

The Future of Global Value Chains Business as Usual or “A New Normal”?

The rapid growth of global value chains (GVCs) has been an important driver of globalisation during the past decades. After their explosive growth during the early 2000s, GVCs have gradually become the backbone of the global economy and dramatically changed its functioning. As it became easier for companies to offshore activities over large distances and source inputs from different countries, GVCs have only become longer and more complex resulting in rapidly growing trade and transport flows. But GVCs seem to have lost momentum in recent years. A (limited) consolidation of GVCs had already been observed during the crisis of 2008-09, but trade as well as GVC growth picked up again soon thereafter. The recent trade and GVC slowdown however is argued to stem from structural determinants suggesting that a new normal of GVCs may be at the horizon. Illustrating this is the growing popularity of the concept of “peak trade”.

The world economy is argued to face a number of structural shifts that may dramatically change – some refer to “seismic” changes – the outlook of GVCs in the coming years. Because of the importance of GVCs in today’s economy, these changes will also determine the future of globalisation. This note identifies and assesses the most important forces that will affect the scope, length and complexity of GVCs in the next 10 to 15 years. The last years have seen extensive analysis emerging on the historical importance of GVCs, but forward-looking research on GVCs – in particular supported by empirical evidence – is much more limited.

The quick read

The world economy is facing a number of structural shifts that may dramatically change the outlook of GVCs – and thus economic globalisation – in the coming years. On the one side, there are factors that have promoted the emergence and growth of GVCs in the past and these are expected to facilitate the future expansion of GVCs; thus, “business as usual”.

On the other side, there are other factors that push for “a new normal” of GVCs: these include old and new factors, i.e. factors which are known to negatively impact GVCs but also emerging factors of which the possible effects on GVCs are less known. These factors such as growing (wage) costs in emerging economies, rising transport costs and especially the digitalisation of production are expected to increasingly challenge the organisation of production in long and complex GVCs and may shape the future evolution of GVCs differently.

A forward-looking exercise based on the formulation of different scenarios for the next 10-15 years, indicates that the future of GVCs may look quite different from the past. A number of emerging factors are shown to result in a clear break and reversal of the past trends of growing length, complexity and pervasiveness of GVCs. The growing digitalisation of production is most likely the biggest game-changer, reversing the importance and length of GVCs and reorienting global production and trade back towards OECD countries. In addition to global hubs in GVCs, production may become increasingly concentrated in regional/local hubs closer to end markets both in developed and emerging economies.



Business as usual

A number of factors that have been driving the growth of GVCs in the past can be expected to continue to push the international fragmentation of production processes further also in the future.

Open trade and investment

Successive rounds of liberalisation have resulted in barriers to trade and investment to fall gradually over time, particularly for (manufactured) goods. The scope for further reduction in tariffs may however be rather limited particularly in OECD countries, but other countries still seem to apply significant tariffs. In addition, non-tariff measures encompassing a wide variety of trade impediments and regulations still exist across most countries and also domestic regulations and limitations on foreign investment impact international investment as well as trade. Further liberalisation particularly on a multilateral level seems however not straightforward and reflecting the failure of the WTO Doha Round, a shift has been observed from multilateral trade negotiations towards bilateral, regional and even industry-level agreements in trade and investment. Further trade and investment liberalisation and globalisation more broadly is also increasingly facing headwinds in recent years, often motivated by the anxiety of people about job security and stagnating incomes.

ICT: Communication technologies

The spread of GVCs has also been facilitated by the rapid technological advances with particularly the ICT revolution being considered as the technological breakthrough behind the international dispersion of activities within GVCs. Cheaper and more reliable telecommunications as well as information management software and increasingly powerful personal computers have significantly decreased the cost of organising complex activities over long distances both within and between companies. The wider availability and the better performance of (new) communication technologies like improved broadband applications, the spread of smartphones, video and virtual conference, etc. is already allowing for more efficient communication within GVCs. New and more sophisticated technologies are developing quickly, for example radio-frequency identification technology (RFID) technology will make it cheaper and easier to track and monitor inputs throughout the supply chain. The Internet of Things which is bolstered by powerful sensors and “smart” products, will also deliver faster and cheaper communications in the future.

New economic players

The emergence of GVCs has allowed emerging economies to integrate in the global economy faster than in the past. Participation in GVCs is often viewed by governments as a fast track to industrialisation and strategies to increase the participation within GVCs are an essential part of economic development policies. One thing these new economic players have in common is their vast and rapidly growing labour force, which gives these countries an advantage especially in labour-intensive industries and activities. Because of the higher population growth in emerging economies in South Asia and Africa, over 1 billion additional persons are projected to be of working age over the next years. It can be expected that the integration of these new economic players will facilitate the expansion of GVCs further. Nevertheless, it has recently been argued that the traditional model of industrialisation – starting with low-end, labour-intensive manufacturing allowing to move large number of people from agriculture to manufacturing, has come under increasing pressure with (some) developing economies undergoing a process of “premature” de-industrialisation.

The emerging middle class

In addition to their lower labour costs, emerging economies are also quickly becoming important consumer markets. Population growth in the next decades will take place almost entirely in less developed countries, and on top of that, the rising general prosperity in emerging economies will lead to changing patterns of international demand (e.g. growing spending on luxury products and services). At a time when large parts of the developed world face slower growth in demand as a result of ageing, the increasingly prosperous consumers concentrated in fast-growing cities in emerging economies provide an important new growth market for companies. The growing middle class worldwide could rise to 3.2 billion by 2020 and to 4.9 billion by 2030 and almost 85% of this growth is expected to come from Asia. As a result, about two-thirds of those middle-class citizens are expected to be found in Asia.

The development of services

Services have dramatically changed over time: instead of being the corollary of manufacturing, services industries are nowadays among the most dynamic sectors in OECD countries due to technological innovations and new business models. Services inputs play nowadays an increasingly important role in co-ordinating value chain activities: logistics, communication services, business services etc. permit the efficient functioning of GVCs as they allow for the transfer goods, data, technology and (managerial) know how across borders. Services allow for the co-ordination of dispersed activities in a quick and smooth manner, often referred as being the “glue” of GVCs. In addition, services are not only a facilitator of international goods sourcing, but they have become a major source of value creation for companies. The rapid progress of services is a driving force behind the servitisation of manufacturing industries, with bundles of services and goods offered as “solutions” to customers. Further on, recent years have witnessed the emergence of pure services GVCs for instance in tourism and business services. As services become increasingly digitalised, certain services categories are likely to become increasingly fragmented and located across different countries.

The growth of MNEs

International investment has been instrumental in the rise of GVCs as MNEs have offshored activities since decades in search for better location factors (vertical MNEs) and/or new markets (horizontal MNEs). The gradual investment liberalisation has allowed MNEs to increasingly organise and disperse their production processes on a truly global scale. The intra-firm trade between MNEs and their affiliates account nowadays for a large share of international trade in goods and services. OECD countries still account for the largest share of MNE activity in the global economy, although emerging economies like the BRIICS have attracted a growing number of foreign investments during the past decades while at the same time MNEs with headquarters in these countries have started to extend their international activities. Just like GVCs, MNE activities seem to have stagnated somewhat in most recent years, but there is a general belief that MNEs will further grow and support the growth of GVCs.

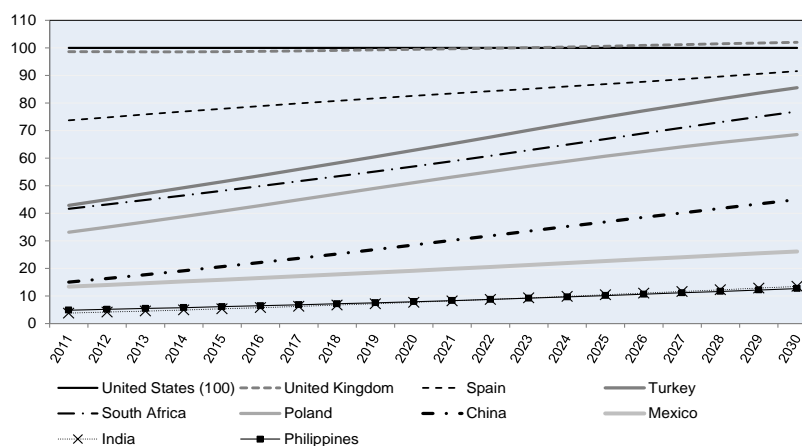
A new normal

Against these factors supporting a “business as usual” scenario, a number of other factors increasingly challenge the organisation of production in long and complex GVCs and may shape the evolution of GVCs differently in the future. These include old and new factors, i.e. factors which are known to negatively impact GVCs but also emerging factors of which the possible effects on GVCs are less known.

Changing cost conditions in emerging economies

Since companies have offshored activities to low-cost emerging countries in the 1990s and early 2000s, production costs have significantly increased in a number of emerging economies. It is expected that this trend will continue with wage costs in a number of emerging economies rapidly increasing and converging – although still significantly below – to these in developed economies (Figure 1). This wage convergence is believed to gradually erode the cost advantage of (certain) emerging economies in labour-intensive activities within GVCs, with some arguing that reshoring will increase in importance in the future and GVCs become less extensive.

Figure 1. Evolution of average wage costs, 2011-30 (United States = 100)



Source: De Backer and Flaig (2017).

The hidden and extra costs of international fragmentation

While the barriers to internationally fragmented production have significantly decreased, GVCs themselves have confronted companies with new disadvantages. Companies increasingly appreciate that the pecuniary cost of monitoring, communication, and co-ordination between distant affiliates and headquarters may be greater than initially envisaged. Management, logistical and operational problems have often resulted in significant “hidden” costs (i.e. costs which were not taken into account in the decision to offshore) and have in some cases made offshoring less/not profitable. In addition to disappointing cost savings, several companies have encountered serious problems with the quality of offshored products. The below standard quality has often necessitated new production runs and recalls of deficient products, thereby further pushing up the total cost of offshoring. Lastly, offshoring of activities has in some cases also involved extra costs to protect the proprietary knowledge of companies since the protection of intellectual property in emerging economies is often not at the same level as at home.

In search of resilience: Balancing cost reduction and risk diversification

GVCs have often become so complex and extensive that a breakdown in one part of the chain – very locally – may quickly have detrimental global effects throughout the chain. The more that firms have spread their operations around the globe, the more vulnerable they have become to disruption from unexpected events. The outcomes of a number of natural disasters in the recent past (e.g. earthquake in Japan, flooding Thailand, volcano eruption in Iceland) have shown the potential costs for companies and countries when GVCs break down. In a global world characterised by uncertainty, companies increasingly try to complement “just-in-time” with “just-in-case” strategies by adjusting supply chains to enable them to withstand a variety of shocks. Companies increasingly consider alternative GVCs for the same product, thereby adding some redundancy in their supply chains. To further increase the resilience of their supply chains, companies also opt for shorter GVCs and bring production closer to the market (including reshoring).

ICT: Information technologies

New digital technologies are radically changing the outlook of manufacturing and services industries by altering the way how companies organise their production processes and which business models they adopt. While communication technologies will further promote the growth of GVCs (see above), information technologies could have opposite effects and may shorten GVCs. Robotics, automation, computerised manufacturing, artificial intelligence, etc. all could reduce the advantages of production in low-labour-cost emerging economies, hence discouraging offshoring from and favouring reshoring to these countries. Due to increased automation of production processes and growing use of robots, labour costs will represent a smaller share in total costs. Shorter GVCs will also result in direct savings in transport and trade costs, while companies also can reduce the risk of low quality products.

From mass production to mass customisation

The organisation of production in long and complex GVCs has significantly limited the flexibility and agility of companies to respond to changes in (consumer) demand. Manufacturers produce today mainly standardised and commoditised products as scale economies do not easily allow for different product specifications. In light of a potential shift from mass production to mass customisation, companies experiment with new business models incorporating technological and organisational changes. Digital technologies like additive manufacturing and 3D printing, autonomous robots, big data, etc. will increasingly allow for customised products manufactured at the cost of a standardised product (some even go as far as “manufacturing on-demand”). The reconfiguration of supply chains with more localised production centres and to some extent duplication between different production facilities centres will increase the responsiveness when demand is volatile.

The green and sustainability imperative

With demand for some natural resources outstripping available and future supplies, shortages of natural resources are predicted to emerge in many regions across the world. Further on, the continuous expansion of GVCs and their related transport flows of intermediate and final products have resulted in major environmental impacts like emissions, waste generation, etc. Growing pressure (on companies) can be expected to reduce resource use, energy consumption and waste generation in organising their production (internationally). Government regulations through emission limits and/or carbon taxes could have a big impact, among others on transport and logistics costs. In addition, consumer expectations and consumer

demand for sustainable products is slowly growing; the growing popularity of “home-grown” food is probably the most obvious example of this. The drive for environmental sustainability will increasingly be reflected in companies’ strategies of corporate social responsibility by sourcing less products while at the same time more inputs from closer to home.

What with transport costs?

Declining transport costs combined with regulatory reforms in key transport and infrastructure sectors have enabled firms to fragment their production process across multiple borders in the past. There is a lot of discussion how transport costs will evolve in the future. At the one side, some argue that ever-more expensive fuel prices, in particular the price of crude oil, will force companies to significantly change their sourcing strategies. Instead of sourcing inputs and outsourcing activities where it is cheapest to do so, companies will prefer to locate production activities closer to end markets to reduce transport costs.

At the other side, it is argued that the impact of rising oil prices – and in recent years oil prices have dropped rather than increased – will overall be rather limited as crude oil prices account for less than a fifth of transport costs (while transport costs themselves account for one-third of total trade costs). Further on, it is expected that the current overcapacity in maritime transport – maritime roughly accounts for 80% of international freight transport in volume terms – will keep freight shipping cost low in the coming years. In addition, infrastructure is growing for other international transport modes. Air freight for example will benefit from the building of new airports and the emergence of new carriers particularly in emerging economies which are expected to increase the supply of transport services at competitive prices. In addition, improvements in energy efficiency are assumed to make international transport much more efficient and curb potential increases in transport costs.

The future of GVCs over the next 10 to 15 years: An empirical assessment

While several of these factors have been discussed in different places, the empirical evidence evaluating the potential impact of these shifts however largely lags behind. This makes the discussions on the future of GVCs somewhat speculative. Using the OECD METRO-model – a general equilibrium model on trade explicitly incorporating GVCs, this paper simulates how production and trade within GVCs may look like in 2030 under a number of different scenarios. CGE models rely on a comprehensive specification of economic activity within and between countries (and therefore the different inter-linkages that tie these together) and are especially useful to answer “what if” kind of questions. Through their general equilibrium setup, models like METRO can detect spill-over effects and allow for the analysis of effects on various economic variables such as trade, production, or final demand.

It is clear that the validity of the results in such an exercise directly depends on the assumptions applied in the formulation of the different scenarios. Only then is a proper evaluation of the expected impacts on the future of GVCs possible. The scenarios have been developed carefully in order for them to mimic as much as possible the (most) likely future evolution of each of the factors discussed above. It has to be pointed out however that instead of trying to forecast the future over the next 10 to 15 years, the analysis rather provides a foresight exercise to get a better understanding of the factors (and their impacts) that are important for the future of GVCs and globalisation more broadly.

The results first and foremost indicate that the digitalisation of production may become the biggest game-changer for the future of GVCs, reversing the importance and length of GVCs and reorienting global production and trade back towards OECD countries. The growing importance of information technologies like robotics, artificial intelligence, automation, etc. can be expected to redraw the contours of the global economy and have a disruptive impact on GVCs making them less extensive and also shorter. IT will make offshoring less attractive as (differences in) labour costs will become less important in total production costs: international sourcing will decrease significantly and intermediates will increasingly be sourced domestically in developed economies. In addition, IT will allow for production to follow demand more closely including the customisation of individual products. Reshoring of activities will become increasingly attractive when activities can be highly automated, but policy makers should be aware that higher automated production also means that the overall employment impact of reshoring will be rather limited.

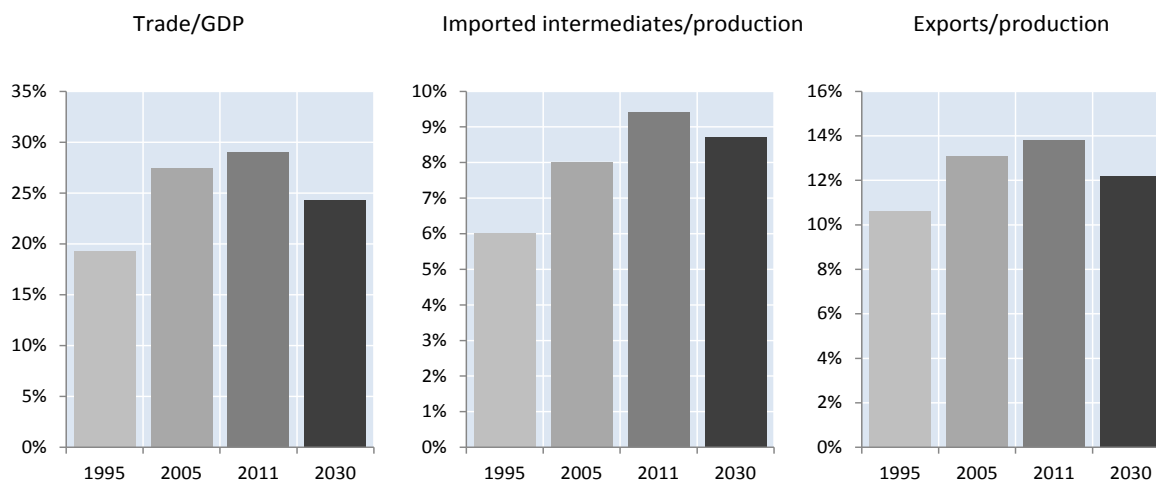
These results on digitalisation do not take (fully) into account the effects 3D printing may have as the commercial potential of this technology is at the moment still uncertain. While this technology will become more important over time, it is generally expected that the use of 3D-printing for mass-produced goods will probably take some time. If 3D printing however becomes as widely spread as proclaimed by its most vocal proponents, the effects of digitalisation on GVC trade will undoubtedly be much larger.

Rising wage costs in emerging economies will also make GVCs shorter but less abrupt than digitalisation. While the issue of rising wage costs in (some) emerging economies has attracted a lot of attention in policy discussions around, the analysis shows that the impact on GVCs and global production in 2030 is rather limited. One reason is that activities relocated from high-cost emerging economies will also go to other emerging economies instead of being reshored to OECD countries. Indeed, there are still millions of people in emerging economies ready to leave their agricultural livelihood in the countryside for a job in a manufacturing factory in the city. In addition, part of the investment in these countries is motivated by the size and growth of the domestic and regional markets.

Also rising transport costs can be expected to curtail the international fragmentation of production within GVCs. It is however very uncertain how strongly transport costs will rise in the near future especially because of the (large) over-supply in maritime transport – which accounts for roughly 80% of international cargo (volume) transport. But even the rather moderate increases in transport costs modelled in the scenarios show already that GVCs will be significantly affected. The other factors increasing the cost of international trade of goods and services discussed above like the need to balance cost efficiency and risk diversification, the hidden and extra costs of offshoring can be appraised working in the same way.

The positive impacts on the future growth of GVCs through factors supporting the “business as usual” storyline are – surprisingly maybe – much smaller. The impact of factors such as the emergence of new (low-cost) producers in manufacturing and the growing demand in emerging economies will especially be felt in the geographic distribution of global production and trade, rather than in the overall scale of trade. One reason is that the strong growth of local consumer markets will cause a shift away from an export-led growth model in emerging economies, thereby rather having a negative effect on the growth of GVCs. At the same time, the ageing population in developed economies though reduced consumption will also work against the expansion of GVCs. The results however clearly demonstrate that the growing integration of new manufacturers and the growing middle class in emerging economies will further shift the economic centre in South-Eastern direction.

Figure 2. The combined impact of “business as usual” and “a new normal” factors on GVCs



Note: Data for 1995, 2005 and 2011 are historical data; data for 2030 are simulated results based on the combined scenarios for the different factors.

Source: De Backer and Flaig (2017).

Overall, the impacts of individual factors – “business as usual” as well as “a new normal” – appear to be rather moderate, particularly when comparing these with the explosive growth of GVCs and hyper-globalisation in the 2000s. But the results of a combined scenario, reflecting the fact that “business as usual” as well as “a new normal” factors are likely to impact GVCs simultaneously, show that it is the confluence of the various structural factors that will affect the future growth of GVCs (Figure 2). Altogether, international

sourcing of intermediates (in percentage of production) and the trade/GDP ratio over the next 10 to 15 years are estimated to drop to the levels of early 2000s, if the different scenarios become reality. In addition, a structural reallocation of global trade and production will take place towards developed economies, with especially digitalisation helping to restore the competitiveness of these countries. Because of these “game-changers”, companies are expected to increasingly change their sourcing strategies for example by localising their production, i.e. bringing production closer to the market. As a result and taking into account the location of consumer demand across the globe, a rebalancing of GVCs may be at the horizon and the architecture of GVCs more varied and distributed in the coming 10 to 15 years. In addition to global hubs in GVCs, production may become increasingly concentrated in regional/local hubs closer to end markets both in developed and emerging economies.

The results of this forward looking exercise clearly indicate that the future of GVCs may look quite different from the past. A number of emerging factors are shown to result in a clear break and reversal of the past trends of growing length, complexity and pervasiveness of GVCs. It is (too) often taken for granted that these trends will continue also in the future. It would be wrong however to interpret these results as exact forecasts – the future in 2030 will most likely look differently – as there are many uncertainties surrounding the global economy. But it is hoped that the results in this paper start to inform policy makers about the effects a number of structural shifts may have on the future of GVCs and globalisation.

Further reading

De Backer, K. and D. Flaig (2017), “The Future of Global Value Chains”, *OECD Science Technology and Innovation Policy Paper*, No. 41, OECD Publishing, Paris, <http://dx.doi.org/10.1787/d8da8760-en>.

Website

<https://www.oecd.org/sti/ind/global-value-chains.htm>

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