Chapter 10

Global Value Chain Impact on Indonesia's Economy and the Way to Make It More Resilient

Krisna Gupta, Irma Tsuraya Choirinnida, & Muhammad Taufik

A. Indonesia's Global Trade

COVID-19 devastates Indonesia's economic growth, with the 2020 growth rate reaching a negative territory of -2.07% (Badan Pusat Statistik, n.d.). As with other countries, the Indonesian government is looking for a source of growth to speed up economic recovery. The manufacturing sector could be the key to economic recovery because the pandemic still limits the service sector. Indeed, the economic transformation toward a manufacturing-based economy seems to be the government's latest strategy, according to Indonesia's Medium-Term National Development Plan, as stated in Presidential Regulation No. 18/2020.

K. Gupta, I. T. Choirinnida, & M. Taufik
The Australian National University, e-mail: krisna.gupta@outlook.com

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It is true that many economies, particularly in Asia, rely on manufacturing sectors to catch up with developed countries (Antràs, 2020; Studwell, 2013; World Bank, 2020). Manufacturing produces tradable goods which can be transported physically to many countries much more prosperous than producing countries. In times of a pandemic, manufacturing sectors have a crucial role in providing access to medical goods and other consumables. In Indonesia, manufacturing still provides more formal jobs than the agriculture and service sectors, which are relatively better for workers (Gupta & Mardjono, 2021).

Manufacturing in the last two decades has been characterized by fragmentation of production and hyper-specialization (Antràs, 2020; World Bank, 2020). Thanks to the radical improvement in communication and shipping technologies, the cost of trading across borders, in general, has been dropping significantly. The seamlessness of global trade allows firms to divide their products into fragments of value-added and source each fragment in a country best equipped to produce them. This phenomenon is called The Global Value Chain (GVC).

In this chapter, we explore GVC and why Indonesia needs to incorporate GVC into its economic transformation plan. Not only essential to economic growth in general, but GVC is also crucial in securing important goods to combat the pandemic, such as Personal Protective Equipment (PPE) and vaccines. We also examine Indonesia's position in the GVC and where to contribute. Lastly, we provide a policy discussion to see where Indonesia can move forward in exploiting GVC in its economy.

1. The Global Value Chain and why it is essential

Based on the World Bank (2020) definition, GVC divides the whole product's production process into specific tasks across countries. More formally, Antràs (2020) provides a broad definition of GVC as follows:

"A global value chain or GVC consists of a series of stages involved in producing a product or service sold to consumers. Each stage adds value, and at least two stages are produced in different countries. A firm participates in a GVC if it produces at least one stage in a GVC."

For example, the production of Bianchi, a bicycle where each component comes from several countries. The whole production of bicycles is assembled in Taiwan. However, components such as wheels and saddles are made in China, Italy, and Spain. The brake and pedal are made in Japan, Singapore, and Malaysia. The frames are made in China, Italy, and Vietnam. Even the prototype of bicycles which are not a form of raw materials comes from a different country, Italy. Assembling bicycles from other countries increase production efficiency because each country has remarkable capabilities and resources that can be leveraged to collaborate. Since there is value-added from multiple countries in one product, there is no longer "a product of one country" in GVC goods. Instead, GVC goods are the product of the world.

GVC opens new opportunities for small firms and participants from emerging countries as they no longer have to master all the stages of complex production processes to participate in the global market. The differences in natural conditions and geography of each country affect its resources. Some countries are endowed with abundant natural resources but cannot utilize them.

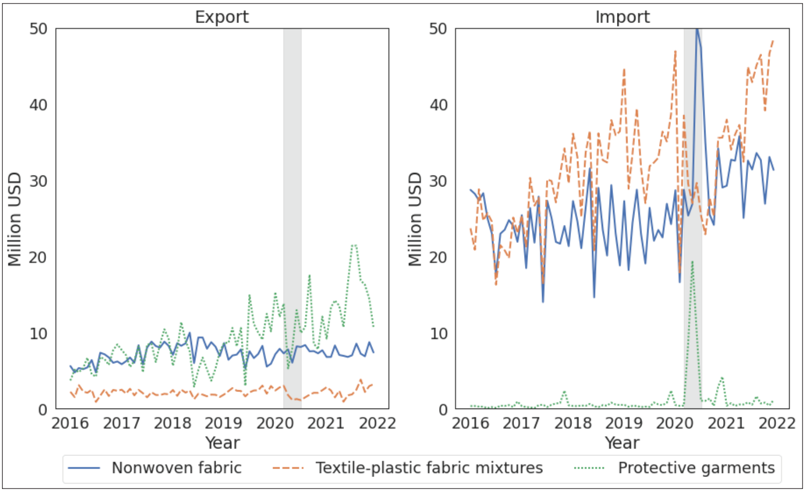
GVC can be a shortcut to exchange natural resources and knowledge so that it does not take a long time for a country, especially a developing country, to acquire new technology through collaboration with a developed country. Furthermore, countries collaborating in production fragmentation can benefit from the technology gap by increasing the average skill intensity (Kummritz et al., 2017). For example, in Bangladesh, participation in GVC has introduced them to a bounded warehouse combined with a "back-to-back" letter of credit (World Bank, 2020). This is one of the pieces of evidence that there is a transfer of knowledge that makes the integration into apparel GVC more efficient.

This productivity-enhancing effect of GVC translates to economic upgrading, higher export performance, and GDP growth for a country

(Antràs, 2020; Kowalski et al., 2015; World Bank, 2020; Chor et al., 2021; Ing et al., 2019). Not only that, GVC plays an essential role in solving the climate crisis by efficiently producing green products (World Bank, 2020). In Indonesia, importing value-added from other countries allows for better pay for workers, lower inequality, and better productivity for firms (Amiti & Cameron, 2012; Amiti & Konings, 2007; Gupta, 2022; Kis-Katos et al., 2018; Kis-Katos & Sparrow, 2015; Vadila & Resosudarmo, 2020). In addition, countries with freer international trade enjoy higher participation from Multinational Corporations (MNCs), which improves GVC participation and absorbs more labor and domestic outsourcing (World Bank, 2020). As a country looking for value-added in manufacturing, increasing GVC participation is one of the best strategies Indonesia can approach.

More than improving the economy, GVC is also crucial in producing COVID-19-related goods (Asian Development Bank, 2020; Bown & Bollyky, 2021; OECD, 2021). Indonesia is one of the major producers of PPE, with an estimated capacity of 17 million PPEs per month (Gumelar, 2020). However, the material used to produce the PPE is highly complicated and capital intensive (Kilinc, 2015). Its material must be impenetrable by microscopic particles to make a proper PPE. This type of material is mainly sourced from foreign countries.

Figure 10.1 shows Indonesia's monthly total export and import in the current US Dollar from January 2016 to December 2021. The goods covered by the graph are protective garments and two primary materials to make it, namely nonwoven fabric and textile fabric mixed with plastics. The grey bar indicates when the Indonesian government banned exports and relaxed its import restrictions on these goods. It shows how big Indonesia's import of PPE materials is, which is vital in making PPEs. Indonesia managed to increase its export of PPE thanks to the foreign value-added in the form of intermediate inputs. This is, of course, in addition to providing the PPE domestically.



Source: BPS via Ministry of Industry

Figure 10.1 Indonesia's Monthly Export and Import of PPE and Its Materials, 2016–2021

GVC is also essential for vaccine provision. While Bio Farma, Indonesia's leading pharmaceutical company, can produce ready-to-deliver COVID-19 vaccines, it still imports them in bulk (Bio Farma, 2021). Moreover, goods that are needed to package and administer COVID-19, such as syringes, dry ice, and freezers, are imported mainly by Indonesia. So, while Indonesia may be able to produce and distribute a vaccine, it requires foreign value added to be efficient.

Table 10.1 Trade of Goods Necessary for Vaccine Production and Administration in USD in 2020

Products	Export	Import
Vials	28,784,402	80,247,077
Stoppers	62,250,049	122,953,947
Vaccine carriers	126,639,193	395,299,253
Cold boxes	36,707,669	86,245,167
Refrigerators/freezer chests	7,360,908	79,238,476
Freezers	228,022	45,962,472
Dry ice	22,285	1,118,121
Syringes	21,705,369	17,161,523
Needles	807,435	43,388,110
Vaccines	61,459,112	134,020,546

Source: BPS via Ministry of Industry

GVC allows for quick economic recovery, and Indonesia is well-positioned to utilize it. But where is Indonesia now in the GVC? To answer this question, we deep dive into how researchers measure GVC. Then, using one of these measures, we try to present where Indonesia is regarding GVC participation, especially compared to its neighbors.

2. Indonesia's Participation and Position in Global Value Chains

The growing importance of GVC participation leads researchers to look for how to measure GVC. Measuring GVC is more complicated than typical export-import measures because customs usually record only the value of the goods coming in and out of the country. Customs does not collect information on how much foreign value-added is embedded in exported products, nor how importers will use imported products. Additional data like the input-output table is needed.

An input-output table consists of data on the use of the output of a particular industry by other industries, final consumption, or international trade. The World Input-Output Database (WIOD) is generally used worldwide. Indonesia has an input-output table published by

Badan Pusat Statistik (BPS), Indonesia's statistical body. This input-output table is needed to complement customs data to approximate how much foreign value-added is embedded in a country's products.

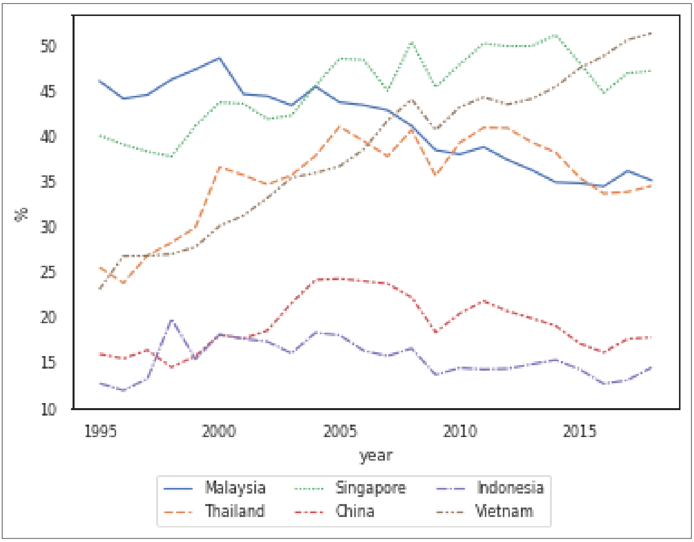
Antras and Chor (2019) design the upstream and downstream measurements using the World Input-Output Database (WIOD). A sector has high "upstreams" if other sectors primarily use the sector's products. A sector is considered to have high "downstream news" if most of its products are consumed by final consumers. WIOD tracks the movement of these values across borders, hence allowing for measuring the value chain globally. This way of measuring GVC is very detailed and allows for a more specific industry-level value chain. A more practical and widely available data on GVC measurement is from using the Trade-in Value Added database (TiVA) constructed by the Organization of Economic Co-operation and Development (OECD) (OECD, n.d.).

Typical trade data records only the export and import of a good without having information on whether there is a foreign value-added embedded in that good. TiVA records only the domestic value-added of an exported good by an industry in a country. For example, consider a shoe exported by Indonesia. The shoe is designed by an American company, while the material for making the shoe is sourced from China. India could source customer service. The Indonesian factory provides only sewing. Suppose the shoe is exported, then customs will record the market value. TiVA tries to disentangle the value-added from other countries; hence the shoe will be valued less in the TiVA database.

Since TiVA (and other measurements of GVC) uses an input-output database, it naturally follows the said database's aggregation. TiVA is not disaggregated per good and is only available in sectoral aggregation. Additionally, TiVA is not fully administrative data, so it may suffer from less accuracy than a customs database. However, TiVA provides enough information to examine countries' GVC participation levels.

Generally, participation in GVC can be classified into forwarding and backward participation (World Bank, 2020). A country is said to be involved in forwarding participation when it exports mainly domestic products used by destination countries to make its export products. Countries that export mainly natural resources usually participate in GVC via forwarding participation. Backward participation is when a country uses imports from other countries for production and embeds those imports in its exports. The shoe example above illustrates Indonesia's backward participation in GVC.

Using the TiVA database, we can construct how much foreign value-added, measured by raw materials and intermediate input imports, is embedded in a country's exports. Figure 10.2 shows this, in the percent, of six selected countries from 1995 to 2018. According to Figure 10.2, Indonesia's export-import component is much smaller than its regional peer countries. While trade generally plays a comparatively more minor role in a larger economy, China still manages to have higher import components of its exports.



Source: TiVA Database (OECD, n.d.)

Figure 10.2 Percentage of Imports Value in Selected Countries Exports, 1995–2018

Generally, GVC slowed down after the Global Financial Crisis (GFC) in 2008. This situation is also the case for all countries in Figure 10.2. However, while Singapore is always an exception, Vietnam's GVC backward participation is unusually high for the region and still increasing. Indonesia, meanwhile, still finds it hard to integrate itself with the GVC. According to Asian Development Bank & Islamic Development Bank (2019: 30), "Indonesia's participation in GVCs experienced decline through forwarding linkages and backward linkages from 2000 to 2017. Forward GVC participation declined from 21.5% in 2000 to 12.9% in 2017, while backward participation declined from 16.9% to 10.1% during the same period".

Asian Development Bank & Islamic Development Bank (2019) found that Indonesia is "moving relatively from upstream to downstream." This result is because most of the shared output gets closer to the final consumer. Indonesia exports intermediate goods to other countries still less. Thus, the position of Indonesia in GVC experienced a decrease. Depending on raw material exports make Indonesia's backward participation low compared to the other countries. The quality of Indonesia's export still does not meet the standard of international trade due to the low technology in the business, low human resource capacity, and the policies used (Ahmad, 2021). Ahmad (2021) suggests four considerable ways in which Indonesia needs to learn from China to develop its GVCs as follows; (1) facilitate the insertion of domestic firms into an international production network, (2) the evolution of production capacities of National firms, (3) the shift of processing trade flows towards the more advanced and technology-intensive sector, and (4) strategic policy framework Indonesian GVCs.

3. Relevant policies to integrate further with GVC

GVC, in principle, bears little difference to the theory of comparative advantage. That is, countries are better off concentrating on making what they do best, exporting the excess of production, and importing goods they do not produce. In turn, just like the usual trade theory suggests, the value chain in which a country is better off joins depends on its natural comparative advantage. That said, the institutional setting in which a country can successfully join GVC differs significantly.

There are several natural factors for Indonesia to understand in which chain of GVC it can participate. GVC participation is determined by the factor of endowments, geography, and market size. Indonesia is endowed with natural resources and an abundance of labor. In addition, Indonesia has a significant population and a growing middle class, serving as a large market base.

However, the abundant resources and the geographical condition are not only a bonus. It needs to be explored effectively to maintain its sustainability. This endowment of resources and strategic position can be an opportunity and a challenge for Indonesia. With its large population, Indonesia has a potential market share. So does its labor market; it creates diverse human resource expertise. This can be a unique attraction for foreign investors to enter and provide opportunities for the domestic industry to collaborate in terms of capital. But the challenge is that if the existing resources are not managed efficiently, there will be a surplus of human capital, which causes high unemployment and poverty. Moreover, the growth of middle income will trap this society only to consuming foreign products that are massively coming if they cannot compete with the ability and quality of the international market. Meanwhile, it will be depleted in terms of natural resources because Indonesia can only export raw or semi-finished goods.

The critical part of joining the GVC is the institutional setting. The government as a regulator has the authority to formulate policies, including resource management, so Indonesia can increase its participation in the GVC. The first policy that the government can take is infrastructure improvement. Infrastructure investment is needed to increase GVC involvement. Well-integrated infrastructure can simplify the distribution process, fasten the transmission of information, and provide more reliable utility services. Because for an archipelagic country like Indonesia, connectivity between companies from various regions is the primary concern. Information and telecommunications infrastructure equal between areas are also crucial to make transaction costs more efficient. In addition, reliable utility services are essential in the manufacturing sector, where production is capital intensive. Disruptions in electricity and water supply obstruct the production process, affecting company profits. Improving investment in infrastructure is critical to supporting GVC-related companies because these firms are constantly moving goods across countries. After all, GVC-related firms are attracted to invest in foreign locations with shorter supply lines, low transportation costs, and good market access (Hirshhorn, 2015).

Another policy the government can carry out regarding managing human resources is quality improvement. As mentioned previously, one of the advantages of participation in the GVC is the transfer of knowledge and technology. However, it can also be a boomerang for Indonesia, which has abundant human resources. Companies that shift from labor-intensive to machine-intensive will automatically eliminate some workers. Therefore, the government needs to improve the quality of human resources through training and education programs and increase its research and development expenditure. Training and education programs are necessary to produce human skills that are more competitive in the global labor market. The human capital that is more competent can help the domestic industry absorb knowledge, replicate or even create new technology from foreign companies. They can also process natural resources to be more value-added through innovation capabilities. It also needs to be supported by government research and development expenditure. Research and development help the government know the up-to-date market demand and enhance the higher value of domestic products and services.

It is common knowledge that GVC needs a free flow of goods and services, so free trade is necessary. To increase its involvement in GVC, Indonesia needs policies that are more open to international trade. It can be conducted by reducing tariff and non-tariff barriers such as port inspection and quota licensing. Even though a country has a right to set liberalization standards that prioritize important economic sectors and actors, national intervention towards foreign investment that is highly restrictive will only be an obstacle to global economic integration.

Indeed, Foreign Direct Investment (FDI) is essential for GVC participation. Many GVC participants are large Multinational companies (MNCs) that do both import and export (World Bank, 2020). These firms have an extensive production network in different countries and act as a center of production in which they absorb local labor and locally made goods and import the rest. For example, in Indonesia, Nestle helps absorb locally made milk from local farmers (RISE Indonesia, 2017) and combines them with foreign-made goods to create significant economies of scale to allow efficient production. As a first-mover in Vietnam, the role of intel, a semiconductor manufacturer, enables Vietnam to become a significant hub for high-tech goods production (UNCTAD, 2008).

The dynamics of the policy-making process related to GVC also affect the foreign investors' preference who want to collaborate in Indonesia (Surianta and Patunru, 2021). Firms need a high degree of legal certainty in conducting trade and business in general. The bureaucratic systems that are too complicated and the politics of negotiation and lobbying centered on certain actors will create an image of an unhealthy investment climate in Indonesia. Therefore, the government needs to make transparent and real-time data regarding regulations and stakeholders' involvement is required. They can also formulate a one-door system and standard of rule and regulation that is simpler for every actor equally. This standard can be a preventive mechanism to avoid ambitious cross-border trade liberalization that is only centralized in certain groups.

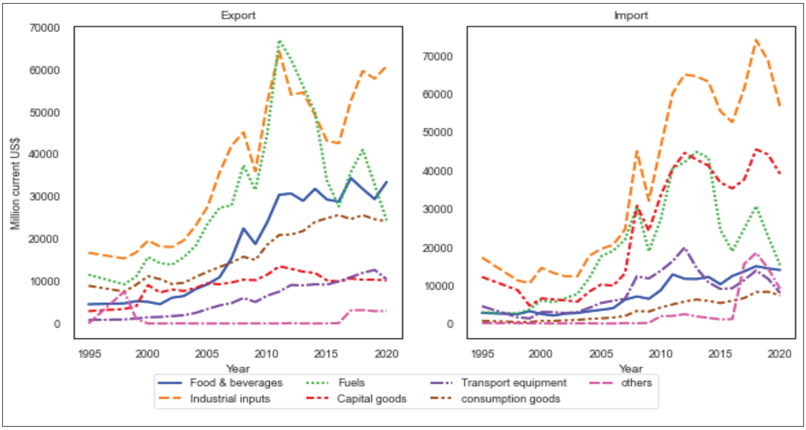
Indonesia has an abundance of labor and natural resources and an attractive market base with a growing middle class to allow for efficient economies of scale. However, Indonesia lacks the technology, know-how, capital goods, and production network, which can be sourced from FDI and backward participation. Therefore, there is room for

Indonesia to still participate in the GVC in the future if Indonesia can face the current challenges and capture the opportunities.

4. Restarting GVC: Challenges and Opportunity

There are challenges in joining the GVC today compared to the early 2000s. There are signs that GVC is slowing down along with general trade in goods. The growth of trade in goods has been stagnant in the past decade. More importantly, support for free trade has been decreasing even in the advanced countries, traditionally the leading advocate for free trade. The two most prominent examples are Brexit and the rise of Donald Trump. This trend seems to be getting more potent since the pandemic-induced crisis (Evenett, 2020).

Unfortunately, Indonesia has never truly embraced globalization (Hill and Pane, 2018; Kim, 2016) and is also following the trend by turning inward. Tariffs, generally, have been increasing in the past five years, while Non-Trade Barriers have been prominent since the early 2010s (Patunru and Rahardja, 2015; Patunru, 2018; Munadi, 2016; Munadi, 2019). In addition, the government of Indonesia often spread anti-import and narrow nationalistic campaigns amid pressure from business interests masking themselves in the name of nationalism (Negara, 2015; Patunru, 2018). The problem is that most of Indonesia's imports are intermediate inputs and capital goods, while its exports are mostly finished goods, as suggested in Figure 10.3. These anti-import measures have discouraged Indonesia from joining the GVC through backward participation during its peak.



Source: UN COMTRADE (n.d.)

Figure 10.3 Exports and Imports of Indonesia, BEC rev.4 Classifications, 1995–2020

It is not too late to join GVC, however. Research has shown the downside of turning inwards (Evenett, 2020; World Trade Organization, 2021; Bown and Bollyky, 2021; Bonadio et al., 2021). Turning inward reduces efficiency, reducing global production as a whole. Indeed, the efficiency gain from trade is large enough for firms to temporarily decrease output during a short-term shock (Arriola et al., 2020). This efficiency-induced trade is ever more critical in the face of a crisis.

One argument for turning inward is that lower reliance on other sovereign states helps control domestic supply and demand. However, we pull production inward by putting all our eggs in one basket. That is, turning inward exposes a country to a domestic crisis. Moreover, Bonadio et al. (2021) show that fully reshoring production inward will not improve economic resilience amid domestic lockdown. In short, improving economic resilience is not the same as renationalizing production. A country should diversify its sourcing and buyers.

Turning inward does not work. Many countries pledge to continue supporting each other through trade and globalization. Indonesia is part of the Regional Comprehensive Economic Partnership (RCEP), the largest trade bloc in the world with high intensity of value chain movement. Ratifying RCEP is the key to re-joining the GVC through the RCEP regional network. Indonesia also ratified the Indonesia-Australia Comprehensive Economic Partnership Agreement (IA-CEPA), an economic partnership with Australia that could help Indonesia in sourcing additional investment and know-how.

A regional trade bloc is even more critical with global political uncertainty. At the time of this writing, the US-China relationship (as well as with US allies in general) has not returned to the pre-Donald Trump era. There are talks to move out of China amid various measures imposed by the US on China and increased labor costs in China (Surianta and Patunru, 2021). Indonesia could potentially be the place to become the new base of production in the region.

From RCEP ratification, Indonesia stands to gain from the G20 presidency. Indonesia's G20 presidency theme is "recover together, recover stronger". The presidency raises three issues related to health, digital transformation, and energy transition toward climate-friendly sources, all requiring close cooperation across borders. GVC is central to these issues, ensuring higher global production of imported goods and services. Issues raised by the GVC can also be addressed in this forum. The G20 presidency allows Indonesia to be influential in setting the stage and ensuring a level playing field among G20 members, which, in turn, can potentially improve global economic integration.

However, the most important part of joining GVC is the Indonesian Government's willingness. A narrow nationalistic and mercantilist view of trade must be rethought. Unlike a person or a business, a country's balance sheet differs. High export does not mean it is "winning" trade, and high import does not imply a country is "losing" to another country. Little evidence suggests that a significant positive trade balance is "good" for manufacturing employment (Lawrence, 2020). The current account deficit can be influenced more by the flow of funds (Pettis, 2022), and tackling any financial-related issue by restricting trade is highly inefficient (Gupta, 2022).

It is now time for Indonesia to join the GVC and reintegrate itself into the global economy. GVC is a vital strategy to increase the production of COVID-related goods such as PPE and vaccines and improve economic growth and employment in general. Not only that, the collaborative nature of GVC will ensure that the region and the global economy recover together and recover stronger, which fits nicely with the theme of the current G20 presidency.

B. Conclusions

GVC is defined as multi-country sourcing of chains of values embedded in one final product. Amid GVC, virtually no manufactured goods are created by just one country. GVC allows firms to optimize their production by sourcing the values from a country that can best produce it. For countries, it helps them by having a factory without having to master all of the value chains. As a result, firms and countries utilizing GVC show the most progress in their manufacturing growth.

With its substantial resources, young, abundant workforce, and extensive market base, Indonesia has the opportunity to join the GVC. Based on Indonesia's imports, it is clear that Indonesia is gearing toward backward participation. However, more needs to be done. GVC requires fast-moving goods, capital, and knowledge. Policies that promote freer trade are optimal for GVC. Indonesia must be able to decrease its logistic costs, reduce trade barriers such as stringent port inspection, and remove unproductive trade barriers like import licensing. As the key player in the GVC, firms require a better investment climate and labor regulation.

At the time of writing, Indonesia is in an excellent position to reiterate its GVC backward participation. Indonesia just recently ratified an economic partnership agreement with Australia and is on its track to ratifying RCEP, an ASEAN+5 agreement. These agreements can be a good start in harmonizing many essential policies such as ports and customs procedures and the standard quality of goods and services. Furthermore, as the G20 2022 presidency chair, Indonesia can further emphasize globalization. Countries need to work together to not only end the pandemic but also to recover together, recover stronger.

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