ECONOMIC VIEWPOINT

The Evolution of Global Value Chains and Their Economic Implications

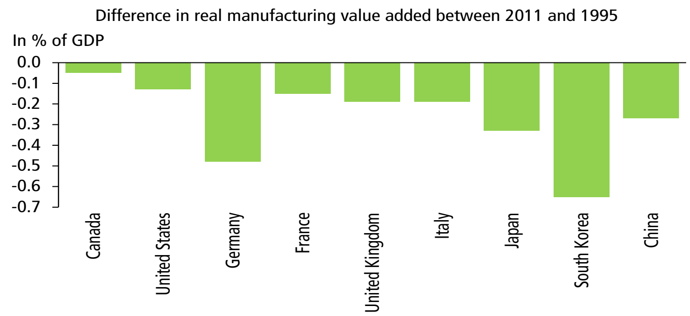
Over the past two years, we have seen a resurgence in protectionist sentiment. New trade barriers threaten the international trade system, which is far more heavily concentrated in global value chains (GVC) than before, with the various stages of goods and services production fragmented among a number of countries. This broader global integration of production chains therefore requires greater international cooperation, particularly for economies involved in GVCs, such as Canada.

The recent rise in protectionism has shaken international trade, as new trade barriers add costs to the import and export of goods. The effect is that much stronger in a context where over half of goods and services exports come from GVC (graph 1). With these production chains spanning multiple countries, an intermediate good or service can be affected by a tariff more than once, even if it is not directly targeted by that tariff. The tariffs between China and the United States, for example, have repercussions on other countries that also participate in the GVCs affected by these tariffs. According to the International Monetary Fund (IMF), a widespread increase in customs duties would have a greater impact today than in 1995 (graph 2). With the ongoing protectionist threats, it is worth considering the significance of GVCs and their potential economic impacts.

GRAPH 1
Global value chains account for a significant share of international trade

Sources: United Nations Conference on Trade and Development and Desjardins, Economic Studies

GRAPH 2
A general one-percentage-point increase in tariffs would have a greater effect than in pre-GVC times



GVC: Global value chain
Sources: International Monetary Fund and Desjardins, Economic Studies

Production Chains Have Become Fragmented

The past 30 years have brought major changes to international trade. Lower transportation costs and world trade liberalization reduced barriers between countries and enabled greater economic integration through, among other things, GVC development. GVC-related trade exploded in the 1990s and early 2000s, outpacing more conventional trade, where the exported good is consumed directly in the importing country (graph 3 on page 2). According to the World Trade Organization (WTO), GVC growth was the key factor in globalization and global GDP growth between 1995 and 2008. The international trade in intermediate goods and especially services has taken on a more significant role in trade

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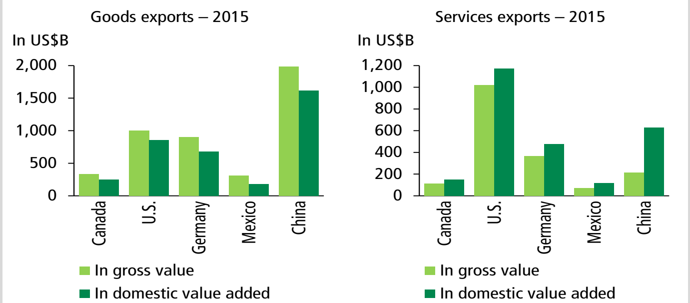
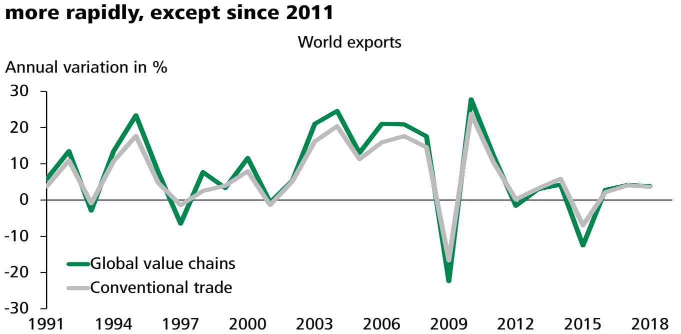
The emergence of global value chains (GVC) created the need to take a different approach to compile world trade data, as the same good can now cross multiple borders at various stages of its production before reaching the final consumer. In normally observed international trade data, GVC economic activity is misrepresented because the intermediate parts are counted each time they cross a border and the value of the services used in manufacturing is not accounted for when the good is exported. The concept of value added solves this problem. Put simply, it represents total production less intermediate consumption taking into account the value created at each stage of production, resulting in a better measurement of the activity generated by GVCs. There is, indeed, a difference between the two measures (graph A).

GRAPH A
Gross trade data are not an accurate reflection of a country's export industries' activities



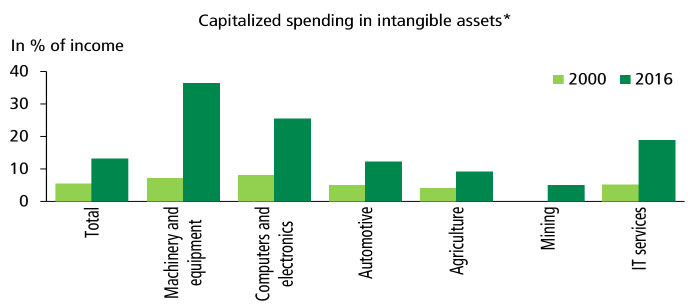
Sources: Organisation for Economic Co-operation and Development and Desjardins, Economic Studies

GRAPH 3
Exports related to global value chains have generally increased more rapidly, except since 2011



Sources: United Nations Conference on Trade and Development and Desjardins, Economic Studies

GRAPH 4
Industries related to global value chains are more knowledge-based

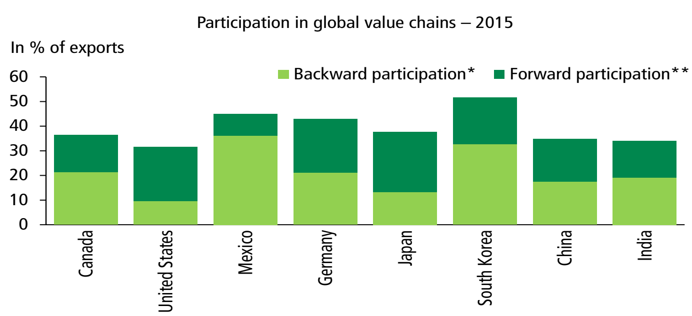


IT: Information technology; * Intangible assets include, among others things, brands, software and intellectual property.
Sources: McKinsey Global Institute and Desjardins, Economic Studies

transactions. According to McKinsey, services make up a third of the value of the manufacturing goods traded and these goods are increasingly knowledge-based (graph 4). Contrary to popular belief, GVCs therefore also create high-skilled, high-payed jobs. Since the barriers to trade in services are greater than they are for goods, a significant proportion of services used in production are still domestic.

In Canada, just under 40% of exports participated[1] in GVCs in 2015, the most recent data available (graph 5). Participation among the other countries surveyed ranged from 24% to 79%. Canada's export industries are therefore relatively exposed to global shocks. While 20% of their exported value added came from abroad in 2016 for all industries, this ratio was far higher for the manufacturing sector, especially motor vehicles and base metals, which accounted for as much as 45% of sector

GRAPH 5
Just under 40% of Canadian exports participate in global value chains

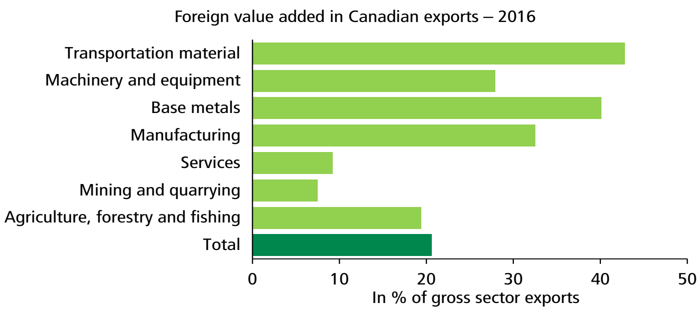


* Foreign value added in domestic exports; ** Domestic value added in foreign exports.
Sources: Organisation for Economic Co-operation and Development and Desjardins, Economic Studies

[1] Participation is defined as the sum of foreign value added incorporated into domestic exports and domestic value added incorporated into foreign exports.

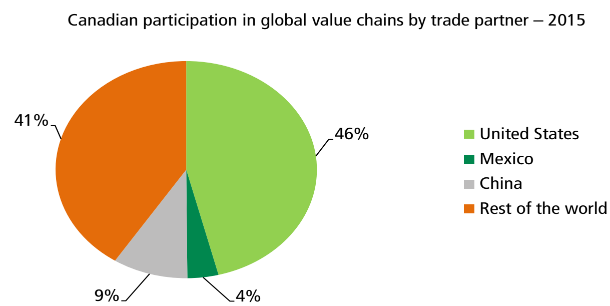
exports (graph 6). These are also industries with greater GVC involvement. Canada's GVCs have been developed mainly with the United States: close to 70% of the exported Canadian value added was destined for the United States and close to 50% of Canada's participation in GVCs was with its neighbour to the south (graph 7). This regional concentration is also observed in general. Despite globalization since 1990, GVCs are still organized mainly by region, that is, Asia, Europe and America, which are interconnected through their core economies, namely China, Germany and the United States. More than 50% of exports from Europe and North America were intraregional in 2017. Despite lower transportation costs, industries appear to nonetheless prefer to be physically closer to their consumers, likely for reasons of information, efficiency and speed.

GRAPH 6
Manufacturing industries are more integrated in global value chains



Sources: Organisation for Economic Co-operation and Development and Desjardins, Economic Studies

GRAPH 7
Canada's value chains are centered mainly around the United States



Sources: Organisation for Economic Co-operation and Development and Desjardins, Economic Studies

Economic Implications of GVCs

Due to their more global nature, GVCs do not necessarily impact the economy in the same way as conventional trade. First, the fragmentation of production among multiple countries results in productivity gains through the separation of production by the country's specialization and comparative advantage. Less developed countries can participate in world trade without having to build an entire network of industries. Domestic risk is also reduced owing to geographic diversification. An IMF paper establishes a positive link between a country's past GVC participation and its GDP per capita. This correlation did not exist for conventional international trade. Based on these results, participation in international trade would only contribute to a country's wealth if it was related to GVCs. GVCs do have their drawbacks, however. The net effect on employment would be positive for advanced and developing countries by increasing the number of skilled and unskilled jobs and raising wages. But, the gains are not equally distributed across sectors and countries. When production is restructured, for example, some manufacturing jobs are transferred to countries where labour is less expensive, generating losses in some sectors of advanced economies.

Greater integration between countries also entails systemic vulnerability and increases the risk of contagion, since a shock can spread worldwide along the production chain. When demand for a finished product decreases, it is not just the producer of that good that is hurt, but also the producers of intermediate products and related services in a number of other countries. During the last global recession in 2009, imports fell virtually simultaneously in several countries, even though the demand shock stemmed mainly from the United States and Europe. This synchronization also appeared in the GDP of most countries, whether or not they were directly connected to the United States and Europe. The IMF estimates that 27% of the decline in U.S. demand and 15% of the decline in European demand were absorbed by the GDP of other countries. GVCs definitely played a role there.

The type of good traded within GVCs also sets them apart from conventional international trade. In times of economic recession, such as in 1982, 1991 and 2009, GVC-related trade tends to fall more drastically than conventional trade. Manufacturing goods, especially durable ones, are the main type of good in GVCs, and demand for them usually has a stronger reaction to income fluctuations because they are often more expensive and represent postponable purchases. Demand for durable goods between 2008 and 2009 in the United States plummeted 32%, whereas that for non-durable goods and services dropped just 4%. A GVC-based economy would therefore be more affected by an external shock, especially if it has a direct connection to the country in which the shock originates.

In addition to the effect of the transmission of economic shocks, the Organisation for Economic Co-operation and Development (OECD) remarks that GVCs also affect the power of fiscal and monetary policies. Greater global production chain integration would lead to greater import leakages, weakening the effectiveness of unilateral policies. Stimulating demand in a single country would increase demand for foreign goods only in that country, thereby raising imports without increasing exports to the same extent. The depreciation of currency through monetary policy tools would also be less effective, as higher import costs would also hurt exporters that depend on intermediate goods imports for their production. In this context, it would be more effective for multiple countries to coordinate their responses to a potential economic slowdown.

A Smaller Role, but No Less Important

The share of GVCs in world trade seems to have peaked in 2011 and has been on a downward trajectory ever since. Admittedly, international trade growth has slowed overall during this period, despite the economy making solid strides. The elasticity of world trade to GDP, that is, the ratio of import growth to global GDP growth, fell from an average of 1.94 between 2002 and 2007 to 1.12 between 2012 and 2017. However, GVC-related trade slowed more significantly. The average GVC and conventional trade expansion rate was 15% and 12%, respectively, between 2000 and 2007, falling to 2% and 3% between 2011 and 2017. A WTO research also shows that this trade slowdown is due mainly to the decline in more complex GVCs, where goods and services are re-exported multiple times. Trade intensity has therefore lessened with the simplification of international trade. Many factors are behind this phenomenon. On the one hand, emerging countries consume a larger share of what they produce. China's gradual shift to a consumption-based economy, higher wages in Asia and the development of more regional production chains have contributed to this. This trend is expected to continue, with McKinsey forecasting that emerging countries will account for half of global consumption by 2030, compared with 38% in 2017. On the other hand, extensive integration in the past has likely led to a saturation of production fragmentation opportunities, limiting potential productivity gains. Technological innovations, such as robotization and data sharing, also reduce the need to spread production chains among several countries since they keep labour costs down. According to the OECD, digitization could have the greatest potential impact in reducing the ratio of international trade to GDP by affecting GVCs directly. With labour cost becoming less of a factor, companies appear to be choosing to locate their production closer to the final consumer or the commodities they need.

The smaller share of GVCs in international trade offers Canada an opportunity to develop its interprovincial trade, which is still quite limited. Reducing trade barriers between Canadian provinces would enable the country to minimize the effects of foreign shocks. The share of GVCs in international trade is nonetheless expected to remain considerable in the coming years in a context where distances are minimized through innovation and where productivity gains are a major driving force for economic growth. The rise in protectionism may, however, harm GVCs and economies that participate in these chains, including Canada. The economic implications of the strong presence of GVCs underscore the need for international cooperation in order to avoid the potentially costly consequences of a retreat to unilateralism.

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