

ESCAP Policy Brief

Beyond the COVID-19 pandemic: Coping with the ‘new normal’ in supply chains

By Witada Anukoonwattaka and Mia Mikic*



Summary

Among other things, the COVID-19 crisis has called for the reassessment of risks and sourcing criteria in global value chains (GVCs) and for their shortening. This, in turn, has given momentum to discussions on the establishment and strengthening of national and regional supply chains. The new pattern of GVCs remodelled to fit into this new design will have to absorb extra costs from redundancy and inefficiency, which will eventually be shifted onto consumers. In the Asia-Pacific region small developing economies, in particular least developed countries (LDCs), will suffer the most; not only have they struggled to be included in the GVCs of the recent past, but the new shortened GVCs might bypass them altogether.

Although policy options are limited for small actors in GVCs, assertive policy responses to short-term problems and forward-looking recovery should be prioritized, and a closer regional cooperation should be a top priority.

Regional partnerships will be necessary to counter the surge of protectionism, promote greater trade and investment diversification, and ensure the continuation of enhanced productivity, which is the key to absorbing future shocks.

The medium-term policy response should focus on building sets of skills and infrastructure required for the digitalization of supply chains. Imperfect flows of information along supply chains is a major hindrance of supply chain resilience. Lacking the required skills, mechanisms and infrastructure to support the increased need for information sharing and supply traceability will rule out the opportunity for a country to participate in supply chains in the post-COVID-19 crisis period. It is also important to consider how to ensure that increased supply chain resilience aligns with improved sustainability. Due diligence regarding social and environmental concerns ought to be embedded in all supply chains, otherwise it is just a matter of time before the next crisis causes supply chains to break.

* We thank Richard Lobo and Thomas Bentze for excellent research assistance.

Introduction

The COVID-19 pandemic is not just a health crisis of immense proportions. The pandemic has caused the “Great Lockdown” that may be leading the global economy into the worst economic recession since 1960 (Rhee, 2020). Estimates indicate that the global economy is expected to contract in 2020 by 5.2% with some strong downside risks possibly worsening this outcome (Maliszewska and others, 2020; and World Bank, 2020). The COVID-19 containment policies have hit international trade and investment particularly hard. Global trade may shrink between 13 and 32% (WTO, 2020) and foreign direct investment (FDI) is expected to fall by between 30% and 40% in 2020 (UNCTAD, 2020). The Asia-Pacific region, often pictured as the most integrated into the global economy, is unsurprisingly expected to bear the brunt of this crisis. While there were some optimistic forecasts indicating just a stall in economic growth in the region for this year, the June estimates point to a contraction of 2.7% in South Asia and a sharp slowing down for East Asia and the Pacific to 0.5%.

Trade in the Asia-Pacific region is likely to suffer a steeper decline than global trade, with exports expected to decrease by between 14% and 37% in 2020. Similarly, FDI inflows into developing Asian economies may drop by 45% (UNCTAD, 2020).

An almost globally synchronized contraction of both supply and demand has been driven by numerous factors including: (a) under-utilization of productive factors (capital, labour and land) due to the shutdown of production capacities and many overseas order cancellations; (b) a rise in international trade costs;¹ (c) a sharp drop in activities relying on frequent face-to-face contact; and (d) high uncertainty about the extent, duration and scope of the GDP and employment shrinkage that is seriously undermining already very low business and consumer confidence.²

From the very beginning of the COVID-19 pandemic, GVCs have been particularly vulnerable to contagion risks – a transmission of the supply shock occurring in one node of the international production network (in one country) throughout the backward and forward linkages (into many other countries). For example, shutting the factories in Hubei province and the rest of China last February, which is the heart of the “factory of Asia” and a regional hub for many GVCs (accounting for 12% of global trade in parts and components), had strong repercussions for production and supply lines in ASEAN and other markets strongly connected to China through supply chains.

1. According to the WTO, international air cargo costs for example, are expected to increase by about 70%.

2. Findings from the OECD Composite Leading Indicator (<https://data.oecd.org/leadind/composite-leading-indicator-cli.htm#indicator-chart>) and the European Union Business and Consumer Survey (European Union, 2020) done in May 2020 indicate lower confidence level than in 2008. The supply chain disruptions, travel restrictions, and lockdowns have had extensive consequences in Asia. For example, in Thailand, the Central Bank announced in May that the Business Sentiment Index fell to the lowest level since 2014 despite its stock market index rebounded significantly from the sharp drop in April.

A mild contagion of supply shocks flowing through GVCs was previously observed in the aftermath of some natural disasters, such as the 2011 earthquake and tsunami in Japan, or the floods in Thailand during the same year. However, COVID-19 has triggered a much stronger contagion through the GVCs, because it spread globally as, one by one, Governments started to implement pandemic-related containment measures, resulting in supply contraction and weakening demand. The impact was magnified by the fact that the major manufacturing economies were also involved, and because borders for both people and imports of cargo were effectively shut, causing disrupted deliveries of most products that traditionally rely on well-functioning supply chains (such as cars, electronics, but also medical products).

These supply shortages, especially of imported medical essentials deemed important for dealing with the COVID-19 pandemic, have reignited a long-standing debate about globalization, more specifically about an excessive reliance on globalization. From the civil society, anti-globalists, to the large trading nations' trade officials,³ all have commented on GVCs or at least on the need to “wean off [our] national dependence on [foreign] sources of supply”. The World Economic Forum has recommended “aggressively evaluating near-shore options to shorten supply chains and increase proximity to customers” as a response to COVID-19 (Betti and Hong, 2020).

While similar calls for de-globalization and a “new normal” for economic growth – which arose in the aftermath of the 2008 Global Financial Crisis – quickly died off, it is no longer inconceivable that a post-COVID-19 (new) “new normal”⁴ will lead to some form of de-globalisation (Haass, 2020) riding on health security arguments. Most of the current debate revolves around seeking a new approach to organising supply chains by focusing on the rebalancing of efficiency and robustness (cf. Miroudot, 2020).⁵

This policy brief explains how the most recent supply chain disruption could lead to a redesign of GVCs and what will be the implications for developing Asia-Pacific economies. The brief consists of four sections. Section I diagnoses the causes of supply-chain disruptions during this pandemic. Section II reviews the literature and summarizes the concepts surrounding the efficiency-resilience debate with the objective of establishing a common understanding of what supply chain resilience is about. Section III examines the shortening of supply chains to discover the significant consequences for developing Asia-Pacific economies, while at the same time not guaranteeing the benefits in a form of increased supply resilience. Section IV provides a summary and suggests some policy options.

3. While European Union Trade Commissioner Phil Hogan believes that “Strategic autonomy does not mean that we [EU] should aim for self-sufficiency” (<https://www.ft.com/content/95dcaac2-162e-4ff4-aca5-bb852f03b1e9>), United States Trade Representative Robert Lighthizer argues that “The era of reflexive offshoring is over, and with it the old overzealous emphasis on efficiency and the concomitant lack of concern for the jobs that were lost” (Baschuk, 2020).

4. “New normal”, an idiomatic term, is typically used to refer to the significant change of the prevailing situation. It has been used following the financial crisis of 2008-2009 (cf. Davis, 2009).

5. There are also arguments that enhancing the use of artificial intelligence (AI) and other frontier technologies might enable meeting both efficiency and robustness objectives.

I. Supply chain disruptions and the COVID-19 pandemic

The COVID-19 pandemic exposed vulnerabilities to supply chain contagion when supply disruptions occurred, starting in China, with repercussions for the rest of the world. While there is a clear link between the COVID-19 pandemic and the recent international supply chains disruption, there are several factors that have played a crucial role in that process. It is important to be able to identify them, as this understanding can help in redesigning the supply chains so that they perform better in case of future shocks – which according to many experts are likely.

The global nature of production makes GVCs vulnerable to a range of risks, with many potential points of supply failure. It has turned out that the very factors which facilitated the expansion of GVCs played a critical role in those chains breaking down or being disrupted. Typically, the fantastic expansion of GVCs can be credited to technological advances allowing for: (a) the fragmentation of production processes, right down to parts and components produced in different locations and shipped for their assembly into final goods in fewer hubs; (b) significant reductions in time and cost of transport; and (c) improved access to information needed to run a business on lean inventories and just-in-time deliveries. Of course, producing goods by using parts and components being imported from many parts of the world and shipped multiple times across borders necessitated low (or zero) tariffs and other border restrictions.

When looking at supply chain disruptions during the COVID-19 pandemic, the main factors contributing to supply breakdowns can be grouped into the following categories:

- The supply of parts and components were cut off. The virus containment measures based on lockdowns and restricted mobility of people had a severe impact on production in China (figure 1), followed by similar impacts on other critical GVC hubs. The Republic of Korea, Japan, the European Union and finally the United States were facing similar difficulties as lockdown measures were introduced in those countries. The global contagion makes supply-chain disruptions by COVID-19 more detrimental and difficult to resolve than in past disruptions caused by localized natural disasters (as was the case in the already-mentioned two natural disasters in 2011);
- Measures limiting the operations of domestic and international transportation networks have also contributed to supply breakdowns. While the transport and logistics infrastructure were not damaged in the pandemic, the reduced transport-services capacity and restricted border controls have not only impeded delivery but also increased trade costs;
- At the start of the pandemic, global trade had already experienced the impact of the ongoing trade war between the United States and China, and the trade policy environment has become much more lenient towards the use of trade restrictions. Thus, faced with disrupted supplies and growing fear-induced hoarding of medical and other essential goods, Governments started to impose restrictions and bans on exports, justifying those trade policy instruments by public health concerns (see Global Trade Alert 2020 for more details).

- The surge of export restrictions under the “Great Lockdown” disrupted markets for essential goods even more, fuelling further increases in trade costs and demands to produce and consume locally. In Asia and the Pacific, the ESCAP Policy Response Tracker shows that 21 economies, led by India, Turkey and Viet Nam, had initially put in place measures restricting their exports of medical supplies, equipment and food products (they have also undertaken trade liberalization measures, mostly about trade facilitation to speed up the importation process).

The Great Lockdown and similar policies reducing or prohibiting mobility of people as well as activities involving person-to-person proximity resulted in an immediate sharp demand drop, especially for certain consumer goods (i.e., durables), many intermediates and many traditional services (especially those related to travel). The prolonged demand contractions with much uncertainty in most economies will generate devastating impacts in the medium term. The effects of supply chain disruptions were supposed to be temporary, given that production facilities and infrastructure as well as networks were still intact.

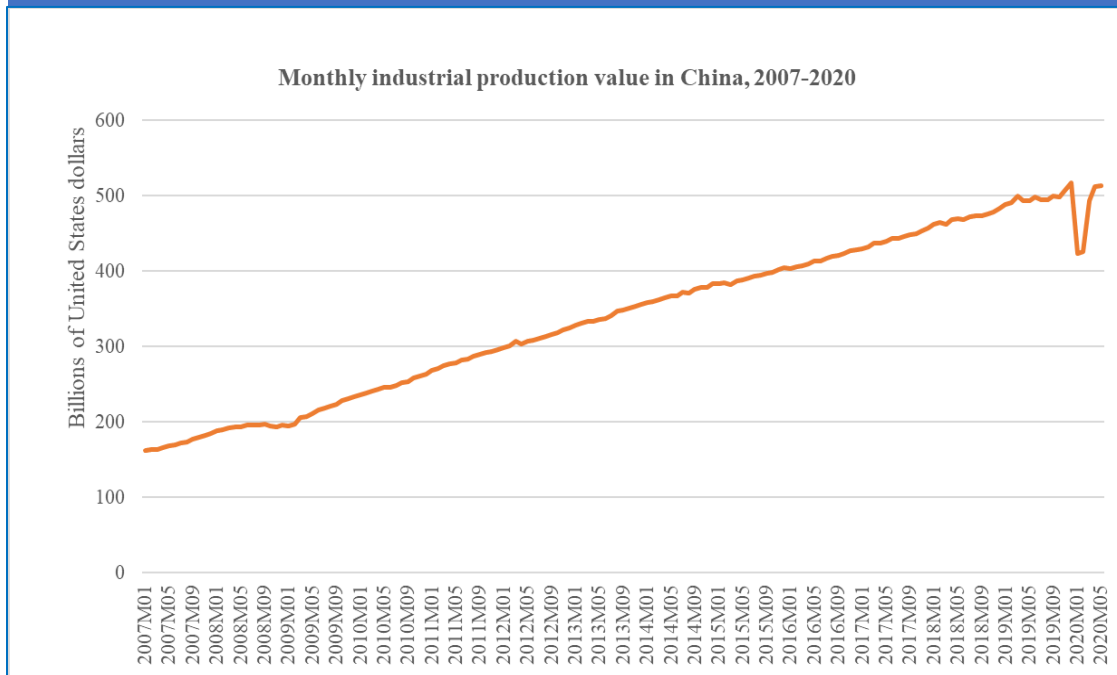
However, extended periods of economic shutdowns are causing firms, especially small and medium-sized enterprises (SMEs) that are directly or indirectly involved in exporting intermediate goods to GVCs, to go out of business. According to the World Economic Forum, medium and small businesses in the United States have cash reserves to keep them solvent for less than a month (Lin and Lanng, 2020), and the share of small businesses permanently closing has been steadily increasing (20% by June by some accounts).

SMEs in developing economies are facing similar liquidity problems, if not worse. Once firms declare bankruptcy, many never restart operations, and many of those remaining go through restructuring and downsizing, with potential loss of some special skills. With these knock-on effects, the falling supply capacity could become persistent, making it difficult to return to the pre-pandemic level.

The shortage of products essential for health-care professionals (such as personal protective equipment) and other products (for example, ventilators), the supply of which was interrupted due to the above explained reasons, revealed high vulnerability and risk associated with a dependence on a concentrated foreign supply of such products. It is easy to see how these shortages, when occurring in the circumstances of high uncertainty and economic and health crises, have paved the way for campaigns about the high risks of the globalization and offshoring of production, especially from distant locations. Governments in advanced economies, where these shortages came to be felt early in the pandemic, have started to actively nudge their national companies that are leading and anchoring GVCs to relocate their production back home. Often, these calls involve aspirations to establish a sovereign (national) control over the sources of supply, to avoid depending on a (single) foreign supplier.⁶ The next sections explore the rationale for changes in the supply chain design and the consequences in cases of such changes.

6. Of course, the elephant in the room is China, and these comments are often made in the context of political statements aimed at reducing reliance on Chinese imports.

Figure 1. Historical slump of industrial production in China during COVID-19



Source: World Bank Global Economic Monitor database.

Note: Value in constant 2010 price and exchange rate, seasonally adjusted.

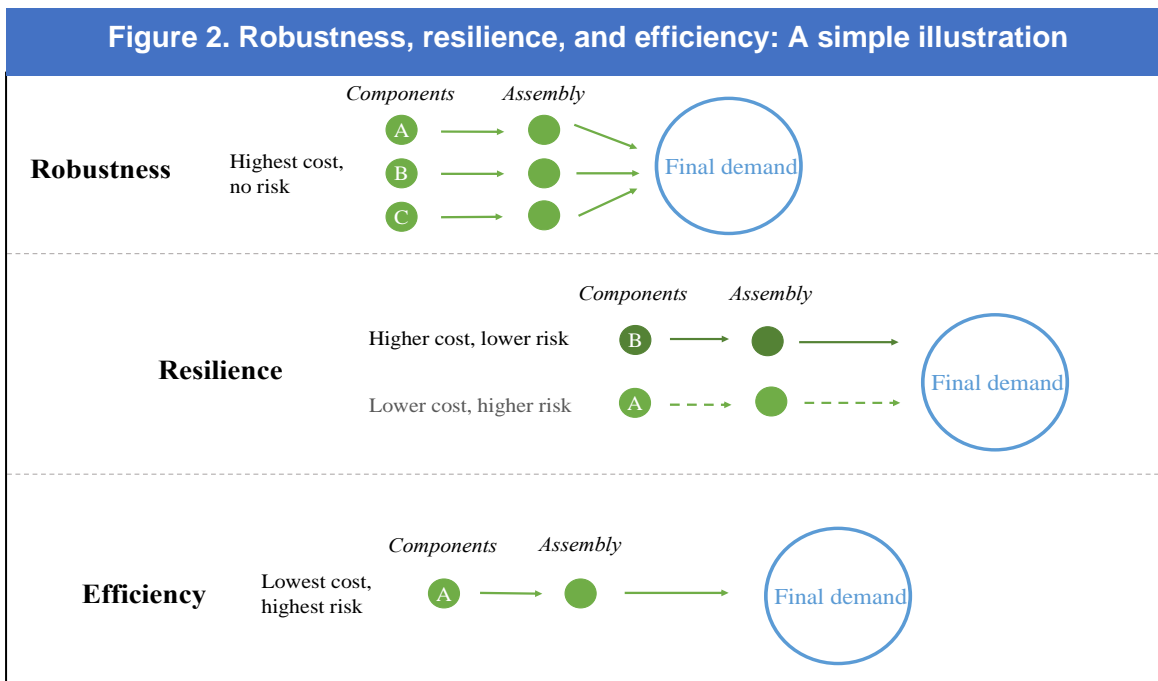
II. Refiguring supply chains

While policies after the COVID-19 pandemic should support business efforts to build more resilient supply chains, equating localization or shortening of supply chains with increased resilience of supply chains, indicate misconceptions among policymakers and analysts about what is supply chain resilience and how to achieve it. This section reviews the literature on supply-chain risk management in order to explain the difference between the three concepts of supply-chain management, as summarized in figure 2.

(a) Trading off efficiency and resilience

There has been a wide agreement in the literature that supply-chain efficiency and resilience are not correlated (in fact, often they are perceived as trade-offs). A common business practice for supply-chain efficiency frequently involves single sourcing for each part and component from the most cost-efficient supplier, often utilizing economies of scale (bottom panel of figure 2).⁷ During the past three decades, companies in global supply chains have learnt that lean manufacturing, relying on extremely low inventory and just-in-time logistics, has allowed them to enjoy a range of benefits, including higher productivity, improved product quality and lower financial costs. However, the firms participating in the GVCs undervalued the risk of supply-chain disruptions (McKinnon, 2018).

7. This is a simplified conceptual illustration of supply chain efficiency. It does not show a complicated supply-chain which has a multi-country sharing of tasks along international sharing of production.



Source: Authors' composition.

Note: A and B are countries where production facilities are located, the dots represent the stage of production (component manufacturing and final assembly). Lines represent flows of production. The flows in the dash lines are a possible option that firms did not select.

The COVID-19 crisis has challenged the perception among firms of the low risk of serious disruption. With growing risks from natural disasters, and geopolitical-, cyber-, and pandemic threats, there have been serious concerns over the increased vulnerability of global supply chains and calls for making them more resilient. Enhancing supply chain resilience requires firms to properly factor in the risk of supply chain disruptions. This has cost implications, because firms will need to invest sufficient resources (time, money and effort) to avoid or at least mitigate the negative impacts from those risks. However, defining how much investment is “sufficient” to build resilience is not straightforward. This is where the distinction between “robustness” and “resilience” become relevant to firms in planning their investment.

(b) Robustness or resilience?

Management literature makes a distinction between resilience and robustness in supply chains. Resilience is defined as the ability to return to operations as soon as possible post-disruption, while robustness is the ability to maintain operations during a crisis (Brandon-Jones and others, 2014). The strategies for achieving resilience and robustness can be related, but their objectives are not the same. Ensuring supply-chain robustness requires a large investment to avoid all risks of any future supply-chain disruption. In addition to stocking, diversification of suppliers to have alternative supply sources in different locations is a common strategy for robustness (top panel of figure 2).

The definition of supply-chain resilience implies that a resilient firm accepts the risk that production can be stopped and focuses their investment on business solutions allowing them to reduce the time needed for recovery (Miroudot, 2020). It is very important for supply-chain resilience that supplier risks are not under- or over-valued. As illustrated in figure 2, middle panel, a resilient firm chooses supplier B over supplier A for the same type of part(s) and component(s) after trading off between the lower financial cost of supply from A and the lower risk of supply disruption in B.

(c) Required conditions for supply-chain resilience

In the resilience building process, information about risks facing suppliers in all tiers of supply is highly critical for effective risk assessment. Willingness of suppliers to disclose to potential customers sensitive information about their risk exposure is a key factor in supply-chain resilience (ESCAP, 2013; and McKannon, 2018). Securing the necessary degree of openness and honesty in sharing risk data requires high levels of trust and mutual support, which take significant time and a long-term management relationship to establish. Therefore, greater supply chain resilience will also critically rely on support from multinational corporations, especially the GVC anchors, who can help their suppliers in reconstruction and in improving resiliency (ESCAP, 2013). In addition, Governments can help to minimize disaster risks, offset market failures such as the absence of adequate insurance, and provide information-sharing mechanisms. Intergovernmental cooperation can also facilitate such private initiatives. It would be better to have greater cooperation between international specialized agencies, development banks, Governments of developed countries and

vulnerable countries in performing joint risk assessment, risk reduction and recovery plans.⁸

(d) Resilient firm strategies

Instead of multiple sourcing in order to have an ability to switching to other suppliers when supplies are affected by a risk, resilience-seeking firms tend to focus on building a long-term relationship with limited number of suppliers to fully understand their risks and speed up the recovery process of risk-affected suppliers (Jain and others, 2016). Such strategies were found to be associated with more rapid recovery during the 2011 tsunami in Japan and flooding in Thailand. Also, harmonized plant technology and digitalization across the network can shorten the recovery period. The use of common vehicle platforms for a variety of models in the automotive industry is one well-established example of such harmonization.

Standardizing components across multiple products – particularly those that are not visible or important to the customer – is another form of harmonization. This simplifies sourcing policies and creates opportunities for suppliers in the international production network to replace each other, which in turn enhances resiliency. In addition, investing in the digitalization of supply chains has increasingly become a solution for supply-chain resilience. More rapid updating of supply chain data reduces the need for holding safety stock. With the deployment of advanced ICT and real-time data sharing across a supply chain, it may be possible to reduce inventory levels while increasing resilience. This pandemic may have already accelerated the process of digitalization of supply chains. For example, 70% of surveyed firms in Japan are considering increased investment in order to accelerate digital-technological deployment (Haiyashi, 2020).

8. Examples that can be offered are from the instances of geographically localized natural disasters in the past, including the joint Pacific Catastrophe Risk Assessment and Financing Initiative, piloted by the Secretariat of the Pacific Community (SPC/SOPAC), the World Bank and the Asian Development Bank with financial support from the Government of Japan and the Global Facility for Disaster Reduction and Recovery. For more details see ESCAP, 2013, Chapter VI.

All of these options incur extra costs. In addition to facing direct costs, enterprises that want to build greater resilience into their systems may have to forego some economies of scale or opportunities for lower factor costs.

Devising the optimal strategy is not easy, particularly when dealing with rare but catastrophic events. Nevertheless, firms will need to assess risks and find ways to control them – for example, through business continuity plans (box 1)

Box 1. Business continuity plan

A business continuity plan (BCP) assesses risks posed by natural disasters and codifies the practical responses. Such plans are relevant to the supply chain as a whole as well as to individual components. While drafting and upholding BCPs incurs some expense, they bring long-term benefits in the event of a disaster. The popularity of BCPs surged after the events of 9/11 and 2001. But even in developed countries around half of SMEs have no formalized plans for managing disaster risks. In developing countries, the penetration of BCPs is expected to be markedly lower.

The generic process of drafting a BCP is illustrated in the figure below. The first step is to identify potential risks and conduct a specific threat and risk analysis. The analysis should consider, for example, the state of existing infrastructure, the susceptibility to natural disasters, the potential effects of disruptions and the extent of financial reserves. The next step is to develop a continuity strategy. For supply chains with high-risk components this should involve buffer stocks and redundant supply sources from less risk-exposed areas. For supply chains relying on just-in-time delivery, it might be necessary to relocate production of key components to less risk-exposed areas. In all cases, insurance should be considered and taken out as appropriate. The final step is to periodically rehearse the procedures and update the plan to reflect recent event changes in the supply chain, external markets and the environment.



In the light of the growing complexity of supply chains in Asia and the Pacific, the focal firm should require its suppliers to establish business continuity plans alongside its own. For this purpose, the anchor firm can offer technical and financial assistance. Governments can also play a part. Governments of developed countries have used both regulatory and incentive approaches. For example, in the United Kingdom the Civil Contingencies Act requires businesses to draft sufficiently comprehensive plans for dealing with disasters and emergencies. In this regard, the community authorities have the responsibility to advise and assist firms with regard to formulating business continuity plans. The State of Ohio in the United States, on the other hand, has taken an incentive approach by allowing the costs of such plans to be tax deductible (Denning, 2012).

Source: ESCAP, 2013, box VI-4, p. 167.

(e) Does localization bring supply-chain resilience?

Some commentators suggest that companies should reduce the geographic scope in their global networks, and shorten cycle times for finished products. Short or local supply chains allow for more control over inventory and move the suppliers closer to the buyer. However, it is neither a solution for supply-chain resilience nor robustness. In making investment decisions, businesses now have to consider risks even if they are located in their domestic economy or nearby. In the context of global crises such as pandemics or natural disasters, the collapse of transportation services can occur in any economy or even across many economies almost simultaneously (e.g., the eruption of volcanic ash over Iceland), including within the domestic economy (refer, for example, to the current situation in Australia where the links with Victoria State are cut off). The calls for a switch from global to “sovereign” or “national” supply chains disregard the fact that they cannot fully shield from a natural disaster or similar risks.

In fact, nationalization or regionalization of supply chains responding to current political pressures could heighten disruption risks because it might limit firms’ choices to optimally diversify suppliers’ locations and minimize the risk.

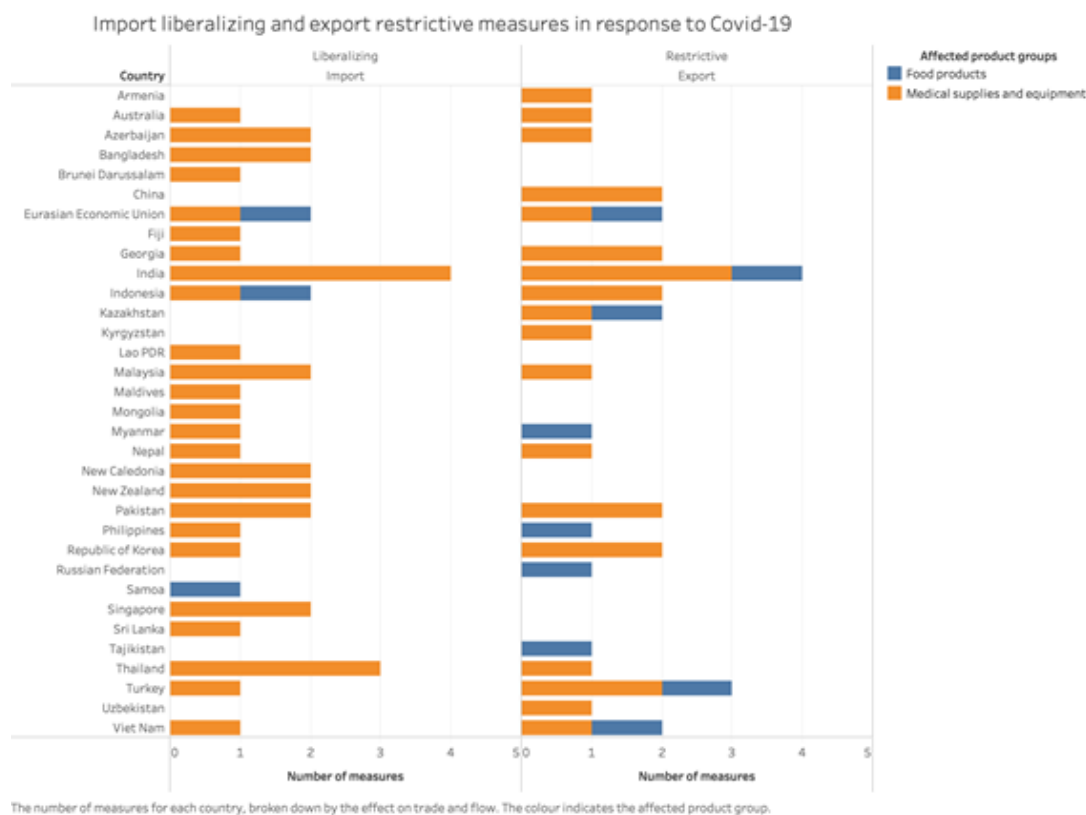
Keeping a large buffer stock of products essential to normal production or the provision of a public service (e.g., health services) would be a better solution in this regard when compared to a complete decoupling from the most efficient supplier (cf. ASEAN, 2020). As discussed above, eliminating supply chain reliance on a single country supplier – while politically attractive – is a costly option, with possibly long-term fiscal implications.⁹ However, critical medical supplies necessary for an emergency response, such as in case of a pandemic, may be considered separately from other goods. Robustness may be considered a priority for the emergency medical supplies, such as personal protective and medical equipment (box 2). Thus, no one approach to building supply-chain resilience prevails.

9. The Japanese legislature has passed a stimulus bill allocated US\$ 2.2 billion to help Japanese manufacturers shift production out of China. See, for example, <https://www.japantimes.co.jp/news/2020/04/09/business/japan-sets-aside-%C2%A5243-5-billion-help-firms-shift-production-china/>.

Box 2. Fixing medical-products supply chains

The COVID-19 pandemic has strengthened the use of public health considerations in trade policy and added a new dimension for the policy argument in favour of developing self-sufficiency. Vulnerability of global medical supplies is not a new issue. Many raw materials of medical emergency supplies are imported from very limited geographic areas; for example, the Malaysian Rubber Board (2016) noted that 90% of the latex for sterile gloves is produced in Malaysia. In 2018, the United States National Academies of Sciences, Engineering and Medicine (NASEAM) announced that local or national disruptions in raw material production or exports from such key locations that result from any of the destabilizing factors known as the “four Ps” – powerful weather, pandemic, port closures and political instability – would create serious repercussions worldwide. Further down the chain, pressure to reduce inventory costs has created inflexible conditions across the global medical supply chain. It was noted that some hospital chains in the United States have adopted “just-in-time” inventory practices, coordinating with distributors to maintain 24-hour replenishment of inventories. Attempts to limit supply risks by seeking new suppliers are a costly effort, taking 18 months to validate a new supplier (NASEAM, 2018).

With the growing concerns over medical supplies and food security, economies have put in place export restrictions on medical supplies and food products. As mentioned above, in the Asia-Pacific region, 21 economies, led by India, Turkey and Viet Nam, put in place measures restricting their exports of medical supplies, equipment and food products in February 2020 (see figure below). While restricting medical equipment exports, India has also led other Asia-Pacific economies in putting in place import liberalizing measures, including withdrawals of tariffs and import facilitation measures, on medical equipment. However, it is unlikely that liberalizing measures can restore health and food security in a situation where export restrictions are imposed by major suppliers. Adversely affected countries are medical equipment net-importing countries, including small developing countries and LDCs.



Source: ESCAP visualization of COVID-19 policy responses from 2 June 2020. Available at https://www.unescap.org/covid19/policy-responses_

III. Implications for Asia-Pacific region's economies

The overall sentiment (emerging from pre-COVID 19 tensions) indicates that protectionism will deepen, and Governments will attempt to incentivise firms to reduce reliance on foreign products, producers or service providers.¹⁰ COVID-19 pandemic may lead to a rebalancing between supply chain efficiency and resilience. A likely scenario is that attempts will be made towards (a) avoiding single-source (country) dependencies, and (b) shortening the supply time by locally sourcing more products and assembling closer to the end users, which will be dominated by the three largest markets, i.e., the United States, the European Union, and China. Health-security concerns will accelerate this trend for the pharmaceutical industry and medical supplies in particular. In Europe, for example, 80% of the active components for meeting its pharmaceutical needs came from China and India (Buatois and Cordon, 2020). In the post-COVID future, a purposeful shift to regional (or national, if possible) sourcing of these supplies might not come as a surprise. However, relocation of factories in electronics, automotive and other sectors may not be significant in immediate future. With COVID-19, productive capacity remains intact and will be ready for utilization as soon as the pandemic is under control. Replicating such capacity in new locations (in response to requests to produce locally) will take considerable investment and certainly cannot be done very quickly, at least not for more complicated processes.

In the medium term, the concerns over increased risks from natural disasters and geopolitical pressures may accelerate the decoupling of regional value chains from GVCs. In fact, the increased localization is not a new issue. Trade in value-added shows that local content in major countries' exports increased at the expense of import sourcing from rest of the world except China from 2011 to 2015 (figure 3). China held a strong and robust position in GVCs during the period before geopolitical risks increased significantly in 2018. Whether the contribution made by China in other countries' exports will decrease after the COVID-19 crisis has yet to be seen.

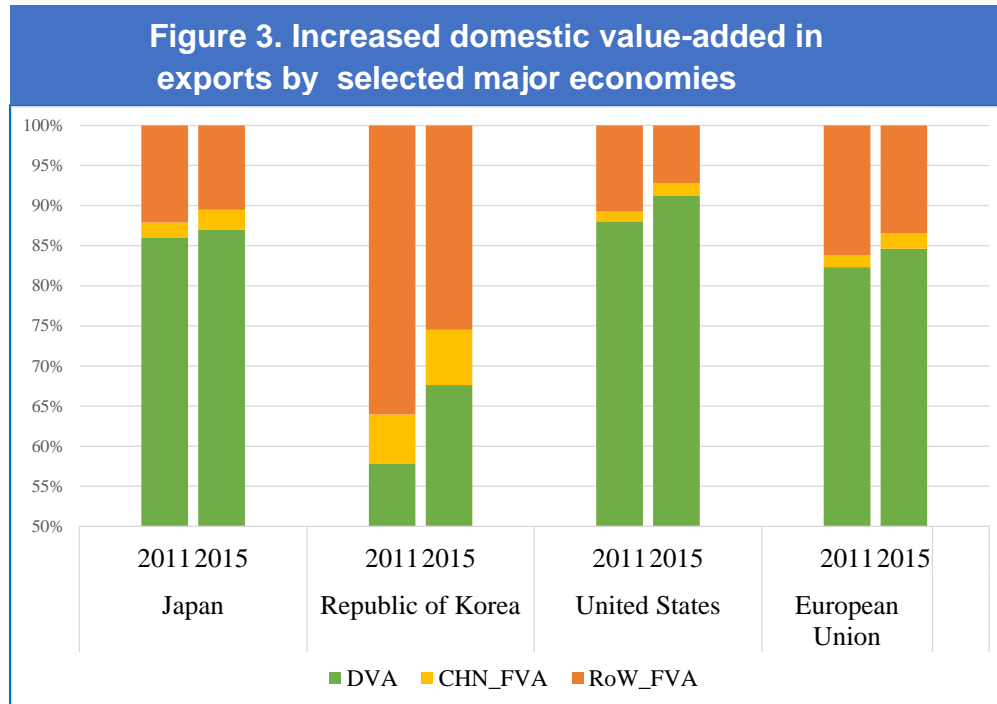
The incentives for firms to shorten supply chains may increase with the prolonging of the COVID-19 crisis and the contraction in demand. Factors working in favour of nearshoring include:

- Extended periods of depression in global demand, which can cause permanent factory closures that affect the capacity of production in networks overseas;
- Digital deployment to reduce human-to-human contact during COVID-19, which may accelerate the process of automation and robotics in supply chains. According to ILO (2020), research shows that during recessions automation occurs at a faster pace than during "normal" times, thus enabling enterprises to restructure and possibly leading to significant job losses. These technologies can partially compensate cost disadvantages of nearshore sourcing in advanced countries;

10. To boost local supply, many Governments will start using subsidies and other support measures and will rely on State interventions in the markets, cf. Sally, 2020.

- Restructuring of the transport services sector, especially air transport, which may play a role in the post-COVID-19 redrawing of production networks. The increasingly complicated trade and transport procedures will increase trade costs.

Moreover, transport and shipping fees will increase because of less competition in international transport services after many operators leave the business causing less available capacity.



Source: ESCAP calculation based on OECD TiVA data.

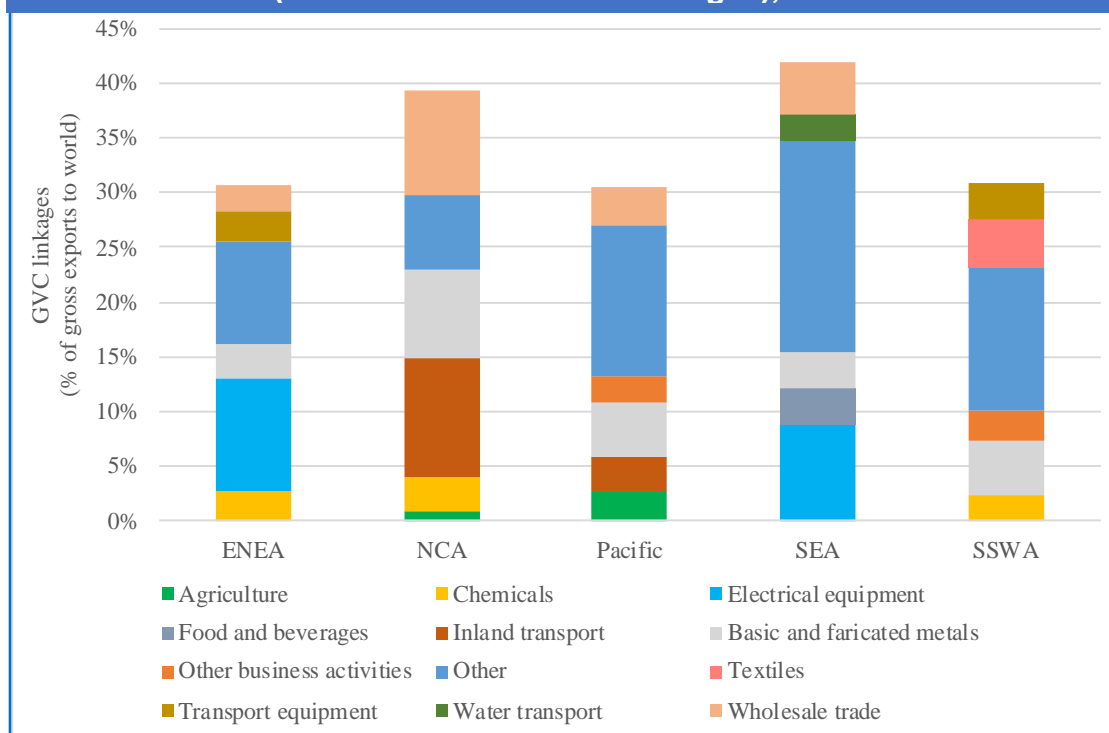
Note: DVA, CHN-FVA, and RoW-FVA stand for domestic value-added, foreign value-added from China, and foreign value-added from the rest of the world.

Shortening supply chains to bring greater production closer to final demand will adversely affect small developing economies in the Asia-Pacific region. Prior to the COVID-19 pandemic, most developing economies in all subregions had depended significantly on trade through GVCs for their export-led development. They geared their trade and investment policies as well as other flanking policies towards enabling more extensive participation in the value chains (ESCAP, 2015).

With China being a clear exception, most developing Asia-Pacific economies have a small domestic market and need foreign sources of inputs; this not only requires tangible inputs such as raw materials and intermediates,

but also intangible inputs including capital, technology, know-how and data. One of the easiest sources of these requirements was through building connections to foreign firms through the GVCs and production networks. Hence, the share of GVC-related exports through backward-and forward linkages became significant across the Asia-Pacific subregions. South-East Asia has the highest level of GVC dependence, equivalent to 43% of their total export value, while the GVC contribution to exports in other subregions varies between 30% and 39% (figure 4).

Figure 4. GVC-linked exports in Asia-Pacific subregions (backward and forward linkages), 2017



Source: ESCAP calculation based on ADB MRIO data.

Note: GVC linkage is calculated as the sum of foreign value-added in the region's gross exports and the value-added in regional intermediate exports that are used in further export production. It is scaled as a percentage of the region's gross exports to the world. 'Other' refers to an aggregate of the remaining 30 sectors in each subregion.

When specialization based on factor endowments becomes a less important factor for a business strategy, economies with small domestic markets, a lack of productive capacity to support local sourcing as well as greater difficulties in diversifying trade partners will be greatly disadvantaged. In contrast, economies that have already diversified their business partners will adjust better to the post COVID-19 dynamic. Among others in the Asia-Pacific region, ASEAN economies tend to be in a relatively good position to attract FDI from countries opting for supply diversification in GVCs.

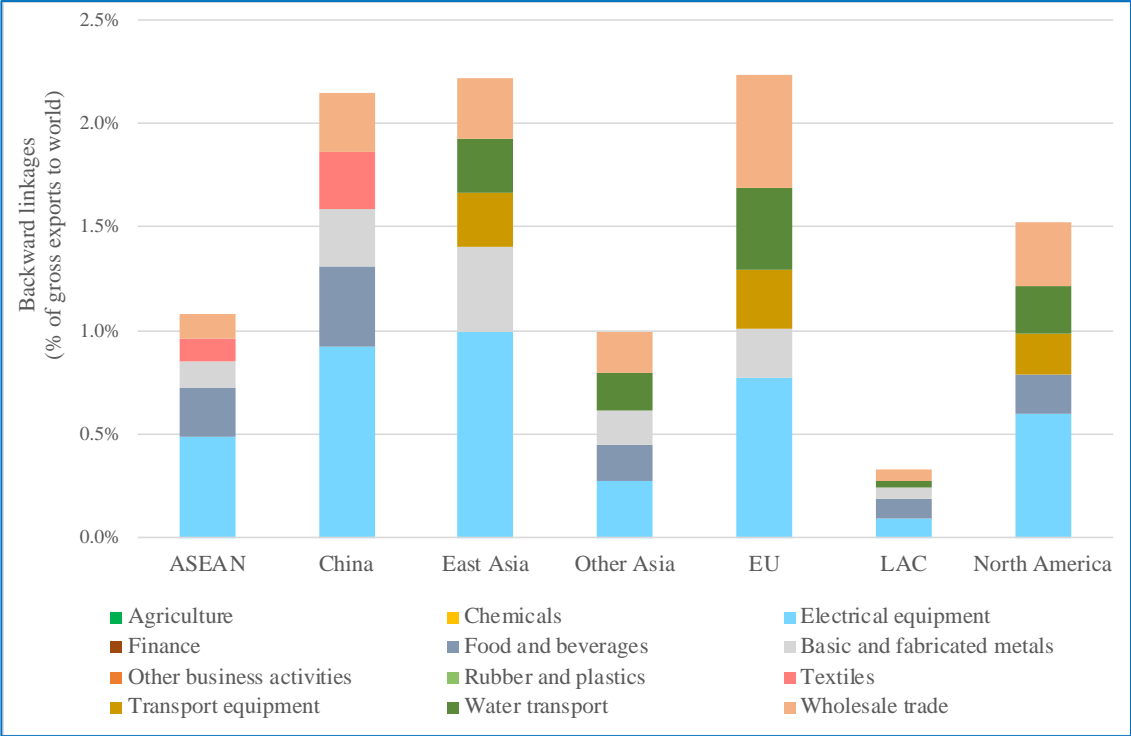
The advantages of ASEAN include the subregion's (a) relatively well-established participation in electronics and machinery GVCs, and (b) strategic position, both from the geopolitical and business points of view. As figure 5 shows, ASEAN has diversified GVC-trade partners. The group has significant backward and forward linkages with China, East Asia, the European Union and North America through various sectors. Backward linkages of ASEAN are strong with both China and the United States, the two largest individual supply sources for ASEAN.

On the other hand, forward linkages indicate strong links with export factories in Europe and Asia. The pattern of trade partners makes ASEAN a good candidate for being a natural export platform to high potential markets for GVC firms. The recent evidence from the relocation of the United States' producers from China indicates

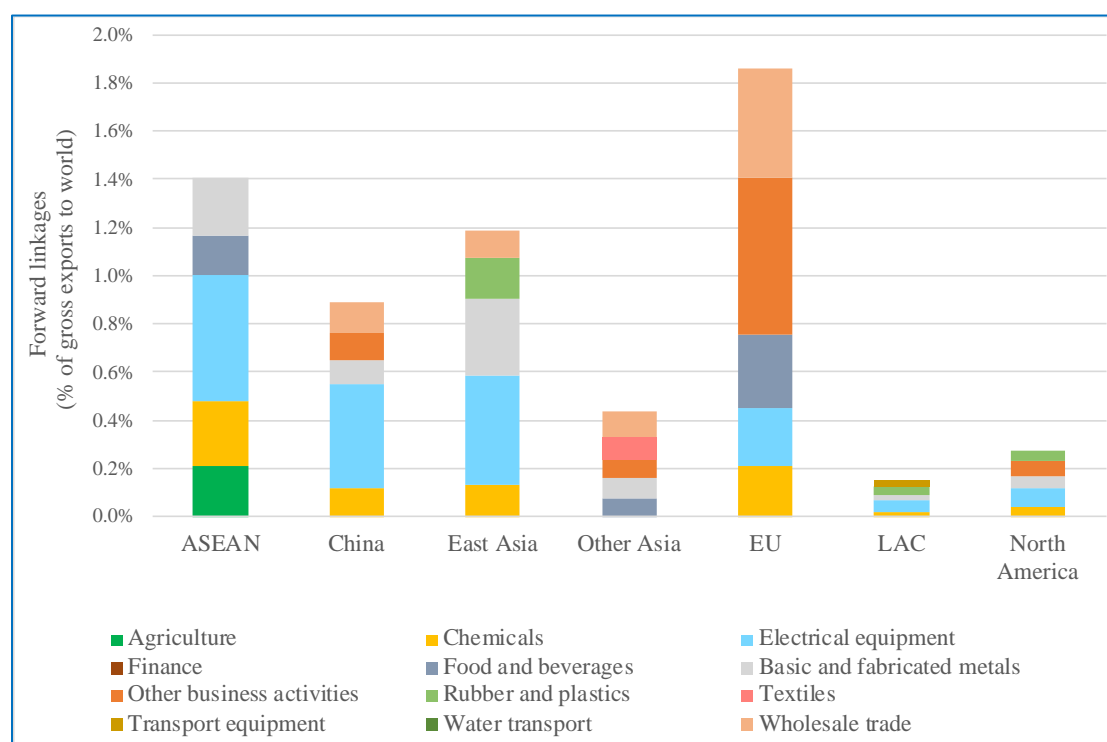
that instead of either reshoring production to the United States or moving closer to local consumers, the firms that decide to leave China prefer to stay in South-East Asia (Swanson and Tankersley, 2020). This need to co-locate inputs and consumers is likely to prevail at least in the medium term.

Figure 5. ASEAN GVC linkages within and beyond the region, 2017

(a) Backward linkages



(b) Forward linkages



Source: ESCAP calculation using ADB MRIO data.

Note: East Asia includes Japan, the Republic of Korea and Taiwan Province of China. China includes China and Hong Kong, China. North America includes the United States and Canada. LAC includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Paraguay, Uruguay, Venezuela and Rest of LAC.

Backward linkages are calculated as foreign value-added by the respective region in ASEAN gross exports. It is scaled as a percentage of ASEAN gross exports to the world.

Forward linkages are calculated as the value-added in ASEAN intermediate exports used in further export production. It is scaled as a percentage of ASEAN gross exports to the world.

IV. Summary and the way forward

The COVID-19 crisis has put a spotlight on the challenge businesses have in terms of balancing between supply-chain efficiency and resilience. Rebalancing of efficiency and resiliency will not be easy for the firms and countries involved. For firms, increased resilience will come with additional and significant financial costs. However, the cost of doing nothing can also be significant if another similar crisis hits.

For Governments, additional fiscal burdens may occur if they succeed in pushing many firms to shift from their most efficient supply source to alternatives to ensure supply security. After factory relocation, the higher costs of production will likely be borne by consumers, while social costs such as job losses will occur to economies losing FDI. These knock-on effects can further reduce demand, which is already very weak because of the COVID-19 crisis.

Management literature has defined supply chain resilience differently to supply chain robustness. While “robustness” strategies focus on avoiding any stoppage of production during a crisis, “resilience” strategies accept that disruption can occur but place focus on preparing solutions and resources to bring back normal operation in a reasonable period. Instead of switching supply sources quickly, the literature suggests building trust and long-term relationships with suppliers towards ensuring a solution for resilience. This will allow them to prepare a better plan for risk mitigation and a solution to help suppliers resume their operation quickly. Because information is the key to successful risk assessments, investment in digital technologies to monitor risks and enhance traceability of supplies along GVCs is another important strategy for supply chain resilience today.

All of these options incur extra costs. In addition to facing direct costs, enterprises that want to build greater redundancy into their systems may have to forego some economies of scale or opportunities for lower factor costs. Similarly, there will be extra costs from diversifying sources of supply – for example, by increasing stocks.

While firms bear most of the extra costs, Governments also carry a substantial contingent liability. They have strong motivation for ensuring that private incentives are appropriately aligned. For this purpose, developed countries use a combination of regulation and tax incentives. Japan, for example, provides fiscal incentives to manufacturers for factory relocations. In developing countries, where Governments might have less fiscal space for similar level of support to private sector, firms may find it is more difficult to apply desirable risk-mitigation measures.

This brief also argues that localization or shortening supply chains may not always help in achieving either robustness or resilience during natural disasters or a crisis such as pandemic. A non-man-made crisis can occur in domestic or regional economies. However, localization or shortening supply chains may address geopolitical risks at best. The pressure to increase localization is not new, but has gained a new impetus spurred by health-security concerns.

Some countries in the Asia-Pacific region, however, may benefit from new investment from firms seeking supply diversification. Non-LDC ASEAN economies tend to be in a relatively good position with broadened productive capacity. They already have trade and production linkages to many trade partners. Their diversified industrial bases and trade partners make them natural alternatives for supply diversification.

However, the potential negative impacts are worrying for small developing economies. The continuation of poverty reduction and economic upgrading, in LDCs in particular, will be critically challenging. They have small domestic markets and narrow range of local productive capacity, and hyper-export concentration in few products and partners. In past decades, their GVC participation has been limited to final assembly. The nearshoring and use of automation and robotics to replace labour-intensive tasks envisaged to happen in advanced markets will diminish an important growth driver in many LDCs in the region. Development gaps between countries will likely enlarge because other developing economies, especially LDCs, will see more GVC bypassing them.

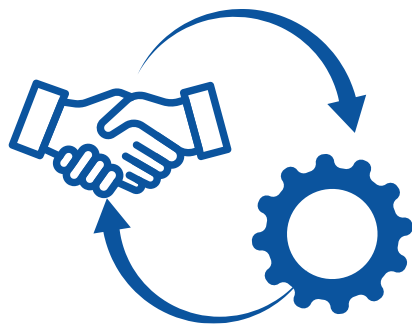
Nevertheless, Governments in the region should prepare assertive strategies even as factory relocations are likely to take time. Pressures towards shortened supply chains will incite the dynamic of regional value chains while also decoupling them from GVCs. Hence, forging stronger regional cooperation is the key to navigating the new environment. The following assertive actions should be taken also to address FDI withdrawals in a timely fashion:

- Building regional solidarity to firmly raise voice against protectionist actions hidden within health-security arguments;
- Providing support and incentives to diversify trade and investment partners from traditional partners to new ones, particularly regional partners;
- Showcasing strong commitments to regional cooperation in facilitating regional flows of goods, services and information between firms and suppliers in regional economies;
- Enhancing competitiveness and FDI attractiveness by accelerating the process of domestic reforms in order to minimize the cost of doing business, trade costs, and improvements in productivity;
- Exploring and supporting efforts to materialize new partnerships at all levels, i.e., public-public, public-private and private-private partnerships. The aim is to look at how more local businesses, including SMEs and start-ups, can supply directly to original equipment manufacturers in GVCs;
- Encouragement by Governments to form mutual arrangements between GVC anchors and business partners. For example, in a normal period, Governments should facilitate the flows of information, financial capital movements and skilled personnel between GVC anchors and suppliers. In addition, they should facilitate financial capital movement from GVC anchors and insurance companies during periods

of crisis and recovery.

The “new normal” may require new sets of skills, regulations, and soft-and-hard infrastructure. The fast-forwarding of digital transformation means developing Asia-Pacific economies need to urgently accelerate their efforts to invest in hard and soft infrastructure, as that is important for achieving successful digital-economy integration. This includes establishing an efficient and affordable ICT infrastructure, digital literacy, and a skilled labour force. According to ITU (2020), more than half of the Asia-Pacific region’s population remains “unconnected”. Therefore, developing Asian and Pacific economies with large gaps in digital literacy and connectivity will face serious disadvantages in this “new normal of GVCs. Such fundamentals will take time to build. However, the process can be accelerated through promoting regional trade, FDI and people movements, including the provision of incentives for training local SMEs and workers.

Last but not least, the COVID-19 pandemic has resulted in the need for due diligence, regarding social and environmental concerns, to be embedded in global supply chains. The crisis underscores the importance of the 2030 Agenda. The pandemic has provided a glimpse for Governments, firms, and individuals around the world into how fragile the global community is in coping with such a global crisis. Arguably, this pandemic can be viewed as a dry run for the longer-term impacts of the climate crisis, and underscores the urgency need for climate change action. The COVID-19 pandemic is a wake-up call for the public and private sectors, to review their exposure to climate change risks and to initiate sustainable actions previously considered unattractive (United Nations, 2020; ESCAP, 2020). While making changes to ensure supply chains are more resilient in the future, it is also important to consider how those changes could improve sustainability. For example, improving traceability should also help to enable sustainable sourcing and responsible practices from the beginning of a supply chain to the end user.



References

- ASEAN (2020). Declaration of the Special ASEAN Summit on Coronavirus Disease 2019 (COVID-19). Available at <https://asean.org/storage/2020/04/FINAL-Declaration-of-the-Special-ASEAN-Summit-on-COVID-19.pdf>.
- Baldwin, R. E. and S. J. Evenett, (eds.) (2020). *COVID-19 and Trade Policy: Why Turning Inward Won't Work*. London: CEPR Press. Available at <https://voxeu.org/content/covid-19-and-trade-policy-why-turning-inward-won-t-work>.
- Baschuk, B., (2020). Lighthizer's post-pandemic outlook sees more decoupling from China. *Bloomberg*. Available at <https://www.bloomberg.com/news/newsletters/2020-05-12/supply-chains-latest-lighthizer-lays-out-his-post-pandemic-path>.
- Betti, F. and P. K. Hong (2020). Coronavirus is disrupting global value chains. Here's how companies can respond. *World Economic Forum*. Available at <https://www.weforum.org/agenda/2020/02/how-coronavirus-disrupts-global-value-chains/>
- Brandon-Jones, E., B. Squire, C. W. Autry and K. J. Petersen (2014), A contingent resource-based perspective of supply chain resilience and robustness. *Journal of Supply Chain Management*, vol. 50, No. 3, p. 55-73.
- Buatois, E. and C. Cordon (2020). A post-COVID-19 outlook: The future of the supply chain. Institute for Management Development, Lausanne. Available at <https://www.imd.org/contentassets/c46625dde711402a8b7a4f46e75c1c84/tc046-20-file-.pdf>.
- Davis, I. (2009). The new normal. *McKinsey Quarterly*. Available at <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-new-normal>.
- Denning, B. (2012). Use R&E tax credit to fund business continuity plan. Available at <http://blog.barnesdenning.com/2012/05/use-re-tax-credit-to-fund-business-continuity-plan#>.
- ESCAP (2020). Socio-Economic Response to COVID-19: ESCAP Framework. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific. Available at <https://www.unescap.org/resources/socio-economic-response-covid-19-escap-framework>.
- _____ (2018). *Asia-Pacific Trade and Investment Report: Recent Trends and Developments*. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific. Available at <https://www.unescap.org/publications/asia-pacific-trade-and-investment-report-2018>.
- _____ (2015). *Asia-Pacific Trade and Investment Report: Supporting Participation in Value Chains*. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific. Available at <https://www.unescap.org/publications/asia-pacific-trade-and-investment-report-2015-supporting-participation-value-chains>.
- _____ (2013). *Building Resilience to Natural Disasters and Major Economic Crises*, Bangkok: United Nations Economic and Social Commission for Asia and the Pacific. Available at <https://www.unescap.org/sites/default/files/publications/ThemeStudy2013-full2.pdf>.
- Etherington, D. (2020). Ford, 3M, GE and the UAW to build respirators, ventilators and face shields for coronavirus fight. *Techcrunch*. Available at <https://techcrunch.com/2020/03/24/ford-and-3m-ge-and-the-uaw-to-build-respirators-ventilators-and-faceshields-for-coronavirus-fight/>.

- European Union (2020). *European Union Business and Consumer Survey Result for May 2020*. Brussels.
- Global Trade Alert (2020). The COVID-19 pandemic: 21st century approaches to tracking trade policy responses in real-time. *A Joint European University Institute, Global Trade Alert & World Bank Initiative*. Available at <https://www.globaltradealert.org/reports/54>.
- Haass, R. N. (2020). Deglobalization and its discontents. *Project Syndicate*. Available at <https://www.project-syndicate.org/commentary/deglobalizaton-discontents-by-richard-n-haass-2020-05>.
- Hayashi, E. (2020). 70% of Japan execs plan changes to supply chain: Nikkei survey. *Nikkei Asian Review*. Available at <https://asia.nikkei.com/Business/Business-trends/70-of-Japan-execs-plan-changes-to-supply-chain-Nikkei-survey>.
- ILO (2020). The effects of COVID-19 on trade and global supply chains. Available at https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_746917.pdf.
- ITU (2020). Measuring digital development: Facts and figures 2019. Available at <https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx>.
- Jain, N., K. Girotra and N. Netessine (2016). "Recovering from Supply Interruptions: The Role of Sourcing Strategies", INSEAD Working Paper No. 2016/58/TOM, August.
- Lin, J. and C. Lanng. (2020). Here's how global supply chains will change after COVID-19. *World Economic Forum*. Available at <https://www.weforum.org/agenda/2020/05/this-is-what-global-supply-chains-will-look-like-after-covid-19>.
- Malaysian Rubber Board (2016). Natural rubber statistics 2016. Kuala Lumpur.
- Maliszewska, M., A. Mattoo and D. Van Der Mensbrugghe (2020). The potential impact of COVID-19 on GDP and trade: A preliminary assessment. Policy Research Working Paper WPS 9211; COVID-19 (Coronavirus). Washington, D.C.:World Bank Group. Available at <http://documents.worldbank.org/curated/en/295991586526445673/The-Potential-Impact-of-COVID-19-on-GDP-and-Trade-A-Preliminary-Assessment>.
- McKinnon, A. (2018) Balancing efficiency and resilience in multimodal supply chains. International Transport Forum Discussion Paper, Paris: OECD Publishing. Available at https://www.itf-oecd.org/sites/default/files/docs/efficiency-resilience-multimodal-supply-chains_0.pdf.
- Miroudot, S. (2020). Resilience versus robustness in global value chains: Some policy implications, in R. Baldwin and S. Evenett (eds.), *COVID-19 and Trade Policy: Why Turning Inward Won't Work*. London: CEPR Press. Available at <https://voxeu.org/content/covid-19-and-trade-policy-why-turning-inward-won-t-work>.
- NASEAM (2018). Impact of the global medical supply chain on SNS operations and communications: Proceedings of a workshop. Washington D.C.: National Academic Press. Available at <https://www.ncbi.nlm.nih.gov/books/NBK525655/>.
- Rhee, C. Y. (2020). COVID-19 pandemic and the Asia-Pacific region: Lowest growth since the 1960s. *IMFBlog*, Available at <https://blogs.imf.org/2020/04/15/covid-19-pandemic-and-the-asia-pacific-region-lowest-growth-since-the-1960s/>.
- Sally, R. (2020). Trade, deglobalisation and the new mercantilism in East Asia Forum, 11 July. <https://www.eastasiaforum.org>.
- Swanson, A. and J. Tankersley (2020). "The Pandemic Isn't Bringing Back Factory Jobs, at Least Not Yet", *The New York Times*, 22 July 2020. Available at <https://www.nytimes.com/2020/07/22/business/economy/coronavirus-globalization-jobs-supply-chain-china.html?action=click&module=RelatedLinks&pgtype=Article>.
- UNCTAD (2020). *World Investment Report 2020 - International Production Beyond the Pandemic*. Geneva: United Nations Conference on Trade and Development. Available at <https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=2769>.

United Nations (2020). A UN framework for the immediate socio-economic response to COVID-19. Available at https://www.un.org/sites/un2.un.org/files/un_framework_report_on_covid-19.pdf.

World Bank (2020). *Global Economic Prospects 2020*. Pandemic, Recession: The Global Economy in Crisis, June. Available at <https://www.worldbank.org/en/publication/global-economic-prospects>.

WTO (2020). Trade set to plunge as COVID-19 pandemic upends global economy. Available at https://www.wto.org/english/news_e/pres20_e/pr855_e.htm.