

Impact of Covid-19 on Global Value Chains

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The Challenge of Covid-19 for Global Trade & Production

Nowadays, trade and investment mostly takes place within global value chains (GVCs). Most firms do not produce goods and services within one location but have split production across countries to become more productive. According to OECD data, over 70% of international trade involves exchanges of raw materials, parts and components, services for businesses, and capital goods that are used in the production process. Moreover, activities of multinational enterprises (MNEs) and their network of foreign affiliates account for more than half of world trade. GVCs have brought many benefits by allowing firms of all sizes to source their inputs more efficiently, to access knowledge and capital beyond the domestic economy, and to expand their activities in new markets. GVCs have also played a pivotal role in reducing poverty and offering new sources and opportunities for jobs and growth around the world.

Therefore, when a new virus appeared in Wuhan in January 2020 and China started to take drastic measures to contain the outbreak, there was a legitimate concern that the operations of GVCs could be jeopardized. Due to the central role of China in many manufacturing GVCs, the lockdown of the Chinese economy was not only affecting production and trade in China but also in the rest of the world. However, as Covid-19 spread to other countries, firms not sourcing from China also had to change the way they operate. In all countries, firms had to implement new health and safety standards to protect their workers and consumers and had to adjust their production processes to deal with exceptional measures taken by governments, such as lockdowns, curfews and travel restrictions.

In this new Covid-19 world, firms operating across borders had to face additional disruptions related to international transport networks, delays in customs clearance, and quarantine requirements for crews, as well as new export restrictions for essential goods. As the pandemic put extraordinary stress on GVCs, several authors started to question the fragmentation of production and international sourcing. Without waiting for more evidence on what happened, these authors suggested to move out from the GVC model and to start shortening value chains by putting more emphasis on domestic production and reshoring. Another recurrent suggestion is to diversify sources of supply to improve the resilience of GVCs and avoid the dependence on specific countries in the value chain. Against this backdrop, this article reviews some evidence on the

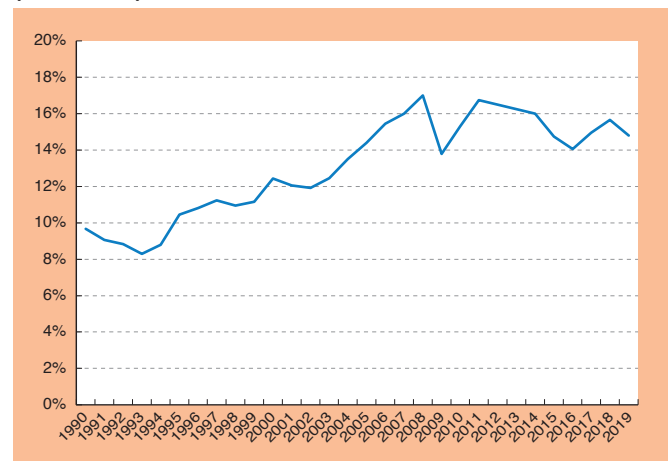
impact of Covid-19 on GVCs and discusses options for firms and governments in the post-Covid world.

Fragmentation of Production Already Declining Before Covid-19

The rise of GVCs started in the 1990s with the fall of communism, the information technology (IT) revolution and the creation of the World Trade Organization. Thanks to trade liberalization and technological progress, companies could fragment production processes across countries and increase productivity by relying on outsourcing and offshoring. The accession of China to the WTO in 2001 accelerated this trend. Globalization peaked in 2008. This is the year where the import intensity of world production was the highest. For each dollar of output in the world, there were 17 cents of trade in intermediate inputs corresponding to all trade flows needed for GVCs to operate. While the Great Financial Crisis led to a trade collapse, the fragmentation of production was almost back to its 2008 level in 2011. However, we have since then entered into a new era where there is some form of “deglobalization” (Chart 1).

The question is why 2011 seems to be the turning point. Nothing exceptional happened during this year. However, it is one year after

CHART 1
Global import intensity of production (1990-2019)



Note: The global import intensity of production is the share of trade in intermediate inputs in world production.

Source: OECD TiVA database, COMTRADE and IMF

China overtook the United States as the world's largest producer of manufacturing goods and the year that marks the beginning of a shift in Chinese and US policies. In China, the 12th Five-Year Plan put the emphasis on domestic consumption as opposed to investments and exports. The re-centering of the Chinese economy on its domestic market explains part of the trend observed in [Chart 1](#) after 2011. The plan also involved fiscal incentives and subsidies to develop strategic emerging industries, including clean-energy vehicles, next-generation IT and high-end equipment manufacturing. This type of industrial policy based on state capitalism was not new. But the fact that it was aimed at sectors increasingly competing with products from developed countries participated in the emergence of trade tensions and questions on the compatibility of Chinese policies with the rules of the world trading system. In the US as well, there was a shift in policies with the first trade measures taken against China. Part of the strategy was to sign a large trade agreement in the Asia-Pacific that would exclude China (the Trans-Pacific Partnership that was finally ratified without the US). The other part was based on trade enforcement and trade remedies. The administration of President Barack Obama brought 11 new cases against China at the WTO and introduced a series of anti-dumping and countervailing duties targeting Chinese products. This change in US policy encouraged other countries to take action, with the paradox of more protectionist policies adopted to react to unfair competition and the lack of trade liberalization in China.

Trade liberalization in the 1990s and 2000s had been an important driver of the fragmentation of production. While new bilateral and regional trade agreements were signed in the 2010s, the failure of the Doha Round and increasing trade tensions between major economies have put a brake on the expansion of GVCs related to the opening of new markets. However, there is no evidence that trade tensions have significantly increased trade costs, at least until 2018 and the “tariff war” between the US and China. Other underlying trends – which affect a larger group of countries – explain the change in the organization of GVCs observed after 2011.

Digitalization, Servitization & New Consumer Preferences

The IT revolution in the 1990s allowed firms to more easily communicate and manage activities across countries, thus reducing the costs of offshoring. Today, the digital transformation further facilitates the operations of MNEs but also reduces the need for physical trade flows and their value. As data and services are exchanged on electronic platforms, the value of goods traded is more and more limited to their manufacturing and new business models create value in the distribution stage or through services (a phenomenon called “servitization”). These services are produced in the headquarters of companies or close to consumers in each market, leading to shorter value chains and higher levels of domestic

value added. Moreover, income related to intangible assets is now more important than income derived from physical investment and not always captured in trade statistics. New technologies such as 3D printing might further accelerate the dematerialization of trade flows.

In addition, the digital revolution involves technologies such as artificial intelligence and advanced robotics that can lower manufacturing costs in developed countries. With rising wages in China and other emerging economies, this could offset the gains from offshoring and reduce the incentives to produce in locations with low labor costs. Companies moving their production out of China have generally invested in countries like Vietnam where costs are still lower or in countries close to destination markets, such as Mexico in the case of North America. There is no strong evidence of reshoring motivated by robotization at this stage but it can still be a factor explaining the slowdown in offshoring.

Finally, one should not underestimate the role played by consumers in the current reshuffling of GVCs and their new aspirations for greener and more socially responsible products, as well as locally produced goods. As economies become richer, consumers are ready to pay slightly higher prices for products that reflect certain values or meet social standards. Economic nationalism is also on the rise with consumers convinced that buying local products is better for their economy.

Covid-19 & the Surge in Demand for Essential Goods

While the above trends were already emerging before Covid-19, the pandemic has triggered a new debate on GVCs where international production and sourcing are seen as a factor of risk and where domestic sourcing and reshoring could lead to more resilient supply chains. The origin of this debate may be related to the trauma associated with the shortage in face masks and other key medical supplies, such as ventilators, at the height of the crisis in some countries.

As face masks were mostly produced in China, one can understand why Covid-19 drew attention to GVCs and re-ignited the debate about their dependence on China. However, international production is not what explains this type of shortage. What happened with face masks is an unexpected surge in demand (with the OECD estimating the demand to be multiplied by 50), making it impossible for any country, including China, to increase production sufficiently quickly to meet demand. Companies can absorb to a certain extent an increase in demand. For example, 3M, one of the main producers of N95 respirators (the most protective type of face masks), could double its annual production from 1 billion masks to 2 billion in 2020. But when demand is multiplied by 50 over a short period of time, no production system, whether based on international sourcing or domestic production, can increase production at the same pace. It is rather through stockpiling strategies that

governments can address surges in demand for essential goods.

At the end, the shortage in face masks and other essential Covid-19 goods was solved by GVCs. For face masks, China multiplied its production by more than 10 times between January and May 2020 by investing in new production capacity and reconvert existing assembly lines. Although at a smaller scale, production was increased in other countries as well. This effort was facilitated by trade in intermediate inputs, such as meltblown polypropylene, the key input required to manufacture the filtering layer of masks, as well as trade in capital goods, such as specialized ultrasonic welding machines. In GVCs, all countries depend on each other and adjustments to production are faster because one manufacturer does not have to recreate the whole value chain and to solve all issues at once. The effort can be shared across countries. Other case studies suggest that GVCs accelerated the production of Covid-19 test kits and ventilators.

GVCs Were Resilient During Covid-19

While the blame was on GVCs at the beginning of the crisis, the evidence accumulated in 2020 highlights that GVCs were rather resilient. Health measures put in place by governments to limit the spread of the virus (including the full lockdown of some economies) have created many disruptions in trade and production. These disruptions have affected both companies producing domestically and companies engaged in international trade and sourcing. But companies have generally managed to mitigate the impact of the crisis on the operations of their supply chains. OECD work (including interviews with firms in different sectors) indicates that these companies had risk management strategies that were efficient to deal with disruptions. For example, the lockdown of the Chinese economy in January-February had a limited impact on companies sourcing inputs from China because they had stocks or alternative suppliers. Companies with production facilities in different regions were also able to shift production from Asia to North America or Europe at the beginning of the crisis and then back to Asia when the number of Covid-19 cases increased in these other regions.

The resilience of supply chains can be measured by the time it takes to return to normal operations after disruptions. Based on this criterion, there are no examples of GVCs that failed to resume production in an acceptable period of time after the end of lockdowns, despite the challenging environment of Covid-19 (the virus still being there). However, governments are also concerned about the “robustness” of GVCs, i.e. their ability to maintain production during a crisis, particularly for essential

goods. While there was an issue with the supply of some essential Covid-19 goods, their value chains were robust (they continued to produce during the crisis). Moreover, other key value chains were robust and did not experience significant shortages, such as the agro-food and the pharmaceutical value chains. This may be related to a better preparedness in these industries that had to deal before with the issue of security of supply. For food products, the 2008 financial crisis had created food security issues that led governments to put in place a specific platform to encourage international policy coordination. In the pharmaceutical sector, private firms and governments have also addressed the issue of drug shortages for a long time. This is why different strategies were already in place to mitigate the impact of potential disruptions.

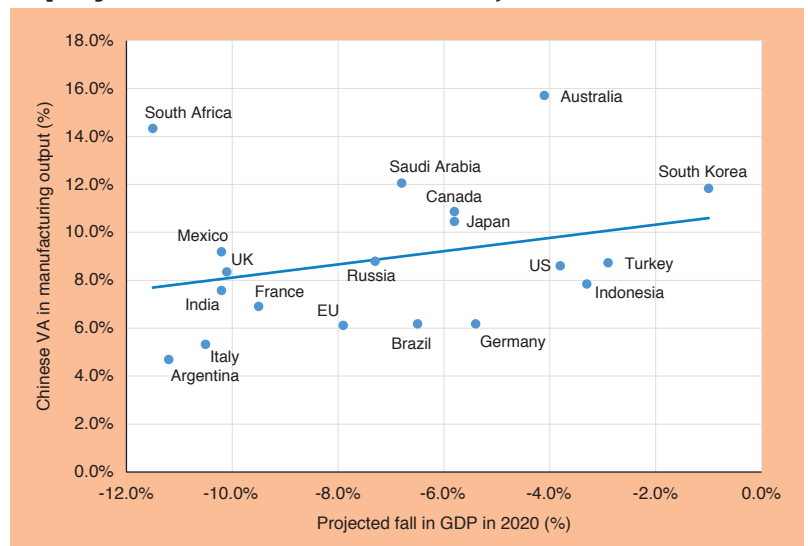
Countries Participating in GVCs or Relying on Inputs from China Not Most Severely Hit

Ultimately, the severity of the economic crisis in each region is more related to the success of health policies than to the dependence of countries on China or GVCs. Looking at the manufacturing sector, *Chart 2* highlights that countries with a high share of value added originating in China, such as Australia or South Korea, are also the ones with the lowest projected fall in GDP in 2020 among G20 economies.

This outcome is more related to the success of these countries in containing the virus than an actual relationship between participation in GVCs and the economic impact of Covid-19. A similar chart using the participation in GVCs instead of value added coming from China

CHART 2

Chinese value added in manufacturing final output & projected fall in GDP in 2020, G20 economies



Note: Data for the EU are for the Euro Area only.
Source: OECD TiVA database and Economic Outlook (September 2020)

would produce the same result. The idea that Covid-19 has highlighted the vulnerabilities of GVCs and their dependence on specific countries is not confirmed by any type of empirical evidence.

The main impact of Covid-19 on companies has been through reduced demand. In small open economies, macro-economic shocks are transmitted through foreign demand but it is less the case for larger economies. Sectors relying on the movement of people (such as the tourism or transport industry) have also been the most severely hit and therefore economies where these sectors account for a significant share of GDP were more affected.

What Will Happen After Covid-19?

It is very unlikely that companies will significantly change the organization of their supply chains or resort to reshoring once the Covid-19 crisis is finished. There is no economic rationale in dismantling GVCs and in renouncing the gains permitted by offshoring. Complex international production networks result from increasingly sophisticated production processes, requiring a wide range of specialized inputs and know-how. It is unrealistic to reproduce complex and long value chains within domestic economies, even for large countries. Moreover, global firms will continue to produce across several markets and close to their customers, as they cannot operate from a single economy (which would create higher levels of risks).

The interviews conducted by the OECD suggest that firms have no plans for an overhaul of their supply chains after the crisis and are just considering some fine-tuning. In particular, as was observed after the 2011 earthquake and tsunami in Japan, more firms might consider diversifying their sources of supply or qualifying alternative suppliers. But even supplier diversification is not a warranted strategy, as research in risk management suggests that long-term relationships with a single supplier are actually a better way of improving the resilience of supply chains. The risk management literature points out that it is not in the design of the value chain and the location of production that risks are mitigated but through the development of capabilities within firms, such as agility, flexibility, visibility in the value chain and cooperation with suppliers. If companies want to improve their risk management strategies, they will focus on these capabilities rather than entering into costly and risky strategies aimed at shortening value chains or reshoring production.

However, the strategies of firms are impacted by trade costs and a change in the policy environment. Some reshoring could happen as a consequence of policies creating economic distortions, such as subsidies or fiscal incentives for reshoring, or the introduction of tariffs and trade barriers to discourage foreign production. Such policies could be successful in shortening value chains but would have a high cost in terms of economic efficiency, while not reducing risks in the supply chain. It is also unclear whether there will be a

US-China decoupling, as suggested by some authors. If it is the case, there will be more companies moving part of their operations outside China. Since these companies will still be interested in serving the large Chinese market, the decoupling would concretely mean that redundant supply chains are created for products sold in China and in the rest of the world. Such a scenario would involve higher costs and economic losses, but investment or production in China would not significantly decline and still rely on GVCs.

Nevertheless, GVCs will continue to change because of the digital transformation, servitization and the evolution of consumer preferences in a world where climate change might be increasingly influencing the organization of production. This does not imply that production will be less global but that it could be global in a different way. If GVCs become shorter as a consequence of technological and economic change, there is nothing to worry about. More efficient production (with efficiency including different dimensions such as inclusiveness or environmental concerns) can also be achieved with less fragmented production processes.

What Can Governments Do?

The main risk in the post-Covid world will not be the supply chain risk but the policy risk associated with the strategies of some countries departing from international cooperation and trade and investment liberalization. Unlike changes related to technology and consumer preferences, restrictive trade and investment policies bring inefficiencies and lower levels of productivity and income.

Trade tensions can be addressed in the context of the WTO or through regional organizations. It is not clear at this stage whether opposing views among WTO Members will allow the WTO to be again the main body where trade disputes are resolved and where new disciplines can consolidate a rules-based multilateral trading system. The 12th WTO Ministerial Conference will be key to see whether a new consensus can be found. But if it does not happen at the WTO, there are other regional fora where the dialogue can continue.

To address the issue of security of supply for essential goods, there are also different steps that can be taken by governments in cooperation with the private sector. Governments could sign a specific agreement or take commitments to avoid in the future export restrictions and barriers to trade in essential products. They could also agree on best practices to facilitate trade during a crisis. Finally, a dialogue with the private sector could allow governments to identify the best strategies to deal with surges in demand. It is through international cooperation rather than unilateral action that a way forward can be found after Covid-19. **JS**

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