.2 GVC Participation and Positioning: Unmasking Country Variations

  3.3 Sectorial Trends: Manufacturing and Services Value-Added

  3.4 Foreign Direct Investment and GVCs

04 Disruptions to GVCs and Production Relocations

05 Policy Implications and the Way Forward
Introduction: Global Shocks and Faltering Trade

The world economy is grappling with the fallout of two significant economic shocks in recent times. The first pertains to the trade war between the US and China that emerged in early 2018 and escalated until completion of their “Phase One” trade deal on 15 January 2020, when both countries decided to move on. The second shock is an evolving situation stemming from the outbreak of the “coronavirus” now renamed as COVID-19, which has now become a global pandemic owing to its rampant spread across the globe from its origins in China.

The recent emergence and evolving nature of these shocks have led to flurries of predictions as stakeholders seek to understand the ramifications of these global economic events. Notwithstanding the unprecedented nature of these shocks, the pandemic seems to have cast a long shadow on the global economy, which was already jolted by the gyrations of the US-China trade war. With fears of a global recession on the horizon, the global economy is likely to have been dealt a triple-whammy via (a) disruption of supply chains across a range of industries from containment efforts in China and other economies; (b) amplification of demand-side shocks due to uncertainties as well as lockdowns domestically; and (c) propagation of financial shocks and consequent liquidity crunches especially for emerging market firms dependent on US dollar financing.

Trade deglobalisation seems to be the new normal...

It is intuitive to expect such shocks to result in a contraction of global trade activity. As Figure 1 illustrates, growth of global trade (and air freight traffic) slowed from the beginning of 2018, coinciding with the opening salvos of the US-China trade war. Faltering global trade growth has also accelerated concerns regarding rising trade deglobalisation. The East and Southeast Asian region (henceforth East Asia for convenience) is especially vulnerable to this trend.

Global imports as a share of GDP registered a distinctly downward trend in recent years, most notably following

---

2 East Asia includes the ten Southeast Asian member countries of the ASEAN as well as the plus three countries of China, Japan and Korea.
3 The shares as of 2018 would be much higher at 35 percent on average if we include Central and South Asian countries as well.
4 It must be noted at the outset that an alternative source for GVC data that provides more recent information until 2018 is the UNCTAD EORA database. This database extends OECD TiVA since 2015 using ‘nowcasting’ techniques which is a novel prediction technique. However, there are significant discrepancies between the two data sources even for overlapping years, some of which are particularly acute for countries like Singapore which are entrepot centres. Considering the widespread use of OECD TiVA in the relevant literature and with an attempt to minimise the usage of data that is prediction based, we stick to OECD TiVA as the primary source of analysis through-out, despite the fact that the latest available data point is 2015.
5 Laos and Myanmar were excluded due to data unavailability.
a nascent recovery from the global financial crisis (GFC). The trends in imports of goods and services from East Asia broadly mirror global trends, although the pace of contraction appears to be relatively more severe (Figure 2). Despite the slight uptick in 2017 and 2018, the US-China trade war seems to have dented early optimism as the future trajectory appears bleaker, owing to the significant uncertainties generated by the spread of COVID-19 across the world.

Growth rates in East and Southeast Asia averaged about 5.5 percent since the turn of the millennium, far outpacing that of the global economy, which grew at about 3 percent on average. East Asia’s share of global gross domestic product (GDP) (in nominal US$) rose from 20 percent to about 27 percent between 2000 and 2018. China is a very important contributor to the region’s dynamism, accounting for the bulk of the region’s rising significance in global GDP. China’s share in global output almost quadrupled from 4 to 15 percent over this period. Apart from China, the Association of South East Asian Nations (ASEAN) bloc of economies also played a key role in the vibrancy of the region. Their shares in global output nearly doubled, from about 2 percent to over 3.5 percent during this period. Thus, unlike earlier decades, Asia’s growth has not only been robust but also quite broad-based.

Much of the economic growth over the last two decades witnessed by the East Asian region was attributable to its notable external orientation, with several countries seizing opportunities to plug themselves into the global trading system (Figure 3). While East Asia’s share of global exports rose from about 20 percent to 30 percent between 2002 and 2018, its share of global imports increased from about 26 to 31 percent during the same period. Overall, East Asia’s trade as a proportion of GDP hovered around 25 percent during the period.

---

6 Consistent with the definitions of OECD TiVA database, GVC participation here is defined simply as the sum of backward and forward participation rates, each expressed as a share of gross exports.
7 See Martinez-Galan and Fontoura (2019) for an academic discussion on computing the GVC positioning index.
8 The exact formula to compute relative intensity is given as follows:

\[ \text{GVC Participation in Industry } i \div \text{Country’s Total GVC Participation} \div \text{World’s GVC Participation in Industry } i \div \text{World’s Total GVC Participation} \]
Trade continues to play an integral and important role in the East Asian region’s dynamism. However, today’s global trading environment appears less favourable. This shift is due to rising concerns of trade deglobalisation and the uncertain fallouts of the recent economic shocks including the US-China trade war and the COVID-19 outbreak.

Before the advent of the GFC, trade flows in East Asia grew from 2002 until 2008 at an annual average of about 17.5 percent. Annual growth in merchandise trade values then plummeted significantly, contracting sharply in 2015. IMF World Economic Outlook data reveals that East Asia’s growth of export and imports rebounded in 2016 and 2017, and then headed south.

Despite trade growth in East Asia overshadowing global trade growth over the years, this gap has narrowed considerably, with the two series converging during recent years, which has only added to the growing concerns about trade deglobalisation. East Asia’s trade, which had grown faster than the region’s GDP as well, slowed markedly since 2012. However, a modest turnaround emerged in the last two years. The average global growth rate of imports of goods and services stood at a little over 3 percent between 2012 and 2016, half its rate of growth over the previous three decades.

There are no easy solutions to falling trade. Perhaps, new intra-regional economic activity will offset the current declines in extra-regional trade flows. However, some analysts suggest that reported declines in trade might actually reflect structural changes emerging in that trade growth outpaced global GDP growth. This is largely due to the growing international reach of GVCs. However, in recent years, several scholars view the so-called production fragmentation trend as maturing (Al-Haschimi et al. 2016; Timmer et al. 2016) and in some cases beginning to decline. This trend is due to in-sourcing in large countries like China. In-sourcing involves reorganising the value chain to carry out multiple parts of the production process within the country in place of intermediate imports (i.e. onshoring). As this argument goes, progress in China’s technological sophistication enabled its economy to shift an increasing share of domestic capital and intermediate goods to service its production for exports.

The evolving digital economy, shifting trade dynamics and maturing GVCs generate momentous shifts, especially in the dynamic East Asian region. These trends call for deeper understanding of evolving trade patterns and of the GVC.
The effects of production fragmentation on trade flows became a topic of interest only recently. The idea broadly coincides with the information and communication technology (ICT) revolution. Rapid ICT development led to cost-effective and reliable telecommunications. Multinational firms applied ICT to manage complex activities at great distances. These trends, coupled with falling transport costs, enabled multinational firms to outsource complex production activities across borders. Lower transport costs boosted merchandise trade, while better telecommunications facilitated the growing trade in services and the emergence of the GVC (World Bank, 2020).

The recently released 2020 World Development Report by the World Bank defines a GVC as “...series of stages in the production of a product or service for sale to consumers. Each stage adds value, and at least two stages are in different countries. For example, a bike assembled in Finland with parts from Italy, Japan, and Malaysia and exported to the Arab Republic of Egypt is a GVC. By this definition, a country, sector, or firm participates in a GVC if it engages in (at least) one stage in a GVC.” (p.17).

GVCs are increasingly prevalent around the world. Production processes that utilise inputs from multiple countries demonstrate inter-country linkages in world trade appears to be related to GVCs. However, over the last decade there have been noticeable declines compared to the previous two decades (Figure 5 and Annex).

East Asia played a major role in this process. GVCs that ultimately served the world market shaped trade trends in the region over the past two to three decades. Multinational corporations (MNCs) began to offshore production activities to low-wage destinations in the late 1980s and early 1990s. This sparked creation of complex production and logistics networks stretching across multiple developing economies (Jones and Kierzkowski, 2001; Baldwin, 2012). This is especially true in the East Asian region where global production chains play an essential role in trade. Criss-crossing flows of intraregional trade in intermediate goods knit these economies together (Athukorala, 2005). The bulk of the products from these GVCs are exported to the rest of the world rather than remaining within Asia. Analysis by the Asian Development Bank (ADB) reveals that external demand drives more than 60 percent of Asian value-added exports, with more than 25 percent fulfilling demand from the US and the EU (ADB, 2017).

GVC related activities encompass both cross-border trade and foreign direct investment flows. They
The trends in production fragmentation and the rise of GVCs create the need to reconceptualise the way we understand trade. Amador and Cabral (2016) provide a detailed survey of this literature, which led to the comprehensive framework by Koopman et al. (2010 and 2014).

Trade in Value-Added: The East Asian Story

The trends in production fragmentation and the rise of GVC-related trade create the need to reconceptualise the way we understand trade. Amador and Cabral (2016) provide a detailed survey of this literature, which led to the comprehensive framework by Koopman et al. (2010 and 2014).

3.1. Aggregate Trends

The readily available OECD-WTO trade in value-added (TiVA) database provides extensive coverage of value-added trade in Asian economies. TiVA provides a breakdown of gross exports between 2005 and 2015, consistent with the Koopman et al. (2010) framework. The TiVA database includes annual data for most East Asian countries. TiVA covers the eight ASEAN

Figure 6: Decomposing Gross Exports: A Framework

Source: Based on Koopman et al. (2010).
members (Brunei, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam), plus China, Japan and Korea. Viewed through this lens, gross exports from East Asia as a share of total world exports grew from about 12 percent in 2005 to a peak of 17.5 percent in 2015, after adjusting for entrepot trade. This number dipped in 2016 (Figure 7). The ASEAN bloc (i.e., without the plus-three East Asian countries of China, Japan and Korea) also experienced an increase from about 4 percent in 2005 to a little over 6 percent in 2016, underlining the importance of China to East Asian trade.

Figure 8 decomposes these gross exports based on the framework summarised in Figure 6. The graph clearly demonstrates the growing importance of DVA exports embodied in intermediate goods and services, as compared to exports of DVA embodied in final goods and services between 2005 and 2016. While the average share of FVA in gross exports expanded following the GFC, the dependence of countries in the region on imported inputs to produce their exports shows a declining trend since 2012.

Delving deeper into the core elements of GVC-related trade, Figure 9 presents trends in rates of backward and forward GVC participation across regions. These measures are widely used in the GVC literature. Each panel encapsulates an indication of the depth of GVC participation among regions. The backward participation rate reflects the share of FVA content of exports. This measure captures the “buyer perspective” of GVCs, in which economies import intermediate inputs to produce exports. Meanwhile, the forward participation rate captures the DVA content embodied in exports to other economies.
In general, GVC participation rates among ASEAN and East Asian economies outperform the global average. The comparisons between the region and the EU in Figure 9 point to some interesting insights. They show that both groups of economies have comparable backward GVC participation rates. However, the ASEAN and the East Asian region have much higher forward participation rates. This implies that the region imports significant intermediate inputs, and processes them for use as intermediate inputs to production of final goods, rather than as final goods. It also reveals that barring a brief surge between 2009 and 2012, backward participation rates declined in the region. In stark contrast, forward participation rates have been on the rise, recovering after the GFC. The fact that China’s weight as the final destination for exports grew significantly in recent years provides further evidence of the deep integration of ASEAN and East Asian economies into GVCs.

3.2. GVC Participation and Positioning: Unmasking Country Variations

Are these trends suggestive of homogeneous trends in GVC participation by all countries in the East Asian region? On the contrary, the regional trends may mask some important variations between the countries in the region. Figures 10 and 11 illustrate this variation by providing a country breakdown of both backward and forward participation rates from 2005 to 2015.

Figure 10 reveals that China, Malaysia, the Philippines, and to some extent, Indonesia and Cambodia all experienced significant reductions in their backward participation rates between 2005 and 2015. China’s backward participation rate dropped from 26 to 17 percent over the decade. Malaysia saw a decline of equal magnitude from 45 percent to 37 percent during the corresponding period. Malaysia saw a decline of equal magnitude from 45 percent to 37 percent during the corresponding period. In sharp contrast, Vietnam experienced an increase in its FVA share of...
gross exports from 36 to about 45 percent between 2005 and 2015. These shifts reflect the reconfiguration of GVCs by firms operating within the region.

Figure 11 shows trends in forward participation rates for the countries in the region. China saw a gradual increase in its DVA, up from about 15 percent to 18 percent between 2005 and 2015. Vietnam’s corresponding shares declined from 14.5 percent to 11 percent during the same period. Beyond China and Vietnam, smaller economies such as Brunei experienced dramatic increase in DVA shares (from 30 to 41 percent), with Cambodia and Malaysia also experiencing modest increases in their DVA shares of gross exports (about 16 to 18 percent) from 2005 to 2015.

The overall GVC participation rate for an economy requires combining backward and forward participation rates. It appears from this that many economies in the East Asian region experienced a slowdown following an initial surge in their participation in GVCs. The 2014 Asian Development Outlook (ADO) observed that many countries in the region saw a massive increase in their rates of GVC participation between 1995 and 2008. While largely true in the era before the pre-GFC phase, the trend gradually reversed in the post-GFC period.

Figure 12 illustrates the evolution of GVC participation rates for all the 11 economies under consideration by mapping the relationship between the participation rate in 2005 on the horizontal axis and 2015 on the vertical axis. The red dashed line corresponds to
no change in the GVC participation rate. Several important trends emerge. First, and consistent with earlier observations, most countries in the East Asian region experienced a decline in GVC participation with the notable exceptions of Vietnam, Japan and Singapore. Vietnam emerges as the largest developing economy in the region that managed to deepen its GVC participation. Vietnam moved from 53 percent to 60 percent during the decade of 2005 and 2015. Japan runs a close second, with GVC participation rates increasing from 27 to 31 percent during the corresponding decade while Singapore’s participation rates remained roughly stable through the period, at around 78 percent.

Second, the starkest reductions among countries where GVC participation rates decreased were in Indonesia, China and the Philippines. These countries experienced reduction in their overall GVC participation rates between 6 to 8 percent over the period. GVC participation rates fell from 35 to 27 percent in Indonesia, from 42 to 35 percent in China, and from 57 to 51 percent in the Philippines. The apparent slowdown in GVC participation for many countries in the East Asian region is consistent with observations of the increasing maturity of GVCs.

Third, it is still important to consider the significant differences among countries in the region, in terms of how deeply they plug into GVCs. While the average GVC participation over the 2005 to 2015 decade for Indonesia is around 30 percent, Singapore’s participation in GVCs exceeds 75 percent. Yet another insight from Figure 12 is that relatively smaller economies in the region tend to have higher GVC participation compared to larger economies. As the ADO (2014) noted, this suggests that larger economies typically have resources to engage in the production of variety of inputs, which translates into their exports carrying a dominant share of their own domestic value added.

What do patterns of GVC participation in the East Asian region indicate about the positioning of countries in value chains? The positioning of a country in the GVC arena necessarily reflects its development stage. The specialisations and endowments possessed by a country tend to determine its role in the value chain and whether it performs upstream or downstream tasks. More advanced countries typically take on relatively more knowledge intensive upstream tasks, while those in the developing stage tend to accept more labour-intensive downstream activities.

Figure 13 offers an illustration of the positioning of East Asian economies in the GVC based on deducting backward participation rates from forward participation rates, which is an acceptable measure of a country’s prevailing position (upstream or downstream) in the GVC. Thus, Figure 13 indicates whether the country is a net exporter or importer of value-added. Put another way, does the country’s domestic value added embedded in its exports of inputs exceed the foreign value added embedded in the country’s own exports? A positive net value-added suggests the country is relatively more upstream in the GVC while a negative value-added indicates the opposite. This implies that a country that is positioned upstream in the GVC tends to have larger forward linkages compared to its backward linkages.
Figure 13 portrays progress along the value chain by East Asian nations. Consider China, Philippines, and Thailand. Relative to a decade earlier, each was a significant net exporter of value added by 2015. Increases in the engagement level in upstream activity signal each country’s journey. Vietnam’s path appears quite different from the other countries. Vietnam strengthened its backward linkages, and focused on downstream activities along the value chain.

Figure 14 further illustrates the positioning of East Asian economies in terms of their engagement in upstream versus downstream activities. On the vertical axis, the figure plots the ratio of the value of forward linkages relative to the value of its backward linkages. A low ratio implies the economy is more downstream. It tends to be closer to the production of the final good, while a high ratio implies that the economy is producing upstream outputs largely for use as intermediate inputs. This ratio is juxtaposed against each country’s per capita income on the horizontal axis. The rationale for this scatterplot is to understand whether the positioning of individual economies in the GVC reflects levels of economic development and whether there are any outliers in the region that deviate from the expected patterns. While the first panel in Figure 14 plots the positioning of individual East Asian countries in 2005, the second panel on the right shows the same for 2015.

The TiVA data suggests that relatively more developed economies with higher per capita incomes tend to focus on upstream activities. The opposite is generally the case for economies with lower per capita incomes. However, the direction of shifts in country positions in GVC varies, notably for China and Vietnam. China initiated a significant shift towards upstream activities, while Vietnam moved its focus downstream. For every dollar of inputs going into products later exported for foreign use, Vietnam appears to import $10 of inputs for use in domestic production.

These broader patterns of the relatively more developed economies focusing more on upstream activities, while developing economies with labour abundance taking to downstream activity fits the value creation “smile curve”. An industrial policy issue that faces developing economies in the East Asian region is the challenge to move up the value chain by shifting their focus from downstream to upstream.

However, China remains a notable exception to this trend. As the foregoing analysis has shown, China has steadily evolved and moved up the value chain over the years. In fact, several academic studies observed that this transition in China’s value-added activities -- a steady increase in its domestic value-added replacing its share of foreign value-added -- also played an important role in the recent trade deglobalisation trends discussed earlier. Some have further pointed out that continuation of such trends would likely create a negative impact on new entrants into the Asian and global supply chains (Lewis and Monarch 2015; Constantinescu et al. 2015).

3.3. Sectorial Trends: Manufacturing and Services Value-Added

Which are the key sectors that assume importance in the East Asian region when it comes to trade in GVCs? One way to understand the importance of
sectors involved in GVCs is to consider the contributions of each sector to value added trade in absolute terms. Figure 15 offers a snapshot of the evolution of key sectors for the region plugged into GVCs based on total trade in value added (in absolute terms) in 2005 and 2015. A notable insight drawn from Figure 15 is the high significance of diverse sectors such as coke and petroleum; computers, electronic and electrical equipment; basic metals as well as textiles.

While value-added in absolute terms provides insight into sectorial importance, it would perhaps be more informative to understand this in the context of East Asia’s relative intensity in each of these sectors vis-à-vis the rest of the world. The relative intensity of GVCs across major regions for key sectors is shown in Table 1. This measure maps the relative importance of a country’s GVC participation in a particular industry vis-à-vis the world. A value greater than one indicates that GVC participation in that sector/industry is higher than the global average.

As can be observed from the table, the values for relative intensity differ significantly across regions. The relative intensity for East Asia’s GVC trade is greater than 1 for five sectors: coke and refined petroleum

![Figure 15: Key GVCs in East Asia - Total Trade in Value added (US$ Billions)](source: OECD TiVA)

<table>
<thead>
<tr>
<th>Industry</th>
<th>EU-28</th>
<th>NAFTA</th>
<th>ASEAN+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coke and Refined Petroleum Products</td>
<td>0.61</td>
<td>1.03</td>
<td>1.03</td>
</tr>
<tr>
<td>Computers, Electronic and Electrical Equipment</td>
<td>0.49</td>
<td>0.80</td>
<td>1.18</td>
</tr>
<tr>
<td>Textiles, Wearing Apparel and Leather</td>
<td>0.43</td>
<td>0.21</td>
<td>2.04</td>
</tr>
<tr>
<td>Machinery and Equipment</td>
<td>1.53</td>
<td>0.74</td>
<td>0.44</td>
</tr>
<tr>
<td>Chemicals and Non-Metallic Mineral Products</td>
<td>1.05</td>
<td>0.80</td>
<td>0.78</td>
</tr>
<tr>
<td>Basic Metals and Fabricated Metal Products</td>
<td>0.86</td>
<td>1.12</td>
<td>0.50</td>
</tr>
<tr>
<td>Transport Equipment</td>
<td>1.22</td>
<td>2.10</td>
<td>0.36</td>
</tr>
<tr>
<td>Food, Beverages and Tobacco</td>
<td>0.98</td>
<td>0.81</td>
<td>1.65</td>
</tr>
<tr>
<td>Wood and Paper; Printing</td>
<td>1.06</td>
<td>1.55</td>
<td>1.17</td>
</tr>
</tbody>
</table>

Source: OECD TiVA
products; computers, electronic and electrical equipment; textiles, wearing apparel and leather products; food, beverages and tobacco; and wood, paper and printing. East Asia’s relative intensity in textiles surpasses others on this list of industries by a significant margin. The region’s integration in GVCs for computers and electronics, as well as for textiles, is notably higher than in developed countries in Europe and North America. In contrast, we can see that countries in the North American Free Trade Agreement exhibit high relative intensity scores for transport equipment, while the EU’s highest relative intensity index is for machinery and equipment.

While much of the GVC discussion revolves around manufacturing, services are undeniably an integral part of GVCs, even when invisible due to data difficulties. The contribution of the services sector to growth, employment and value-added global trade in the East Asian region is well documented. Despite the inability to disentangle services from goods in GVC related trade, it is clear that services play a pivotal role in fostering GVCs in today’s world.

Services provide a bridge for GVC activities across different sectors and geographies. From logistics related services that facilitate easier movement of manufactured goods to outsourcing that improves efficiency and reduces production costs for manufacturing activities, services are an important pillar of GVCs. As ADB (2014, p.47) noted quite pertinently: “Without services, GVCs as we know them would not exist. What are taken to be value chains for goods are frequently dominated by services. It is commonplace to think of the egg on the breakfast table as a good, but from a value perspective, it is more accurately a complex bundle of services. The washing, sanitizing, grading, labeling, packaging, storing, transporting, and retailing of the egg make up a great deal more of its value than does the egg itself. So, while a good is the focus of attention, it is often far from the core source of value…”

Figure 16 offers evidence that supports the importance of services in value-added exports. While the share of services in gross exports in 2015 was about 33 percent, the corresponding share in value-added exports was 42 percent. The World Development Report 2020 noted that the shares of services for gross exports remained consistent over the years, while the share of services in valued added trade rose significantly, from about 30 percent in 1980 to over 40 percent in 2015. This shift was the result of both forward and backward use of services in production.

Figure 17 breaks down the domestic versus foreign value added component of services value added embodied in manufacturing exports in East Asia. From an aggregate perspective, in 2015, services value added in manufacturing exports ranged from a low of about 20 percent (Brunei) to a high of 70 percent (Singapore). This was higher than the prevailing range in 2005, when the highest country share of service value added registered around 60 percent. Vietnam, with a foreign share of services value added greater than its domestic share, is an outlier. For the rest of the
region the share of DVA in services exceeds that of FVA. This constituted a notable shift from prevailing trends in 2005, when most of the countries in the region had higher shares of foreign value added in services relative to domestic shares. China and the Philippines experienced marked changes in the composition of services value added as their share of DVA in services rose by about 10 percentage points individually in both countries. China’s share rose from 18 percent in 2005 to around 28 percent in 2015, while Philippines saw its shares increase from 30 to 40 percent.

3.4. Foreign Direct Investment and GVCs

The rise of GVCs was accompanied by increases in cross-border foreign direct investment (FDI) flows. While strategists traditionally view trade and FDI as alternative internationalisation modes, rising production fragmentation across countries engaged in GVCs has led to the evolution of a strong complementary relationship (OECD, 2018). Today, FDI flows reflect the degree of participation of countries in GVCs around the world.

GVCs are increasingly linked to FDI flows through subsidiaries that supply inputs to their parent firms. This parallels the integral role of services in the spread of GVCs, as many of them involve transnational corporations (TNCs). In this context, trade in intermediates takes place through intra-firm transactions, and production stages may be located in different countries (Martínez-Galan and Fontoura, 2019). Some analysts estimate that about 80 percent of global trade in terms of the value of gross exports is linked to the international production networks of TNCs. These links may represent either intra-firm trade transactions or non-equity modes of international production.

Higher FDI inflows in the East Asian region accompany rising GVC participation. As Figure 18 shows, the level of GVC participation and FDI inflows into the region as a share of output exhibit strong co-movements over the last decade. There is no empirical consensus on the directionality of this phenomenon. GVC expansion may drive FDI flows, or the causality may be the reverse. The important issue however is that attracting greater FDI inflows is a vital ingredient for many economies with scarce endowments that seek to further their integration through GVCs.

Numerous studies reveal that economies seeking FDI as a form of external financing must make a conscious policy effort to attract capital that brings technology and skills to the table, as it endows them with the capital and know-how required to benefit from GVC integration. High levels of backward GVC participation typically have a strong positive association with FDI inflows. Figure 19 illustrates this relationship in East Asia, which broadly demonstrates the positive association between the backward participation and FDI inflows. As explained by World Bank (2020, p.72), “...FDI inflows play a strong role in the extent of backward GVC participation shares, driven by GVC integration of the manufacturing sector... By contrast, FDI is linked to lower forward GVC participation shares, driven by
GVC integration of agriculture and services. Countries attracting FDI in manufacturing may reduce their exports of raw agricultural goods and intermediate services (such as transportation) embodied in exports of resource-intensive goods, lowering their forward GVC participation."

Disruptions to GVCs and Production Relocations

The East Asian region appears to have been caught in the midst of two economic shocks, in the form of the US-China trade war and the outbreak of COVID-19. To what degree have these economic shocks resulted in supply chain disruptions in the region? More specifically, have there been any fundamental changes to patterns of GVC led integration in the East Asian region; especially in the wake of the US-China trade war?

Given China’s enormous manufacturing advantage, it is highly unlikely that any other player in the region is a viable replacement as a source of manufactured goods to the US market. Over the past two decades, China developed into the world’s largest exporter of intermediate goods used to make final products. This raised the level of dependence for several East Asian countries, such as Vietnam. As Oxford Economics (2020) notes, Vietnamese and Chinese supply chains are closely intertwined, with China supplying over 40 percent of intermediate goods imported by Vietnam. This level of dependence, coupled with vast differences in scale, limit the ability of countries
in the region to substitute inputs from other sources. The seriousness of this issue will rise should the evolving COVID-19 situation further delay China’s return to its production lines.

In the medium to long-term, firms along the supply chain may move their production facilities from China to other capable competitors in the region. The resulting relocations and reconfigurations could represent a healthy alternative to extreme dependence on China. Such relocations tend to be costly, as they typically involve a complete shift in operations. These trends are already visible among large firms such as Apple and Samsung.

A Nomura analysis (Subbaraman et al. 2018) predicted that countries similar to Vietnam could stand to benefit significantly owing to production relocation trends. Some firms will look to move from China into Vietnam. Other reports echoed that in the medium-run, Vietnam could become one of the major beneficiaries of the US-China trade war. Moving beyond predictions, we offer indicative evidence of trends in production relocations along the supply chain.

Proprietary data is available on Greenfield FDI projects that relocated away from China during the recent trade war. This includes vital information on the motives for firm relocations. Those firms that relocated to other ASEAN economies, citing the fallout from the trade war as the motive for their move, are of special interest.

Before examining data on firm relocations, we present the broad trends in Greenfield FDI inflows to the East Asian region since January 2017. We focus on the trends between 2017 and 2019 (using monthly/quarterly data). This period includes the US-China trade war phase. Figure 20 illustrates the magnitude of FDI inflows into East Asia in absolute terms. The initial spike in Greenfield FDI inflows into the region coinciding with the trade war timeline appears to have gradually faded. This pattern is more likely due to the slowdown in investment flows directed to the region than a reaction to the trade war.

Figure 21 presents a disaggregated picture of the share of individual countries in the overall flows of Greenfield FDI into the region. The clear message is the dominant importance of China as a significant
recipient of Greenfield FDI in the region. Nearly 40 percent (on average) of all Greenfield FDI inflows into the region was directed to China.

Vietnam’s journey to become an important destination for FDI began in the late 1980s. Among East Asian economies, Vietnam is now a serious contender for Greenfield foreign investments. Vietnam is the region’s second most sought after FDI destination, after China. Between 2017Q1 and 2019Q4, over 15 percent of Greenfield FDI flowing into the region went to Vietnam. In 2019Q3 alone, Vietnam attracted nearly 35 percent of FDI destined for the region.

Zooming in on the trade war window, Figure 22 provides suggestive evidence on the number and value of the Greenfield FDI projects that moved from China into other countries in the region. Firms move and relocate to other countries for a variety of reasons. This inquiry focuses on the magnitude of the relocations induced by the uncertainties inherent in the trade war. The micro data provided here identifies specific projects and verifies them as FDI relocations from China attributable directly to uncertainties stemming from trade conflict between the US and China. Figure 22 reveals that the capital expenditure associated with 22 Greenfield FDI projects that relocated from China to other economies in the East Asian region is more than US$2.1 billion. While these numbers appear small as compared to overall Greenfield FDI inflows into the region, the trends validate a hypothesis that the trade war set in motion a reshuffling of production activities away from China. This trend is likely to accelerate due to uncertainties regarding sustainability of the temporary trade deal struck between US and China, aggravated by the COVID-19 shock.

To place these relocation projects in perspective, we present a country breakdown that assesses diversion of FDI from China to other economies in the region. Figure 23 shows FDI relocations from China into the respective economy, as a share of the country’s overall Greenfield FDI. The list of relocated Greenfield FDI projects during the trade war window and their associated capital investments, along with the sector and countries are given in Table 2. Some interesting insights emerge. Vietnam emerges as an important recipient of Greenfield FDI relocations from China during the trade war window. On average, relocation projects from China accounted for around 6 percent of Vietnam’s overall Greenfield FDI during this period. This share reached 11 percent in 2019Q1. Nearby Cambodia saw its share of FDI relocations reach nearly half of its overall Greenfield FDI in 2019Q1. Compared to Vietnam, fewer projects and a smaller amount of Greenfield FDI capital shifted into Cambodia. (Table 2).

As Table 2 reveals, firms in the information and communications technology (ICT) and electronics manufacturing sector carried out most of the relocations to Vietnam. In addition to Vietnam, Thailand and Malaysia are other countries receiving relocations from China. FDI shifts into Malaysia followed the same pattern as Vietnam.

The trends portrayed above provide indicative evidence of supply chain relocations away from China into countries like Vietnam and to other countries
in the region. These trends are likely to continue as the COVID-19 situation evolves and more firms may attempt to relocate their production facilities to other countries to reduce or eliminate dependence on China. Countries in East Asia such as Vietnam and Thailand have significantly improved their ease of doing business rankings over the last few years (Figure 24). Their rankings are favourable, as compared to China. This provides a rationale for firms moving from China to consider these countries as potential alternatives. While these rankings are not conclusive evidence regarding FDI trends moving forward, they nevertheless serve as useful indicators. The rankings capture business sentiments about the de jure business regulatory environment and other factors relevant to investors.
Policy Implications and the Way Forward

Enhancing systematic trade and investment integration through engagement in Global Value Chains (GVCs) is an integral element of East Asia’s overall economic progress over the years. The strategic importance of GVCs to this region is clear. Moving forward, countries in the region must address several challenges. Resolving these issues will help maximise the benefits and minimise disruptions to existing supply chains in the region.

While participation in GVCs potentially boosts incomes and contributes to overall growth and productivity of economies in the region, the region faces pressing challenges on the back of the evolving COVID-19 pandemic and the shaky impasse that US and China trade war appears to have reached. The global trade environment will be much less buoyant in the future. This does not bode well for East Asian economies that are heavily dependent on trade as a means of sustained growth. What does this imply for policymaking in these uncertain times?

Learning to live in a deglobalised world…

First, it is important for the region to accept that broad trade deglobalisation trends are here to stay. The biggest unknown appears to be the unprecedented nature and impact of the global pandemic that is driving countries all over the world to shut down their borders. The pandemic casts a long shadow on the global economy, already jolted by fallout from the trade war between the US and China. These shocks, feeding into and reinforcing each other, have dealt the global economy a hard blow. The world is witnessing massive supply-chain related disruptions across a range of industries driven partly by frantic containment efforts in China and other economies. This is especially relevant for the East Asian region, heavily dependent on China-centric supply chains at the center of the shocks. While the impacts may fade in the medium-term, the scars they leave are likely to be deep and painful.

Taking advantage of supply chain disruptions and diversifying …

Second, as countries adapt to the new realities of a (partly) deglobalised world, policymakers in this region should not lose sight of new possibilities. This is a one-time opportunity to diversify from China-centric supply chains. It is crucial to think beyond short-term disruptions and seriously consider the medium to long-term potential benefits of supply chain relocations and redesign. With production relocations from China already in the works, countries should focus on building the institutional and business capabilities that will attract investor interest. It is imperative that emerging markets...
in the region not squander this opportunity. They should now focus on easing structural impediments so they can become a viable alternative to China in the trend toward supply chain reconfiguration.

**Riding the digital wave...**

The opportunity for countries in this region to ride the digital transformation wave is an under-explored aspect of supply chain disruption. Fintech, artificial intelligence, big data and other digital technologies have the power to transform the functionalities and capabilities of GVCs. The global pandemic has forced countries to apply digitalisation in many new areas. These factors may drive new opportunities to systematically invest in the infrastructure and skills needed to fully benefit from digital transformation.

**Pushing forward with intra-regional trade initiatives...**

Stalled multilateral trade talks at the global level offer little or no hope for the long-term future of the global trading system. The US-China standoff has reinforced the need for Asia to continue to ensure open market access by pushing forward with regional free trade agreements (FTAs). While there can be no substitute for an open and inclusive multilateral trading system, FTAs will help keep doors to the trading system open. FTAs may be a second-best and even a welfare-reducing option. However, careful management can yield the desired benefits. Absent stronger regional and global trade institutions, the world could easily fall hostage to future bilateral tiffs. Hence, the rest of the East Asian region must attempt to re-energise the WTO and multilateral trading arrangements while pushing forward with intra-regional trade initiatives.
References


Global Institutional Partners

ASIA

John Gokongwei School of Management
Ateneo de Manila University
THE PHILIPPINES

Indian Institute of Management Bangalore
INDIA

Yonsei School of Business
Yonsei University
SOUTH KOREA

Emerging Markets Institute
INSEAD (Asia)
SINGAPORE

Suleman Dawood School of Business
Lahore University of Management Sciences
PAKISTAN

Keio Business School
Keio University
JAPAN

Faculty of Economics and Business
University of Indonesia
INDONESIA

Faculty of Management & Finance
University of Colombo
SRI LANKA

Graduate School of Business
Nazarbayev University
KAZAKHSTAN

Faculty of Business Studies
University of Dhaka
BANGLADESH

University of Malaya
MALAYSIA

Tony Fernandes School of Business
University of Cambodia
CAMBODIA

Thammasat Business School
Thammasat University
THAILAND

University of Economics and Business
Vietnam National University Hanoi
VIETNAM

Faculty of Economics and Business
National University of Laos
LAOS

Faculty of Business Administration
Ton Duc Thang University
VIETNAM

National Research University
Higher School of Economics
RUSSIA

Kozminski University
POLAND

Mohammed bin Rashid
School of Government
DUBAI, UAE

Faculty of Business Administration
University of Economics, Prague
CZECH REPUBLIC

Corvinus Business School
Corvinus University of Budapest
HUNGARY

College of Business Administration
Kuwait University
KUWAIT

Strathmore Business School
Strathmore University
KENYA

School of Business
American University in Cairo
EGYPT

The China-UK Global Issues
Dialogue Centre
Jesus College, University of Cambridge
UNITED KINGDOM

Gordon Institute of Business Science
University of Pretoria
SOUTH AFRICA

Lagos Business School
Pan-Atlantic University
NIGERIA

Northeastern University
Center for Emerging Markets
Northeastern University
USA

UNIVERSIDAD ADOLFO IBÁÑEZ
School of Business
Universidad Adolfo Ibáñez
CHILE

ESAN Graduate School of Business
ESAN
PERU

Florida International University
FIU
USA

Universidad EAFIT
Universidad EAFIT
COLOMBIA

IAE Business School
Universidad Austral
ARGENTINA

Tecnológico de Monterrey
Tecnológico de Monterrey
MEXICO

Sao Paulo School of Business Administration Getulio Vargas
FGV EAESP
BRAZIL

Global Institutional Partners

EUROPE, MIDDLE EAST AND AFRICA

Mohammed bin Rashid
School of Government
DUBAI, UAE

Faculty of Business Administration
University of Economics, Prague
CZECH REPUBLIC

Gordon Institute of Business Science
University of Pretoria
SOUTH AFRICA

Lagos Business School
Pan-Atlantic University
NIGERIA

Northeastern University
Center for Emerging Markets
Northeastern University
USA

UNIVERSIDAD ADOLFO IBÁÑEZ
School of Business
Universidad Adolfo Ibáñez
CHILE

ESAN Graduate School of Business
ESAN
PERU

Florida International University
FIU
USA

Universidad EAFIT
Universidad EAFIT
COLOMBIA

IAE Business School
Universidad Austral
ARGENTINA

Tecnológico de Monterrey
Tecnológico de Monterrey
MEXICO

Sao Paulo School of Business Administration Getulio Vargas
FGV EAESP
BRAZIL

Global Institutional Partners

AMERICAS

Mohammed bin Rashid
School of Government
DUBAI, UAE

Faculty of Business Administration
University of Economics, Prague
CZECH REPUBLIC

Gordon Institute of Business Science
University of Pretoria
SOUTH AFRICA

Lagos Business School
Pan-Atlantic University
NIGERIA

Northeastern University
Center for Emerging Markets
Northeastern University
USA

UNIVERSIDAD ADOLFO IBÁÑEZ
School of Business
Universidad Adolfo Ibáñez
CHILE

ESAN Graduate School of Business
ESAN
PERU

Florida International University
FIU
USA

Universidad EAFIT
Universidad EAFIT
COLOMBIA

IAE Business School
Universidad Austral
ARGENTINA

Tecnológico de Monterrey
Tecnológico de Monterrey
MEXICO

Sao Paulo School of Business Administration Getulio Vargas
FGV EAESP
BRAZIL
About Nanyang Centre for Emerging Markets

Nanyang Centre for Emerging Markets

The Nanyang Centre for Emerging Markets (CEM) is a new initiative by Nanyang Business School to establish global thought leadership on business-related issues in emerging markets. It conducts research on pressing and timely business issues in emerging markets through a global research platform of leading scholars and institutional partners. It closely interacts with corporate partners to identify research topics and manage the research process. Its research outputs include valuable and relevant implications for sustained profitable growth for local and multinational companies in emerging markets. It delivers a variety of research reports and organizes forums, seminars, CEO roundtables, conferences, and executive training programmes for broad dissemination of its research outputs.

NTU-SBF Centre for African Studies

The NTU-SBF Centre for African Studies (CAS) is to develop thought leadership and capacity for doing business in Africa. It includes bringing Africa to Southeast Asia and Singapore and helping Singapore to be positioned as the gateway into Southeast Asia. As such, CAS aims to build and expand its local and international profile by means of publications, conferences, seminars and business forums through collaboration with local businesses, other research entities and business schools in Singapore and Africa.

Contact Information

Email: cem@ntu.edu.sg
Tel: +65 65138089
S3-B1A-35 Nanyang Business School
Nanyang Technological University
50 Nanyang Avenue Singapore 639798

Author
Dr. Sasidaran Gopalan (Nanyang CEM)

Editors
Editor: Dr. A. Lee Gilbert
Editor-in-Chief: Prof. Seung Ho Park (Nanyang CEM)

Acknowledgements:

Valuable research assistance provided by Aizhan Sharipova is highly appreciated.