Chapter 2

GVCs and Investment in Asia: Changing Dynamics and Emerging Trend

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CHAPTER 2

GVCS AND INVESTMENT IN ASIA: CHANGING DYNAMICS AND EMERGING TRENDS

This section provides an overview of trade and investment in East and Southeast Asia from a GVC perspective. It focuses on presenting the data in such a way as to create a baseline for analysis. That baseline serves as a point of departure for considering possible changes in the future, in light of the COVID-19 pandemic, as well as other economic and social changes.

1. Current State of Play: GVC Integration in East and Southeast Asia

The fragmentation of production across borders that is implied by the GVC business model, and in particular the large-scale flow of intermediate goods and services, means that traditional trade data are inadequate to describe the phenomenon properly.[1] Standard trade data, whether for goods or services, are measured on a gross shipments basis. In other words, a cellular phone with an import value of $500 is recorded as an import of that value, even though its component parts and embodied services have travelled across borders numerous times during the production process, and have also been counted independently in trade statistics. With fragmented production, gross shipments trade statistics tend to overstate the value of trade significantly, and are incompatible with the system of national accounts, which operates on a value-added basis.

A second limitation of standard gross shipments trade data is that they do not identify the sources of value added, whether goods or services, embodied in final output and exports. But from a GVC standpoint, this question is of great importance, as it enables analysts to map GVCs both geographically and in the product (service) space. With this in mind, applied international trade researchers have developed a variety of techniques to examine the nature and extent of GVCs in goods and services sectors alike.

The value-added approach to analysing trade data manipulates the information in a multi-region input–output table to decompose trade in gross value terms into various elements of interest from a value-added perspective. Building on previous contributions by Johnson and Noguera (2012) and Koopman, Wang, and Wei (2014), current best practice methodology due to Wang, Wei, and Zhu (2013) identifies eight major elements – grouped into three large aggregates – into which exports can be decomposed, and which are consistent at the country pair–sector level.

The Wang, Wei, and Zhu (2013) decomposition breaks down gross exports into three main aggregates from a value-added perspective (Box 1). The first, domestic value added (DVA), refers to the portion of value added in gross exports that originates within the territory of the exporting country. The second, foreign value added (FVA), refers to the portion of value added in gross exports that originates within the territory of other countries and is incorporated as intermediate inputs. The final element,

[1] This section is adapted from Shepherd (2020a) and (2020b).

pure double counting (PDC), refers to movements of goods and services across international borders during production that are counted more than once.

Box 1: Decomposition of Gross Exports Following Wang, Wei, and Zhu (2013)

The categories identified in the main text may be broken down further as follows:

- Domestic value added (DVA) absorbed abroad through final goods and services exports, intermediate exports absorbed by the direct importer, and intermediates sent to a first importer and then re-exported to a third country, as well as DVA first exported then returned home.
- Foreign value added (FVA) contained in final exports and FVA contained in intermediate exports.
- Pure double counting (PDC) from domestic sources and PDC from foreign sources.

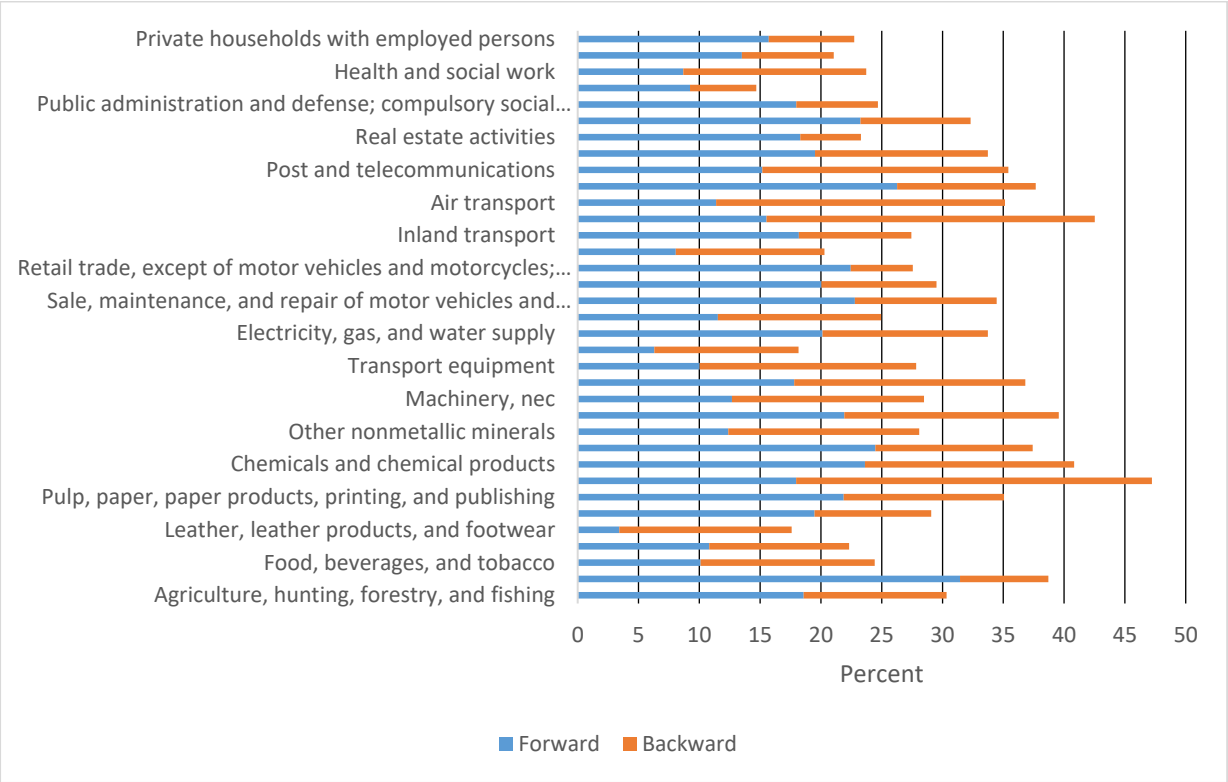
Source: Wang, Wei, and Zhu (2013).

For policy purposes, FVA as a proportion of gross exports can be understood as an indicator of GVC participation from a backward linkages perspective. If a country imports more foreign intermediates to produce its own exports, it has a higher ratio of FVA to gross exports, which indicates a higher level of GVC participation.

It can also be useful to look at the mirror image of these data – the forward linkages perspective. In the Wang, Wei, and Zhu (2013) decomposition, DVA_INTRex captures forward linkages as the proportion of a country's gross exports that are intermediates used in the production of another country's exports. In other words, this DVA is shipped abroad, where it is incorporated in other goods and services and re-exported. By the same reasoning as above, a higher proportion of forward linkages in gross exports is also indicative of greater GVC integration, as this kind of production sharing is again typical of the GVC model.

Figure 1 shows backward and forward linkages using the Wang, Wei, and Zhu (2013) methodology for East and Southeast Asia. The data are broken down by sector, using the Asian Development Bank's Multi-Region Input-Output (MRIO) database. While there is considerable variation across sectors, the general picture that emerges is one of an important contribution of GVC trade – as measured by backward and forward linkages – to the regional economy. The medium and heavy manufacturing sectors stand out as seeing high levels of integration, but so too do some services sectors, including transport, as well as mining. While the economic nature of the transactions is the same in each case – the movement of inputs across borders – the nature of the resulting GVCs can be quite different.

Figure 1: GVC Participation by Sector – Exports of East and Southeast Asia, 2019 (percentage of gross exports)



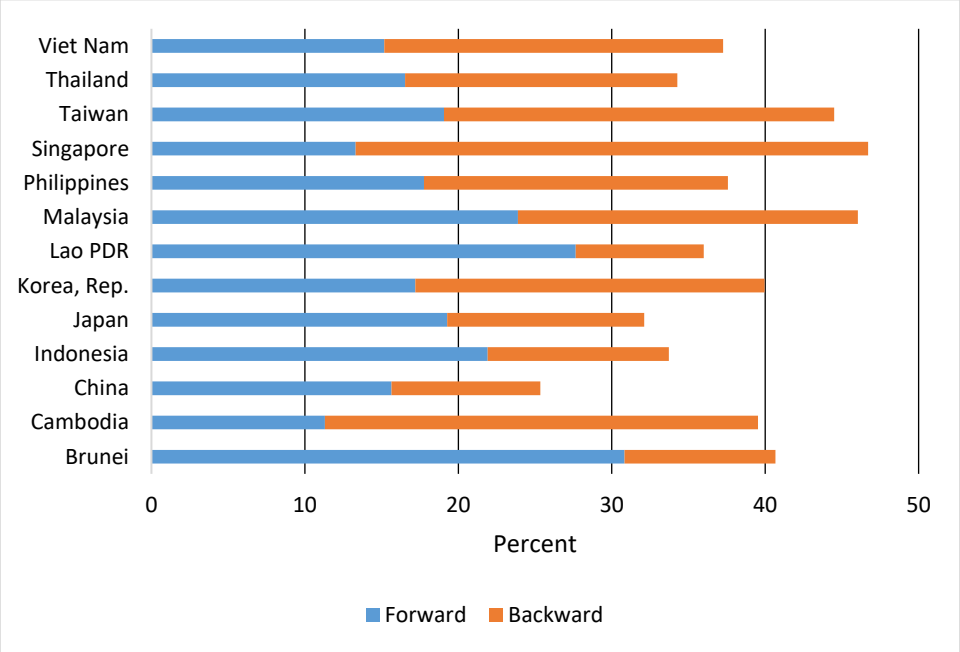
GVC = global value chain, M&Eq = machinery and equipment, nec = not elsewhere classified.
Source: ADB MRIO.

Natural resources GVCs tend to be more linear and simpler in structure than the more typical manufacturing GVCs, which split production across numerous locations. The rise of services GVCs is an important development in the regional economy, and these data indicate that, thanks to regulatory and technological changes, production sharing in some services sectors is now comparable to what is seen in some manufacturing sectors. Finally, the figure shows that the balance between backward and forward linkages differs from one sector to another, but the region is generally more reliant on backward integration rather than forward integration for its GVC participation. That is to say, there is a slight preponderance of activity relating to the foreign sourcing of inputs for a country's exports rather than subsequent use of those exports as inputs by other countries.

Figure 2 breaks the data out by country. There is again some degree of heterogeneity, due in part to different patterns of sectoral specialisation. But GVC integration is an important part of trade in all countries, accounting for at least 25% of gross exports, and frequently much more – more than 45% in some cases. There is some evidence of a preponderance of backward linkages, but it is not as strong as in Figure 1, so on an aggregate level, forward linkages tend to play a more important role.

Figure 2: GVC Participation by Country – Exports of East and Southeast Asia, 2019

(percentage of gross exports)



GVC = global value chain.
Source: ADB MRIO.

2. The Role of Investment

While GVCs are perhaps best known as complex networks of internationally traded goods and services, a network of investment relationships underlies them in most cases. Lead firms can adopt different strategies depending on the sector, location, and tasks being sourced. But in cases where it is desirable to exercise close control over production, for instance to ensure quality or conformity with standards, then it can be rational for a lead firm to take an investment position in a supplier firm. Such relationships are by no means the only way in which GVCs take shape, however. Arm's-length transactions amongst firms with different ownership structures are also common, but the desire to cement GVC relationships can be an additional rationale for undertaking FDI.

The policy literature (e.g. Dunning (1980)) typically distinguishes a number of different types of FDI. The first, 'market seeking' FDI, refers to the case where a lead firm establishes a local subsidiary primarily to supply the domestic market of the country where the subsidiary is located. As the name implies, this type of FDI is most common in countries with large domestic markets. In developing Asia, that primarily means China, India, and Indonesia, although some mid-sized countries also see more limited investments of this type.

The second type of FDI is 'efficiency seeking'. In this case, the lead firm invests in production facilities in another country with the aim of exploiting its comparative advantage in performing particular tasks. The objective is then typically to export the subsidiary's output rather than to sell it on the domestic market.

In addition to these two well-known motivations, investors can undertake FDI because they are seeking to acquire strategic assets held by a company overseas, such as intellectual property, networks, or technical know-how. Finally, they can also undertake FDI in order to acquire access to natural resources.

Efficiency seeking FDI is what is most commonly thought of in the context of GVCs. The paradigm is a lead firm investing in a production plant overseas in order to take advantage of, for example, low labour costs. That plant produces goods according to the lead firm's specifications, then ships them to third markets either for further transformation, or as finished goods, depending on how far downstream the firm is in the GVC.

But the other three types of FDI in the classic Dunning (1980) taxonomy are also of relevance in a GVC context. Access to natural resources, for example, can be an important motivation for upstream investments that provide particular raw materials used by downstream firms within a GVC. Similarly, where a firm abroad has specialised designs or technical know-how, its acquisition by a lead firm effectively implants it in the GVC in an upstream position, supplying design services and intellectual property to downstream firms.

While the taxonomy is well understood from a policy standpoint, the available data do not allow analysts to distinguish amongst the different motivations for an investment. They simply record the amount of the investment, not the objective of the investor. Reviewing the available data can therefore provide a rich picture of investment dynamics in countries of interest over time, with some ability to identify sectors of interest as well. But it cannot be informative as to the motivation of the investor. In a general sense, however, the objective is typically efficiency seeking for low- and middle-income countries, except for those countries that can be considered to have large domestic markets, where there may be more of a market-seeking rationale.

From the point of view of the country receiving the investment, are there any advantages to that type of GVC involvement as opposed to arm's-length transactions? On the one hand, there is clear evidence of spillovers from inward FDI, in the sense that investment tends to have productivity-enhancing effects in firms other than the one targeted (e.g. Javorcik, 2004). In addition, there is anecdotal evidence that GVCs with substantial relationship-specific investments tend to be more resilient to shocks than those based on arm's-length transactions: the existence of an investment link incentivises the lead firm to maintain GVC linkages and work to rebuild connections after a major shock (e.g. Cattaneo and Shepherd, 2014). As such, there are clearly advantages to the receiving country in welcoming FDI, beyond the obvious first-round impact on increasing employment and output within the invested firm itself.

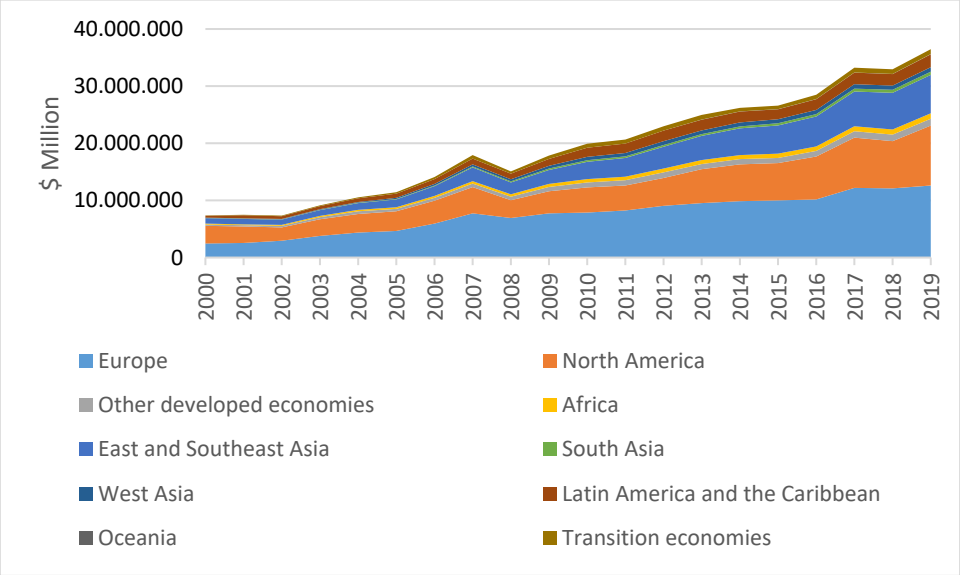
3. FDI Patterns in East and Southeast Asia

Figure 3 shows the United Nations Conference on Trade and Development (UNCTAD) regional data on the stock of inward FDI. As noted above, these figures aggregate all types of FDI over the four broad categories of investor motivation already mentioned. All world regions except Asia are presented at their most aggregate level. Asia is disaggregated into subregions. The figure shows that in 2019, East and Southeast Asia accounted for 18.4% of the global inward FDI stock. To provide a point of comparison, North America accounts for about 1.5 times as much inward FDI as East and Southeast Asia, while Europe is nearly double. In US dollar terms, the inward FDI stock in East and Southeast Asia

was valued at $6.7 trillion in 2019. This figure is up from just under $1 trillion in 2000. However, the region has lost share in relative terms, down from 38.8% of the global total in 2000. Rather than indicating a substantial slowdown in inward investment in Asia, however, this change instead reflects greatly increased openness to FDI in other regions, including major movements towards the integration of capital markets in Europe and North America, at the same time as substantial policy liberalisation in other developing regions.

Figure 3: Inward FDI, Total Stock, by Region, 2000–2019

($ million)

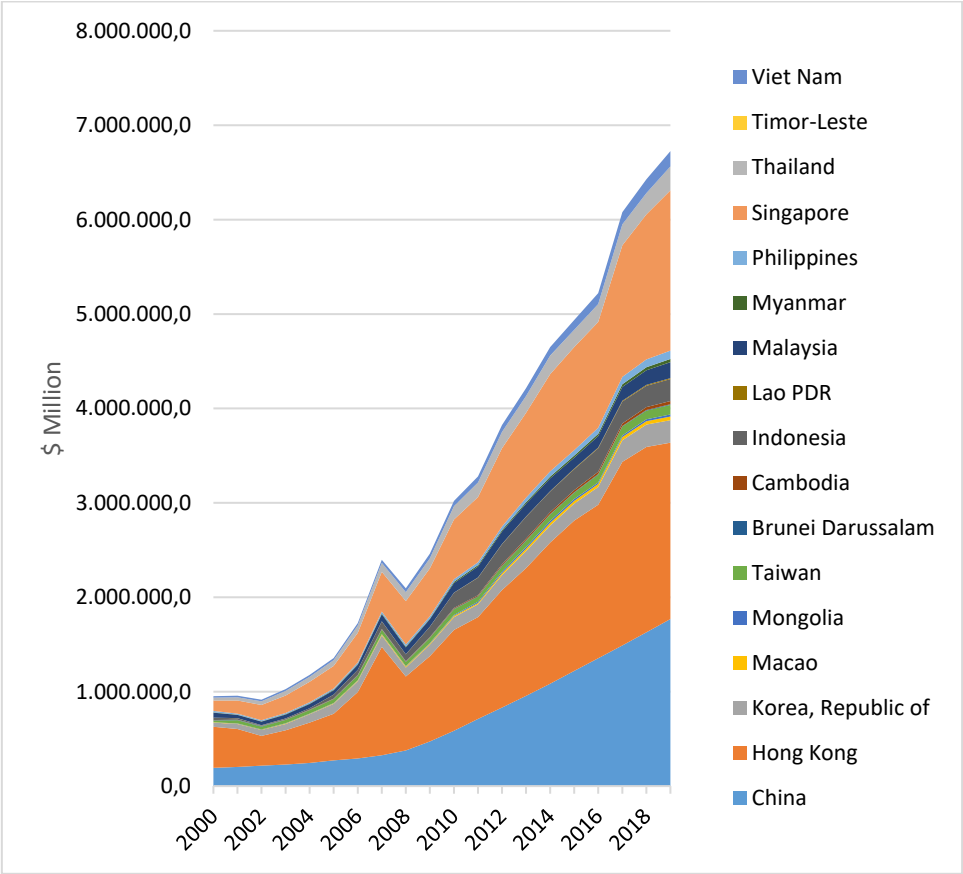


FDI = foreign direct investment.
Source: UNCTAD.

Figure 4 breaks out the data for East and Southeast Asia to show the shares of individual receiving economies. It is immediately obvious that inward FDI stocks are quite concentrated at the country level, with China, Hong Kong, and Singapore each accounting for just over 25% of the regional total. While significant growth rates are evident in other countries, their shares remain relatively small. Amongst the Association of Southeast Asian Nations (ASEAN) Member States, Thailand, Malaysia, and Indonesia have shares of the regional total of 2.5% or better; other countries are below that level. So, while inward FDI flows have been substantial in recent years, the time taken to accumulate stocks means that there is substantial hysteresis in the shares shown in Figure 3.

Figure 4: Inward FDI, Total Stock, East and Southeast Asia, 2000–2019

($ million)

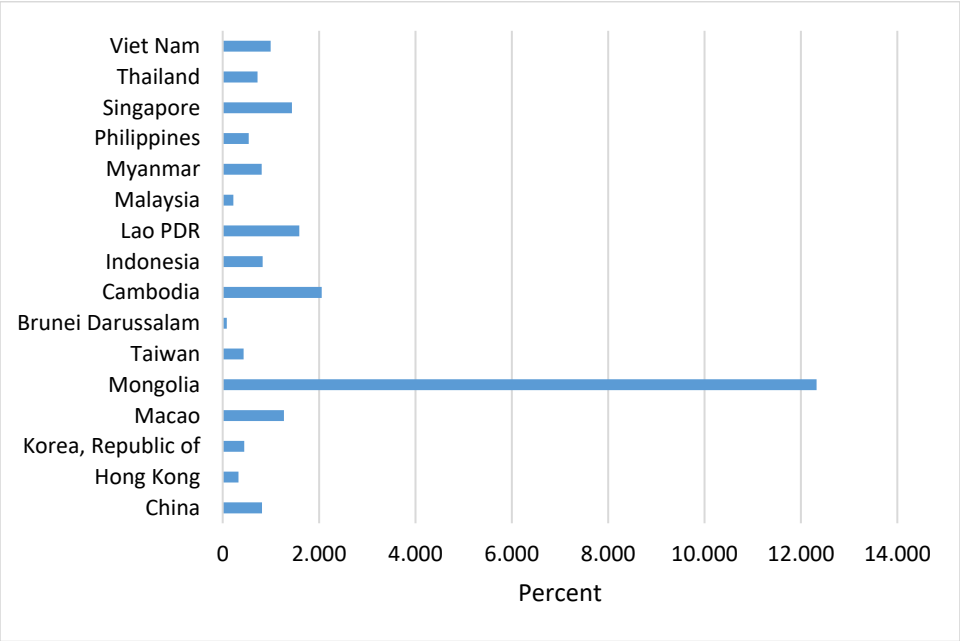


FDI = foreign direct investment, Lao PDR = Lao People's Democratic Republic.
Source: UNCTAD.

To put the data in dynamic perspective, Figure 5 shows the growth rates from 2000 to 2019. Some small economies stand out as having very high rates of growth in inward FDI, such as Mongolia, Cambodia, and the Lao People's Democratic Republic (Lao PDR). All three countries start from a low baseline and remain relatively small in aggregate terms within the region, but the growth rate is impressive, and shows that FDI stocks are growing in all countries in the region, even those that have traditionally been somewhat distant from global networks of trade and investment.

Figure 5: Growth of Inward FDI Stock, by Country, 2000–2019

(%)

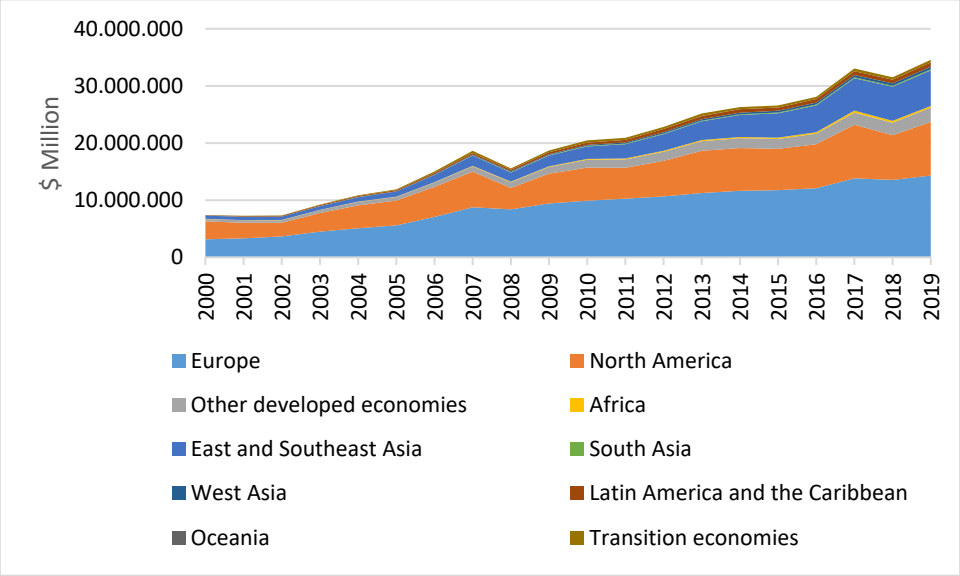


FDI = foreign direct investment, Lao PDR = Lao People's Democratic Republic.
Source: UNCTAD.

Figure 6 shows the data from the opposite perspective – outward stocks. In this case, East and Southeast Asia accounts for 18% of the global total, compared with 41% for Europe and 27% for North America. Amongst developing regions, East and Southeast Asia is far and away the leader as a source of FDI, and indeed its share in the global total has grown substantially over time: in 2000, it was only 7.8%. The contrast with the inward perspective is notable: East and Southeast Asia remains an important destination for FDI, but it has lost share in relative terms as other regions have become more integrated into the world economy; but as incomes have grown and markets have developed, the region has become much more important globally as a source of FDI.

Figure 6: Outward FDI, Total Stock, by Region, 2000–2019

($ million)

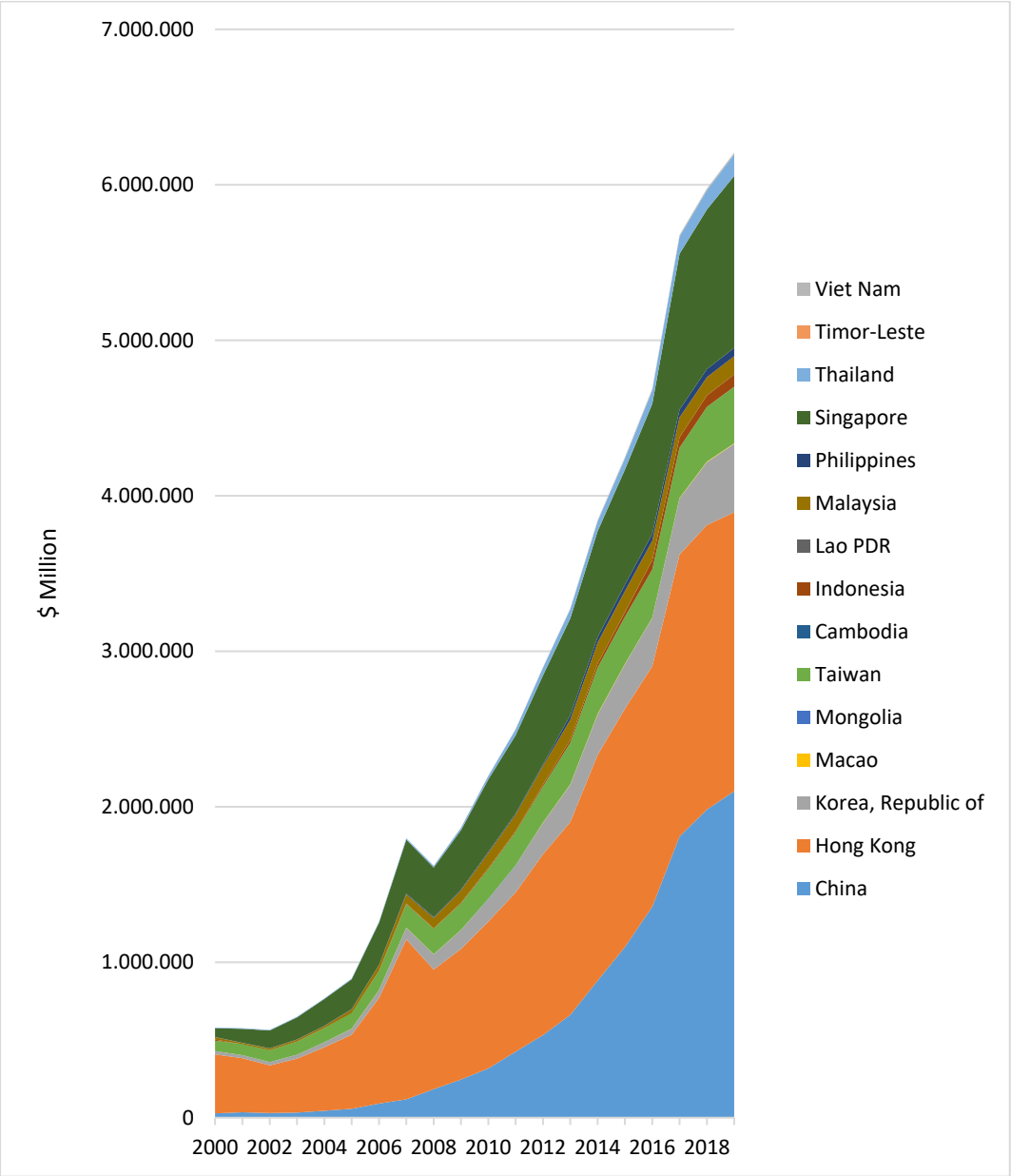


FDI = foreign direct investment.
Source: UNCTAD.

Figure 7 breaks down the data for East and Southeast Asia by source country. As in the case of the inward FDI stock, the outward stock is highly concentrated in just a few source countries. China alone accounts for 33.8% of the total, followed by Hong Kong at 28.9% and Singapore at 17.8%. Amongst the remaining ASEAN Member States, only Thailand accounts for more than 2% of the regional total (2.2%). Overall, country level inward and outward stocks appear to correlate reasonably strongly, i.e. countries that are important sources for FDI are also important destinations.

Figure 7: Outward FDI, Total Stock, East and Southeast Asia, 2000–2019

($ million)



FDI = foreign direct investment, Lao PDR = Lao People's Democratic Republic.
Source: UNCTAD.

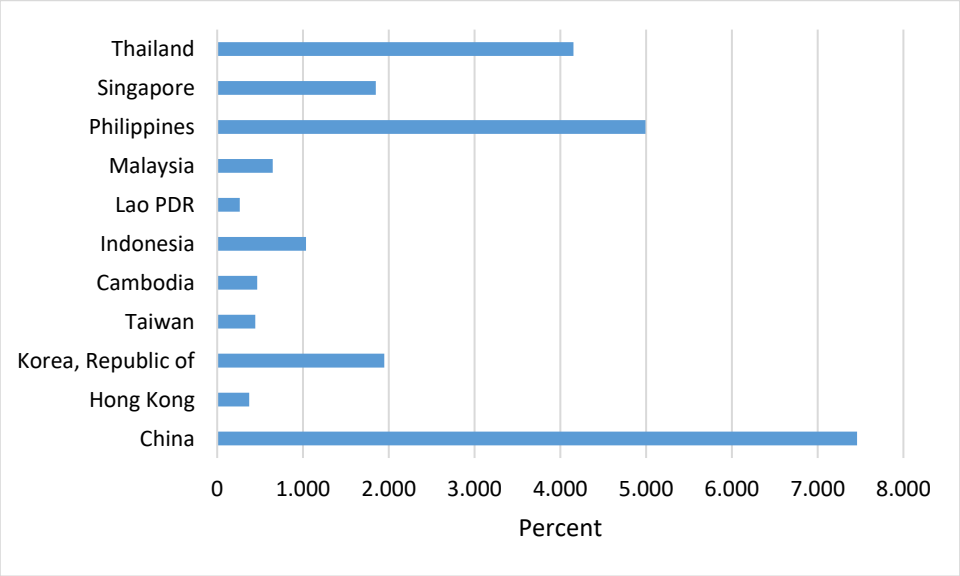
An important characteristic of both the inward and outward data for East and Southeast Asia is that while a large economy (China) typically has the largest share of the regional total, two small economies – Singapore and Hong Kong – come next. This dynamic is important because it speaks to possible differences in investor motivation depending on location. In China, anecdotal evidence suggests that both efficiency-seeking and market-seeking motivations loom large. But in the two small economies, the objective is unlikely to be market seeking; it is tempting to conclude that efficiency seeking must therefore be the dominant rationale, and that is plausible. But given the high levels of technology in both economies, it is also possible that investment activity is related to firm-specific assets, such as

technology, know-how, and intellectual property. Moreover, both economies have an important financial sector in common, and that may distort the numbers to some extent.

Figure 8 shows the country-level growth rates of outward FDI. Some countries record zero outward stocks, so they are omitted from the figure. In this case, the most rapid growth is in a large economy – China. But the Philippines and Thailand have also seen major growth in their outward FDI stocks over the sample period. Again, the figure should be interpreted carefully because rapid growth can be from a low baseline. But the picture discussed above, of a general acceleration in investment integration across the region, is borne out on the outward side as well, although to a lesser extent given that not all countries participate as origins of FDI.

Figure 8: Growth of Outward FDI Stock, by Country, 2000–2019

(%)

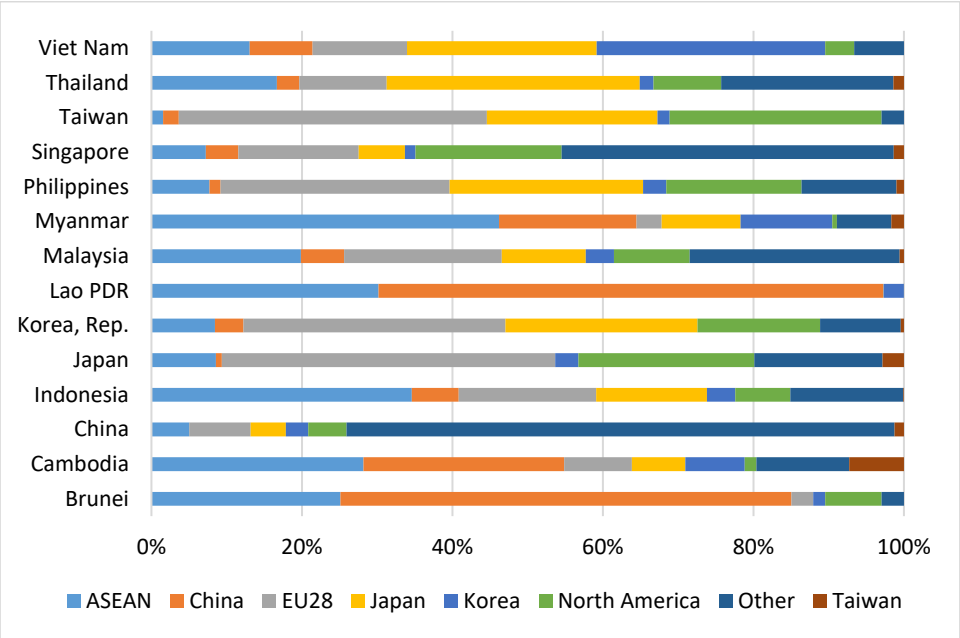


FDI = foreign direct investment, Lao PDR = Lao People's Democratic Republic.
Source: UNCTAD.

Thus far, the discussion has focused on aggregates – the total amount of inward or outward investment by country. An additional dimension is to look at the data bilaterally, i.e. identifying source regions for inward FDI and destination regions for outward FDI. Figure 9 shows the results for inward FDI. While there is some consistency in terms of the main players in regional investment linkages, there is also considerable heterogeneity across countries. China is the largest investor in Brunei, Cambodia, the Lao PDR, and Myanmar, but its share is lower in the other countries in the figure. Intra-ASEAN investment is substantial in most cases, but Japan also plays a substantial role in some countries, as do North America and Europe. While many factors go into these patterns, including historical linkages and the existence of appropriate international legal frameworks for investment, it is also likely that sectoral patterns of investment play a role, which are based, in turn, on the factors that drive comparative advantage, at least in those countries without large domestic markets.

Figure 9: Breakdown of Inward FDI by Country and Source, ASEAN and East Asia

(%, based on 2018 data)

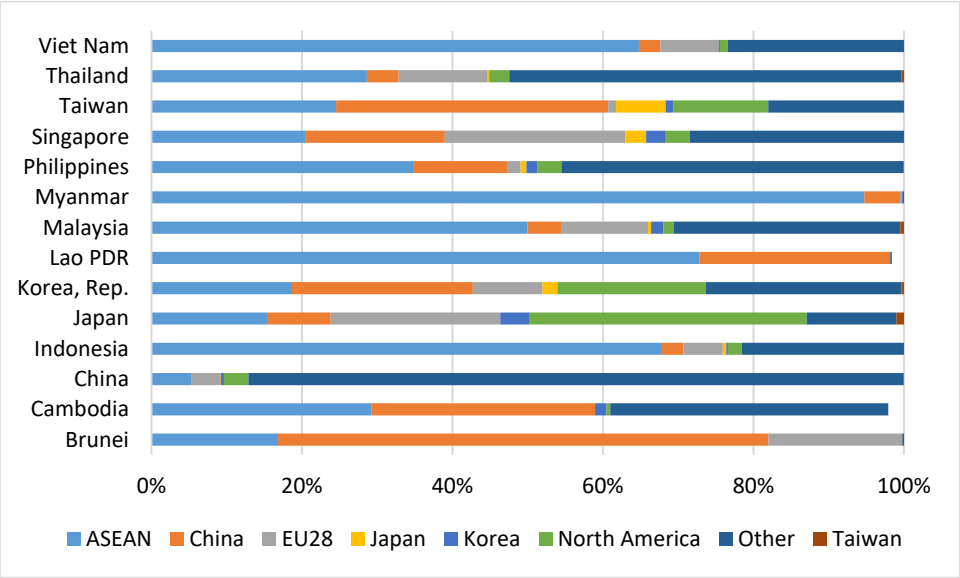


ASEAN = Association of Southeast Asian Nations, EU = European Union, FDI = foreign direct investment, Lao PDR = Lao People's Democratic Republic.
Source: World Bank.

Figure 10 shows a similar breakdown for outward FDI in ASEAN and East Asia. Interestingly, with the exception of China, outward investment is much more focused on the region, specifically ASEAN and China. The figure shows proportions, so it is important to keep in mind that outward stocks of some countries are very small. Nonetheless, there is a clear implication that FDI originating in ASEAN Member States tends to go primarily to other countries in the region, but that within those countries (Figure 7) it does not typically represent a predominant proportion of the total stock of FDI. So, outward investment is more concentrated in regional terms than is inward FDI.

Figure 10: Breakdown of Outward FDI by Country and Destination, ASEAN and East Asia

(%, based on 2018 data)



ASEAN = Association of Southeast Asian Nations, EU = European Union, FDI = foreign direct investment, Lao PDR = Lao People's Democratic Republic.
Source: World Bank.

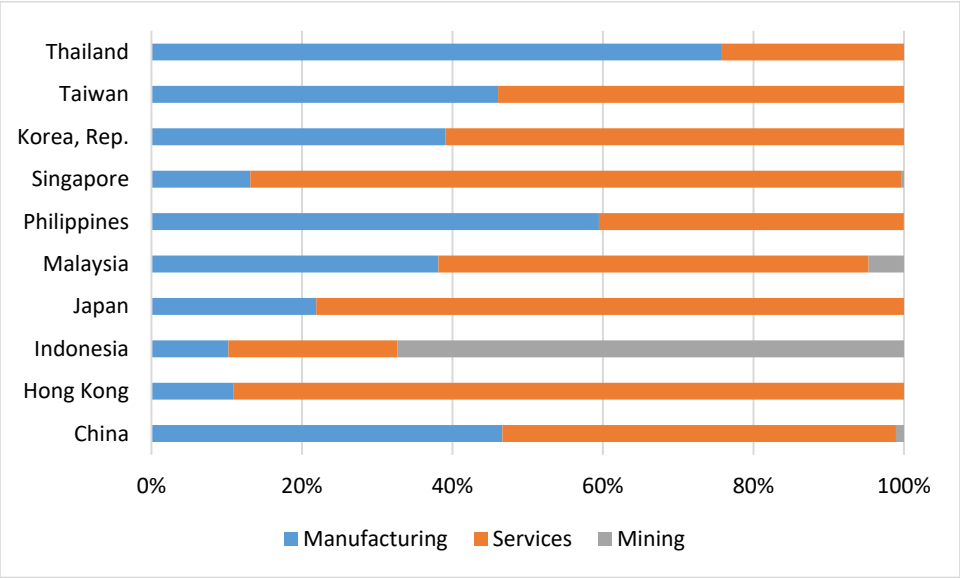
FDI data that disaggregate both by country and by source are difficult to obtain. Typically, it is necessary to use 'mirroring', i.e. looking at the outward stock of a partner country that records the necessary information, as most countries do not make this kind of data public, even if they track it. The Organisation for Economic Co-operation and Development (OECD) is the only international agency that has a database which is disaggregated both by country pair and by sector, but inspection shows that most of its contents are suppressed for reasons of confidentiality in the case of receiving countries in East and Southeast Asia.

As the only easily available proxy, therefore, it is appropriate to consider data from the US. In this case, therefore, the data record stocks of US origin investment in particular sectors in countries in ASEAN and East Asia. In the absence of more comprehensive data, it is impossible to know how representative the sectoral pattern of that investment is in terms of other important source markets, such as China, Japan, the European Union, and ASEAN. But in the absence of complete data, an examination of US investment in East and Southeast Asia is nonetheless informative.

Figure 11 shows the distribution of FDI across the three main economic aggregates: manufacturing, services, and mining. The bars represent percentages of the total stock, and so do not account for scale differences across countries. Nonetheless, some interesting patterns are present. Indonesia is the only country in the region where mining is a major source of inward FDI. By contrast, manufacturing predominates in Thailand and the Philippines, but in other economies, the services sector is dominant. The balance between services and manufacturing is relatively close in Taiwan; the Republic of Korea (henceforth, Korea); and China. But in the remaining countries, the services sector is largely dominant in terms of hosting inward FDI.

Figure 11: US Outward FDI Stocks in East and Southeast Asia, by Sector

(% of total, 2019)



FDI = foreign direct investment, US = United States.
Source: US Bureau of Economic Analysis.

The data in Figure 11 are consistent with various hypotheses regarding investor motivation. First, it seems clear that in Indonesia's case, a substantial proportion of inward FDI is related to resource acquisition, given the focus on the mining sector. Such investments can still underlie GVC activity, but they would put Indonesia in the position of a country that is primarily supplying natural resources to GVCs.

Second, the countries where manufacturing is dominant likely mostly see efficiency-seeking FDI. Neither is a small market, but given their advantages in terms of labour costs, it seems plausible that comparative advantage effects predominate, and that FDI is designed to serve the broader world market rather than the local market. This kind of FDI is typical of manufacturing GVCs.

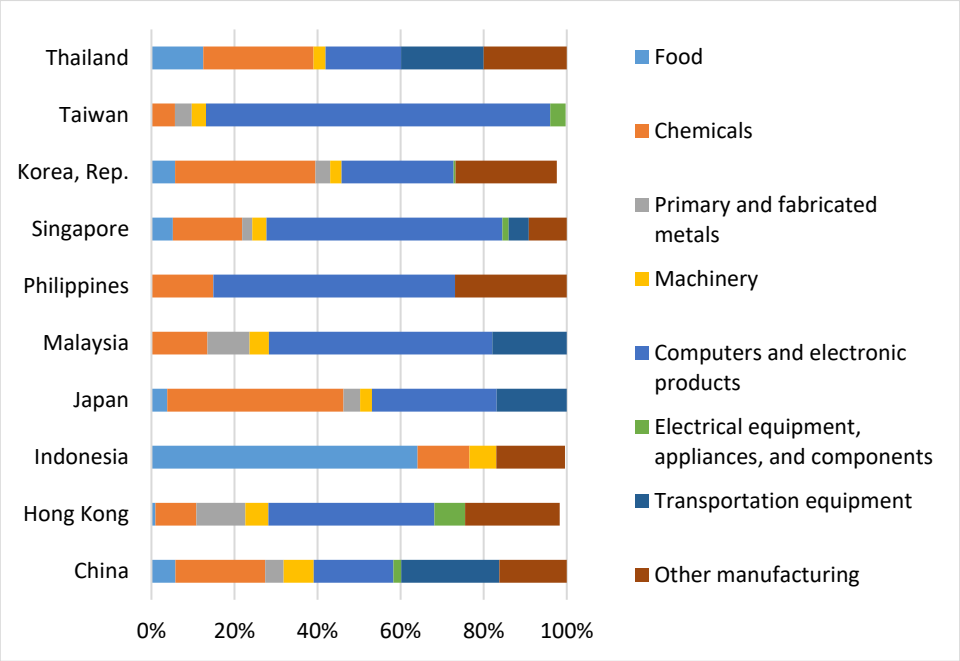
Finally, the countries where services dominate inward FDI represent an interesting middle case. GVCs are becoming increasingly important in the services sectors, although they are still less developed than in manufacturing. So it is possible that some of the inward FDI in services is linked to efficiency-seeking motivations. But other services sectors play a more important role in terms of serving domestic demand, so it is also possible that there is a market-seeking rationale. Of course, considerations such as country size likely play an important role: market seeking seems an unlikely rationale in the case of Hong Kong or Singapore, for example. By contrast, the high level of technology in those countries suggests an additional motivation – the desire to acquire intellectual property.

To elucidate these points further, it is important to go into a greater level of sectoral detail. Figure 12 shows the results for manufacturing. They need to be interpreted cautiously, as some data are suppressed due to confidentiality concerns. But in broad terms, they show considerable heterogeneity across countries in terms of the most important sectors for inward FDI. Chemicals and computers, however, stand out as two sectors that are relatively important in all countries for which data are available. Of course, both sectors are regarded as classic GVC sectors, so the investor motivation is

highly likely to be efficiency seeking. It is quite plausible that these investments represent key components in a broader GVC strategy by US lead firms in the region.

Figure 12: Sectoral Breakdown of US Outward FDI Stock in East and Southeast Asia, 2019

(% of total, manufacturing only)



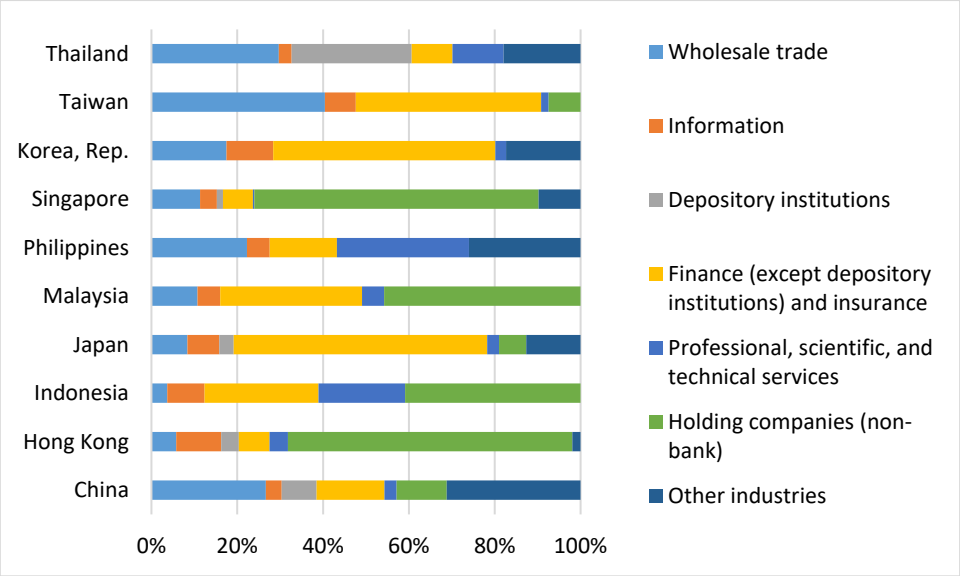
FDI = foreign direct investment, US = United States.
Source: US Bureau of Economic Analysis.

Figure 13 repeats the exercise for services. Again, there is considerable heterogeneity across countries, which is to be expected given the different patterns of comparative advantage and other country characteristics in the region. Nonetheless, finance stands out in the higher-income countries as having a large share of the total. This result is important to nuance, because the valuation of financial investments can be influenced by macroeconomic forces to a greater extent than in other sectors, so it plausible that some of these values may be inflated. Similarly, the result for holding companies is influenced by tax and regulatory considerations, and so is somewhat outside the scope of the present analysis. Nonetheless, the data show the importance of the financial sector in a number of countries in the region, and may be linked to GVC activity: finance is a service industry that has been relatively successful in internationalising its production process over recent years.

Amongst the remaining sectors, wholesale trade stands out as being of relative importance in most regional economies. FDI in this sector could be linked to GVC activity in direct or indirect ways. The direct connection is that distribution itself is a GVC sector, in particular in terms of sub-sectors like logistics. So lead firms could be establishing subsidiaries in the sector to assist with splitting the distribution production process across countries. But it is also plausible that this investment is derived from the activities of GVCs in goods sectors, which depend on efficient distribution to coordinate production across countries, and of course to bring goods to final consumers. Either way, the

importance of this sector could be driven in part by domestic market considerations, but likely also has a linkage, whether direct or indirect, to GVC activity in the region.

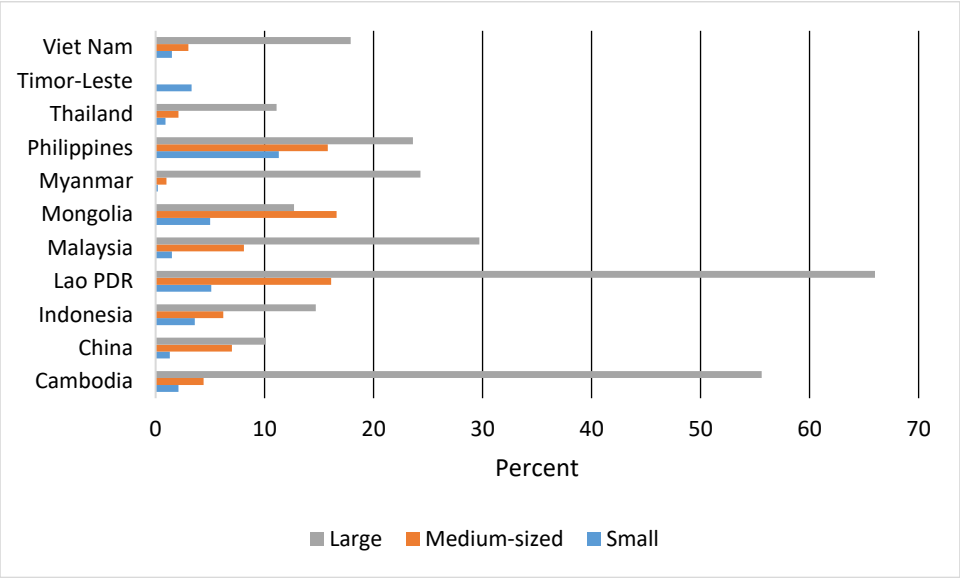
Figure 13: Sectoral Breakdown of US Outward FDI Stock in East and Southeast Asia, 2019 ($ of total, services only)



FDI = foreign direct investment, US = United States.
Source: US Bureau of Economic Analysis.

A key constraint on FDI integration, however, is that it is closely tied to firm size. Figure 14 uses data from the World Bank Enterprise Surveys to show that inward FDI is overwhelmingly concentrated in larger firms in all countries for which data are available. While the proportions of small firms receiving inward FDI differ across countries, they are nearly always much smaller than the proportion of medium-sized and large firms. A partial exception is the Philippines, where a relatively large number of small firms have received inward FDI. From a GVC perspective, this pattern is not unexpected. Lead firms looking for efficiency gains are typically interested in working with suppliers that can work at scale. Smaller firms most commonly participate in GVCs only indirectly, that is to say as second-tier suppliers of larger firms that participate directly in GVCs. Such supplier linkages can still have important benefits for second-tier firms, beyond simply increased demand. Lacovone et al. (2015), for example, showed that local suppliers can experience positive spillovers from the entry of a foreign distributor, although the implications for less productive firms can be challenging in terms of increased competition and the necessity to undertake costly investments to upgrade production. Nonetheless, from an equity and inclusion point of view, it is important to be aware of the concentration of inward FDI on larger firms in the region, as well as the challenges that can pose for smaller firms.

Figure 14: Percentage of Firms in Each Size Category with at Least 10% Foreign Ownership, East and Southeast Asia, Latest Available Year



Lao PDR = Lao People's Democratic Republic.
Source: World Bank.

4. Looking Forward: Emerging Issues

The 'golden age' of GVC growth and development in Asia, as elsewhere, was the 1990s and particularly the 2000s. The period following the global financial crisis has seen slower growth of trade relative to GDP, and while GVC integration has continued to increase, it has done so more slowly than in the previous period. Against this background, the economic shocks associated with the COVID-19 pandemic have put stress on GVCs in various sectors, including some high-profile ones, such as personal protective equipment and other goods needed for responding to the pandemic.

Against this background, it is natural that questions should arise as to the continued viability of the GVC business model. But it is important not to overreact to the extreme circumstances of 2020 and 2021. It is still too early to say to what extent GVC integration has been affected by the COVID-19 pandemic: rigorous data typically only come out with a delay of some years due to the need to combine input–output data with trade data. While high frequency trade data show that there has predictably been a major drop in trade, particularly in services requiring personal contact, it is still unclear why recovery is happening at radically different rates in different countries. Even in those countries where recovery is lagging, it is unclear whether the proportion of GVC trade in the total has been affected: it is plausible, for instance, that trade has fallen by a particular amount, but that the fall was distributed over GVC and other types of trade roughly in proportion to their initial shares, which would mean that the relative prevalence of GVC trade would not change too significantly.

A reason for giving credence to this type of analysis is that there is some support in the literature for the view that value chains are relatively robust to unexpected changes in trade costs. Indeed, the degree of cost increase required to cause GVCs to unravel at scale in a proportional, not absolute, sense is very high (Shepherd, Forthcoming a). While the economic shocks related to COVID-19 are indeed severe, it is unlikely that they are sufficiently focused on input markets as to fundamentally

change firm sourcing decisions. Rather, the implications of the pandemic are more macroeconomic in nature, although of course with differences by sector. But there is no evidence that input markets are affected to a different order of magnitude than markets for final goods, so the incentive to source goods locally versus using foreign suppliers has not been fundamentally altered.

In particular in cases where lead firms have made relationship-specific investments in GVC linkages, there is good reason to believe that the frictions created will help maintain GVC activity through the crisis, and position it to rebound rapidly as global recovery takes hold. East and Southeast Asia are particularly well placed to take advantage of improved global demand later in 2021, given that these countries have generally managed the pandemic response very well, and thus have seen fewer and shorter restrictions to economic activity than in other parts of the world, in particular Europe and the United States.

Of course, there are significant risks to the reasonably upbeat outlook just presented. On the one hand, there is a non-negligible policy risk in some countries related to the debate over 'reshoring' (see further below). Given the change of administration in the US, however, it seems unlikely at least in the short term that there will be major policy interventions designed to reshore substantial amounts of production activity currently undertaken in other countries. A more likely scenario is targeted interventions in sectors that have assumed particular importance during the pandemic, such as health-related goods. While the economic implications of such steps should not be underestimated, they are by no means of the same order of magnitude as a potential effort to reshore large amounts of manufacturing activity more generally.

The reason for highlighting policy as the major risk from a GVC integration standpoint is that the other sources of risk – technology and private sector decision-making – are likely to have significantly less radical effects than those that had been feared until recently from policy interventions. In the technological realm, additive manufacturing (3D printing) now has the potential to move production closer to the location of final consumption, thereby reducing transport costs substantially. But the limited evidence currently available suggests that even when firms use this technology, they tend to maintain existing production locations and simply take advantage of the possibility of reducing costs even further by employing automation: Freund, Mulabdic, and Ruta (2019); Shepherd (Forthcoming b) paints a similar picture in the case of e-books.

At the level of firm decision-making, the pandemic experience will likely lead to a reassessment of the risks associated with dispersed production and just-in-time management practices, at least in those sectors that suffered particular stress. But it is important to note that while some GVCs experienced shortages and severe disruptions in the early stages of the pandemic, anecdotal evidence suggests that they resolved those problems rapidly, and retooled to meet increased short-term demand for pandemic-related products. The early part of the pandemic period shows the difficulties of relying on complex production networks for critical goods, but the latter part of the period shows the strength inherent in those systems. As such, the private sector's reassessment of risk is unlikely to lead to a wholesale unravelling of the GVC business model. Instead, a likely scenario is the introduction of increased redundancies in supplier networks to deal better with bottlenecks created by over-reliance on single sources (e.g. McKinsey Global Institute (2020)).

In developing policy responses to the COVID-19 pandemic, policymakers would do well to be mindful of the unique nature of the shock: it hit all countries at essentially the same time, and had broadly similar effects in each of them, at least in its early stages. As such, most countries saw a combined

supply and demand shock as a result of the pandemic. But this pattern is extremely unusual. More commonly, economic shocks are imperfectly correlated across countries: what happens in one place may happen in another only with a significant delay, or not at all. A natural disaster is a good example: it is highly localised, and therefore does not affect all countries equally at the same time. In world of random but largely uncorrelated disturbances, distributing production geographically can actually be a way of managing risk, not heightening it, in the same way that diversification reduces the volatility of an investment portfolio. Of course, finding the right balance between the efficiencies that come from concentrated sources and the need to mitigate risk is an ongoing question. But there is as yet no strong evidence of the need for policy intervention in a broad-based sense to supplant the normal course of decision-making within private businesses.