

GVC Mapping for ASEAN and India: Trade Prospects in the Current Economy and Goods of the Future

Edited By

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GVC Mapping for ASEAN and India: Trade Prospects in the Current Economy and Goods of the Future

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Executive Summary

Anita Prakash

India's weight in the global economy has expanded rapidly, from 1.5% in 2002 to 3.5% in 2022, thanks to rapid growth. This growth was mostly driven by domestic demand. India has also made critical progress in global value chain (GVC) participation. Its exports have idled, however, with the share of global merchandise exports remaining as low as 1.8%. India could tap into huge external demand if it could increase its international competitiveness and integrate more in global supply chains. In an increasingly protectionist world, regional and trans-regional trade deals are increasingly important means for improved trade relations and supply chain integration. The Association of Southeast Asian Nations (ASEAN) is a close trading partner of India, with a fully operational Comprehensive Economic Cooperation Agreement. The ongoing review of the ASEAN–India Trade in Goods Agreement (AITIGA) presents an important opportunity for reducing barriers to trade with ASEAN and for greater integration with ASEAN both in trade and foreign direct investment (FDI).

This study reviews the GVC performance and integration of India and ASEAN, both bilaterally and globally, and draws policy recommendations for both India and ASEAN to enhance their trade competitiveness in manufacturing within the region and globally. Data on GVC participation have been interpreted extensively to capture how India is performing in terms of exports and imports of intermediate goods, which then feed other countries' exports. The advantage of such a data set, which focuses on trade in intermediate goods, is that it only counts the value added embedded in exports by a given country versus others. More importantly, the bilateral data sets help to understand the degree of integration in the value chains of different trading partners. The trajectory of India's GVC participation suggests that India has been gaining ground and adding more value to GVCs, and its reliance on foreign value added has also significantly dropped thanks to continuous FDI inflows that have bolstered the domestic supply chains. On the other hand, ASEAN has been consistent in GVC participation but with huge dependence on China for both exports and imports, with more dependence on imports from China or backward participation in the GVC vis-à-vis China.

In the intervening period between 2009 and 2024 (the respective years of the signing and review of AITIGA), India has improved its GVC participation in several industries, such as chemicals, pharmaceuticals, machinery, and automobile parts and engines. The long-standing insufficiency of manufacturing FDI inflows, however, continues as India has lagged other ASEAN emerging markets such as Malaysia and Viet Nam. Meanwhile, India has made much progress in global service value chains, especially in the information and communication technology (ICT) sector, in which India now creates 7% of global value added, only behind China in emerging markets.

Tariffs and the volume of trade between the two partners were used as the important index of competitiveness, or lack thereof. Viewed from a GVC integration perspective, while ASEAN is better integrated into the regional and global value chains, India has been rising in terms of integration in the value chain. India's integration has been asymmetric, though. Its imports of intermediate goods to re-export (backward participation) have gone down, while its exports of intermediate goods for other countries to re-export have increased, including with ASEAN. ASEAN has consolidated its position in the GVCs, albeit with huge dependencies on manufacturing in China. ASEAN integration with large, developed economies has declined since its peak in the late 2000s – keeping a steady negative trend vis-à-vis the US and Japan, and a partial recovery with respect to the European Union (EU), which remains the main integration partner for ASEAN amongst developed economies. During this time, ASEAN has become increasingly integrated with China, which has become the main individual partner in GVCs. ASEAN's integration with India has also grown during the same period, but the 'China centrality' in ASEAN's GVCs is remarkable.

In 2020, India ranked higher in GVCs than ASEAN, meaning that India exported more value added to the world. But that was not always the case since India has received extensive investment from ASEAN, which helped India move up in GVCs to surpass ASEAN. This explains the upward trend in India's forward participation with ASEAN since the 1990s. The India–ASEAN GVC integration surge has been predominantly driven by Singapore and to a lesser extent Viet Nam, and India has mainly gained on forward participation with the two countries.

Meanwhile, India's backward participation with ASEAN has dropped significantly since 2006 as India seeks to diversify its imports of raw materials, especially from Malaysia and Indonesia.

The growth of India's forward GVC participation (globally) in the manufacturing sectors remains sluggish due to the low FDI. Although the FDI received by India has been on the rise for many manufacturing sectors (e.g. automobile, pharmaceutical, renewables, and electrical and electronics), the FDI values remain underwhelming with most of the FDI going to the digital sector. United Nations Trade and Development (UNCTAD) data reveal that ASEAN received FDI of US\$9.5 billion for its electronics industry in 2022, which is in stark contrast to India's US\$539 million. As such, most of India's sectors see their exported value added remaining flat or down in recent years, except transport equipment, chemicals, and pharmaceutical manufacturing.

A more optimistic picture emerges for services as India has utilised its huge young workforce to fuel the development of the domestic service sectors, and progress has been made in most sectors regarding forward participation, such as ICT, financial, and professional services. ICT is the sector growing the most in terms of forward participation. In other words, Indian exports of ICT goods for other countries to re-export are one of the most dynamic GVC trends from 2007 onwards. India's manufacturing requires a similar

lift. As for ASEAN, its prospects for participation in the GVCs of the digital economy – or economy of the future – will require greater capacities and investments in the coming years.

The picture, however, is more complex. India thrives in terms of FDI for ICT: US\$18 billion during 2020–2022 compared with less than US\$7 billion for ASEAN. However, ASEAN has received much more FDI for manufacturing than India (US\$40 billion and US\$13 billion, respectively) during the same period. The difference is even larger for insurance and banking. From a policy perspective, attracting FDI for ICT may not be enough for India's need for job creation and income growth. Manufacturing FDI creates more jobs across different skill sets.

The prevailing trend of de-risking supply chains away from China means more opportunities for India as its potential outsizes any country in ASEAN, and even the whole bloc. This is due to India's geographic and demographic advantage as its huge population size, geography, abundant land resources, and proximity to major commodity sources (the Middle East, Africa, and Southeast Asia) make it a particularly attractive location for manufacturing supply chains.

With FDI as the key to increased GVC participation, India may face challenges in attracting FDI. Southeast Asia remains a better target for outsourcing manufacturing industries because of its production and service links with China, Japan, the Republic of Korea (henceforth, Korea), the EU, and the United States (US). The limits of ASEAN's land and labour size mean that none of them will be able to develop a full-industry supply chain like China. Such lack of potential rivalry keeps ASEAN increasingly integrated with China in terms of GVC participation and FDI.

The EU remains the most important trade and investment partner of India, given its steadily increasing trade and FDI flows. India is an ideal upstream supplier for Europe, especially in the current context of de-risking away from China. To continue moving up in GVCs, India's trade agreements with the United Kingdom and the EU will be key.

There are increasing possibilities of cooperation within the Indo-Pacific region. The Indo-Pacific Economic Framework (IPEF) embodies de-risking strategies, as well as removing market distortions. India should leverage the IPEF to firm up its ties with the members in terms of trade and investment. For example, despite having signed free trade agreements with Japan and Korea, their FDI to India has not picked up significantly, and India will need to step up investment partnerships with the two developed markets for more higher-end FDI to bolster its GVC impact. The US will also be an important source of tech FDI, as its investment in India has surged since 2020, albeit gradually falling back.

India therefore will need to balance the manufacturing and service sectors. In the current GVC rank, India imports value from the US and China and then exports together with its own value added mostly to the EU and ASEAN. That is, India has moved up the ladder in GVCs against the EU and ASEAN thanks to their FDI to India, which helped India's domestic supply chains. India needs to step up its cooperation with these two blocs in trade and

investment but also needs to seek greater partnership with other major economies in or out of the region, such as the US, Japan, and Korea, for much-needed manufacturing, especially higher-end manufacturing, investment.

India is expected to continue its rise in the GVCs, with its promising demography and the prevailing de-risking strategies in major economies regarding China. ASEAN too has an opportunity to look beyond tariffs and consider structural adjustments and corrections in its GVC map, including greater integration with India than before.

Section two of this study reviews India–ASEAN trade in the niche sectors of digital and environmental goods – or goods of the future. There is a broad consensus that trade integration can boost incomes, increase consumption possibilities, and contribute to poverty reduction. But the SDG framework makes it important to focus on other ways in which trade can facilitate sustainable development outcomes.

One contribution trade can make is facilitating the dissemination of environmentally friendly products, as well as digital products that promote structural change compatible with a lesser environmental footprint. Green and digital trade is an emerging area of concern, as evidenced by the increasing inclusion of chapters and provisions dealing with these areas in free trade agreements, as well as their incorporation in work by the major multilateral agencies concerned with trade. Section two of the study assesses the role of green and digital trade in India–ASEAN trade. How important are these sectors, and what recent growth have they seen? How does the bilateral relationship sit compared with other trading relationships with key partners? What sorts of policy changes could facilitate future growth in green and digital trade?

The study provides some preliminary data on six clusters of goods within the green and digital space – low-carbon technology goods, environmental goods, the lithium-ion battery supply chain, industrial robots, semiconductors, and 3D printing. The methodology is data-based. The approach is not comprehensive, but provides extensive detail on key components of this emerging trading space. The objective is to look at the composition of bilateral and multilateral trading relationships, as well as recent growth rates in the six focus clusters of goods.

There are intensive inter-industry exchanges between India and ASEAN in the green and digital space, which is consistent with trade complementarities between the two, as evident from trade in semiconductors and lithium-ion batteries, which are important inputs into some environmental goods. ASEAN's exports to India in green and digital products have generally increased over time, reaching nearly US\$10 billion in aggregate in 2022 from just over US\$4 billion in 2017. Over time, ASEAN's exports are becoming more oriented towards semiconductors, and to some extent lithium-ion batteries; the role of environmental goods and low-carbon technology is not declining in absolute terms but was a smaller share of total ASEAN exports to India in green and digital products in 2022 relative to 2017. India's exports to ASEAN have surged too, albeit from a low baseline, to more than US\$3 billion in 2022. India's exports – mainly environmental goods and low-

carbon technology, although lithium-ion batteries, and to a lesser extent semiconductors – have also seen growth. In the absence of distortionary policies, this pattern of trade would be consistent with different patterns of comparative advantage in the two regions, whether due to resource endowments or technology, or some combination of these and other micro-level factors. Two-way trade in similar but differentiated products is relatively limited in terms of the overall flows between ASEAN and India, which is reflective of distinct patterns of specialisation and broader economic factors in the bilateral trade relationship.

The ASEAN–India relationship is established and growing in the green and digital space. However, it is only one aspect of the bilateral trade relationship, which amounted to US\$131.6 billion in 2022. Summing the product categories used in the study gives a value of US\$12.4 billion in 2022, which is equivalent to under 10% of total bilateral trade. It is also important to stress that this figure overstates the importance of green and digital trade to the bilateral relationship because the product categories are not mutually exclusive, i.e. some products are included in more than one category, so there is some amount of double counting. A realistic conclusion is that the green and digital space is established and growing in importance in India–ASEAN trade, but that it still accounts for a modest share of the overall bilateral relationship. In addition, the reality for individual ASEAN Member States (AMS) is quite different depending on factors like geography, pattern of comparative advantage and specialisation, and per capita income level.

Beyond trade, there are also emerging investment and policy linkages between India and ASEAN in the green and digital space. India has major investment needs in renewable energy and is developing the capacity to be an important player in that sector in the region and potentially beyond. India and ASEAN have therefore initiated collaboration in this area, which has important synergies with the development of a regional ASEAN-wide power grid. India's emerging manufacturing capacity in lithium-ion batteries, where Viet Nam has made a substantial investment to support its developing electric car industry, is an important example. From outside the region, electric vehicle manufacturer Tesla is considering a \$500 million investment in India, albeit linked to a preferential easing of burdensome import tariffs. It is important to keep the scale of these kinds of investments in mind. According to the World Development Indicators, US\$500 million in new inward investment represented around 1% of total inward investment in India in 2022.

There is more policy activity in environmental goods than in semiconductors, which is perhaps partly a factor of the larger number of individual Harmonised System (HS) products involved. ASEAN maintains, in general but subject to exceptions, a relatively open trade regime for environmental goods and semiconductors, as was the conclusion from the analysis of tariffs. In India, the number of newly implemented policy measures for environmental goods is much higher than in ASEAN. Compared with ASEAN, the balance is far more towards restriction than liberalisation in India, which is using new tariffs and non-tariff measures to limit access to its market for environmental goods, usually with the objective of boosting reliance on domestic production.

The key conclusion is that while India–ASEAN trade is growing rapidly in the green and digital space, the same is true of ASEAN's trade relationship with other major partners (the EU and the US) as well. The overall picture is one of robust growth by India, so there is an expectation that India's share of ASEAN's green and digital trade could grow over time, but that growth is likely to be modest in share terms given the growth rates observed with other major markets.

India lags ASEAN in the manufacturing sectors for two main reasons. The first is on the geostrategic front. In the rapid globalisation process which centred around China, ASEAN is better positioned than India given the cost advantage in transportation and raw materials. FDI from China, Japan, and Korea built up the manufacturing supply chains in ASEAN, especially in Malaysia and Viet Nam. Another factor lies in India's underdeveloped inland transportation and power infrastructure, which is key to manufacturing supply chains. However, India has prioritised the building of infrastructure in its landmark PM Gati Shakti National Master Plan, aiming for connectivity amongst all economic zones.

India is expected to continue its rise in the GVCs, with its promising demography and the global de-risking strategies regarding China. To use these opportunities, India will need to relax its tariffs and non-tariff measures further (to assess if the domestic producers of intermediate goods can still compete with producers outside India) and push forward more trade and investment deals to attract more FDI inflow to improve its domestic manufacturing industries.

For ASEAN, the issues are more structural than just policy reforms. ASEAN's huge dependence on the Chinese inputs in ASEAN's exports have supported the competitiveness of its exports. However, with the current turnaround in the trade policies of large developed markets like the US and the EU, which favour diversified and resilient supply chains, and the emergence of new production centres in India, regions such as South Asia, West Asia, and Africa represent new opportunities for ASEAN to diversify its trade linkages. This may be especially important in the emergent digital and green economy, where the technology and supply chains of environmental and digital goods will be closely monitored by ASEAN's important trading partners.

Two structural issues for India and ASEAN emerge from this study. India's low backward participation, both with ASEAN and the rest of the world, reduces India's dependence on the rest of the world and increases self-reliance while promoting domestic companies. But it increases the costs of intermediate goods in domestic products (as it is mostly a consequence of high tariffs on imports and other trade-related barriers to imports). For a sustainable future of manufacturing in India and for increased exports, import tariffs will need to be reduced to assess if the domestic producers of intermediate goods can still compete with producers outside India.

The key to deeper GVC integration and better quality of trade will lie in more bilateral FDI between India and ASEAN. Finding complementarities in manufacturing and the digital economy, including capacity enhancement, is the way forward for India–ASEAN economic relations.

Part 1

India in the Global Value Chain: Lessons and Opportunities for India-ASEAN Trade

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Research Fellow at BRUEGEL*

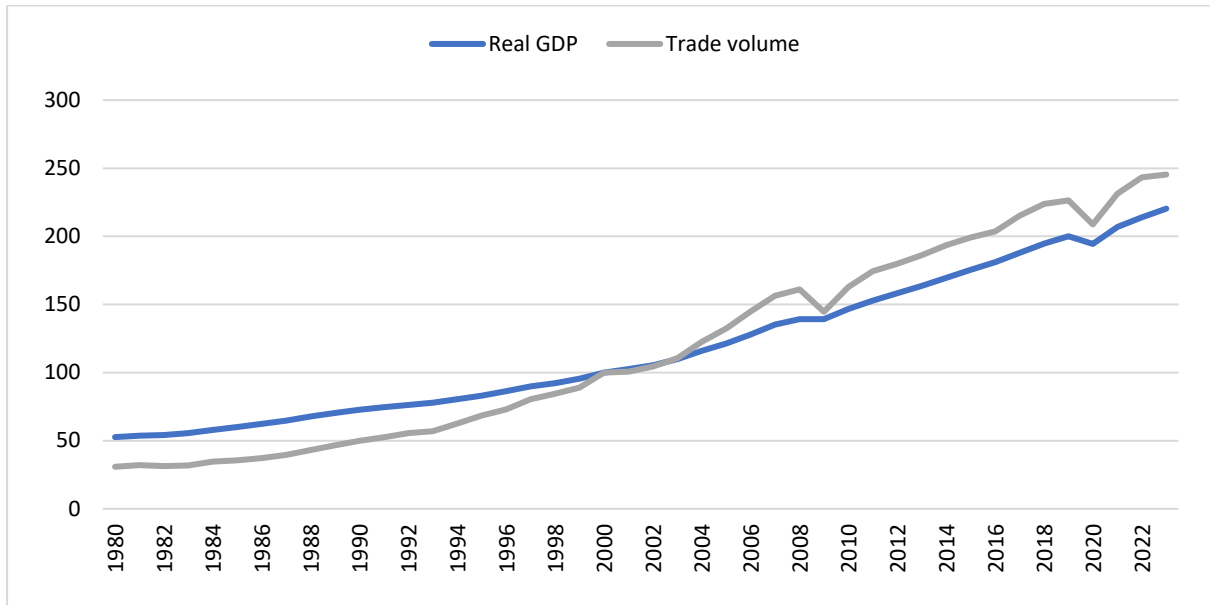
Introduction: Developments in Global Supply Chains

What was thought of as an unstoppable trend – globalisation – has recently halted, if not started reversing. The development of global value chains (GVCs) was adopted by transnational corporations to reduce their costs of production through efficiency gains. GVCs refer to international production sharing, a phenomenon whereby production is broken into activities and tasks are carried out in different countries. The ability of developing economies to tap into their comparative advantages of cheap labour forces through the liberalisation of trade and investment policy, still evolving environmental and labour regulations, has allowed them to gain more productive jobs and capital investment, to raise productivity and to generate wealth. From Eastern Europe to China, and most recently Viet Nam, the process has lifted millions out of poverty. Indeed, GVCs have shaped the world beyond trade, from the increasing importance of efficiency as a key objective of the production process – and the development of new business models to accommodate it – to the surge in foreign direct investment (FDI) to set up production plants overseas to produce parts and components.

Having said that, the globalisation process has decelerated significantly, if not started to reverse (García-Herrero, 2022). Over the history of global trade, two strains can be identified as in Figure 1. The global financial crisis (GFC) over 2008–2009 and the coronavirus disease (COVID-19) pandemic during 2020 and 2021 battered the global trade volume. Worse still, they seem to have changed the secular trend of global trade growth as the compound annual growth rate has slid from 6.1% pre-GFC to 3.3% after and further to 3.0% through the post-COVID-19 years. However, the world's real gross domestic product (GDP) growth only slowed from 3.5% to 3.1% during the same period and even rebounded to 3.2% after exiting COVID-19, thanks to the ultra-lax monetary easing globally.

* I would like to thank Haoxin Mu for his contribution to this paper. All remaining errors are mine.

Figure 1: Index of Global Real GDP and Trade Volume
(2000=100)



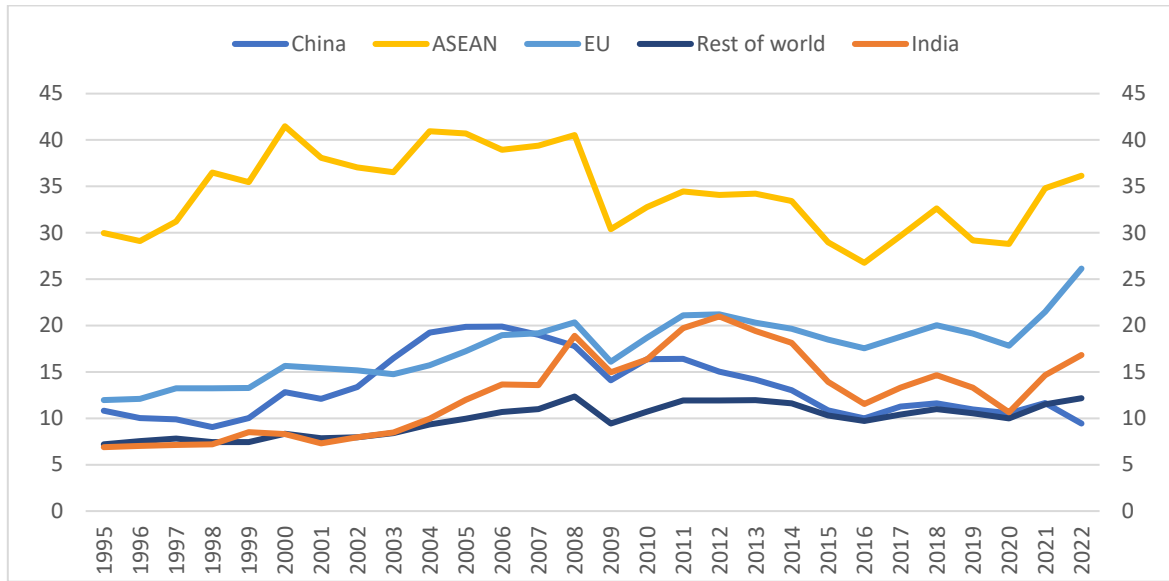
GDP = gross domestic product.

Sources: Natixis; and International Monetary Fund (n.d.), World Economic Outlook Database.

<https://www.imf.org/en/Publications/WEO/weo-database/2024/April> (accessed 23 July 2024).

Likely reasons for this are major participants' scepticism about GVCs and their refraining from further integration as protectionism rises. The slowdown of developed economies such as the United States (US) and the European Union (EU) after the GFC forced developing countries, or the producers in GVCs, to turn to domestic demand for growth, dragging down the pace of globalisation. Protectionism has become more popular because countries seek to protect their domestic producers from import competition as demand wanes everywhere. This has supported overall economic growth, but global trade takes a heavy hit. Figure 2 shows the imports of intermediate goods as a share of GDP, which has generally drifted lower post-GFC for major exporters, especially in emerging markets such as China, India, and the Association of Southeast Asian Nations (ASEAN). It is worth noticing, however, that the share of intermediate goods imports seems to be rising again in some countries and regions since the pandemic began, such as in India, ASEAN, and the EU. Their divergence from China may point to the impact of reshoring and friend-shoring strategies since the disruption of COVID-19 raised alarm about supply chain resilience and overdependence on China.

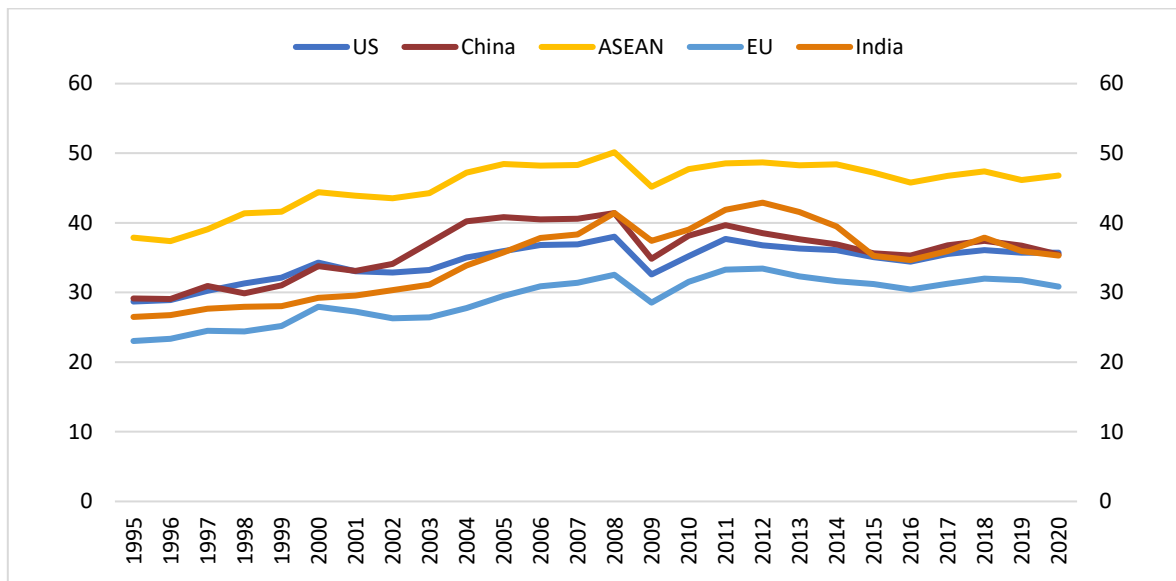
Figure 2: Imports of Intermediate Goods
(% of GDP)



ASEAN = Association of Southeast Asian Nations, EU = European Union, GDP = gross domestic product. Sources: Natixis; and United Nations Conference on Trade and Development (n.d.), Statistical Portal, Data Centre. <https://unctadstat.unctad.org/datacentre/> (accessed 23 July 2024).

With the diminished flow of intermediate goods, the expansion of GVCs has largely halted over the past decade. Figure 3 shows the development of major economies' GVC participation, which is a measure of an economy's integration into GVCs that captures how much content in the country's gross exports has crossed borders (either its own or that of trade partners) at least twice, which rules out the value imported for domestic consumption and leaves only the raw materials and intermediate goods that continue to flow in GVCs. More details on this measure are in the Appendix. As shown in Figure 3, the world's GVC participation has generally trended lower since 2011, echoing the diminishing share of imports of intermediate goods.

Figure 3: Total GVC Participation with the World
(% of gross exports)



ASEAN = Association of Southeast Asian Nations, EU = European Union, GVC = global value chain, US = United States.

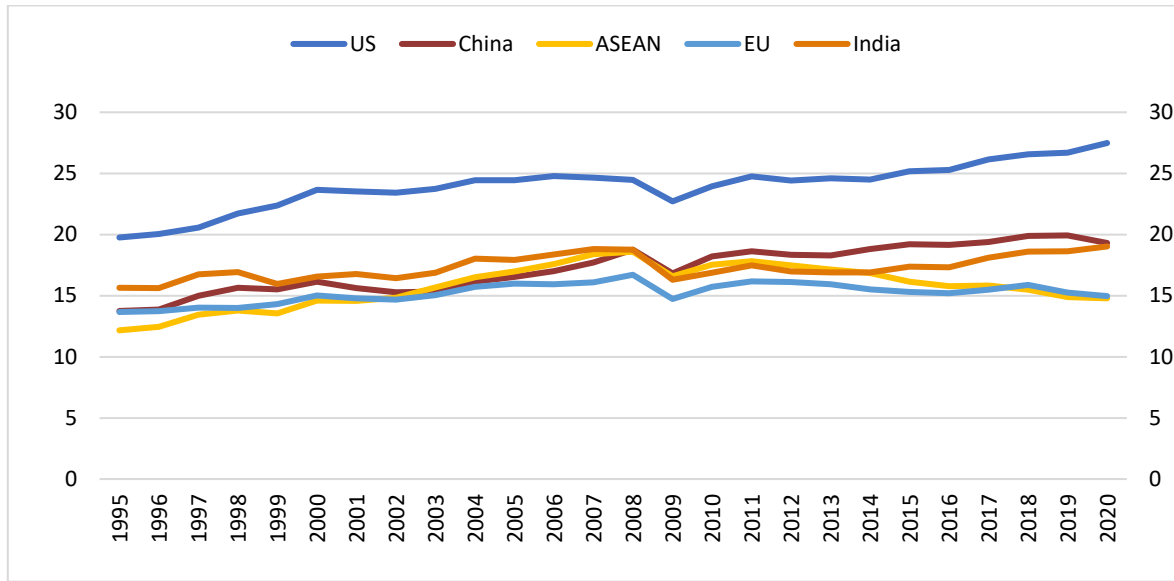
Sources: Natixis; and Organisation for Economic Co-operation and Development, Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

A country's GVC participation can be further decomposed to forward and backward by the source of value added. Forward participation measures the domestic value added in foreign countries' gross exports as a share of the home country's gross exports, and backward participation is the share of foreign value added in the home country's domestic gross exports. When a country's forward participation rises, it means that the country is exporting more domestic value added to GVCs. When backward participation rises, it means that the country is exporting more foreign value added in its exports. Thus, higher forward participation is generally seen as positive because it is generally only possible if a country moves up the ladder in terms of the quality of its exports; in other words when it does not depend as much on other countries' imports to produce manufactured goods which it exports. Higher backward participation is usually associated with the opposite, either producing lower-value goods or being integrated with only a few GVC industries. Figures 4 and 5 present how forward and backward participation have evolved for major GVC participants.

Transversally, the US ranks the highest in GVCs as it exports the highest-value products. China follows next but is being closely followed by India. ASEAN and the EU rank the lowest.

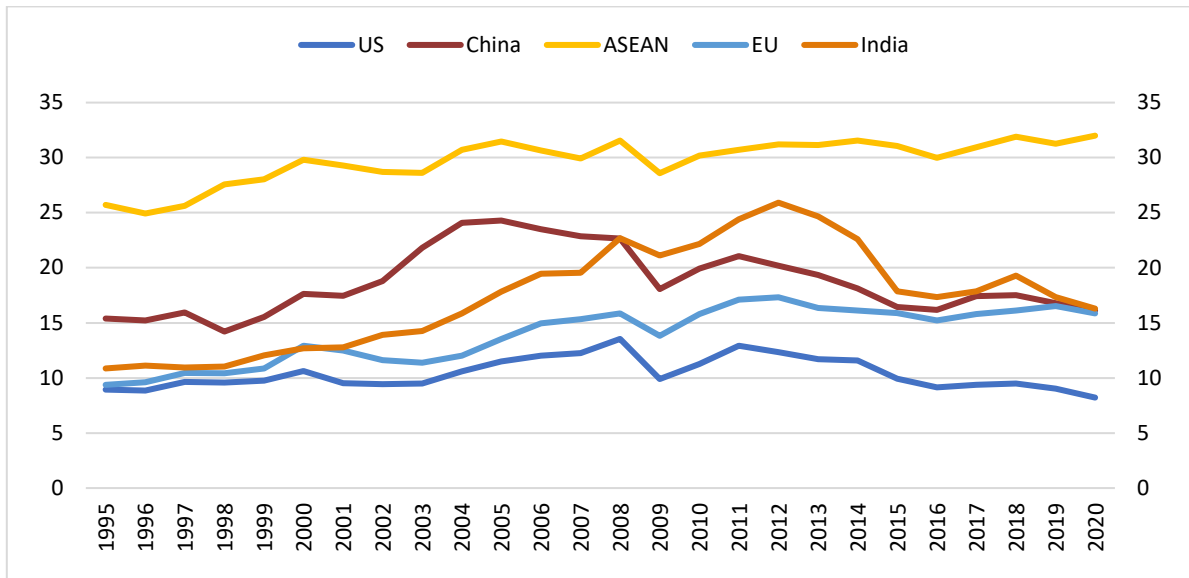
Vertically, the US, China, and India have been rising in the GVC rank with more domestic value added to GVCs, while ASEAN and the EU are falling back.

Figure 4: Forward Participation with the World
(% of gross exports)



ASEAN = Association of Southeast Asian Nations, EU = European Union, US = United States.
Sources: Natixis; and Organisation for Economic Co-operation and Development, Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

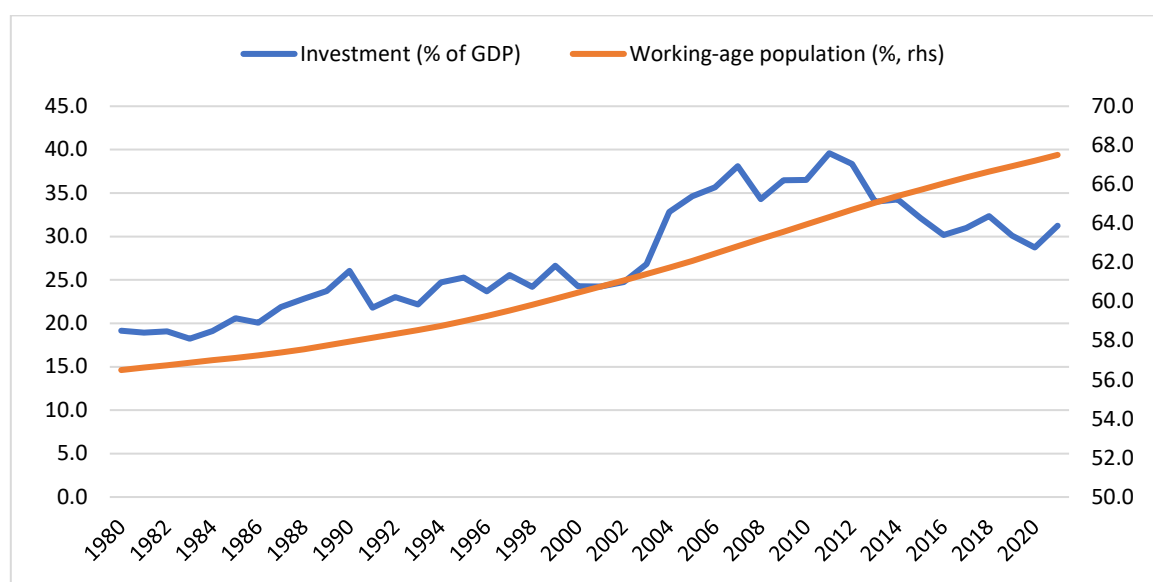
Figure 5: Backward Participation with the World
(% of gross exports)



ASEAN = Association of Southeast Asian Nations, EU = European Union, US = United States.
Sources: Natixis; and Organisation for Economic Co-operation and Development, Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

As a rising power in GVCs, India has experienced a major decline in GVC participation since 2012, but it is not all bad news. The decline is mainly driven by a reduction in India's imports of intermediate goods to re-export. In other words, there is less foreign value, and thus more domestic value, embedded in India's exports. Thanks to FDI inflows and domestic capital, India's industrialisation process has sped up since the early 2000s. Investment as a share of GDP surged by 10 percentage points (ppt) during 2000–2010 (Figure 6). India's backward participation thus gained more than 10 ppt as it became involved in more industries of GVCs. However, as domestic consumption rose and the capital return decreased, investment decelerated in the 2010s. The backward participation also declined thanks to the lower commodity prices and India's maturing domestic supply chains, which replaced part of the imported goods.

Figure 6: India's Investment and Working-Age Population



GDP = gross domestic product, rhs = right-hand side axis.

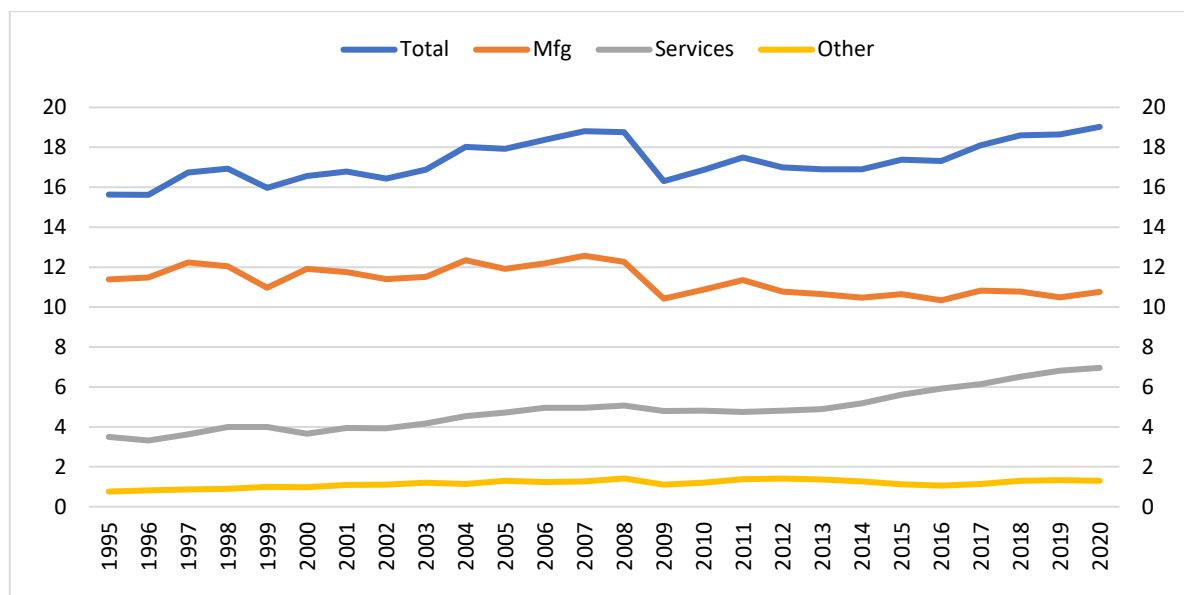
Sources: Natixis; International Monetary Fund (n.d.), World Economic Outlook Database. <https://www.imf.org/en/Publications/WEO/weo-database/2024/April> (accessed 23 July 2024); and United Nations (n.d.), World Population Prospects 2024 <https://population.un.org/wpp/> (accessed 23 July 2024).

A key question is whether India's reduction in backward participation is beneficial for the country? On one hand, it reduces India's dependence on the global market, fosters self-reliance, and promotes domestic companies. On the other hand, it raises the costs of intermediate goods for domestic products, primarily due to high tariffs and other trade-related barriers on imports). For this shift to be sustainable, India would need to lower import tariffs and assess whether domestic producers of intermediate goods can remain competitive against foreign counterparts.

1. Sectoral Trends in India's GVC Integration

In this section, we discuss the development of India's GVC participation by sector.

Figure 7: India's Forward Participation by Sector
(% of gross exports)

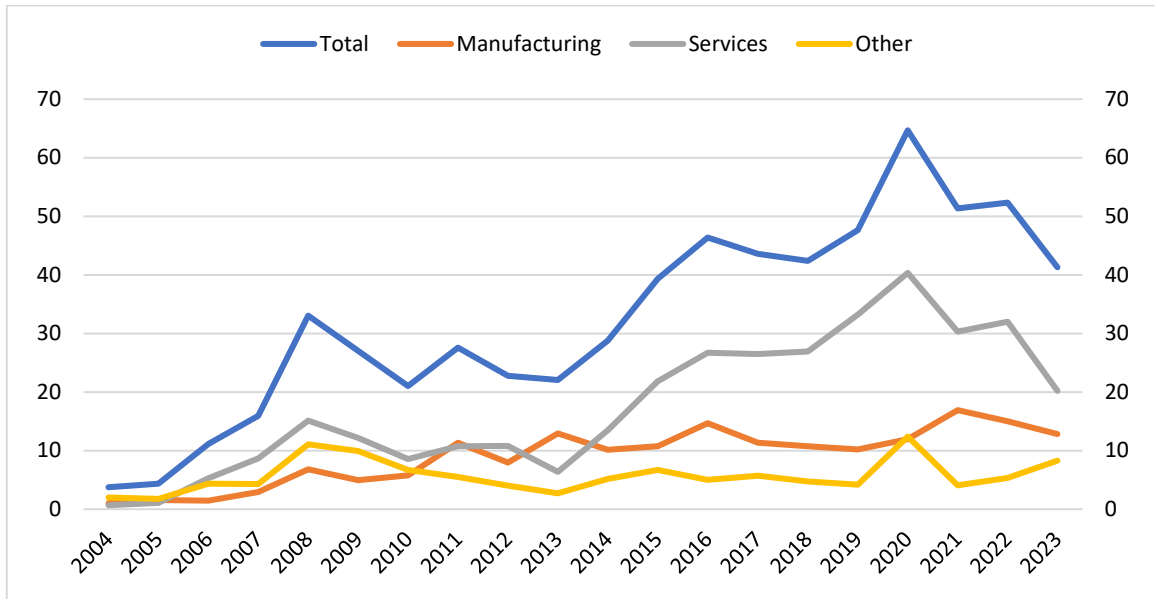


Mfg. = manufacturing.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

As in Figure 7, prior to 2008, India's forward GVC participation was on a steady rise with a gain of 3.2 ppt since 1995, where the manufacturing sectors contributed 1.2 ppt and services 1.6 ppt. After the GFC, India's rise in global manufacturing value chains came to a halt due to stalled FDI inflows, but the service sectors were refuelled and have reaccelerated since 2014, mostly thanks to the thriving of the information and communication technology (ICT) sector (Figure 8).

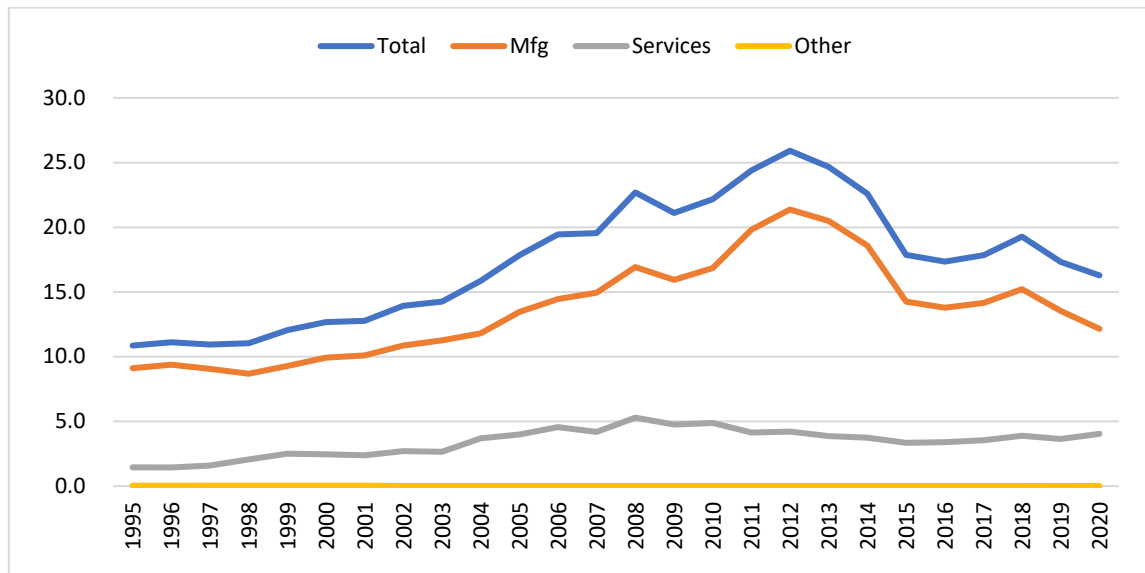
Figure 8: India's FDI
(US\$ billion)



FDI = foreign direct investment.

Sources: Natixis; and India Department for Promotion of Industry and Internal Trade.

Figure 9: India's Backward Participation by Sector
(% of gross exports)



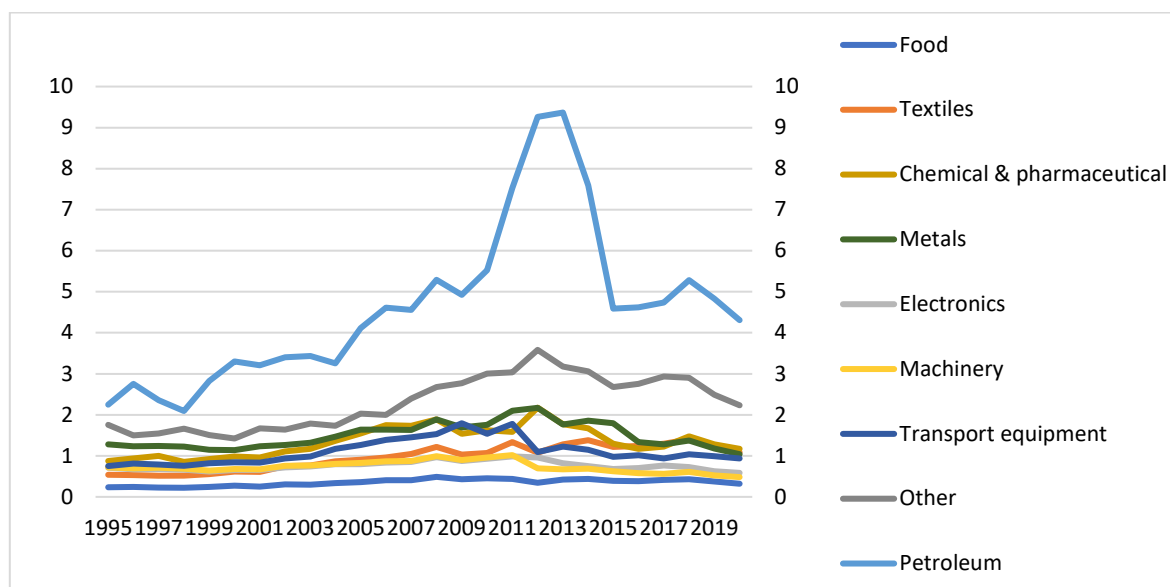
Mfg. = manufacturing.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

On the other hand, India has seen a major decline in backward participation driven by the manufacturing sectors, while services have also helped but to a lesser extent (Figure 9).

Before peaking in 2012, India's backward participation had soared since the 1990s as it rapidly integrated into GVCs, but the trend then reversed as India's domestic supply chains started to replace part of the foreign value added for GVCs. The progress of domestication is quite notable in a few industries, such as petroleum refining, metals, chemical, pharmaceuticals, and transport equipment (Figure 10).

Figure 10: India's Backward Participation of Manufacturing Industries
(% of gross exports)

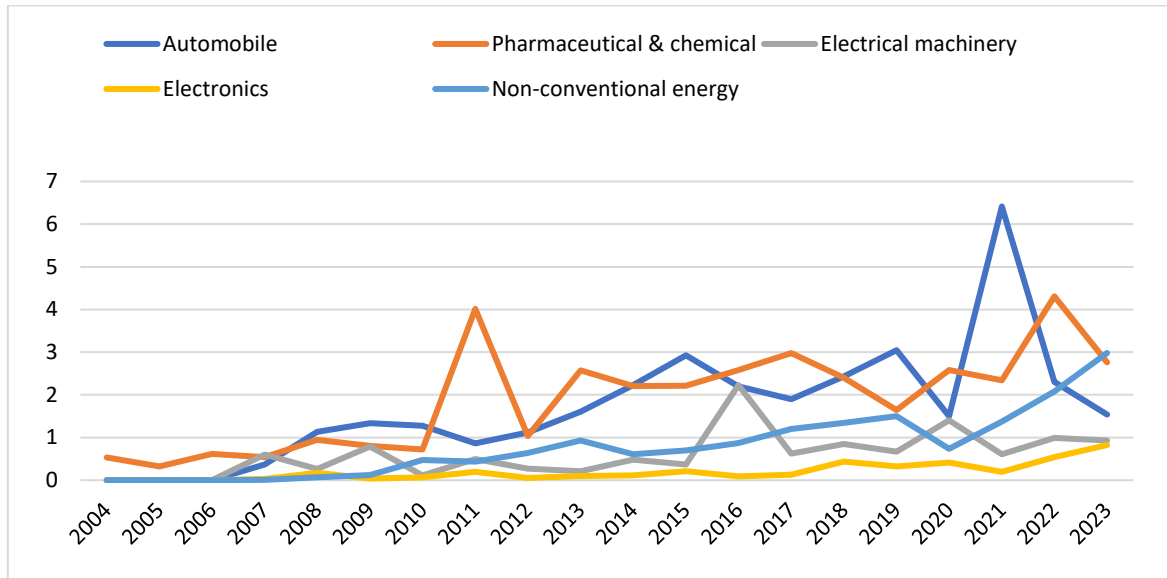


Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

However, the growth of India's forward GVC participation in the manufacturing sectors remains sluggish due to the downbeat FDI.¹ Although the FDI received by India has been on the rise for many manufacturing sectors (e.g. automobile, pharmaceutical, renewables, and electrical and electronics), the FDI values remain underwhelming (Figure 11) with most of the FDI going to the digital sector. As a comparison, ASEAN received FDI of US\$9.5 billion for its electronics industry in 2022, which is in stark contrast to India's US\$539 million (ASEAN, UNCTAD, 2023). As such, most of India's sectors see their exported value added flat or down in recent years, except transport equipment, chemicals, and pharmaceutical manufacturing (Figure 12).

¹ A comparison with ASEAN by industry is available later in this section.

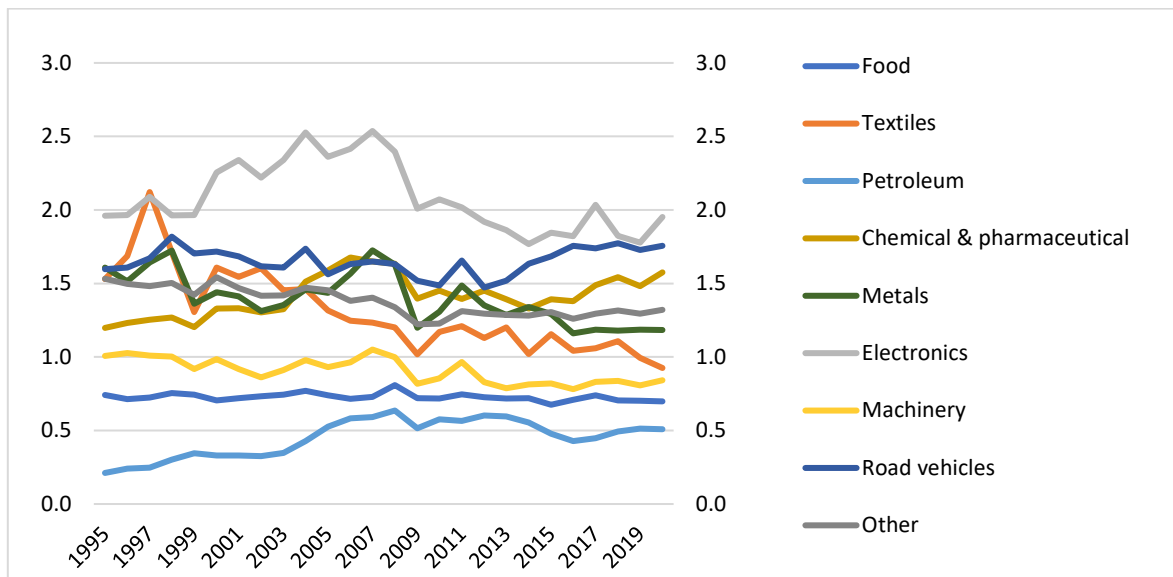
Figure 11: India Manufacturing FDI
(US\$ billion)



FDI = foreign direct investment.

Sources: Natixis; and India Department for Promotion of Industry and Internal Trade.

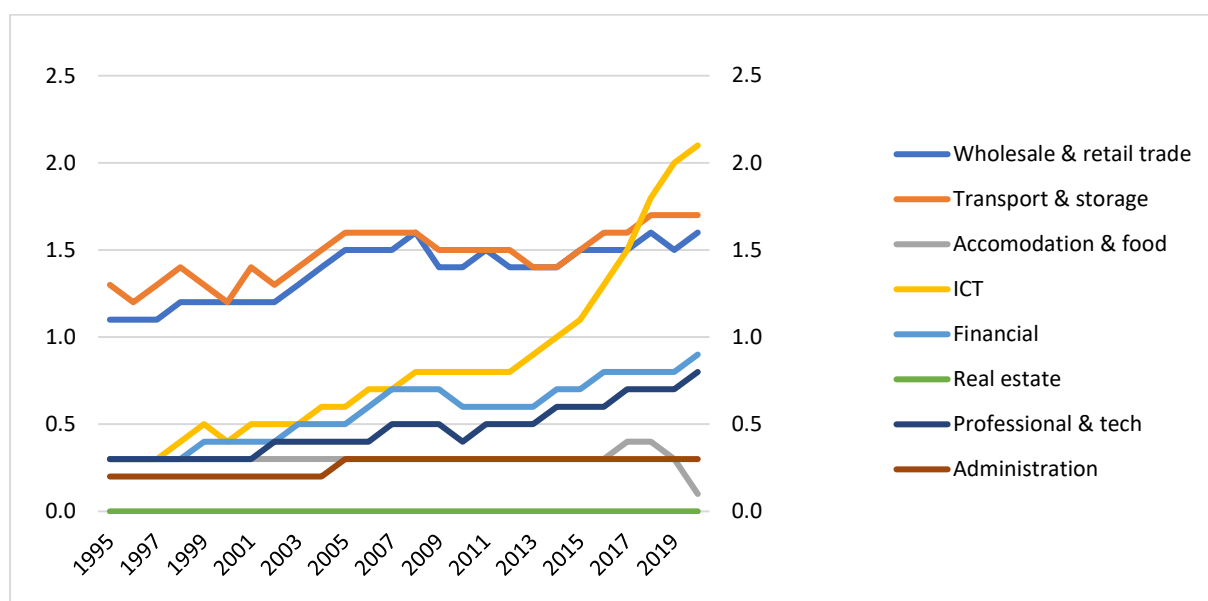
Figure 12: India's Forward Participation of Manufacturing Industries
(% of gross exports)



Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

Nonetheless, we see a more optimistic picture for services as India has utilised its huge young workforce to fuel the development of the domestic service sectors, and progress has been made in most sectors regarding forward participation, such as ICT, financial, and professional services. ICT sector is growing the most in terms of forward participation. In other words, Indian exports of ICT goods for other countries to reexport are one of the most dynamic from 2007 onwards (Figure 13).

Figure 13: India's Forward Participation of Service Industries
(% of gross exports)

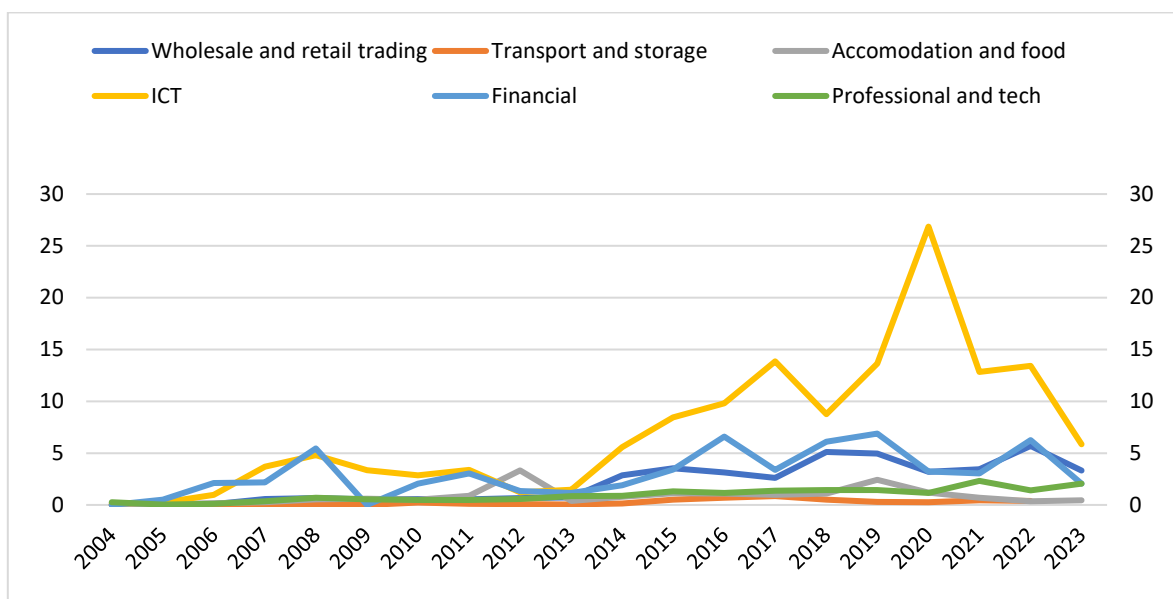


ICT = information and communication technology.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

The increasing role of India's ICT sector in the country's integration in the value chain is supported by an important increase in inward FDI in that sector, especially when compared with other sectors receiving FDI (notably manufacturing), which have not seen such a surge in the last few years (Figure 14).

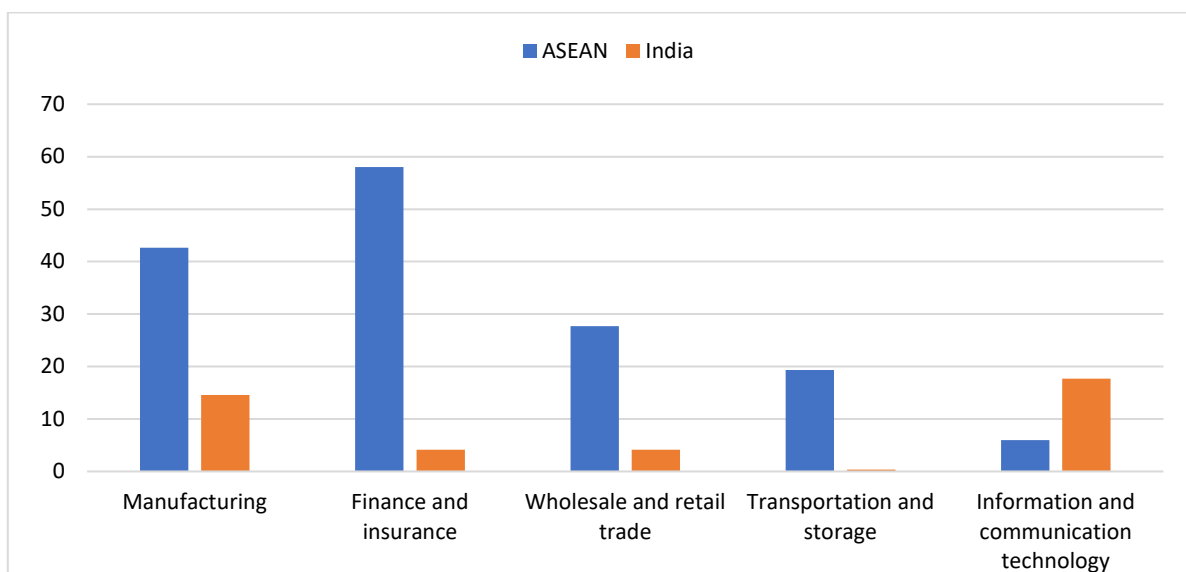
Figure 14: India Services FDI
(US\$ billion)



FDI = foreign direct investment, ICT = information and communication technology.
Sources: Natixis; and India Department for Promotion of Industry and Internal Trade.

It is important to note, though, that India's ICT sector is punching above its weight as far as inward FDI is concerned. A comparison with the FDI attracted by ASEAN shows that India thrives in terms of FDI for ICT: US\$18 billion during 2020–2022 compared with less than US\$7 billion for ASEAN (Figure 15). However, ASEAN has received much more FDI for manufacturing than India (US\$40 billion as opposed to US\$13 billion). The difference is even larger for insurance and banking. Against such a backdrop, focusing only on attracting FDI for ICT might not be enough for India's needs in terms of job creation. Manufacturing FDI creates more jobs across different skill sets (not only ICT experts). In that regard, ASEAN is better placed to create more manufacturing jobs across different skill sets.

Figure 15: FDI by Industry
(US\$ billion, 2020–2022 average)

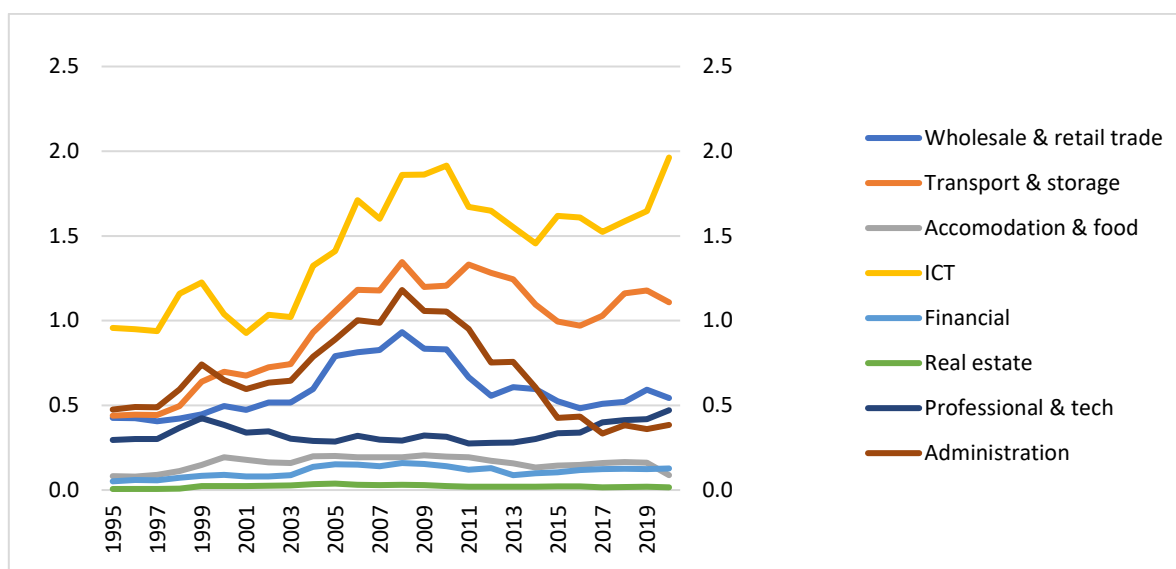


ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment.

Sources: Natixis (2023); ASEAN and UNCTAD (2023); and India Department for Promotion of Industry and Internal Trade.

In the same vein, backward GVC participation in the service sectors is also largely regressing, except in the ICT sector (Figure 16). This means that India is importing fewer intermediate goods than before to re-export for every sector but ICT. It is hard to argue that this trend, in which India appears to be substituting imports with domestic production, is a consequence of India moving up the ladder as it is not really happening in the sector in which India is most competitive – i.e. ICT.

Figure 16: India's Backward Participation of Service Industries
(% of gross exports)



ICT = information and communication technology.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

Overall, India remains a lower-rank participant in GVCs for most manufacturing goods, but it has also built considerable comparative advantage and already exceeded in a few sectors. It currently ranks ninth for the whole manufacturing sector in terms of value added to GVCs, fifth for services, and ninth for all industries if we exclude intra-EU trade. Table 1 summarises the details by industry.

Table 1: India's Value Added in GVC by Industry, 2020

| Industry | Value-added (US\$ million) | Share of global value- added (%) | Rank |
|---|-------------------------------|--|------|
| Total | 88,001.7 | 3.1 | 9 |
| Manufacturing | 47,232.5 | 2.4 | 11 |
| Food products, beverages, and tobacco | 2,983.1 | 3.0 | 9 |
| Textiles, wearing apparel, leather, and related products | 3,977.5 | 4.1 | 8 |
| Wood and paper products, and printing | 994.4 | 2.8 | 9 |
| Coke and refined petroleum products | 1,988.7 | 1.2 | 18 |
| Chemical and chemical products | 5,469.0 | 3.4 | 9 |
| Pharmaceuticals, medicinal chemical, and botanical products | 1,988.7 | 3.2 | 8 |
| Rubber and plastics products | 1,988.7 | 3.1 | 9 |
| Other non-metallic mineral products | 497.2 | 2.2 | 12 |
| Basic metals | 3,480.3 | 2.3 | 12 |
| Fabricated metal products | 1,491.6 | 2.6 | 11 |
| Computer, electronic, and optical products | 6,463.4 | 1.6 | 15 |
| Electrical equipment | 2,485.9 | 2.3 | 11 |
| Machinery and equipment n.e.c. | 3,977.5 | 2.8 | 12 |
| Motor vehicles, trailers, and semi-trailers | 5,966.2 | 2.7 | 9 |
| Other transport equipment | 1,491.6 | 2.2 | 14 |
| Business Sector Services | 34,802.9 | 4.7 | 7 |
| Wholesale and retail trade; repair of motor vehicles | 6,960.6 | 3.9 | 8 |
| Transportation and storage | 7,955.0 | 3.9 | 8 |
| Accommodation and food service activities | 497.2 | 3.6 | 9 |
| Information and communication | 9,943.7 | 7.0 | 6 |
| Financial and insurance activities | 4,474.7 | 4.3 | 8 |
| Professional, scientific, and technical activities | 2,983.1 | 4.8 | 7 |
| Administrative and support services activities | 1,491.6 | 4.3 | 7 |

GVC = global value chains, n.e.c. = not elsewhere classifiable.

Note: Data as of 2020.

Source: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

India's manufacturing value added outweighs services but underperforms in terms of share and global rank because transforming the demographic advantage in the service sectors is much easier and faster than in manufacturing, as the former mostly needs professional training while the latter requires costly (and slow) capital accumulation. Within the manufacturing sectors, the pace of development also differs depending on the skill level and capital requirement. High-skill manufacturing usually takes more time than low-skill manufacturing to scale up.

Still, it is worth taking note of some of the manufacturing goods listed above. India has been growing and re-accelerated in recent years in exporting car parts (Harmonised System (HS) code 87), machinery (HS code 84), electrical and electronic parts and components (HS code 85), and transport equipment other than cars (HS code 88) since the early 2000s. It is important for India to gain traction in these products since they require higher production technology and thus carry higher value added compared with labour-intensive goods. During the rise of these industries in India, overseas demand from ASEAN helped significantly as India shipped as much as 25% of total orders for these products to the 10-country coalition. However, as India takes one step further, its export exposure to ASEAN has been dropping since 2014.

Meanwhile, ICT services remain India's most valuable sector in service exports, and its contribution of 7% of global value added in ICT is only lower than that of China (11%) amongst all emerging markets. Transportation and storage, wholesale and retail trading, and financial and professional services are also gaining traction thanks to the push of an uptick in FDI inflows.

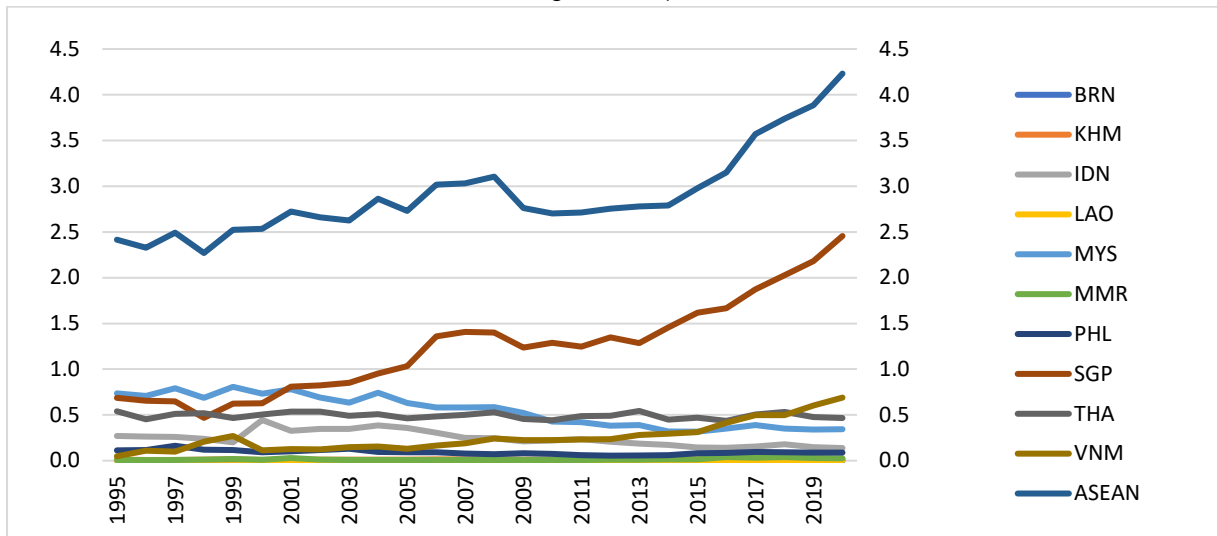
2. Zooming into India's GVC Integration with ASEAN

As the largest trading partner and source of FDI for India, ASEAN is key when analysing the Indian economy. This section discusses India's GVC integration with ASEAN in more detail.

In 2020, India ranked higher in GVCs than ASEAN, meaning that India exported more value added to the world. But that was not always the case since India has received extensive investment from ASEAN, which helped India move up in GVCs to surpass ASEAN. This explains the upward trend in India's forward participation with ASEAN since the 1990s, as suggested by Figure 17.

Meanwhile, India's backward participation has dropped significantly since 2006 when the country cut its imports of crude oil from Malaysia and turned to Saudi Arabia for lower prices after the two signed the Delhi Declaration (Embassy of India, 2006). Following that, Saudi Arabia's share of value added in Indian exports increased from 0.4% in 2005 to 1.5% in 2006, largely replacing Malaysia in India's GVC integration.

Figure 17: India's Forward Participation with ASEAN
(% of gross exports)

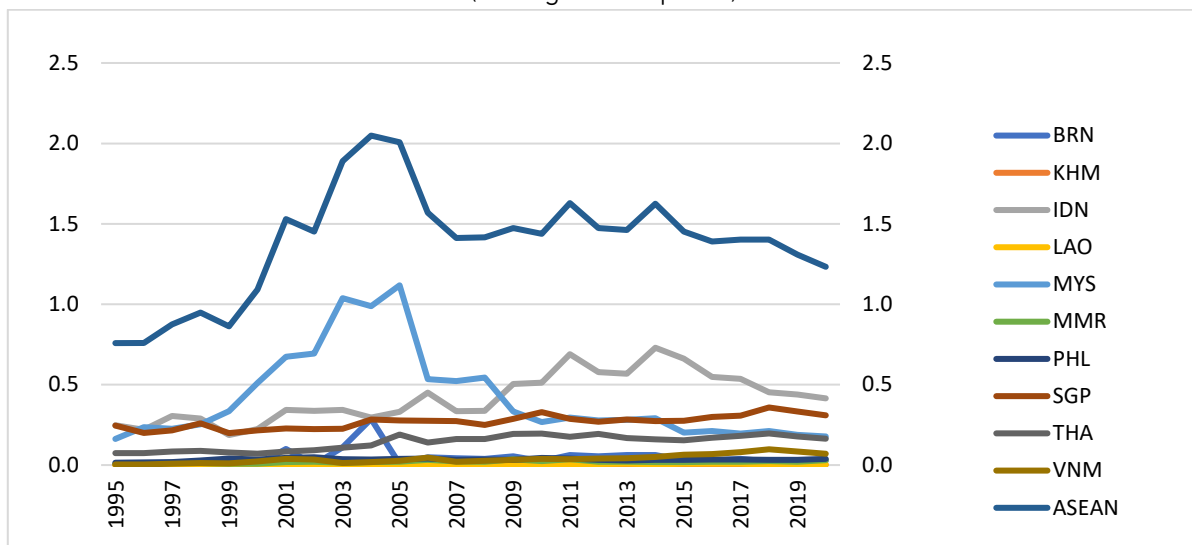


ASEAN = Association of Southeast Asian Nations.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

Since then, the rise of India–ASEAN GVC integration has been predominantly driven by Singapore and to a lesser extent Viet Nam, and India has mainly gained on forward participation, meaning that India is moving up in the GVC rank versus the two AMS. Meanwhile, India's backward participation seems to be decreasing with Malaysia and Indonesia as India seeks to diversify its imports of raw materials, while other countries appear to be stable (Figure 18).

Figure 18: India's Backward Participation with ASEAN
(% of gross exports)



ASEAN = Association of Southeast Asian Nations.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

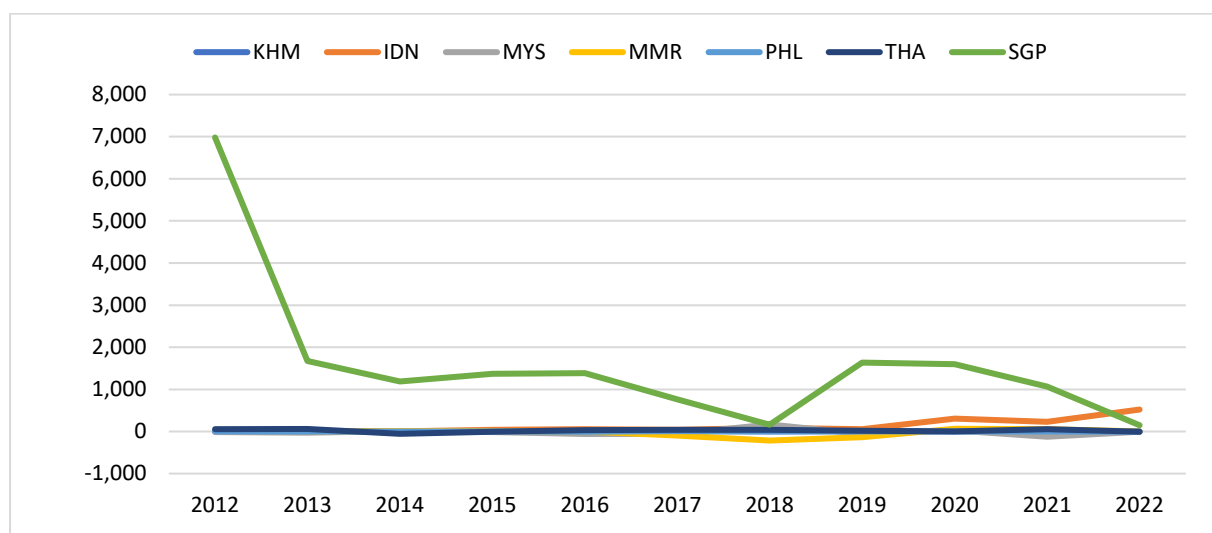
An analysis of India's bilateral GVC integration by country is in the following subsections.

2.1. Singapore

India's forward integration with ASEAN is dominated by Singapore, as it accounts for 96% of the bloc's FDI to India over the last 3 decades. Singapore was also India's second largest foreign investor over 2000–2022 (High Commission of India in Singapore, 2023). Although the industry breakdown of Singapore's investment is not available, the trade structure between the two hints that most of the FDI has been allocated to the petroleum sector as oil's share of India's exports to Singapore surged from less than 1% in 1995 to 51% by 2008. After the GFC, India's petroleum exports decreased in nominal value due to the fall in global oil prices, but the share of petroleum exports remains high at 47% as of 2022. As India's domestic supply chains have improved, India is exporting more manufacturing goods such as power generating engines and various industrial machinery.

Meanwhile, Singapore is also the biggest recipient of India's FDI to ASEAN, most of which is related to finance and insurance (Figures 19 and 20). However, a recent case of money laundering through shell companies in Singapore is putting India's financial FDI under the scanner, risking more vetting from regulators in the future (Devaraj, 2024).

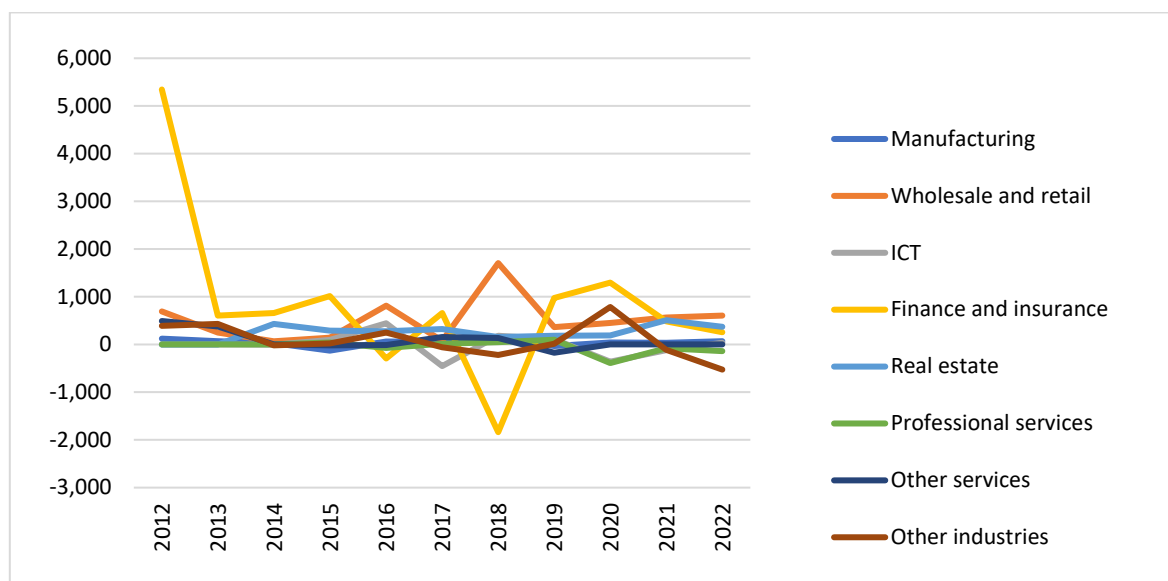
Figure 19: India's FDI Flows to ASEAN by Destination
(US\$ million)



ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment.

Sources: Natixis; and ASEAN (n.d.), ASEANstats. <https://www.aseanstats.org/> (accessed 23 July 2024).

Figure 20: India's FDI Flows to ASEAN by Industry
(US\$ million)



ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment, ICT = information and communication technology.

Sources: Natixis; and ASEAN (n.d.), ASEANstats. <https://www.aseanstats.org/> (accessed 23 July 2024).

2.2. Viet Nam

Viet Nam's share in India's GVC partnership had been low before the GFC, but as Viet Nam rises to establish itself as a regional GVC centre, it is becoming increasingly important to India. India's GVC participation with Viet Nam is mainly driven by the forward component, which has accelerated since 2013. Intermediate goods, such as metals, automobile parts, and construction materials, have contributed most of the growth of India's exports to Viet Nam.

As to backward participation, India's reliance on Viet Nam remains low as India lags in the manufacturing GVC. As such, Viet Nam's exports are mostly for India's domestic consumption, and the largest items are electronics such as computers and telecommunications equipment. These products, however, are increasingly relevant given India's ambition to move up the electronics GVC. As Apple's assembling line begins operations in India, more integration is expected between India and Viet Nam in the electronics GVC.

Agriculture is another important sector for the India–Viet Nam partnership. So far, India has stepped up to be a key provider of multiple food types for Viet Nam, such as rice (37%), meat and preparations (25%), and seafood (15%). India is the world's second largest food processor and has issued policies allowing 100% foreign holdings of FDI in food processing industries to attract more foreign investment. As such, investing in India seems to be a lucrative deal for Vietnamese companies considering the South Asian country's world-class farmland size and established market reputation.

2.3. Malaysia

Malaysia used to be the largest oil supplier for India, but that changed quickly when India signed the Delhi Declaration in 2006 with Saudi Arabia for cheaper crude oil imports. Malaysia's significance in India's GVC integration has since been declining. In addition to petroleum, India reduced its imports of computers, semiconductors, and telecommunications equipment from Malaysia after the GFC as Viet Nam offers a cheaper alternative. However, India's imports from Malaysia surged when the two countries signed the Comprehensive Economic Cooperation Agreement in 2011, with palm oil being the biggest contributor – more than doubling in trade value in the following decade.

While gaining ground in forward participation with other ASEAN Member States (AMS), India failed to engrave more value added in Malaysia's exports as the Southeast Asian country has a decent comparative advantage in the industries in which India specialises. In the 2000s, India's exports to Malaysia were scattered amongst metals and food intermediates. After the GFC, petroleum products became the largest item and constitute 25% of India's total exports. However, they are more for Malaysia's domestic consumption than for GVC uses, as suggested by India's continued loss of forward participation with Malaysia.

Still, other sectors have potential in terms of bilateral trade between India and Malaysia, such as chemicals, as India has become the world's second largest exporter of agrichemicals. This will have implications for Malaysia, which has been importing vast quantities of organic chemicals from India.

2.4. Indonesia

Indonesia is another important source of raw materials for India, as it supplies 46% of India's palm oil and 30% of its coal, which make up 70% of India's imports from Indonesia. India's backward participation with Indonesia rose quickly before 2014 as palm oil is crucial to India's industrial system, but it has since been declining as India has diversified its palm oil imports to Malaysia, Brazil, Argentina, and Thailand. Meanwhile, India's increasing coal imports are barely reflected in GVCs as India consumes most of them domestically.

On the other hand, India's exports to Indonesia nearly tripled when it signed a multilateral free trade agreement (FTA) with the bloc. Besides the largest items (petroleum products and sugar), India has been exporting more manufacturing goods (e.g. automobiles and ships) thanks to Indonesia's growing transportation demand. Pharmaceuticals is another beneficiary of India's rising exports to Indonesia – increasing fivefold in the past decade and still accelerating.

2.5. Thailand

India's GVC integration with Thailand first picked up in the early 2000s when India increased its imports of a wide group of commodities and manufactures from Thailand, such as plastics and chemicals, automobile parts, and electrical machinery. As India's

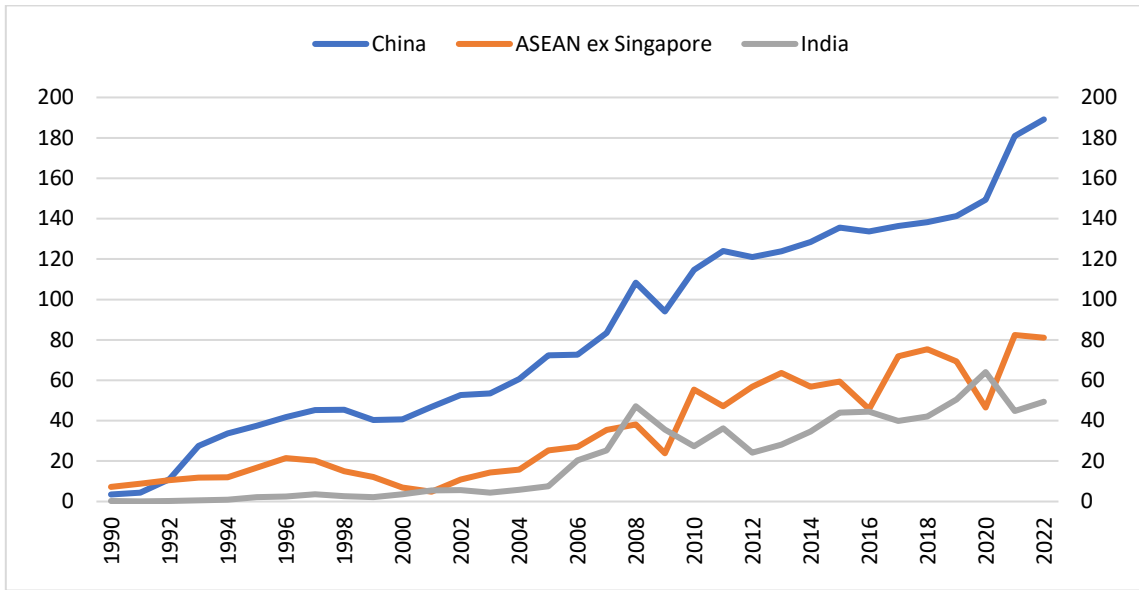
domestic supply chains were boosted by FDI, Thailand's value added fell, but it was then offset by India's increased imports of palm oil to reduce dependence on Indonesia. However, automobiles remain an important sector for India's imports from Thailand as the Early Harvest Scheme between the two covers several auto parts (e.g. gearboxes) that feed into India's auto industry. In fact, India's reliance on Thailand for automobiles and automobile parts rose to 6.5% in 2022 from 5.5% in 2012.

India's forward participation with Thailand has been kept stable at 0.5%, and its constitution has not changed significantly. Nearly 20% of Thailand's imports from India are pearls and precious stones, and the second largest item (also the fastest-growing item) is vehicle engines, whose share soared from 3% to 12% over the past decade.

However, Thailand's economic stature has diminished as its weight amongst AMS continues to fall in terms of GDP and trade volume. The general demographic advantage in other AMS is also absent in Thailand as its population is ageing, with a rising dependency ratio and shrinking working-age population. Thailand's low concentration index for exports shows that it lacks a dominant industry with a big enough comparative advantage to help it climb up GVCs. Thus, Thailand will have to exert greater effort to ramp up investment to upgrade its domestic industry, either by attracting foreign capital or utilising domestic resources. Thailand will also need to maintain the rising share of investment in GDP, which improved from 23% in 2020 to 28% in 2022.

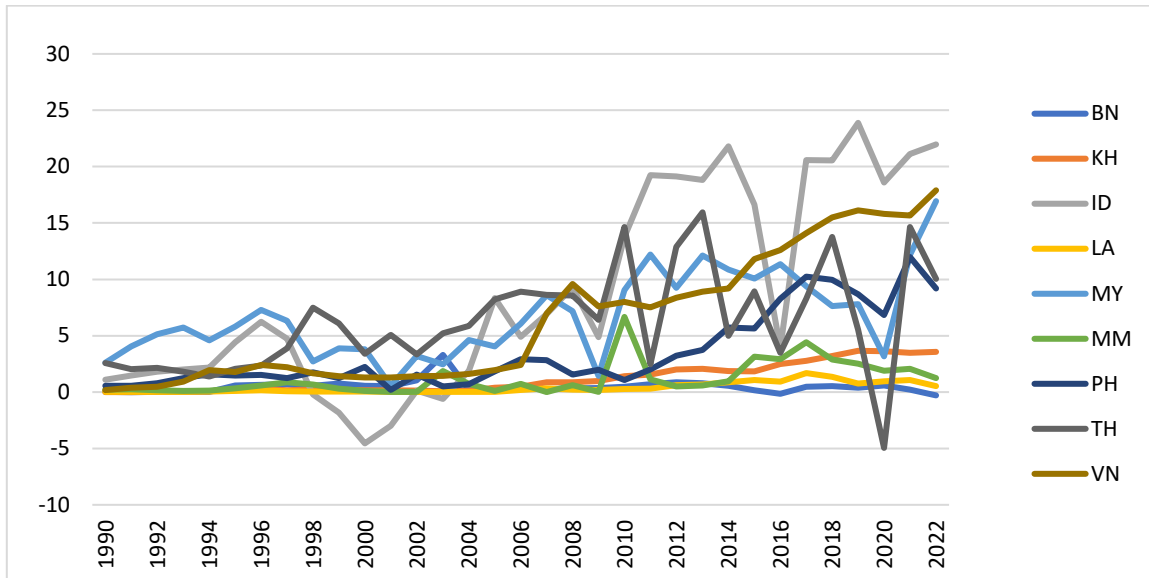
Historically, Southeast Asia was little more than Asia's source of raw materials, ranging from mineral fuels to soft commodities, but the turning point came when continued globalisation unleashed the economic potential of Southeast Asian countries through cheaper transportation costs, lower tariffs, wider market access, and the transfer of the technologies needed to upgrade their domestic supply chains from FDI. Earlier than India, the influx of FDI to ASEAN began to rise in the 1990s, with Malaysia, Indonesia, and Thailand being the most popular destinations before the Asian financial crisis (Figure 21 and 22). The shock of the Asian financial crisis decimated ASEAN FDI, but it rebounded quickly as the globalisation process sped up. Viet Nam, and later the Philippines, began integrating into GVCs. However, ASEAN's role in GVCs remained as mostly a low-skill manufacturer if not a commodity source due to its disadvantage in terms of the size and quality of its labour force versus China. As a result, most AMS fell downstream of China in industrial integration, and their GVC participation thus hinges on backward contents while the forward participation is largely halted.

Figure 21: Asia FDI Inflow
(US\$ billion)



ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment.
Sources: Natixis; and United Nations Conference on Trade and Development (n.d.), Statistical Portal, Data Centre. <https://unctadstat.unctad.org/datacentre/> (accessed 23 July 2024).

Figure 22: ASEAN ex Singapore FDI Inflow
(US\$ billion)

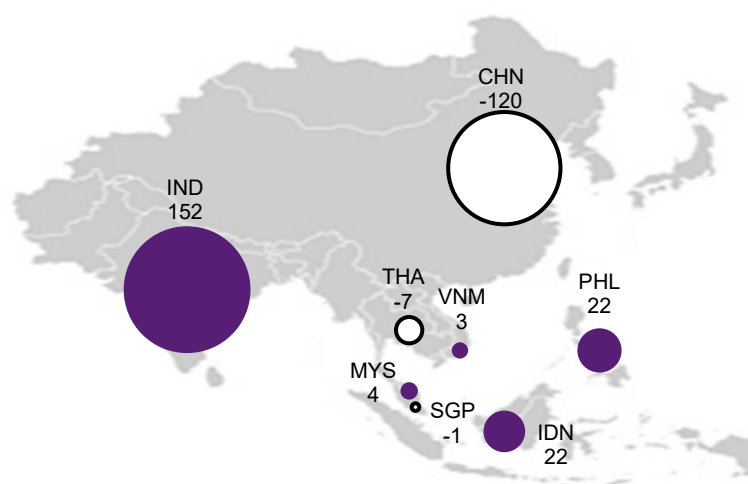


ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment.
Sources: Natixis; and United Nations Conference on Trade and Development (n.d.), Statistical Portal, Data Centre. <https://unctadstat.unctad.org/datacentre/> (accessed 23 July 2024).

That said, as China's advantageous labour force has peaked and started ageing, China's lead in GVCs faces questions. As shown in Figure 23, China is projected to lose 120 million of its working-age population, or 12% of its current labour force, in the 2 decades following 2024, which will gradually eliminate China's comparative advantage in cheap

and efficient labour and pressure China to transfer its labour-intensive sectors abroad. Meanwhile, foreign investors will consider the great demographic shift taking place in Asia and may reroute their FDI destinations, bringing opportunities to younger economies such as India, Indonesia, and the Philippines (Figure 23).

Figure 23: Working-Age Population Growth, 2024–2040
(million)



Sources: Natixis; and United Nations (n.d.), World Population Prospects 2024, <https://population.un.org/wpp/> (accessed 23 July 2024).

Having said that, other dimensions beyond labour size are key to investors. By factoring in the quality of labour and regulatory restrictiveness, our proprietary metric (Garcia-Herrero et al., 2022) assesses Asian countries' attractiveness for FDI and is summarised in Table 2. India leads the emerging markets in Asia thanks to its rapid working-age population growth, decent labour quality, and laxer FDI regulations. It is ranked first for labour-intensive sectors and second for capital-intensive sectors, only behind Malaysia and even higher than China.

Table 2: Ranking of Emerging Asian Markets' Attractiveness for FDI

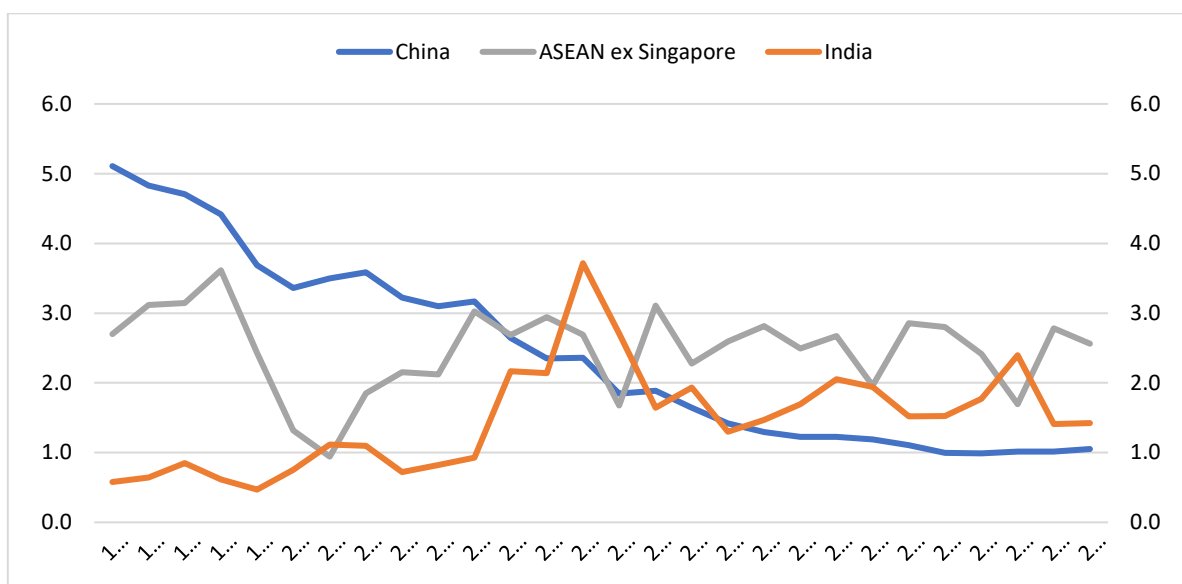
| Country | Ranking | | Quantity and Quality of Labour | | Cost of Labour | Regulatory Restrictiveness |
|---------|--------------------------|---------------------------|---------------------------------|-------------------------------------|---|---|
| | Labour-intensive sectors | Capital-intensive sectors | Labour growth (2020 to 2040, %) | Labour quality score (standardized) | Wages for manufacturing worker (US\$ per month) | FDI inflow restrictiveness (0 to 1, 0 = no restriction) |
| IND | 1 | 2 | 17.5 | -0.4 | 330 | 0.2 |
| PHL | 2 | 4 | 27.7 | 1.4 | 248 | 0.4 |
| VNM | 3 | 7 | 5.5 | -1.0 | 277 | 0.1 |
| BGD | 4 | 6 | 17.0 | -2.3 | 127 | 0.4 |
| IDN | 5 | 5 | 14.0 | -0.2 | 374 | 0.3 |
| CHN | 6 | 3 | -11.2 | 1.9 | 607 | 0.2 |
| MYS | 7 | 1 | 17.8 | 3.6 | 430 | 0.3 |

FDI = foreign direct investment.

Sources: Natixis.

Still, India has not yet transformed its labour advantage to an actual lead in FDI inflows, as the share of GDP has stagnated since the GFC and continuously lagged ASEAN, especially in the manufacturing sectors (Figure 24). Although India receives higher inflows in absolute value compared with individual AMS, together they outnumber India by more than twice as shown in Figure 25.

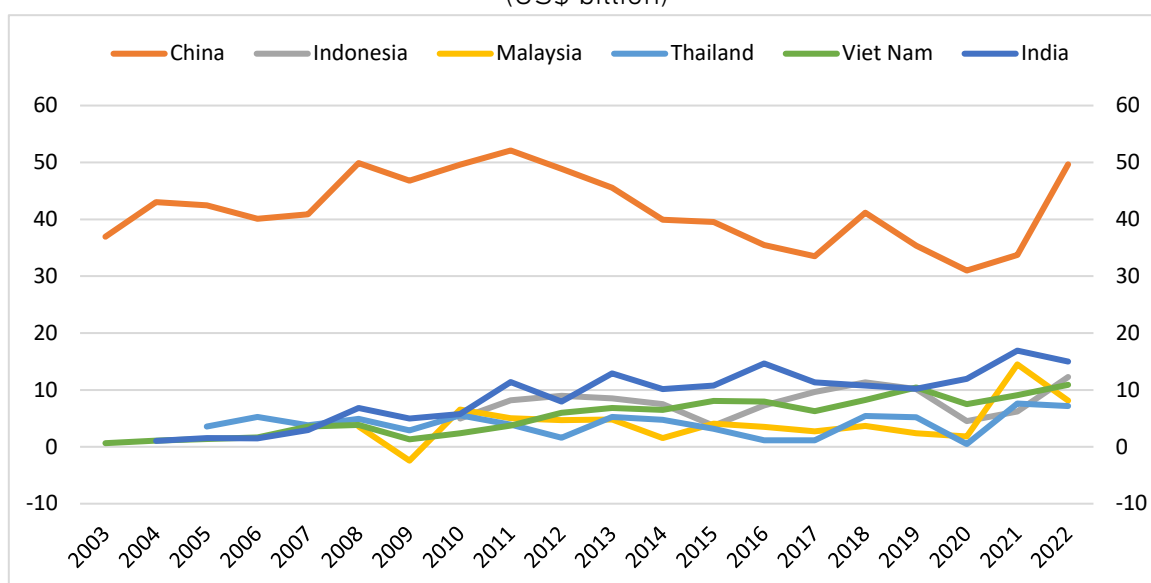
Figure 24: FDI Inflows
(% of GDP)



ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment, GDP = gross domestic product.

Sources: Natixis; and United Nations Conference on Trade and Development (n.d.), Statistical Portal, Data Centre. <https://unctadstat.unctad.org/datacentre/> (accessed 23 July 2024).

Figure 25: Manufacturing FDI Inflows
(US\$ billion)

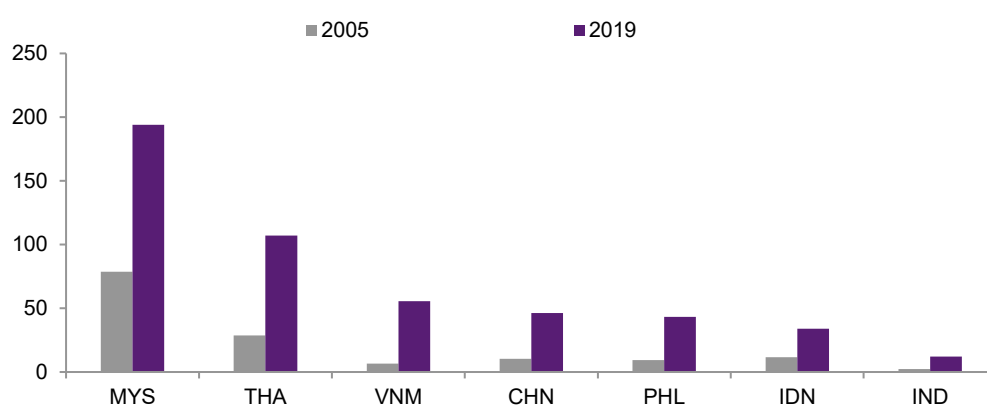


FDI = foreign direct investment.

Sources: Natixis; and CEIC (n.d.), <https://www.ceicdata.com/en> (accessed 23 July 2024).

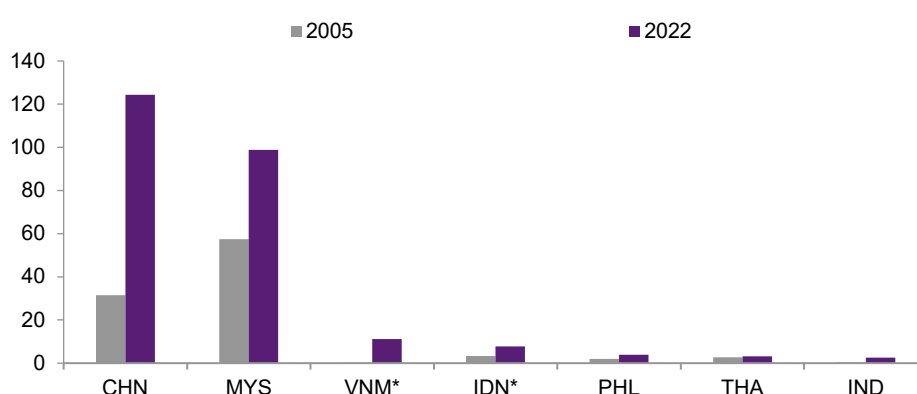
This may relate to India's lagging in a few infrastructure fields that are key to the manufacturing sectors showcased in Figures 26–29. The first is inland transportation, including air and highway capacities, as India ranks low in Asia's emerging markets. The efficiency of electricity supply is another major issue, as manufacturing sectors require a cheap and stable power source. India also lags in promoting high-speed internet connections, which may create new bottlenecks for the development of ICT and other tech sectors that will be key in moving up the GVCs. In fact, infrastructure has become a high priority as the government approved the high-stake Gati Shakti Plan in 2021 for multimodal connectivity to all economic zones in India.

Figure 26: Air Passengers
(per 100 people)



Sources: Natixis; and World Bank (n.d.), World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators> (accessed 23 July 2024).

Figure 27: Expressway Length
(km/million people)



km = kilometre.

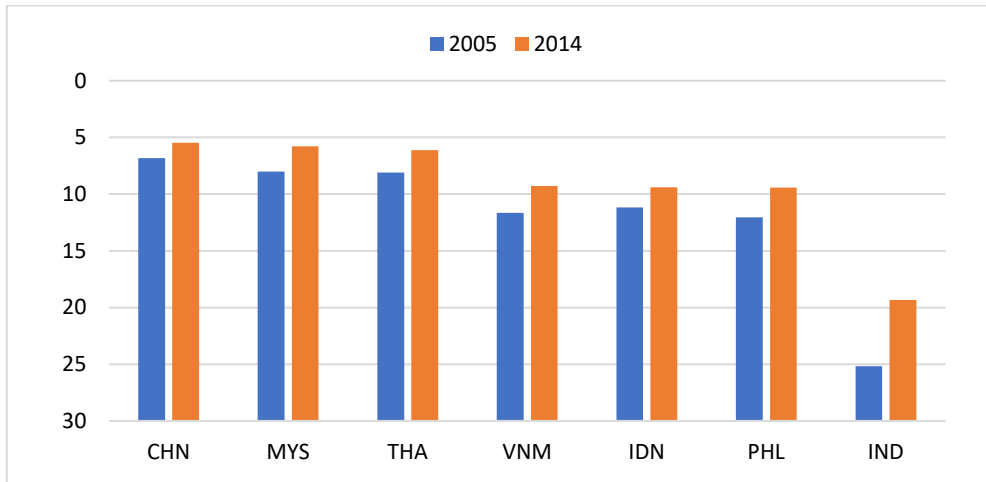
* Data for Viet Nam and Indonesia are as of 2019.

Sources: Natixis; ASEAN (n.d.), ASEANStats. <https://www.aseanstats.org/> (accessed 23 July 2024); China National Bureau of Statistics.

<https://data.stats.gov.cn/easyquery.htm?cn=C01> (accessed 23 July 2024); and World Bank (n.d.), World Development Indicators.

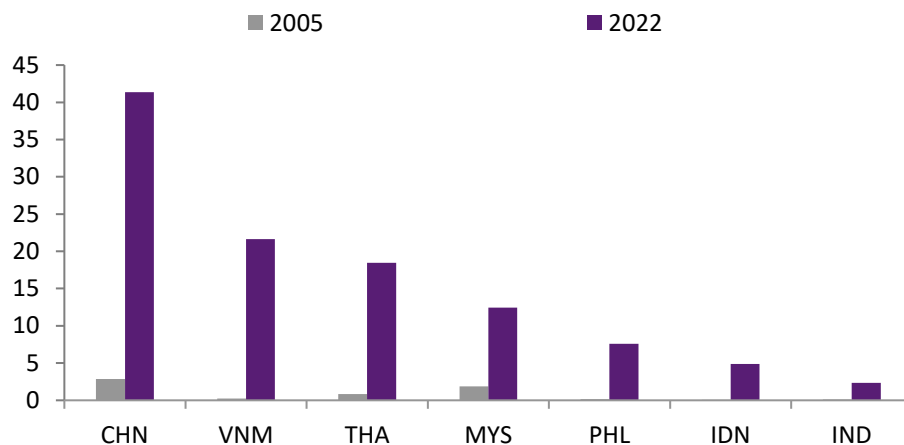
<https://databank.worldbank.org/source/world-development-indicators> (accessed 23 July 2024).

Figure 28: Electric Power Transmission and Distribution Loss
(% of output, inverted)



Sources: Natixis; and World Bank (n.d.), World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators> (accessed 23 July 2024).

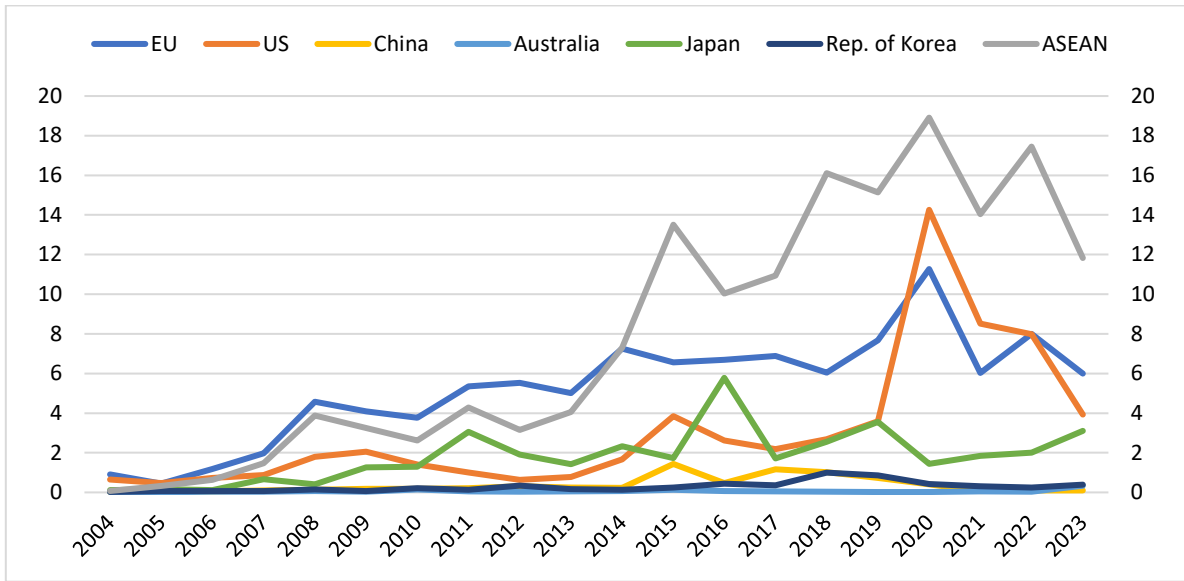
Figure 29: Fixed Broadband Subscriptions (per 100 people)



Sources: Natixis; and World Bank (n.d.), World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators> (accessed 23 July 2024).

Another factor may come from the geo-economic front. China's absolute lead in the globalisation process so far has shaped Asian supply chains in its favour. Both Northeast and Southeast Asia are closely integrated as China connects them with its lengthy coastline, and AMS that are geographically close to China's manufacturing centres (Zhejiang, Jiangsu, and Guangdong) were firstly integrated with China in GVCs, such as Malaysia, Thailand, and Viet Nam. While India is bound with China by land, the barrier of the Himalayas makes large-scale trades economically infeasible. Because of this, AMS have been receiving more FDI than India, especially from East Asian countries like China, Japan, and the Republic of Korea (henceforth, Korea), as shown in Figures 30–32. In contrast, India's FDI mainly comes from ASEAN, the EU, and increasingly the US.

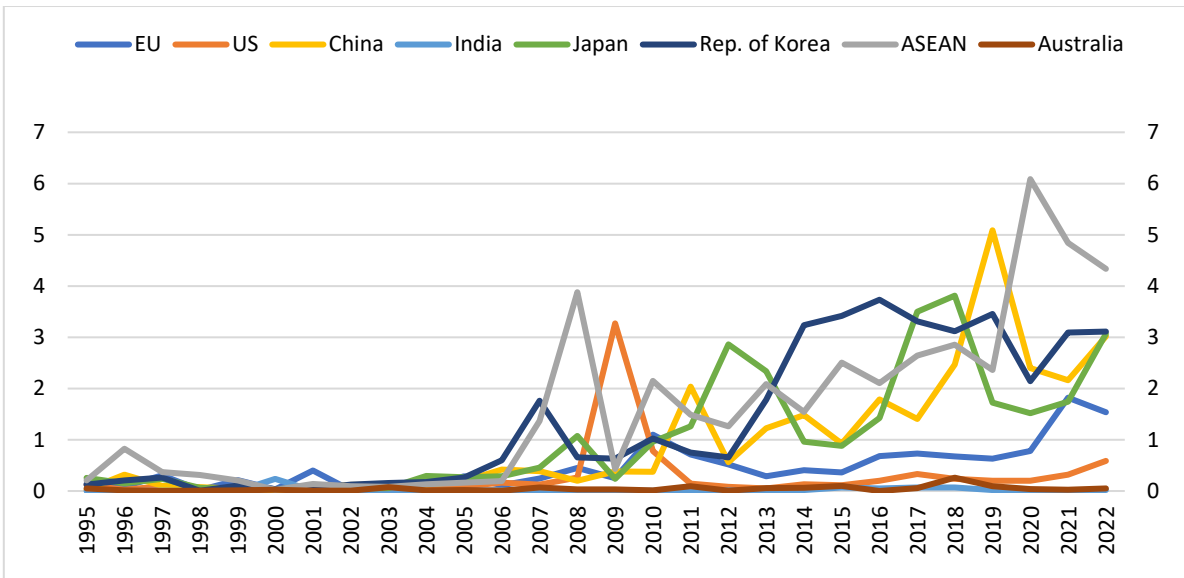
Figure 30: India's FDI Inflows by Source
(US\$ billion)



ASEAN = Association of Southeast Asian Nations, EU = European Union, FDI = foreign direct investment, US = United States.

Sources: Natixis; and India Department for Promotion of Industry and Internal Trade.

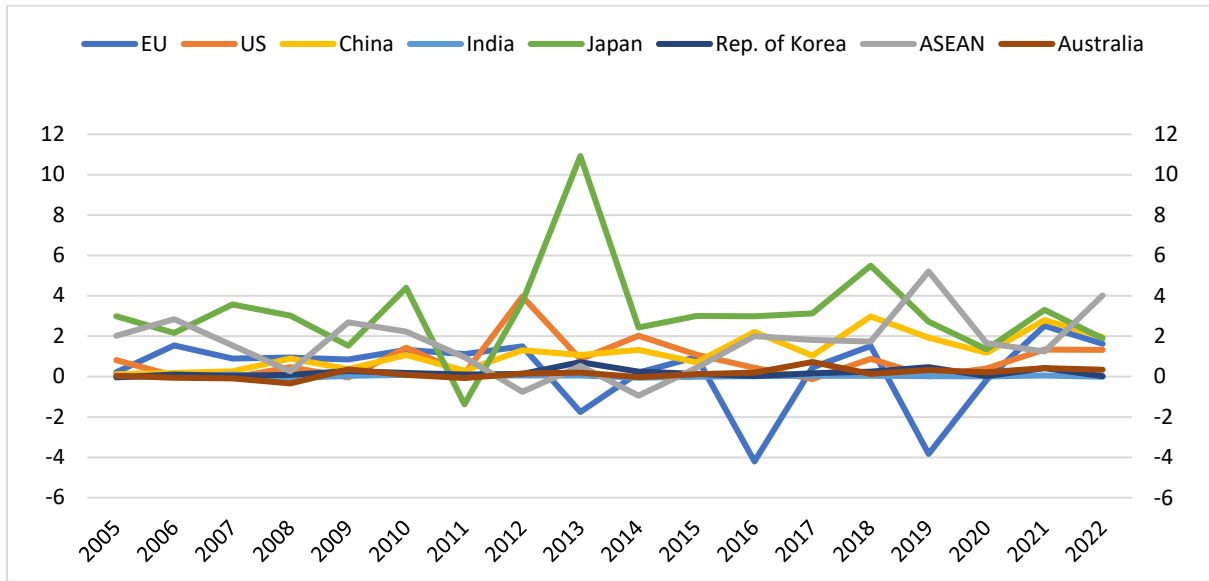
Figure 31: Viet Nam's FDI Inflows by Source
(US\$ billion)



ASEAN = Association of Southeast Asian Nations, EU = European Union, FDI = foreign direct investment, US = United States.

Sources: Natixis; and Vietnam General Statistics Office.

Figure 32: Thailand's FDI Inflows by Source
(US\$ billion)



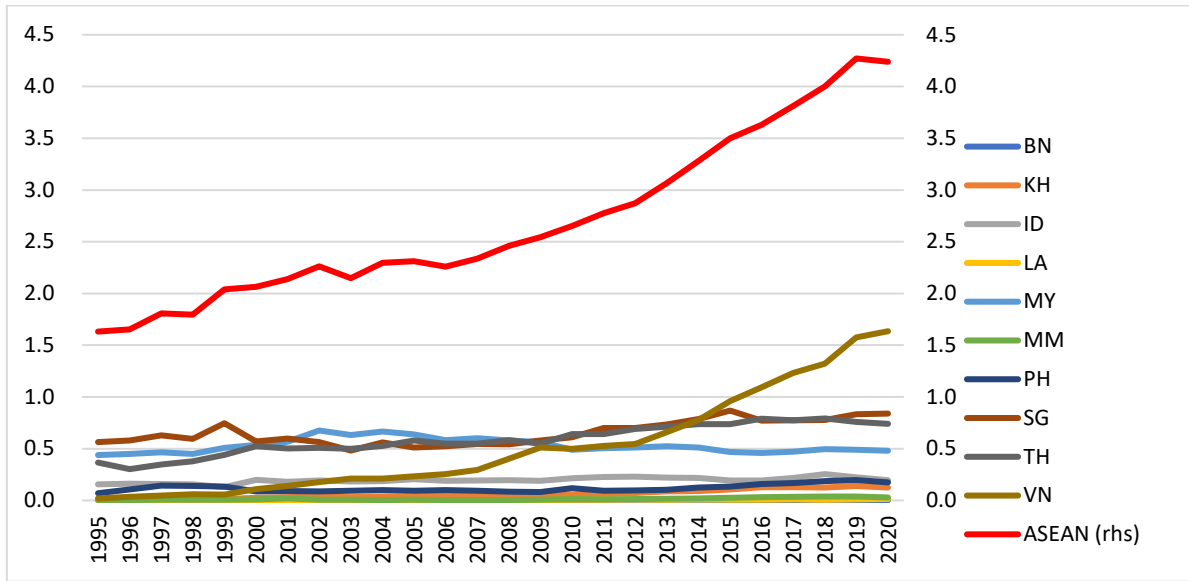
ASEAN = Association of Southeast Asian Nations, EU = European Union, FDI = foreign direct investment, US = United States.

Sources: Natixis; and Bank of Thailand.

The prevailing trend of de-risking supply chains away from China means more opportunities for India as its potential outsizes any country in ASEAN, and even the whole bloc. This is due to India's geographic and demographic advantage as its huge population size, geography, abundant land resources, and proximity to major commodity sources (the Middle East, Africa, and Southeast Asia) make it a particularly attractive location for manufacturing supply chains.

That said, India may face challenges in attracting FDI from China considering the misalignment of the two countries' geopolitical interests. To China, Southeast Asia is a better target for outsourcing lower-end manufacturing industries since none of these economies are comparable to China in size. The limits of their land and labour size mean that none of them will be able to develop a full-industry supply chain like China, so they will not likely form any potential rivalry with China. As such, ASEAN has been increasingly integrated with China in terms of GVC participation (Figures 33 and 34).

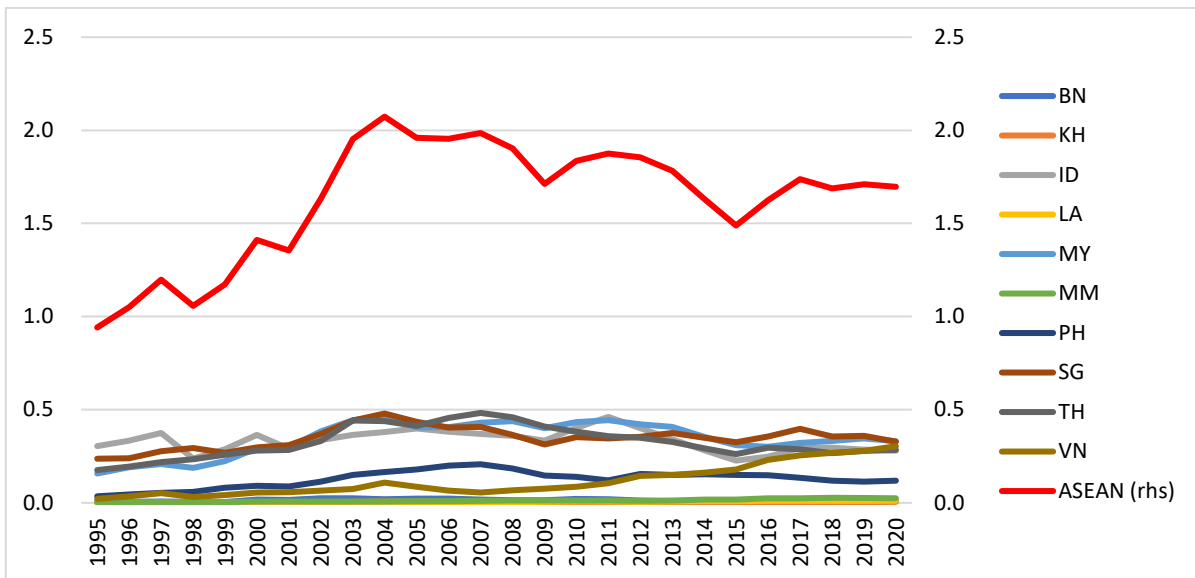
Figure 33: China's Forward Participation with ASEAN
(% of gross exports)



ASEAN = Association of Southeast Asian Nations.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

Figure 34: China's Backward Participation with ASEAN
(% of gross exports)



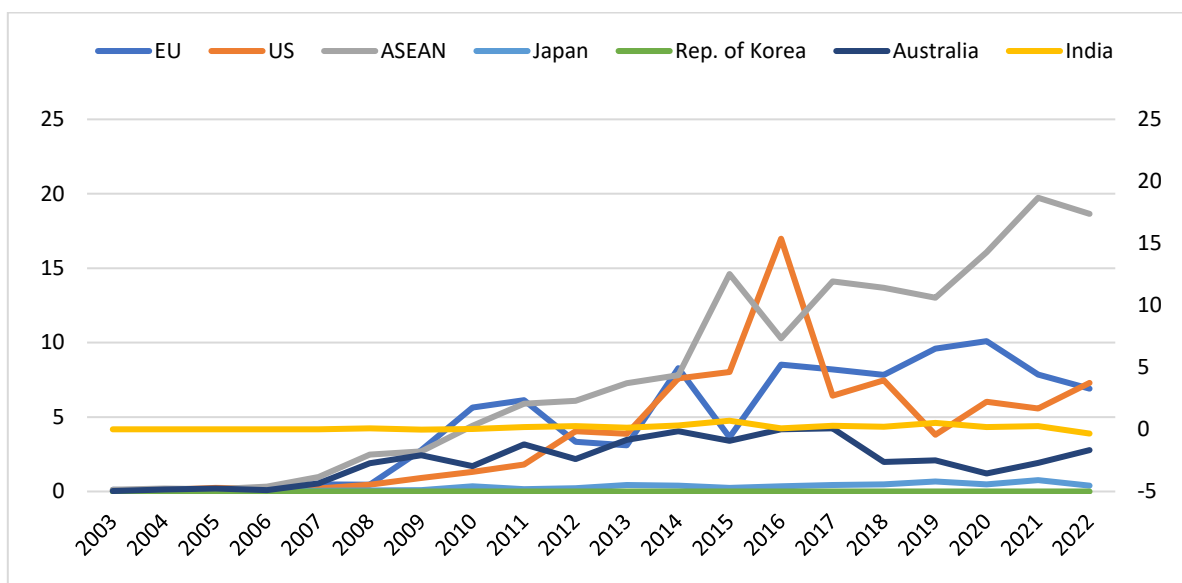
ASEAN = Association of Southeast Asian Nations.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

India is different. As mentioned, India has greater potential for developing the manufacturing sectors, which means that it is a bigger threat to China, especially as

foreign investors seek to diversify their stake in China because China is not yet prepared to upgrade its entire supply side to higher-end products. In fact, since the early 2010s, China has been investing in Southeast Asia to avail of cheaper labour costs and circumvent sanctions from the West. This trend seems to be accelerating as Chinese FDI to ASEAN continues is surging (Figure 35). Meanwhile, China has barely invested in India, and this is likely to continue.

Figure 35: China's Outward FDI by Destination
(US\$ billion)



ASEAN = Association of Southeast Asian Nations, EU = European Union, FDI = foreign direct investment, US = United States.

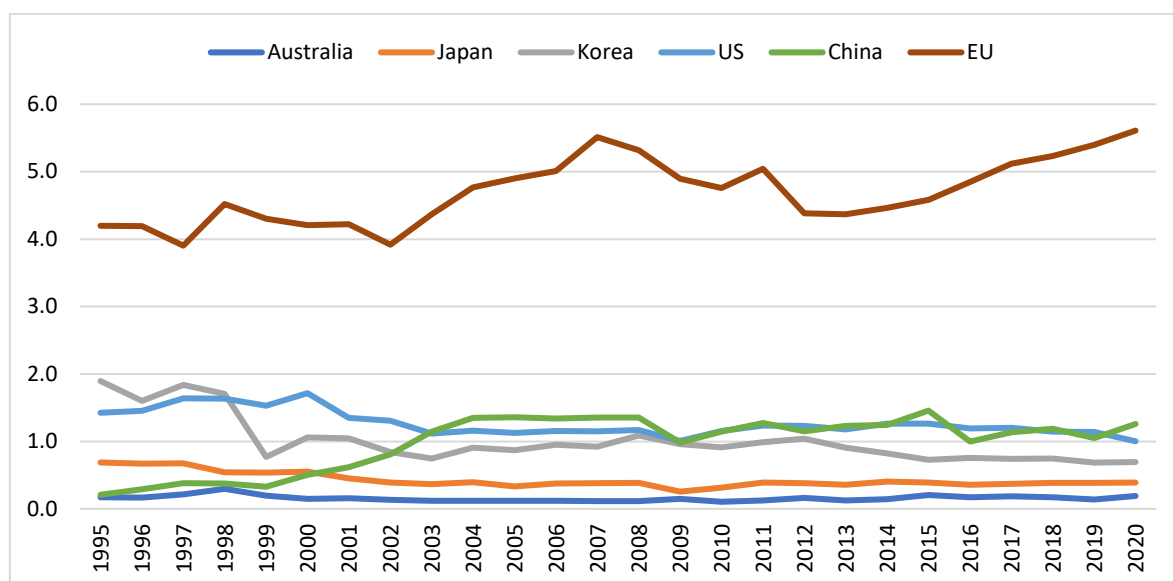
Sources: Natixis; and China Ministry of Commerce.

Therefore, attracting enough FDI will be key to India's moving up the ladder and increasing its forward participation in the global supply chains. This will be harder if Chinese FDI is not allowed to enter but there are also other options. So far, ASEAN has been India's largest investor, followed by the EU and the US as well as Japan. All four of India's largest investors are very interested in increasing their investment in India, and obviously as well as China. It is worth noting that ASEAN's FDI to India surged rapidly after 2014 thanks to the ASEAN-India trade and investment agreements, which suggests that India may need to engage with more trade partners for trade and investment deals beyond ASEAN. Potential cooperation is discussed in the next section.

3. India's GVC Integration with Other Major Economies Globally

Amongst the world's major economies, the EU has the highest (and rising) GVC integration with India, driven by India's forward components in EU exports. This is because of the EU's investment in India, which has been the main source of India's FDI. Meanwhile, India's forward participation with other economies remains low and even seems to be decreasing (Figure 36).

Figure 36: India's Forward Participation by Partner
(% of gross exports)

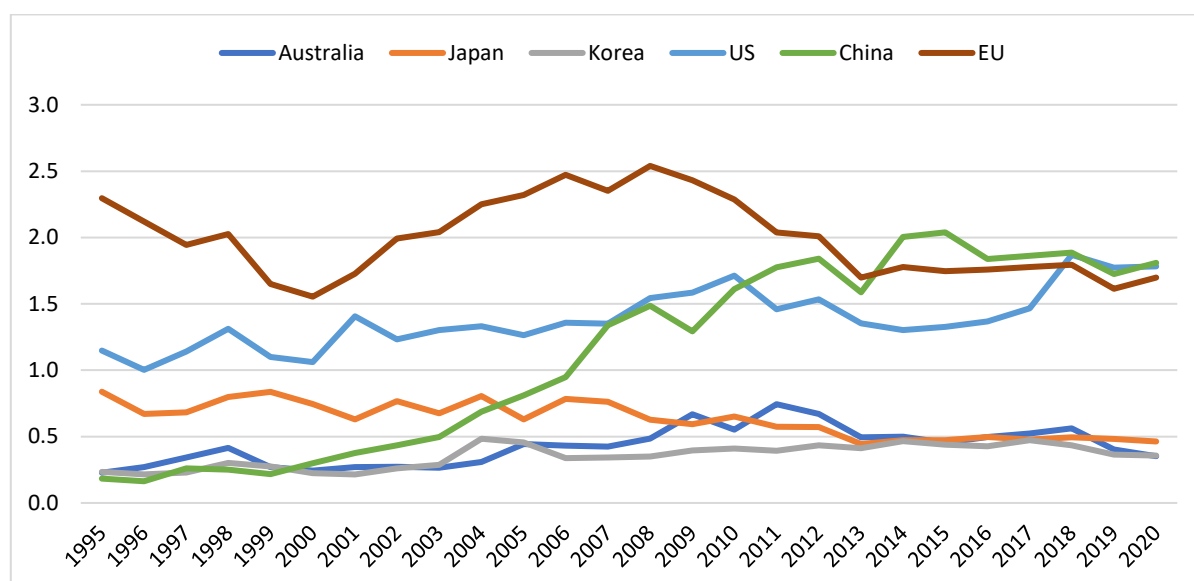


ASEAN = Association of Southeast Asian Nations, EU = European Union, FDI = foreign direct investment, US = United States.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

For backward participation, India has been largely reducing its reliance on foreign value added from several key partners as it has substituted imports with domestic products, due to the very high barriers to imports (from import tariffs to quotas and other measures). China and the US are the only two exceptions, which does not surprise since they have been continuously rising in the GVC rank – China by manufacturing exports and the US by intellectual property. Amongst others, the EU sees the largest decrease in value integrated in India exports as India moves up in relation to it, and other countries (e.g. Japan, Korea, and Australia) are also experiencing a slow but gradual decline. Figure 37 illustrates these trends.

Figure 37: India's Backward Participation by Partner
(% of gross exports)



ASEAN = Association of Southeast Asian Nations, EU = European Union, FDI = foreign direct investment, US = United States.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

Overall, the EU remains the most important trade and investment partner given its steadily increasing trade and FDI flows. India is an ideal upstream supplier for Europe considering the low shipping costs and India's gigantic labour size, especially in the current context of de-risking away from China. India has been pushing forward its trade relationship with Europe and signed the Trade and Economic Partnership Agreement with the European Free Trade Association, which includes Iceland, Liechtenstein, Norway, and Switzerland, on 10 March 2024. Although none of the four members is in the EU, this is undoubtedly a great leap forward for Europe–India ties. To continue moving up in GVCs, India needs more deals like this, and the United Kingdom and the EU will be key.

Apart from Europe, there are increasing possibilities of cooperation within the Indo-Pacific region, which refers to the traditional Asia-Pacific countries plus India. In May 2022, 14 member countries –Australia, Brunei Darussalam, Fiji, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, the US, and Viet Nam – signed the Indo-Pacific Economic Framework (IPEF). The framework aims to promote dialogue between members on four pillars: trade, supply chains, decarbonisation, and tax and anti-corruption. Although the IPEF is not like trade agreements that widen market access, it opens the door for closer trade partnerships and investment flows.

With the exclusion of China, the IPEF clearly hails the de-risking mantra, so India should leverage it to firm up its ties with the members in terms of trade and investment. For example, despite having signed FTAs with Japan and Korea, their FDI to India has not

picked up significantly, and India will need to step up investment partnerships with the two developed markets for more higher-end FDI to bolster its GVC impact. The US will also be an important source of tech FDI, as its investment in India has surged since 2020, albeit gradually falling back. Apple's investment in new assembly lines in India is a good example, and India should sustain it by offering more favourable policies and improving labour quality and infrastructure facilities. Partnerships with Australia and the United Arab Emirates should also be considered, as they signed trade deals with India in 2022.

By sector, commodities (e.g. petroleum oil, pearls, and precious metals) and base metals (e.g. iron and aluminium) still comprise most of India's exports to major partners. Manufacturing exports are more spread out but cluster in lower-skill groups (e.g. textiles and chemicals). Medicaments, telecommunications devices, and automobile parts are the shining spots for India's manufacturing, though they still have a long way to go to add more value added to GVCs. A summary of India's largest export items to major trade partners is shown in Table 3.

Table 3: Top Goods in India's Exports to Major Partners, 2022

| Item | Category | Value (US\$1,000) | Share (%) | Item | Category | Value (US\$1,000) | Share (%) |
|---|-------------|-------------------|-----------|---|-------------|-------------------|-----------|
| US | | | | EU | | | |
| TOTAL ALL PRODUCTS | | 80,230,193 | | TOTAL ALL PRODUCTS | | 73,457,375 | |
| Pearls, precious & semi-precious stones | Commodity | 10,146,148 | 12.6 | Petroleum oils or bituminous minerals > 70 % oil | Commodity | 13,491,370 | 18.4 |
| Medicaments (incl. veterinary medicaments) | Manufacture | 6,554,640 | 8.2 | Telecommunication equipment, n.e.s.; & parts, n.e.s. | Manufacture | 3,781,913 | 5.1 |
| Petroleum oils or bituminous minerals > 70 % oil | Commodity | 5,626,395 | 7.0 | Pearls, precious & semi-precious stones | Commodity | 3,144,753 | 4.3 |
| Jewellery & articles of precious materia., n.e.s. | Manufacture | 3,500,475 | 4.4 | Medicaments (incl. veterinary medicaments) | Manufacture | 2,380,518 | 3.2 |
| Made-up articles, of textile materials, n.e.s. | Manufacture | 2,828,236 | 3.5 | Aluminium | Commodity | 2,322,923 | 3.2 |
| Articles of apparel, of textile fabrics, n.e.s. | Manufacture | 2,094,038 | 2.6 | Organo-inorganic, heterocycl. compounds, nucl. acids | Manufacture | 1,840,787 | 2.5 |
| Parts & accessories of vehicles of 722, 781, 782, 783 | Manufacture | 2,071,805 | 2.6 | Articles of apparel, of textile fabrics, n.e.s. | Manufacture | 1,574,717 | 2.1 |
| Crustaceans, mollusks and aquatic invertebrates | Commodity | 1,966,731 | 2.5 | Parts & accessories of vehicles of 722, 781, 782, 783 | Manufacture | 1,375,738 | 1.9 |
| Women's clothing, of textile fabrics | Manufacture | 1,606,417 | 2.0 | Women's clothing, of textile fabrics | Manufacture | 1,313,217 | 1.8 |
| Manufactures of base metal, n.e.s. | Manufacture | 1,487,389 | 1.9 | Footwear | Manufacture | 1,260,406 | 1.7 |
| UAE | | | | Australia | | | |
| TOTAL ALL PRODUCTS | | 31,322,728 | | TOTAL ALL PRODUCTS | | 8,207,843 | |
| Petroleum oils or bituminous minerals > 70 % oil | Commodity | 7,982,417 | 25.5 | Petroleum oils or bituminous minerals > 70 % oil | Commodity | 4,211,273 | 51.3 |
| Jewellery & articles of precious materia., n.e.s. | Manufacture | 3,157,930 | 10.1 | Medicaments (incl. veterinary medicaments) | Manufacture | 346,038 | 4.2 |
| Pearls, precious & semi-precious stones | Commodity | 2,355,534 | 7.5 | Pearls, precious & semi-precious stones | Commodity | 195,867 | 2.4 |
| Telecommunication equipment, n.e.s.; & parts, n.e.s. | Manufacture | 2,314,458 | 7.4 | Made-up articles, of textile materials, n.e.s. | Manufacture | 179,843 | 2.2 |
| Residual petroleum products, n.e.s., related mater. | Commodity | 805,560 | 2.6 | Jewellery & articles of precious materia., n.e.s. | Manufacture | 163,278 | 2.0 |
| Pig iron & spiegeleisen, sponge iron, powder & granu | Manufacture | 485,318 | 1.5 | Rotating electric plant & parts thereof, n.e.s. | Manufacture | 154,061 | 1.9 |
| Articles of apparel, of textile fabrics, n.e.s. | Manufacture | 438,572 | 1.4 | Articles of apparel, of textile fabrics, n.e.s. | Manufacture | 127,030 | 1.5 |
| Rice | Commodity | 432,987 | 1.4 | Insectides & similar products, for retail sale | Manufacture | 126,841 | 1.5 |
| Ships, boats & floating structures | Manufacture | 416,908 | 1.3 | Railway vehicles & associated equipment | Manufacture | 118,770 | 1.4 |
| Paper and paperboard | Manufacture | 411,831 | 1.3 | Manufactures of base metal, n.e.s. | Manufacture | 113,692 | 1.4 |

| Korea | | | | Japan | | | |
|--|-------------|-----------|------|---|-------------|-----------|-----|
| TOTAL ALL PRODUCTS | | 7,497,726 | | TOTAL ALL PRODUCTS | | 5,699,962 | |
| Petroleum oils or bituminous minerals > 70 % oil | Commodity | 2,508,984 | 33.5 | Petroleum oils or bituminous minerals > 70 % oil | Commodity | 385,345 | 6.8 |
| Aluminium | Commodity | 1,152,152 | 15.4 | Crustaceans, mollusks and aquatic invertebrates | Commodity | 339,356 | 6.0 |
| Lead | Commodity | 244,191 | 3.3 | Pearls, precious & semi-precious stones | Commodity | 301,254 | 5.3 |
| Organo-inorganic, heterocycl. compounds, nucl. acids | Manufacture | 225,468 | 3.0 | Organo-inorganic, heterocycl. compounds, nucl. acids | Manufacture | 296,697 | 5.2 |
| Feeding stuff for animals (no unmilled cereals) | Manufacture | 224,352 | 3.0 | Aluminium | Commodity | 296,564 | 5.2 |
| Pig iron & spiegeleisen, sponge iron, powder & granu | Manufacture | 209,842 | 2.8 | Pig iron & spiegeleisen, sponge iron, powder & granu | Manufacture | 294,193 | 5.2 |
| Wheat (including spelt) and meslin, unmilled | Commodity | 198,080 | 2.6 | Parts & accessories of vehicles of 722, 781, 782, 783 | Manufacture | 226,744 | 4.0 |
| Parts & accessories of vehicles of 722, 781, 782, 783 | Manufacture | 138,884 | 1.9 | Insectides & similar products, for retail sale | Manufacture | 193,574 | 3.4 |
| Textile yarn | Manufacture | 132,808 | 1.8 | Telecommunication equipment, n.e.s.; & parts, n.e.s. | Manufacture | 179,265 | 3.1 |
| Carboxylic acids, anhydrides, halides, per.; derivati. | Manufacture | 93,617 | 1.2 | Nitrogen-function compounds | Manufacture | 120,909 | 2.1 |

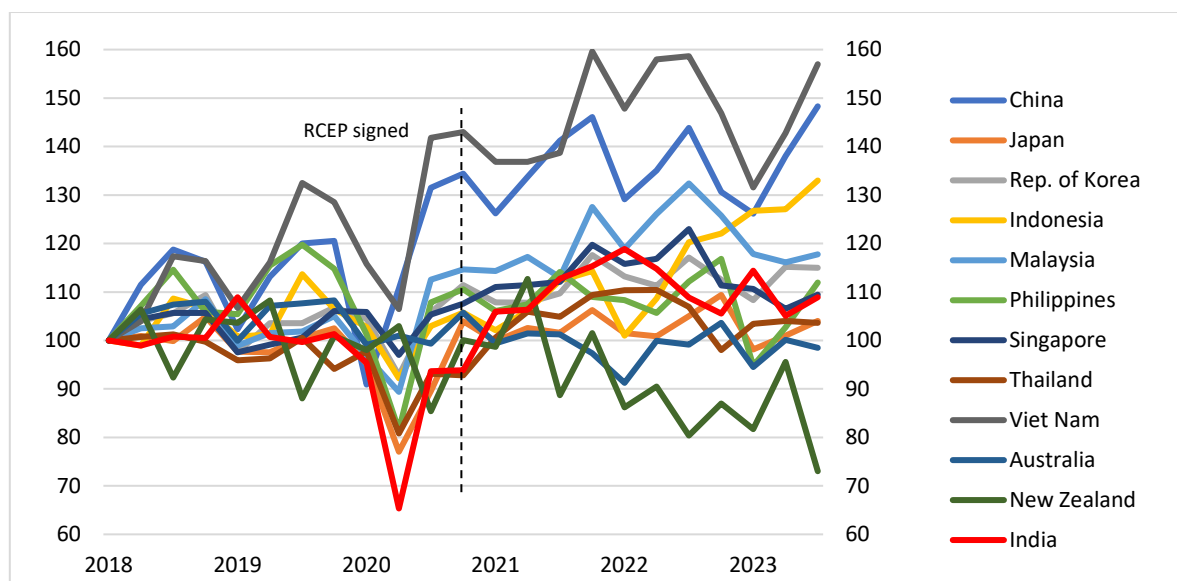
EU = European Union, n.e.c. = not elsewhere classified, n.e.s. = not elsewhere specified, UAE = United Arab Emirates, US = United States.

Sources: Natixis; and United Nations Conference on Trade and Development (n.d.), Statistical Portal, Data Centre. <https://unctadstat.unctad.org/datacentre/> (accessed 23 July 2024).

4. Lessons from the Regional Comprehensive Economic Partnership (RCEP)

In 2020, 15 countries signed the RCEP, which has surpassed the EU to become the world's largest FTA. India was a party to the negotiations but exited before agreement was reached on the final terms. Although the COVID-19 pandemic makes it difficult to study the impact of signing the deal on members' trade growth, we can see that most countries have experienced decent growth in their trade volume as of the third quarter (Q3) of 2023 (Figure 38). Viet Nam and China are the biggest winners given their comparative advantage in manufacturing goods, and Indonesia also outperforms thanks to the surging commodity prices in mineral fuels and food oils. Malaysia and Korea were impacted by the downturn in the semiconductor cycle and have thus seen a contraction in their exports since mid-2022. Other members have gone through a more severe decline due to structural weaknesses in their exports. Compared with RCEP members, Indian exports performed moderately since surging oil prices eroded India's competitiveness in the export of petroleum products.

Figure 38: RCEP Export Volume
(Q1 2018=100, SA)

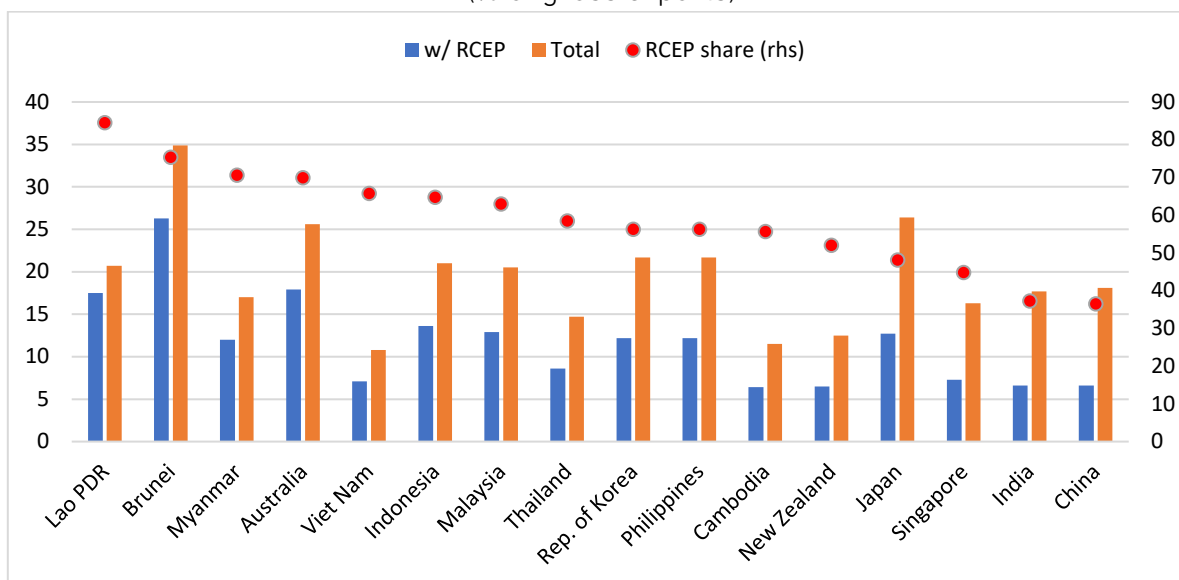


Q = quarter, RCEP = Regional Comprehensive Economic Partnership, SA = seasonally adjusted.
Sources: Natixis; and United Nations Conference on Trade and Development (n.d.), Statistical Portal, Data Centre. <https://unctadstat.unctad.org/datacentre/> (accessed 23 July 2024).

The integration of RCEP members into the GVC differs significantly, particularly for forward participation (i.e. export of intermediate goods for other countries to re-export). As shown in Figures 39 and 40, economies that are smaller or have simpler structures (e.g. the Lao People's Democratic Republic (Lao PDR), Brunei, and Myanmar) and

commodity exporters (e.g. Australia and Indonesia) tend to be more attached to regional value chains, while more diversified economies and manufacturers are less dependent in terms of regional integration (e.g. China, Japan, and Korea).

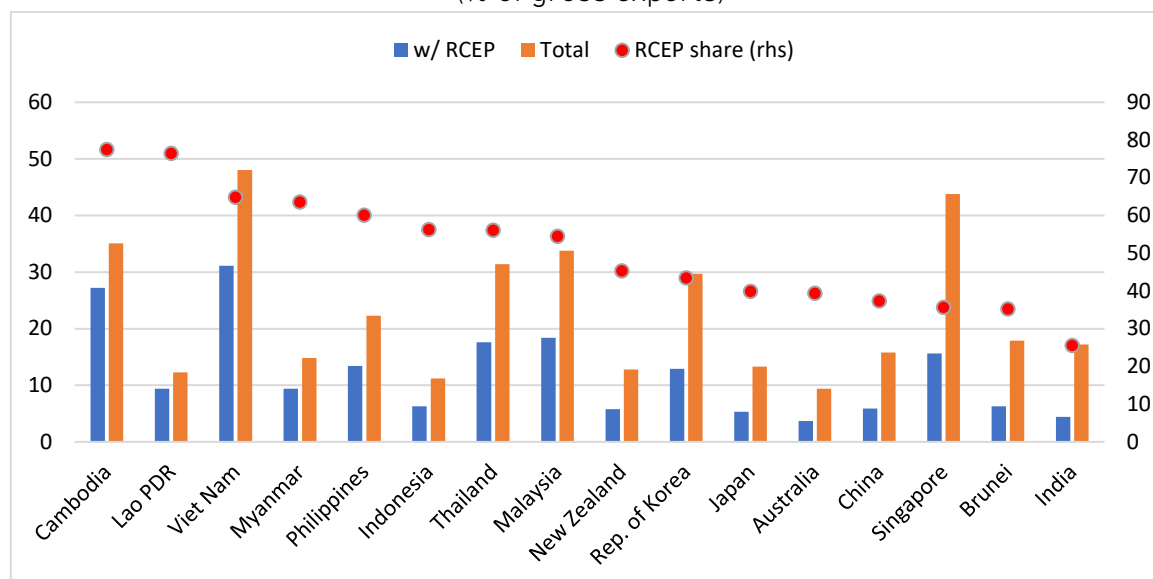
Figure 39: RCEP Members' Forward Participation
(% of gross exports)



RCEP = Regional Comprehensive Economic Partnership, rhs = right-hand side axis.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

Figure 40: RCEP Members' Backward Participation
(% of gross exports)



RCEP = Regional Comprehensive Economic Partnership, rhs = right-hand side axis.

Sources: Natixis; and Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database. <https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html> (accessed 23 July 2024).

India's reliance on RCEP value chains has so far been minimal versus the members even before the deal was struck, which to some extent justifies India's opting out of the agreement. However, given the structurally slowing growth in Europe, India may need to diversify its trade partnership portfolio for continued prosperity in the external sector and higher value added to GVCs. Currently, RCEP countries purchase 18% of India's exports and provide 35% of India's imports, which means considerable upside potential for India. But before tapping into this huge market with a full-package FTA, India may need more preparatory work on attracting FDI to upgrade its industries and ascend in the regional industrial integration.

5. Conclusions

India has been rising quickly in terms of integration with the value chain even though the growth of exports has remained quite stagnant, at least as a share of global trade. However, India's integration with the value chain has been quite asymmetric. On the one hand, its imports of intermediate goods to re-export (backward participation) have gone down while its exports of intermediate goods for other countries to re-export have increased. This is particularly the case when it comes to India's bilateral trade relations with ASEAN. The fact that FDI between ASEAN and India is growing should help to enhance supply chain linkages between the two areas although FDI should increase for manufacturing, rather than for services, as is mostly the case now.

From 2010 to 2020, India's GVC integration with ASEAN increased the most – by 1.3% of its gross exports – followed by 0.3% with China and the EU. Thanks to ASEAN's FDI to India, the progress in ASEAN–India GVC integration is dominated by India adding more value to ASEAN's exports, or India's forward participation with ASEAN.

However, an imbalance is seen in India's GVC ascent between the manufacturing and service sectors. Well positioned in the great demographic shift in East Asia, India has utilised its rich labour force to shore up the exports of value added in services, but the manufacturing sectors have lagged despite higher labour attractiveness compared with ASEAN, as reflected in the underwhelming FDI inflows. Still, India has seen progress in exporting more manufacturing goods thanks to the partnership with ASEAN, such as auto parts, machinery, and chemicals and pharmaceuticals.

India will need to improve in infrastructure that is key to manufacturing industries to attract more FDI, which could be more difficult than for ASEAN given China's reluctance to invest in India due to geo-economic costs and geopolitical concerns. The EU has been lending a hand, but more is needed. Finalizing the ongoing negotiations between the EU and India for an FTA should help. Therefore, ASEAN will continue to be a key strategic partner on this front as the two are complementary in supply chains.

Regarding the RCEP that India exited, it is hard to assess with accuracy how the agreement has benefited the parties due to COVID-19. That said, India's current reliance

on and integration with the members are low, which offers upside potential in terms of cooperation. Still, to prevent moving downstream, India will need to continue to upgrade its domestic supply chains with both its own resources and FDI inflows into manufacturing.

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Appendix

Data Description and Definitions

Definitions

Products that are traded internationally are composed of inputs from different countries and sectors around the world, creating global production chains. Conventional measures of international trade (e.g. gross exports and imports) do not capture these complex relationships.

Studying the global macroeconomy with its country and cross-sectoral linkages, by using global input–output data, has become a widely used approach since the pioneering work of Hummels, Ishii, and Yi (2001). Broadly speaking, the input–output accounting structure comprises all economic transactions between the possible combinations of producing sectors and countries, differentiating between production used for further processing (i.e. intermediate demand) and production used for final consumption or investment (i.e. final demand).

Global value chain (GVC) analysis refers to the study of how value added is generated and distributed through global production chains (from upstream to downstream activities), making use of the relationships defined in the input–output framework.

The degree to which a country is integrated into GVCs is usually captured by a metric called GVC participation, which is the sum of two components: foreign value added in exports (FVA or backward participation) and domestic value added in exports (DVX or forward participation). In other words, GVC participation accounts for value added generated in a country that crosses at least two borders in international trade relative to gross exports. In terms of specialisation, a country that is backwardly integrated in a GVC corresponds to an economy that relies on foreign inputs for its exports to the rest of the world and is positioned downstream within value chains, while a country that is forwardly integrated into GVC supplies inputs to other economies for their exporting activities and is positioned upstream within value chains.

Participation or integration into value chains can also be applied to narrower economic areas or bilateral relations between countries. For instance, a regional value chain corresponds to transactions between members of a common economic area. The forward and backward participation of each country within the regional value chain could be evaluated with the aforementioned metrics.

Alternatively, if a regional bloc is considered as a single economy, the regional participation in a GVC accounts for both the use of inputs sourced out of the regional bloc that are later exported out of the common area (i.e. backward participation) and the supply of inputs to a non-member for its exports to a third country (i.e. forward participation).

A global production chain encompasses participating activities from different sectors. Accordingly, the sectoral characterisation of GVC participation can be defined in many ways. The criterion used is centrality and takes as a reference the sector of the exporting activity located midstream in the value chain, i.e. the sector that uses foreign supplies for exports when analysing backward participation and the sector to which supplies are sold for re-export in the case of forward participation.

Alternatively, the sectoral composition of GVC participation can be analysed considering the sector where the value added being traded across borders was originally generated, i.e. the sector selling supplies used for exports in a different country, both in terms of backward and forward participation. However, this approach looks very similar to the standard analysis of sectoral specialisation in bilateral gross trade.

Data

Annual data in nominal United States (US) dollars are sourced from Organisation for Economic Co-operation and Development (n.d.), Trade in Value Added (TiVA) Database (<https://www.oecd.org/en/topics/sub-issues/trade-in-value-added.html>, accessed 23 July 2024). Country coverage includes, amongst others, all 27 European Union (EU) member countries, the United Kingdom (UK), the US, China, Japan, India, the Republic of Korea, and eight of the 10 Association of Southeast Asian Nations (ASEAN) Member States (i.e. Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam).

Sectoral data correspond to two-digit codes from United Nations (2008). Sectors are first defined broadly and divided into three categories: manufacturing activities (ISIC codes 10–33); business services (45–82); and other activities (including agriculture, mining, utilities, construction, and public services). Manufacturing activities are then disaggregated into food products (10–12), textiles (13–15), petroleum products (19), chemicals and pharmaceuticals (20–21), metals (24–25), electronics (26), machinery and equipment (27–28 and 30), motor vehicles (29), and other activities (other manufacturing). In turn, business services are disaggregated into trade activities (45–47), transport (49–53), information and communication technology services (58–63), and other activities (other business services).

Part 2

Trade Integration in India and ASEAN: Tracking Key Goods for the Green and Digital Economies

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1 Introduction

India is a key trading partner for the Association of Southeast Asian Nations (ASEAN). The cornerstone of the relationship is the ASEAN–India Trade in Goods Agreement (AITIGA), although the preferential trading relationship has been complicated by India’s withdrawal from the negotiating process leading to the Regional Comprehensive Economic Partnership (RCEP). The rationale behind the RCEP is to unify and combine ASEAN’s network of free trade agreements (FTAs) with major partners, but India now lies outside that framework. Having said that, UN Comtrade data show that the framework of preferential trade under the AITIGA has made it possible for the bilateral trading relationship to undergo substantial growth, amounting to US\$131.6 billion in 2022.

All countries are using the United Nations (UN) Sustainable Development Goals (SDGs) as the cornerstone for development activities up to 2030. The SDGs bring together economic, social, and environmental goals. While measurement is subject to controversy and limitations, the idea that trade should be a means of implementation of the goals, rather than a goal itself, has gained widespread acceptance. There is broad consensus that trade integration can boost incomes, increase consumption possibilities, and contribute to poverty reduction. But the SDG framework makes it important to focus on other ways in which trade can facilitate sustainable development outcomes (e.g. Helble and Shepherd, 2016).

One contribution trade can make is facilitating the dissemination of environmentally friendly products, as well as digital products that promote structural change compatible with a lesser environmental footprint. ‘Green and digital trade’ is an emerging area of concern, as evidenced by the increasing inclusion of chapters and provisions dealing with these areas in FTAs, as well as their incorporation in work by the major multilateral agencies concerned with trade, for instance through a concern with the links between trade and climate change, or the implications of digital transformation for trade and development.

Against this background, what is the role of green and digital trade in the ASEAN–India trading relationship? How important are these sectors, and what recent growth have they seen? How does the bilateral relationship sit compared with other trading relationships

with key partners? What sorts of policy changes could facilitate future growth in green and digital trade?

This chapter seeks to provide some preliminary answers to these questions. The methodology is data-based. The approach is selective, focusing on six clusters of goods within the green and digital space. The objective is to look at the composition of bilateral and multilateral trading relationships, as well as recent growth rates.

The next section turns to the foundational issue of identifying product clusters within green and digital trade, given the chapter's selective approach. It uses existing classifications from international organisations and national governments to identify six clusters in the green and digital space. These clusters form the bedrock for the analysis of the ASEAN–India relationship (section 3) and the comparison with trade flows in green and digital products with other major trading partners (section 4). Section 5 looks at policies that can affect green and digital trade, focusing again on ASEAN and India. Consideration ranges from traditional tariffs to new non-tariff measures (NTMs) associated with resurgent industrial policies around the world. The final section concludes.

2 Identifying Key Green and Digital Goods

'Green and digital' is not a recognised part of any product or industry classification used in international settings. However, as countries and international organisations have come to recognise the importance of policy in these areas, they have developed ad hoc rosters of goods that fall into different categories that relate to the overall green and digital classification, using existing classification systems.

For international trade in goods, the global standard for classification is the Harmonized System (HS). It identifies around 5,000 goods at its most disaggregated level; many countries use more detailed systems that identify as many as 10,000+ goods, but those schemes are not internationally harmonised.

The HS is frequently revised by the World Customs Organization through discussions amongst member states. These revisions take account of changing factors that affect the realities of global trade, including consumer tastes and demands, and the emergence of products linked to new and emerging technologies.

Against this background, a comprehensive definition of green and digital products that covers all eventualities, subsectors, and country realities may not be possible. International discussions in areas like environmental goods show that countries frequently differ in their approaches to these questions and are frequently unable to agree on which goods should be included in particular classifications.

As an analytical tool, it is useful to have an entry point to the green and digital space, even if not yet fully approved and agreed by governments. This chapter's approach is therefore

to use existing catalogues of green and digital products, as well as others that are easily identifiable within the HS's standard structure. The catalogues come from international organisations and selected national governments. They will be refined over time, but they provide a starting point for the analysis of green and digital trade between India and ASEAN. They also provide a base of comparison for contextualising that relationship in terms of trade with other parts of the world.

Concretely, this chapter focuses on six identified clusters of green and digital goods. The rationale for choosing these clusters is that they represent important parts of green and digital supply chains and are regarded by many countries as economically and strategically important in that space. They also capture important aspects of the ASEAN–India trade relationship in the green and digital sectors. Focusing on clusters has the advantage of providing an overall picture. The analysis here does not look at individual, finely defined products; future work can helpfully move in that direction. However, the classifications used to identify green and digital goods at a very fine level and can be deployed in future research that seeks to build on the insights developed here.

The first cluster is low-carbon technology goods. These goods are a key part of the global fight against climate change. Trade in low-carbon goods is particularly important because their development has been led by high-income countries, but there is an urgent need for diffusion to low- and middle-income countries in the context of the Paris Agreement and the global commitment to achieve net zero carbon dioxide emissions by 2050. Research by Pigato et al. (2020) identified a list of low-carbon technology products using the 2017 revision of the HS, and is adopted in full for this chapter, based on an Excel file maintained by the International Monetary Fund (IMF, 2017b).

The second cluster is environmental goods. This group refers to products that have significant potential to improve environmental conditions in a variety of ways, whether by limiting or remediating externalities, or otherwise promoting sustainable economic growth. International efforts to define lists of environmental goods have proved controversial, though not without success: Asia-Pacific Economic Cooperation (APEC) agreed on a list, but similar efforts at the World Trade Organization (WTO) proved difficult to conclude and suffered from a lack of consensus and broad-based participation. Nonetheless, the IMF has produced a list of environmental goods using the 2017 revision of the HS (IMF, n.d.). The list covers goods connected to environmental protection and goods that have been adapted to be more environmentally friendly. The analysis here is based on an Excel file maintained by the IMF, which is used in full here (IMF, 2017a).

The third cluster is the lithium-ion battery supply chain. The rationale for choosing this cluster is that lithium-ion batteries are crucial to many green applications, including electric vehicles and renewable energy storage. Countries have recently identified this supply chain as having strategic significance, given ongoing global tensions over the location of production centres for renewable energy technologies, as well as electric vehicles. Research by McMahon (2022) identified a list of goods from the 2017 revision of

the HS that relate to this supply chain. This chapter uses an Excel file maintained by the United States (US) government, based on that research; it is adopted in full (McMahon, 2022).

The first three clusters focus on green goods. The second group of three clusters focuses on digital goods. While digital goods can cover a wide range of products, including many mature technologies, there is benefit in focusing again on emerging and new technologies, as well as goods that are important for supply chains. This chapter therefore does not attempt to comprehensively track trade in personal computers or smartphones, for example, but instead focuses on three aspects of digital trade that are of emerging importance and which have in some cases been identified by countries as strategically important: equipment used for 3D printing (HS 2017 code 847790); semiconductors (HS 2017 codes 8541 and 8542); and industrial robots (HS 2017 code 847950). Whereas the first three clusters required extensive combing of the HS to identify relevant products, these industrial products are much better catalogued in the standard nomenclature and can be identified using a small number of product codes. All are important in emerging digital supply chains.

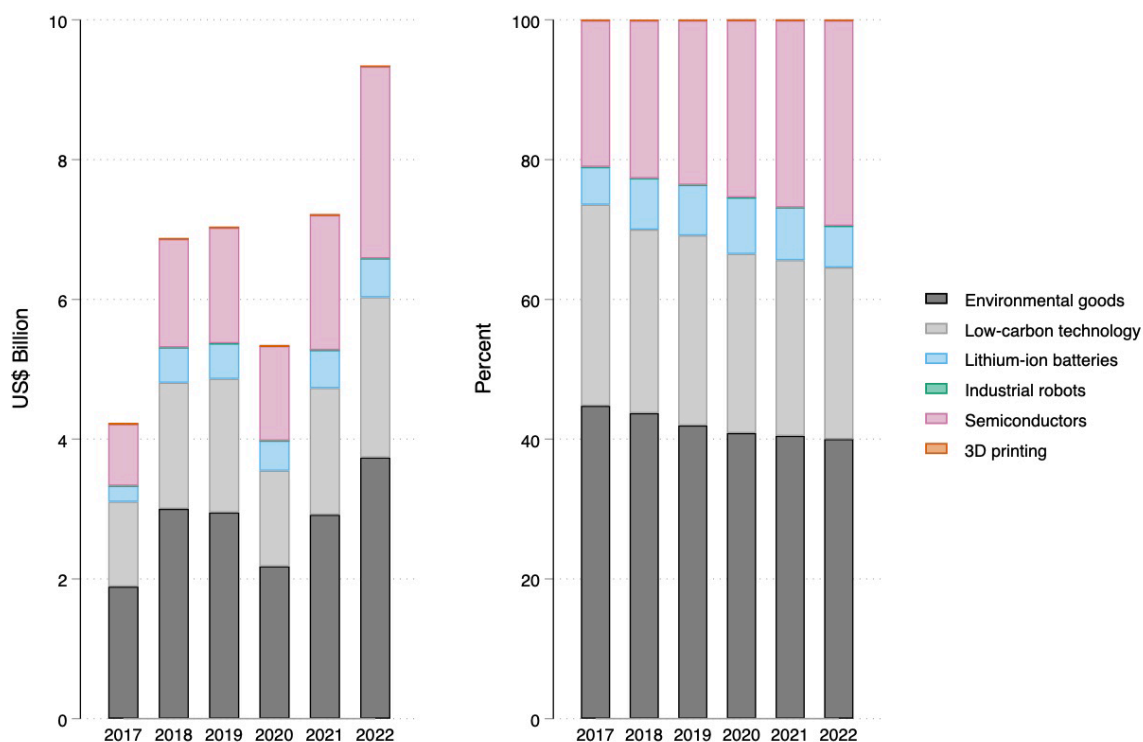
Having identified six clusters of green and digital goods, the remainder of this paper uses these classifications to identify trade flows in those areas, focusing on the relationship between ASEAN and India and contextualising it in the framework of global trade flows.

3 INTRA-REGIONAL TRADE LINKAGES

Figure 1 (left panel) shows that ASEAN's exports to India in green and digital products have generally been increasing over time, reaching nearly US\$10 billion in aggregate in 2022 from just over US\$4 billion in 2017. So, the growth rate of these products is high in aggregate, and ASEAN has clearly been growing its role in the Indian market over recent years. Increases in export value over time could be associated with improvements in competitiveness in ASEAN, in addition to changing market demand in India. However, it is also important to look at the data in percentage terms (right panel), as it emphasises that the product groups are not all performing in the same way. Over time, ASEAN's exports are becoming more oriented towards semiconductors and to some extent lithium-ion batteries; the role of environmental goods and low-carbon technology is not declining in absolute terms but is a smaller share of total ASEAN exports to India in green and digital products in 2022 relative to 2017.

Figure 1: Exports by ASEAN to India, 2017–2022 by Category, Green and Digital Goods

(US\$ billion and percentage of total)



ASEAN = Association of Southeast Asian Nations.

Note: Exports are estimated using mirror data.

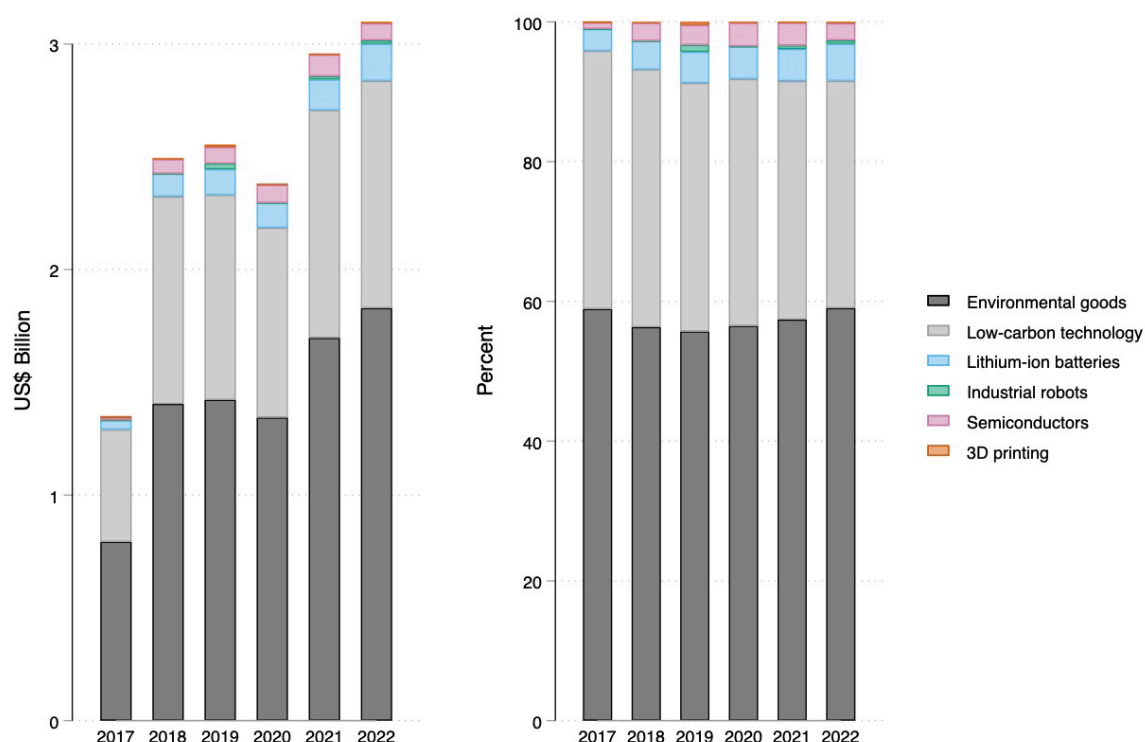
Source: United Nations (2024), Comtrade Database, 2017–2022. <https://wits.worldbank.org/> (accessed 1 April 2024).

Figure 2 looks at the relationship from the opposite point of view – India’s exports to ASEAN. Like ASEAN’s exports, products originating in India and destined for ASEAN saw rapid growth in value terms (left panel) between 2017 and 2022, admittedly from a low baseline. The aggregate value of under US\$1.5 billion increased to over US\$3.0 billion during that period. Again, this rapid growth is likely indicative of improvements in competitiveness, in addition to changing market demand in ASEAN. But the right panel shows that the composition of India’s exports to ASEAN is significantly different from trade in the opposite direction: it skews heavily towards environmental goods and low-carbon technology, although lithium-ion batteries and to a lesser extent semiconductors have also seen growth in their share of the total. Overall, the picture that emerges is one of more intensive inter- rather than intra-industry exchanges between India and ASEAN in the green and digital space, which could be consistent with complementarities between the two: for instance, semiconductors and lithium-ion batteries are important inputs for some environmental goods. It is also possible that at a more detailed level, i.e. within

individual supply chains, there is exchange taking place of different, narrowly defined components in each direction – another type of complementarity. However, a detailed breakdown of each supply chain, potentially covering hundreds of individual products, is outside the scope of this chapter. In the absence of distortionary policies – see further below – this pattern of trade would be consistent with different patterns of comparative advantage in the two countries, whether due to resource endowments or technology, or some combination of these and other micro-level factors. Two-way trade in similar but differentiated products is relatively limited in terms of the overall flows between ASEAN and India, which is reflective of distinct patterns of specialisation in the bilateral relationship that are likely reflective of broader economic factors.

Figure 2: Exports by India to ASEAN, 2017–2022, by Category, Green and Digital Goods

(US\$ billion and percentage of total)



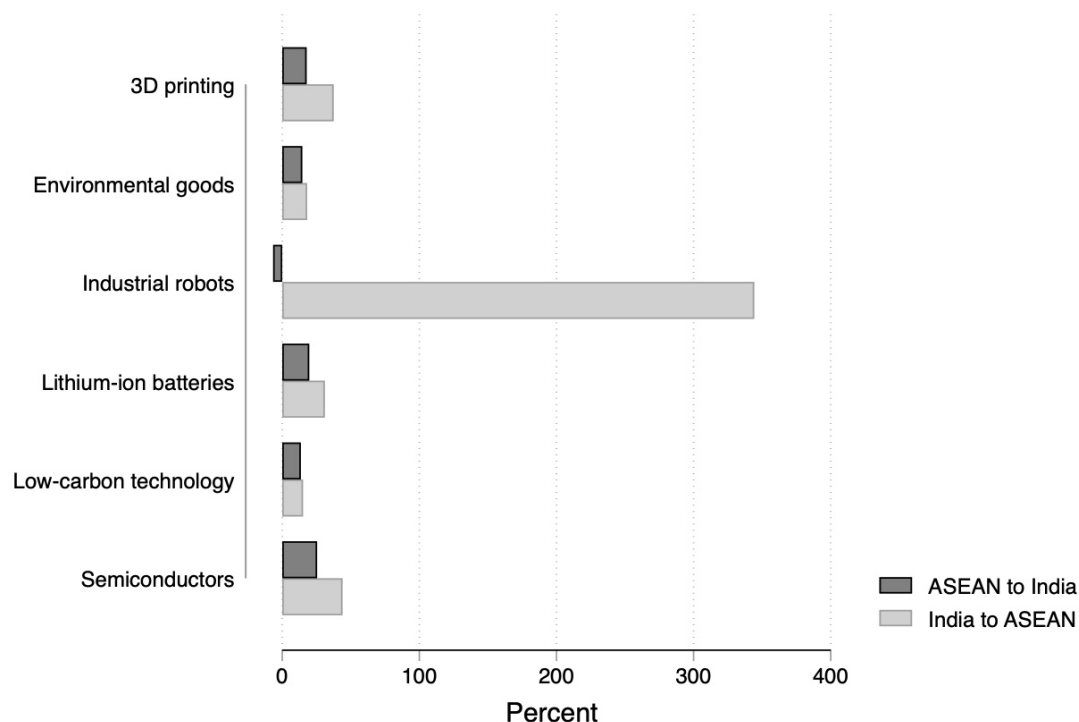
ASEAN = Association of Southeast Asian Nations.

Note: Exports are estimated using mirror data.

Source: United Nations (2024), Comtrade Database, 2017-2022. <https://wits.worldbank.org/> (accessed 1 April 2024).

Figure 3 takes the analysis of recent growth a step further by computing compound annual growth rates for trade in each direction, taking each product category separately. In both directions, these rates are generally high, but stronger in the direction of exports from India to ASEAN than from ASEAN to India. The only sector where performance is noticeably different is industrial robots: the growth of Indian exports to ASEAN is extremely rapid, whereas exports by ASEAN to India have fallen over time. This pattern could be due to evolving comparative advantage and export capacity in India, but could also be linked to market interventions designed to boost domestic production in this sector.¹ In any case, Figure 3 reinforces the impression from Figures 1 and 2 that all categories of green and digital trade between India and ASEAN are seeing substantial growth, albeit from very different baselines depending on the product cluster and direction of trade.

Figure 3: Compound Annual Growth Rates of ASEAN–India Trade, by Direction and Category, 2017–2022, Green and Digital Goods
(% per year)



ASEAN = Association of Southeast Asian Nations.

Note: Exports are estimated using mirror data.

Source: United Nations (2024), Comtrade Database, 2017-2022. <https://wits.worldbank.org/> (accessed 1 April 2024).

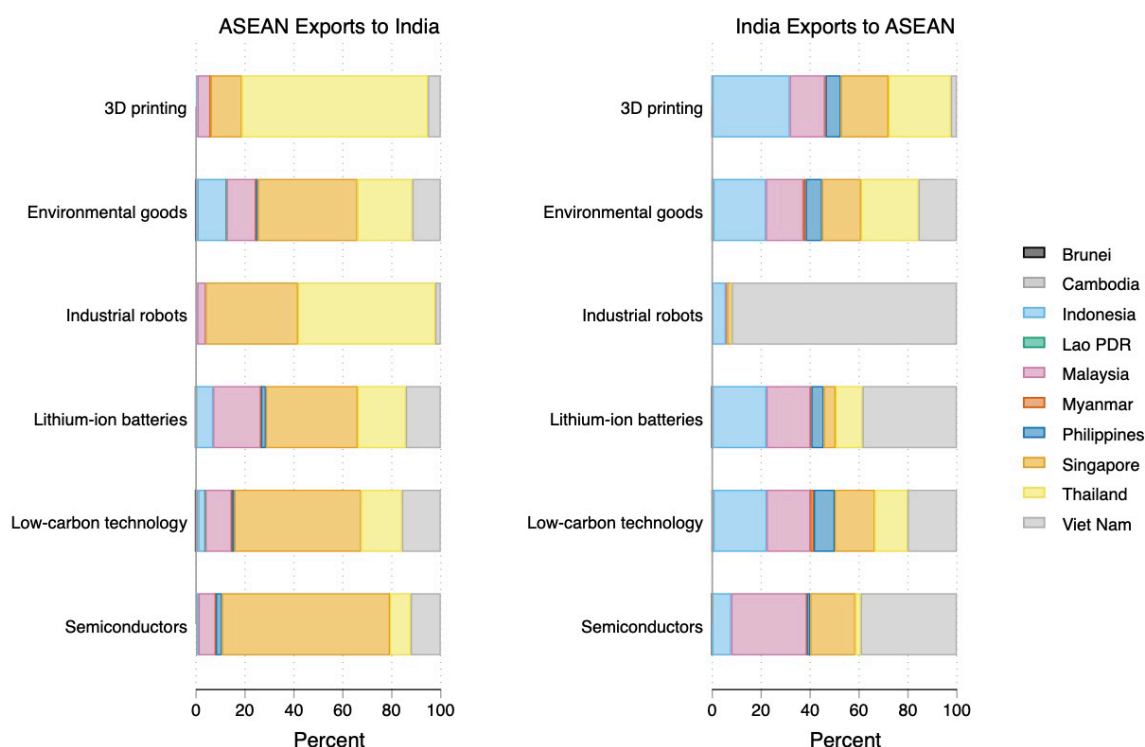
¹ India has instituted subsidies ('production linked incentives') in a range of sectors, mostly medium and high technology (Ministry of Commerce & Industry, 2023). There is as yet no rigorous assessment of their effects either on targeted sectors or on other countries, given the short length of time that they have been in operation. It also has a range of investment incentives, focusing on greenfield manufacturing investments (India Briefing, n.d.).

Figures 1–3 are useful for showing recent trends in the different product categories covered by the 'green and digital' terminology developed above. However, ASEAN is a very diverse region, so it is important to be alive to the potential for different trade behaviour at the level of individual ASEAN Member States (AMS) in terms of their relationships with India in the green and digital space.

Figure 4 pursues this issue by breaking down ASEAN's total exports to and from India in each category into proportions coming from individual AMS. It paints a complex picture, with significant heterogeneity across countries. In terms of exports from ASEAN to India (left panel), the dominant players are Singapore and Thailand, with lesser roles played by Malaysia, Indonesia, and Viet Nam. The other AMS only play marginal roles as exporters of green and digital goods to India. However, the relative importance even of these larger players varies considerably by product category: for instance, Thailand dominates in the 3D printing space, but Singapore accounts for most exports in semiconductors and low-carbon technology. Malaysia's role is more significant in lithium-ion batteries relative to other sectors, while Indonesia's share of exports is largest in environmental goods.

The right panel looks at exports in the opposite direction, from India to ASEAN. While there is again a significant degree of heterogeneity in terms of the importance of each individual AMS as a source of demand for Indian exports in the green and digital space, the picture is somewhat different on the export side. Demand is more evenly split across Indonesia, Malaysia, Singapore, Thailand, and to a lesser extent the Philippines. Viet Nam plays a major role as an importer of industrial robots, and has significant roles in semiconductors, low-carbon technology, lithium-ion batteries, and environmental goods.

Figure 4: Exports Between AMS and India, 2022, by Category, Green and Digital Goods
(percentage of total)



ASEAN = Association of Southeast Asian Nations, AMS = ASEAN Member State/s.

Note: Exports are estimated using mirror data.

Source: United Nations (2024), Comtrade Database, 2022. <https://wits.worldbank.org/> (accessed 1 April 2024).

The data show that ASEAN and India are deepening their trade relationship with respect to green and digital goods, even against a background of diverse domestic policies in all countries involved.² The value of that relationship is non-negligible, though exports are much higher in value terms for ASEAN than for India. The trade pattern largely reflects a complementary or inter-industry structure. As a heterogeneous region, there is unsurprisingly considerable difference between individual AMS in terms of the degree and nature of their participation in this market. However, as some countries seek to reduce the role of Chinese-origin trade in their supply chains, there is an opportunity to boost trade with other countries, including India (Saxena, 2024).

The ASEAN–India relationship is established and growing in the green and digital space. However, it is only one aspect of the bilateral trade relationship, which amounted to

² Some policy changes are controversial in terms of their economic impacts, such as Indonesia’s ban on nickel imports with a view to promoting domestic processing (Lu, 2024). By contrast, Malaysia has committed to an ambitious rollout of renewable energy (US Department of Commerce, 2024).

US\$131.6 billion in 2022. Summing the product categories used here gives a value of US\$12.4 billion in 2022, which is equivalent to under 10% of total bilateral trade. It is also important to stress that this figure overstates the importance of green and digital trade to the bilateral relationship because the product categories are not mutually exclusive: i.e. some products are included in more than one category, so there is some amount of double counting. A realistic conclusion is that the green and digital space is established and growing in importance in ASEAN–India trade, but that it still accounts for a modest share of the overall bilateral relationship. In addition, the reality for individual AMS is quite different depending on factors like geography, pattern of comparative advantage and specialisation, and per capita income level.

Beyond trade, there are also emerging investment and policy linkages between India and ASEAN in the green and digital space. However, these links are difficult to quantify, as data are not as disaggregated as in the case of goods. Anecdotally, however, India has major investment needs in renewable energy and is developing the capacity to be an important player in that sector in the region and potentially beyond. India and ASEAN have therefore initiated collaboration in this area, which has important synergies with the development of a regional ASEAN-wide power grid (Suryadi, 2022). Similar initiatives are evident in other areas, such as India’s emerging manufacturing capacity in lithium-ion batteries, where Viet Nam has made a substantial investment to support its developing electric car industry (Tran, 2024). From outside the region, electric vehicle manufacturer Tesla seems poised to make a US\$500 million investment in India, albeit linked to a preferential easing of burdensome import tariffs (Mehta and Shah, 2024). It is important to keep the scale of these kinds of investments in mind, however: according to the World Development Indicators, US\$500 million in new inward investment represents around 1% of total inward investment in India in 2022. In the opposite direction, Indian ride-hailing firm Ola is examining the scope for expanding investment in ASEAN, including using electric vehicles (Reuters, 2023).

4 EXTRA-REGIONAL TRADE LINKAGES

The previous section looked at trade between ASEAN and India in green and digital products, as defined above. While growth in the bilateral relationship has been impressive, it is important to contextualise it by reference to both the size of that relationship relative to other types of trade, as well as the growth rates of green and digital trade with other major partners. This section turns to that task.

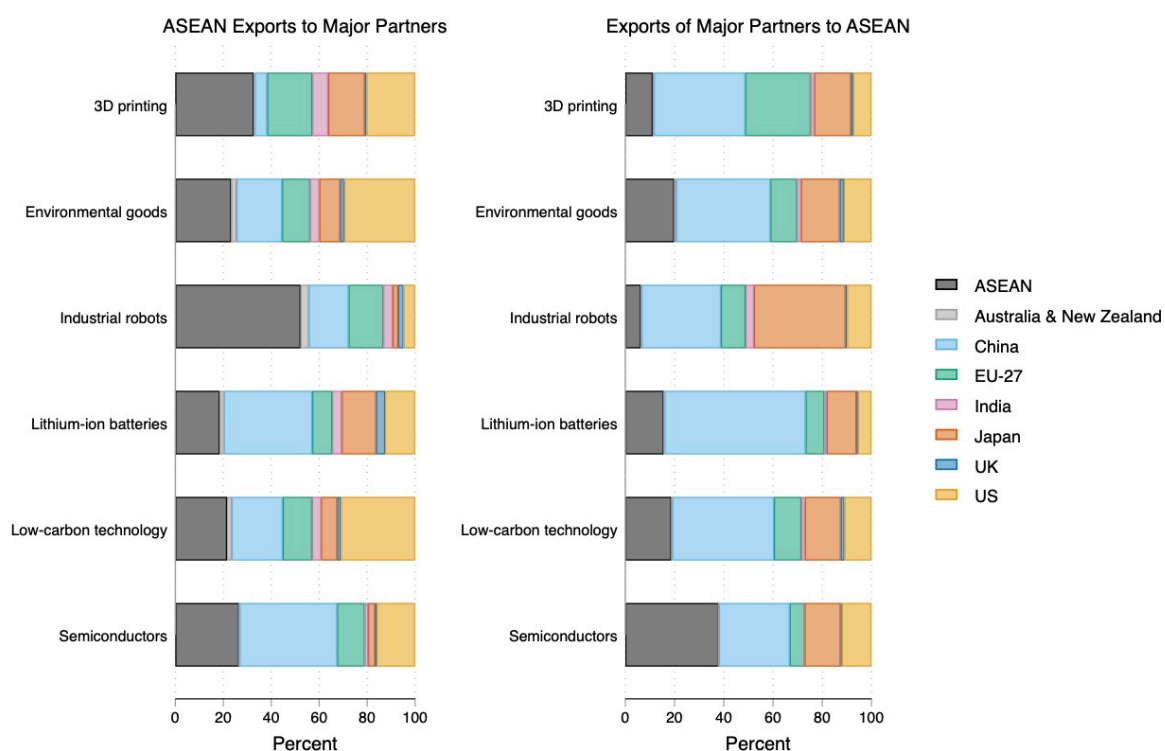
Analytically, the approach is to compose an illustrative group of major markets. The focus is on ASEAN’s RCEP partners – a trade agreement India ultimately chose not to join – as well as the two major external markets outside the RCEP: Europe (separated into the European Union member states (EU-27) and the United Kingdom (UK)) and the US. The full list is Australia and New Zealand (aggregated into a single region), China, the EU-27, India, Japan, the UK, and the US.

Figure 5 breaks down ASEAN's trade with the full group by product cluster and the proportion of each market in the total. The left panel shows ASEAN's exports to the major markets, while the right panel shows trade in the opposite direction – ASEAN's imports from the major markets. A key finding is that despite recent growth, the ASEAN–India relationship remains somewhat marginal to ASEAN's total trade integration in the green and digital space. Intra-ASEAN trade, as well as trade with external partners like China, Japan, the EU-27, and the US, is far more important in relative terms than ASEAN–India trade. This finding highlights the conclusion above that ASEAN–India trade has been growing rapidly, but from a relatively low benchmark in some cases.

A second finding is that this conclusion holds across most sectors, albeit with a minor degree of heterogeneity. In 3D printing, ASEAN's exports to India are more significant in relative terms than in other product clusters, but their role is still relatively marginal compared with the role of other markets. An interesting example is industrial robots, where the analysis above showed explosive growth of exports from India to ASEAN. But Figure 5 puts that finding in perspective: India nonetheless remains a marginal supplier of industrial robots to ASEAN, with countries like China, the EU-27, Japan, and the US playing a much more important role.

The conclusion to draw from Figure 5 is that it is indeed important to keep the overall size of the ASEAN–India relationship in perspective in assessing data like those in Figures 1–3. Green and digital products are characterised by a high level of technological content in many cases, so they are not an obvious locus of comparative advantage for a middle-income economy like India, relative to high-income economies like Japan, the EU-27, or the US. China is a middle-income economy, but it has a well-developed manufacturing base, which India still largely lacks, having had difficulty in growing its share in world manufacturing trade over time.

Figure 5: Exports Between ASEAN and Major Partners, 2022, by Category, Green and Digital Goods (% of total)



ASEAN = Association of Southeast Asian Nations, EU = European Union, UK = United Kingdom, US = United States.

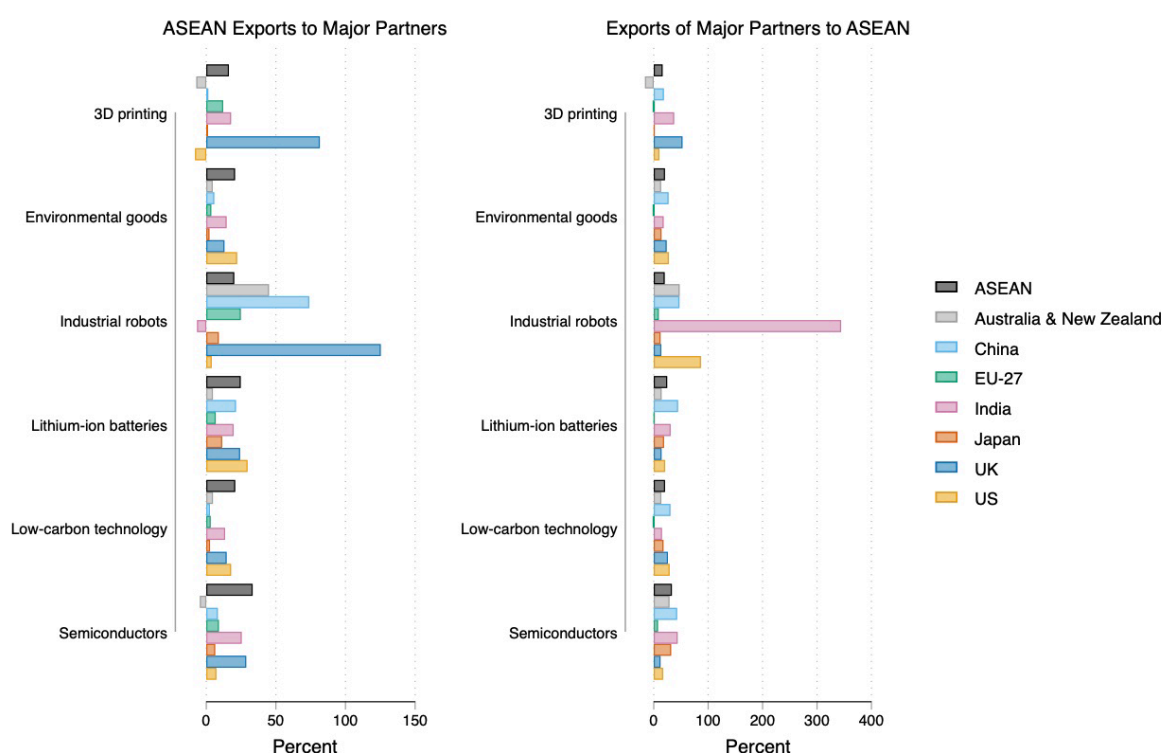
Note: Exports are estimated using mirror data, except for exports from the EU-27 to ASEAN where reported data are used.

Source: United Nations (2024), Comtrade Database, 2017–2022. <https://wits.worldbank.org/> (accessed 1 April 2024).

Figure 6 takes a different approach, looking at growth rates over recent years. The objective is to put the growth rate of ASEAN–India green and digital trade into context against the growth rate of trade in those same product clusters with other markets. The performance of the ASEAN–India linkages looks more impressive in this light, as growth rates of trade with India are typically strong in context, sometimes far faster than what is seen elsewhere, as in the case of industrial robots. However, India does not stand out as the overall fastest growing source or destination for ASEAN’s green and digital trade. That picture is nuanced, with different countries playing different roles according to the sector. For instance, the UK stands out as a rapidly growing source of demand for ASEAN’s green and digital exports. Except for industrial robots, the growth rate of ASEAN exports to India is not noticeably higher than that of ASEAN exports intra-regionally, or to China. On the import side of the ledger, and again excluding industrial robots, India’s share is growing relative to others in a few sectors, but generally its growth rate is not markedly faster

than what is seen elsewhere. The key conclusion to draw, therefore, is that while ASEAN–India trade is growing rapidly in the green and digital space, the same is true of ASEAN’s trade relationship with other major partners as well. The overall picture is one of robust growth by India, and explosive growth in one product cluster, so there is an expectation that India’s share of ASEAN’s total green and digital trade could grow over time, but that growth is likely to be modest in share terms given the growth rates observed with other major markets.

Figure 6: Compound Annual Growth Rates of ASEAN Trade with Major Partners, by Direction and by Category, 2017–2022, Green and Digital Goods
(% per year)



ASEAN = Association of Southeast Asian Nations, EU = European Union, UK = United Kingdom, US = United States.

Note: Exports are estimated using mirror data, except for exports from the EU-27 to ASEAN where reported data are used.

Source: United Nations (2024), Comtrade Database, 2017–2022. <https://wits.worldbank.org/> (accessed 1 April 2024).

A subsidiary conclusion from the analysis above is that intra-ASEAN trade is important and vibrant when it comes to green and digital product clusters. This finding is not surprising given the scope and ambition of the ASEAN Economic Community, but it highlights the need to give appropriate recognition to intra-regional trade, even while the objective of deepening external trade relationships remains appropriate. However,

singling out India is not an obvious strategic goal for ASEAN based on recent data: rather, the approach should be to manage policies that affect exports and imports of green and digital goods so that local firms have access to high-quality, reasonably priced products, as well as relatively open outlets for their own production. Trade with India can fulfil that goal in part, but as of writing, relationships with other markets are generally more important to ASEAN. The next section turns to the policy dimension – identification of sets of measures that can help boost ASEAN's trade integration in the green and digital space with India, but also more broadly with other major partners.

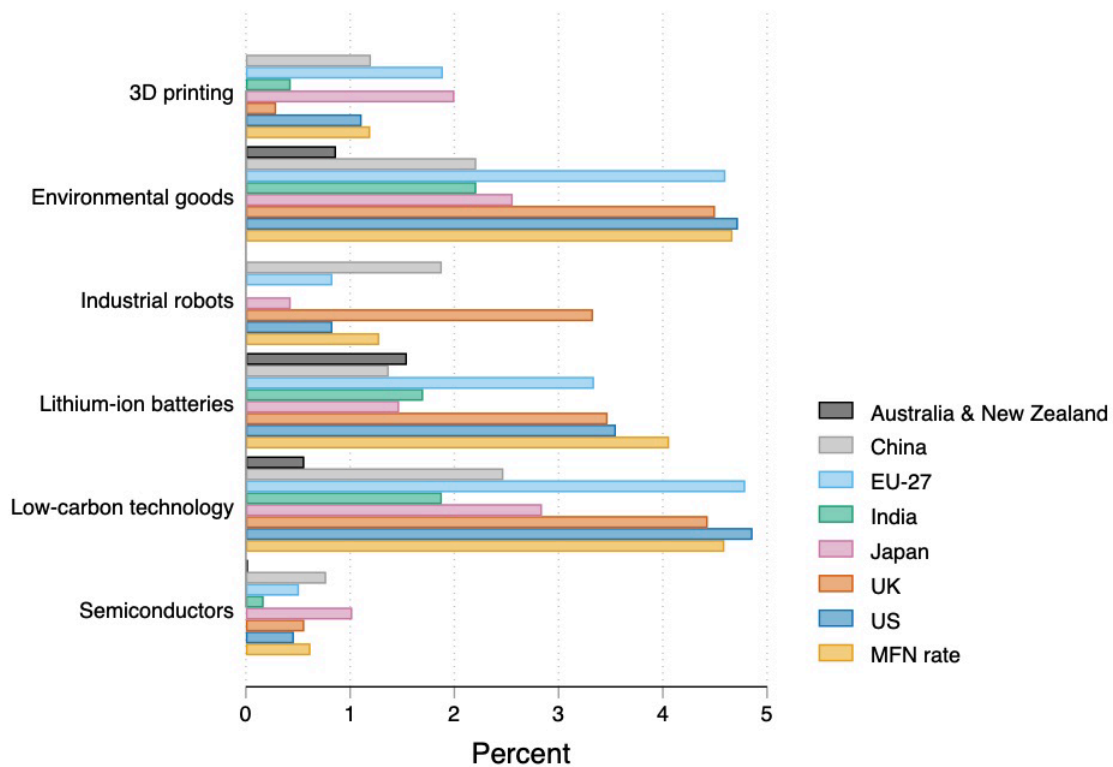
5 Looking Forward: Policy Options to Boost Trade

Policy can have a major impact on bilateral trade. Examining the range of policies both in ASEAN and in India that could help boost trade in green and digital products requires paying attention to several areas, ranging from traditional trade policies to new-generation industrial policies. The data available for different types of policies vary substantially, so the objective of this section is to be selective but relevant: the focus is on policies that are known to shape bilateral trade and that can be compared internationally using well-respected sources. The last part of the section discusses emerging issues on the policy radar where comprehensive data are not yet available.

The starting point for an analysis of trade policy surrounding green and digital trade between India and ASEAN is tariffs. While there is an FTA in force between the parties, tariffs remain relevant for two reasons. First, FTA coverage is rarely complete, so there could be exceptions from duty-free treatment that affect green and digital goods. Second, it is important to compare bilateral tariff rates with rates applied to other major trading partners, as producing complex goods frequently requires access to imported intermediates from a range of sources. A component of tariff analysis that needs to be considered is the WTO Information Technology Agreement, which commits a broad range of members to zero tariffs on listed products, some of which fall into the digital product clusters considered here.

Figure 7 looks at the situation from ASEAN's point of view, comparing most favoured nation (MFN) rates with effectively applied rates (i.e. rates that take full account of preferential agreements). ASEAN's tariffs are generally low to moderate, though the issue of incomplete FTA coverage is real: several FTA partners show non-zero tariff rates for some product categories in the green and digital space. But overall, ASEAN's trade policy is relatively open, although treatment varies substantially even across FTA partners in some sectors. MFN rates paid by countries without an FTA are substantially higher than effectively applied rates for preferential partners, but rates are still relatively low in global and historical comparison.

Figure 7: ASEAN Tariffs vs. Major Partners, 2021, by Product Category
(% ad valorem)



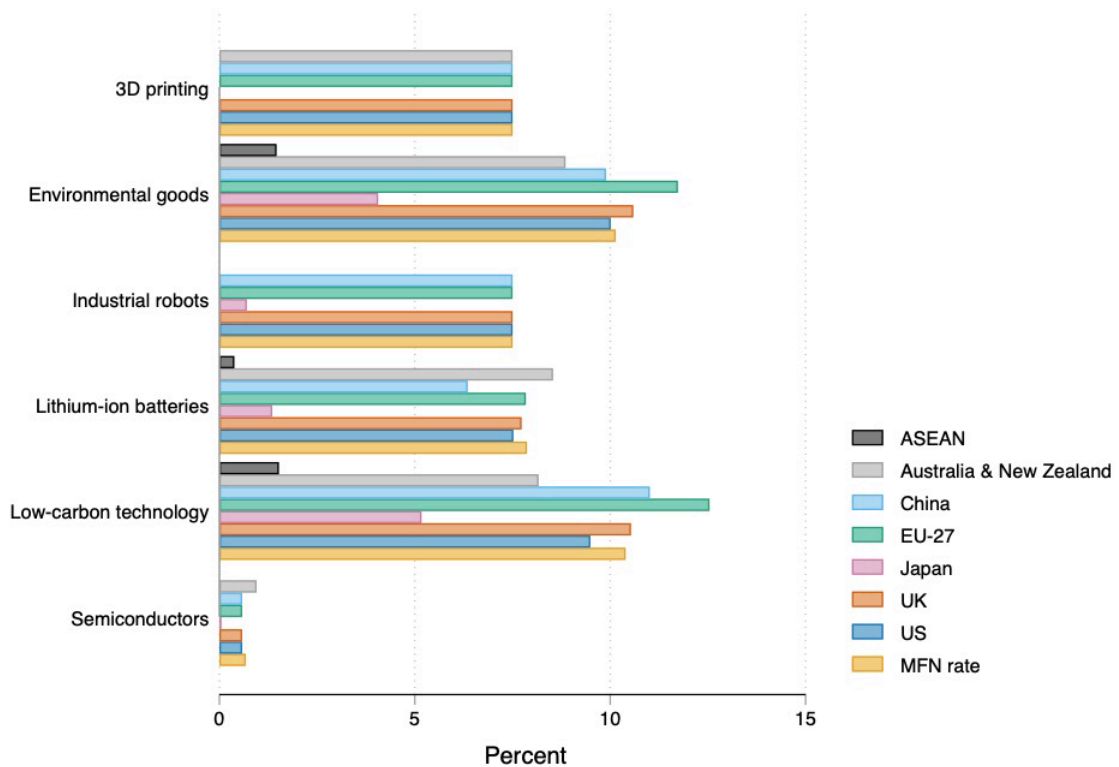
ASEAN = Association of Southeast Asian Nations, EU = European Union, MFN = most favoured nation, UK = United Kingdom, US = United States, WITS = World Integrated Trade Solution.

Note: Applied rates can exceed reported MFN rates due to averaging in the World Bank's WITS based on reported trade flows.

Source: UNCTAD (2024), TRAINS Database, 2021. <https://wits.worldbank.org/> (accessed 1 April 2024).

The picture for India is somewhat different (Figure 8). While India's tariffs are substantially lower than their historical peak before the country's 1991 liberalisation, they remain high by comparison with ASEAN and more broadly compared with many other countries. A key finding is that ASEAN firms enjoy a substantial competitive advantage in the Indian market due to the AITIGA, which significantly cuts tariff rates, sometimes to zero, in green and digital products. The difference in treatment between ASEAN and other major partners reflects the fact that India is generally reluctant to sign FTAs, as indicated by its ultimate decision to withdraw from RCEP negotiations. But the current structure of India's tariff protection suggests that AMS have a significant opportunity to develop exports to the Indian market in circumstances where competitors face substantially higher tariff barriers.

Figure 8: Indian Tariffs vs. Major Partners, 2022, by Product Category
(% ad valorem)



ASEAN = Association of Southeast Asian Nations, EU = European Union, MFN = most favoured nation, UK = United Kingdom, US = United States, WITS = World Integrated Trade Solution.

Note: Applied rates can exceed reported MFN rates due to averaging in the World Bank’s WITS based on reported trade flows.

Source: UNCTAD (2024), TRAINS Database, 2021. <https://wits.worldbank.org/> (accessed 1 April 2024).

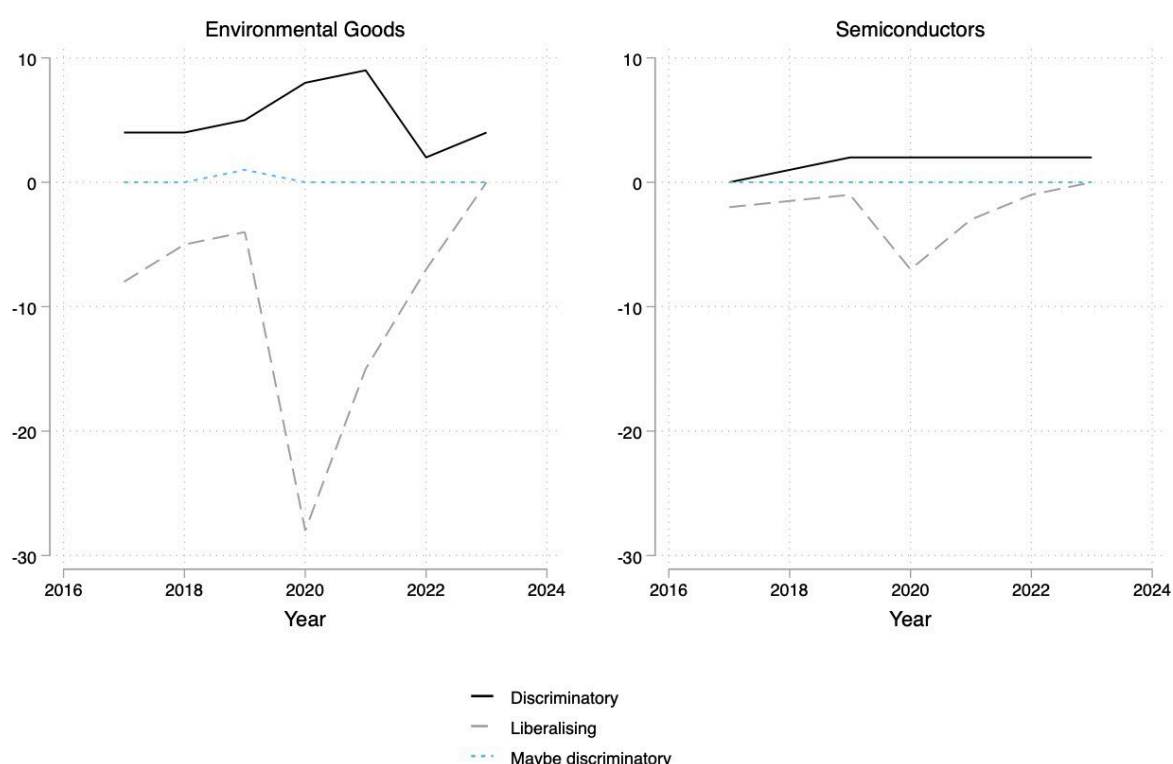
In the modern economy, tariffs are only one of the factors that affect market access, and arguably are not the most important. NTMs also play a crucial role. A broad definition of NTMs is that they cover the full range of policy measures, other than simple tariffs, that drive a wedge between producer prices in the exporting country and consumer prices in the importing country (De Melo and Shepherd, 2018). Using this expansive definition has the advantage of capturing both traditional NTMs (captured by the international Multi-Agency Support Team (MAST) definition, as implemented in the United Nations Conference on Trade and Development (UNCTAD) TRAINS database) as well as new-generation measures linked to the resurgence of industrial policy around the world.

The Global Trade Alert (GTA) is a comprehensive data source on policy measures, including both tariffs and NTMs, which takes the broad approach noted above. It divides measures into those that are clearly discriminatory against foreign providers, those that may be discriminatory, and those that are liberalising. It is important to recognise the

existence of all three sets of measures, as most countries are simultaneously involved in the business of introducing discriminatory measures in some areas or subsectors, while liberalising others. Of relevance to this chapter, the GTA identifies product clusters in 'environmental goods' and 'semiconductors.'

Figure 9 reports data for ASEAN, taking the sum of measures implemented by year in all AMS. There is more policy activity in environmental goods than in semiconductors, which is perhaps partly a factor of the larger number of individual HS products involved. Nonetheless, the balance in ASEAN generally leans towards net liberalisation rather than net restriction. The introduction of discriminatory measures is always a matter of concern, but taking account of the fact that Figure 9 covers all AMS, neither the number of measures nor the comparison between restrictive and liberalising measures is particularly concerning in environmental goods. The picture in semiconductors is similar and even stronger, in the sense that the overall number of measures is lower. So looking at these policies confirms the view that ASEAN continues to maintain, in general but subject to exceptions, a relatively open trade regime for environmental goods and semiconductors, as was the conclusion from the analysis of tariffs.

Figure 9: New NTMs Implemented by ASEAN, 2017–2023, by Product Category
(count)



ASEAN = Association of Southeast Asian Nations, NTM = non-tariff measure.

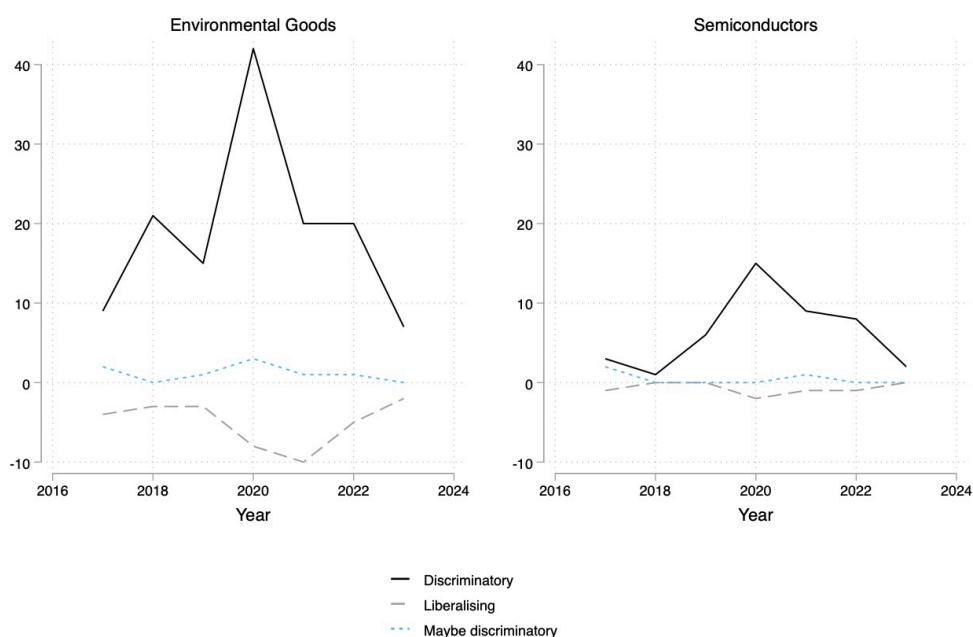
Notes: Liberalising measures are coded as negative. Year is coded as year of announcement.

Source: Global Trade Alert (2024), Global Trade Alert Database, 2017–2023, www.globaltradealert.org (accessed 1 April 2024).

Again, the picture is very different in India. In environmental goods, the number of newly implemented policy measures is much higher than in ASEAN. In addition, the balance is far more towards restriction than liberalisation, compared with ASEAN. So, India is using new tariffs and NTMs to limit access to its market for environmental goods, usually with the objective of boosting reliance on domestic production.³ The effect is less drastic in the case of semiconductors, but it is still present: the number of measures is lower, but the balance is still firmly towards discriminatory measures rather than new liberalisation. So just as India maintains much higher tariffs than ASEAN on green and digital goods so too does it maintain a more restrictive NTM environment.

In terms of the policy measures summarised in Figure 10, discriminatory measures in 2022 in India included incentives for local value addition in solar cells, with the objective of promoting domestic manufacturing and reducing imports (GTA, 2022b). A second example was a requirement that the government procure certain scientific and testing equipment, some of it related to the production of environmental goods, from local producers (GTA, 2022a). Other examples listed in the GTA database include the use of import tariffs, anti-dumping measures, and subsidies.

Figure 10: New NTMs Implemented by India, 2017–2023, by Product Category
(count)



NTM = non-tariff measure.

Notes: Liberalising measures are coded as negative. Year is coded as year of announcement.

Source: Global Trade Alert (2024), Global Trade Alert Database, 2017–2023, www.globaltradealert.org (accessed 1 April 2024).

³ Examples include tariffs on solar energy equipment (Soleos, n.d.), albeit potentially subject to exemptions or reductions more recently. Similarly, import duties on electric vehicles are high, unless companies commit to a minimum level of investment (a trade-related investment measure (Mehta and Shah, 2024)).

Clearly, trade policy represents a risk for ASEAN–India trade in green and digital goods. But the risk is primarily in terms of access to the Indian market for ASEAN exports. The analysis here has shown that while ASEAN producers enjoy important tariff preferences, the prevalence of new, restrictive NTMs is a significant issue for producers in all regions, including ASEAN. The measure of trade policies used above does not distinguish between measures that are focused on just one country or region, and those that are MFN in scope. However, experience and previous analysis suggest that most NTMs are *de facto* MFN. In India’s case, for example, many of the measures recorded in Figure 10 relate to issues like import tariffs applied regardless of source, and production subsidies. Both are discriminatory against foreign products in general, but are MFN in the sense that they do not single out individual origin points for special treatment.

One area that needs attention is subsidies, as they are a type of NTM that has cross-border impacts. The measures from the GTA database take account of subsidies, but the above figures place them in the context of the full raft of NTMs brought into force. From the perspective of ASEAN–India trade, subsidies are a mixed bag. On the one hand, subsidies in one economy make goods less expensive for consumers in the other. But on the other hand, they make competitive conditions more difficult for firms in the other economy and can be highly distortionary in global and regional markets.

A forward-looking agenda for policy between ASEAN and India would take account of these realities. Key points to be examined by policymakers include the following:

- Preservation and expansion of duty-free market access under the AITIGA.
- Revision of the AITIGA to include additional disciplines, following the inclusion of AMS in the RCEP.
- Greater attention to NTMs, particularly in India.
- Greater attention to subsidies.
- Revision of the AITIGA to include stricter and more operational disciplines on NTMs and subsidies.

Many of these points are relevant to the ASEAN–India trading relationship overall. But the analysis here has shown that they are of salience for the green and digital space, which has been growing rapidly in a globally competitive environment. From a sustainable development standpoint, it is important for both regions to continue integrating into world markets for green and digital goods, and part of that process involves deepening their bilateral relationship, where doing so does not conflict with broader multilateral aims.

6 Conclusion

This chapter has shown that green and digital trade is an important part of the ASEAN–India relationship and that it has undergone substantial growth in recent years. However, in terms of both parties’ overall trade integration in the green and digital space, the bilateral relationship plays a modest role: there is scope for growth, but relationships

within ASEAN (intra-regional trade) and with other players like China, the EU, and the US are typically more important.

Looking forward, there are various ways in which policy settings could be more facilitative of green and digital trade. A key priority on the Indian side is to facilitate market access, although ASEAN already enjoys a privileged position under the AITIGAFTA, as most goods enter at zero or low rates. ASEAN applies generally low tariffs, so the competitive advantage of Indian firms from the AITIGA is less pronounced. However, there is a strong case for focusing more on NTMs moving forward. India has been active in introducing discriminatory NTMs affecting green and digital trade, to the extent that data are available and easy to map to green and digital product categories. ASEAN has been less active, and the balance between restrictive and liberalising measures is more favourable. A key priority is therefore for Indian policymakers to address the need to facilitate external trade by rationalising NTMs and avoiding unnecessary or inefficient discrimination. There is clear scope to liberalise policies further and thus facilitate trade.

Even though India ultimately declined to participate in the RCEP, there is scope to upgrade the AITIGA to deal explicitly with green and digital issues. Questions that deserve particular attention are NTMs and subsidies, as well as the specifics of digital regulation and the removal of remaining tariff barriers. While the relationship has clear potential, it will be important for policymakers on both sides to focus on maintaining a liberal stance with respect to the trading system in general, given that successful green and digital trade usually involves the use of inputs from a range of sources. ASEAN is currently closer to this paradigm than India.

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