# A Review on Key Drivers of Global Value Chain (GVC) Participation of Emerging Market Economies

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*Abstract:* Internationally fragmented nature of production has led to the emergence of Global Value Chains (GVCs). This has opened up the opportunities for emerging market economies like India to increase their presence in international trade in spite of not having any intrinsic comparative advantage because with GVCs, countries just have to focus on specializing in specific production stages and not on producing an entire product. This article presents a brief review of the studies that used the country-level data derived from international input-output tables to investigate the determinants of GVC participation. The paper discusses several policy, non-policy and institutional factors along with certain firm related factors which are highlighted in GVC literature as key drivers of countries' GVC engagement. It was found that impact of different factors on the degree and level of GVC participation differ significantly by region, country, sector, time, and the modes of integration (forward or backward).

## GLOBAL VALUE CHAINS- AN OVERVIEW

Globalisation has led to increased interconnectedness among the markets across the world. Earlier countries traded entirely in finished products i.e. a product was being made in the borders of one single country and it was exchanged with other countries. But now this has changed fundamentally and in order to take advantage of the differences the in factor costs, a single finished product which is the result of activities like design, manufacturing, logistics, assembly, distribution, marketing and support services is produced in many different countries where each step in this entire range of activities adds value to the end product that will be ultimately bought and consumed. This entire range of activities that are carried out while brining a product from its inception to end use is called a 'Global Value Chain'. These internationally fragmented production activities imply that countries today trade largely in intermediate goods and services rather than in finished products.

The GVC framework was earlier named as a Global Commodity Chain (GCC) and it describes the global economy as a 'complex and dynamic

economic network made up of inter-firm and intra-firm relationships' (Gereffi, 2014). It focuses on how value is generated and appropriated along functionally integrated but internationally dispersed activities, accounting for power dynamics among various global economic actors (De Marchi, Di Maria, & Ponte, 2014; Fernandez-Stark & Gereffi, 2019).

In the past decade, GVC analysis became popular in research publications that focused on changing dynamics of international trade in the globalised era and what factors determined this change. Moreover, it proved particularly effective in policy engagement. International organizations, such as the World Bank, the Organization for Economic Cooperation and Development (OECD), the International Labor Organization (ILO), and the World Trade Organization (WTO), have extensively adopted the GVC framework to inform policy-making on inclusive and sustainable development (Gereffi, 2019).

Against this background, this paper presents an analysis of the GVC literature focusing on the role of different policy and non-policy factors in enhancing GVC participation of countries.

## WHAT DETERMINES GVC PARTICIPATION?

A country can engage in global production networks either by importing raw materials and then exporting the finished products (backward GVC participation) or by producing intermediate goods which enter the exports of other countries (forward GVC participation). Hence, the factors which determine GVC participation will also be different for countries at different stages of integration. A brief review of the studies that investigated the determinants of GVC participation has been presented below:

### A.  Non-Policy or Structural Factors

Non-policy factors are the structural factors which determine a country' engagement in GVCs.

➢  **Market Size and Location**

According to Gravity model of International trade, trade volume between countries vary directly with their economic mass (GDP) and inversely with the distance between them. In many studies, GDP per capita has been used as a proxy for market size and is considered an important determinant of GVC engagement both in terms of forward as well as backward GVC participation. Ignatenko, Raei, and Mircheva (2019) used this gravity model framework to explain GVC and its determinants. They confirm the findings of standard gravity literature in that economic size promotes GVC participation while distance

discourages it. GVC studies have claimed that higher the per capita income, lower will be the backward GVC integration and higher will be the forward participation, i.e., developed countries use more of domestically produced goods in their exports and that they export more of intermediate goods for subsequent processing in other countries. According to Kowalaski *et al.*, (2015) the higher the per capita income, the higher is the aggregate forward and backward engagement i.e., countries with higher income will tend to both buy and sell a higher share of their gross exports as intermediate goods and developed countries tend to source more from abroad and sell a higher share of their gross exports as intermediate products. However, based on the development experience of Asian countries, Kurowia (2019) opined that the relationship between the degree of GVC participation and the level of economic development is non-linear. The finding of Johnson and Noguera (2011 and 2012), based on simple correlation analysis, also reveals that aggregate VAX ratios for the 94 countries in did not co-vary strongly with GDP per capita. This can be explained in terms of these countries having greater scope for sourcing intermediate inputs domestically (De Backer and Miroudot, 2014; Kowalski *et al.*, 2015; Lopez-Gonzalez, 2012).

Lopez-Gonzalez (2012) indicates an inverted U-shaped bivariate relationship between GVC participation and per capita GDP. GVC participation rate initially increased with per capita GDP and then decreased beyond a certain threshold. GVC studies have continued to emphasize that richer countries in terms of GDP per capita tended to participate in GVCs at an increasing rate. (Van der Marel, 2015; Ignatenko et al, 2019; Stehrer and Stöllinger, 2015).

Trade costs due to location of countries determine a country's international trade. GVCs are usually clustered around manufacturing hubs like China, USA and Germany, (Baldwin and Lopez-Gonzalez, 2013) and larger the distance is from the large manufacturing hubs like China and many European countries, lower will be the backward GVC integration.

➢ **Factor Endowments**

Factor endowments determine a country's trade and the resulting specialisation from it (Heckscher-Ohlin model) and it may also shape how GVCs are positioned. Fernandez et al (2020) focused on three types of endowments: natural resources, labour (classified as low skilled and high skilled) and capital (classified as low skilled and high skilled). If a country is endowed with good natural resources, many primary

products are used in a variety of downstream production processes that typically cross several borders and this naturally is linked to higher GVC participation. Also, low skilled labour often attracts assembly type stages of production which increases backward GVC integration (due to higher content of imported inputs in exports) and as a country advances to having high skilled labour force, it facilitates forward GVC participation.

➢ **Composition of Exports**

A country's GVC participation is largely determined whether it exports manufacturing products or the services. Countries in which share of manufacturing sector is higher in exports as compared to the share of services sector have reported higher GVC participation. According to Johnson and Noguera (2012), VAX ratio was lower in case of countries that had a higher share of manufacturing in total exports. This is because manufacturing exports are characterized by higher import content (high degree of vertical specialisation) as compared to non manufacturing exports. Kowalski et al (2015) also confirmed higher backward linkages and lower forward linkage to be associated with larger share of manufacturing exports in the total exports.

➢ **Other Structural Factors**

In addition to the above studies, continued research on GVCs has emphasized several country level, sectoral level and firm level determinants of GVC engagement. GVC studies by Banga (2014) and Olczyk and Kordalska (2017) reflect how technological features of industries influence GVC participation. It was observed that observed that the VAX ratio was higher and the backward linkage was lower for low-tech industries as compared to the medium and high-tech industries, and this indicated lower fragmentation of production processes in low-tech industries. (Banga, 2014)

There are very few studies exploring the effect of Real Effective Exchange Rate on GVC participation. While traditional trade was highly sensitive to changes in REER, the evolution of GVC trade has reduced this phenomenon as the import content of exports is high in case of GVC trade. (Ahmed *et al.*, 2017; de Soyres *et al.*, 2018; and Varela and Lovo, 2016). Their findings were that the responsiveness of domestic value-added exports to changes in REER was lower compared to responsiveness of gross exports and that when the share of imported intermediates of Polish firms in gross exports was greater than 30 percent, the effect of REER on export participation faded.

Along with these, other structural factors like a common border, common colonial heritage, common language, common currency, and a stable exchange rate relationship promote GVC participation. (Ignatenko et al, 2019).

## B. Policy Factors Influencing GVC Participation

➢ **Trade policy**

The role of trade policy and FDI will be more in case of GVC trade as compared to traditional trade. This is because, in case of GVC trade, intermediate goods and services cross the borders of countries multiple times and if each time tariffs are imposed, trade costs increase considerably and this will have its own impact on benefits from GVC participation.

GVCs are not just largely centred on manufacturing goods but they embody services content as well and higher trade barriers will have consequences which extend beyond the commodity sector (OECD 2013). Hence differences in trade policies of countries explain differences in their extent of GVC participation. According to Kowalski et al (2015) and Kuroiwa and Umezaki (2019), backward GVC participation will be lower for countries which impose higher import tariffs whereas if countries confront higher tariffs in their export destinations, then they will have lower forward GVC participation. Thus, trade policies of developing countries must aim at reducing the trade barriers especially in this era of internationally fragmented production facilities as it lowers both input costs and the price of final goods and services. (Yi, 2003 and 2010; Antràs and De Gortari, 2020).

Amador and Cabral (2014) cites the example of Asian region where the importance of intermediate goods in trade is reflected in the fact that the tariffs on such products are the lowest and points out that several regional trade agreements among Asian countries have led to higher regional integration and development of GVCs in the Asian region.

➢ **Foreign Direct Investment**

The emergence and rapid growth of GVCs has been driven to a large extent by large Multi-National Enterprises (MNEs) through FDI (OECD, 2013). Countries with higher capital endowments will have higher GVC participation but in countries where capital is scarce, FDI offers a solution to attract capital. FDI facilitates intra-firm trade and raises productivity of domestic firms through spillovers like greater diffusion of technology and knowledge related to production, management, and organizational practices from global leaders to local firms which would

enhance export competitiveness by lowering production costs and boost GVC participation. (Mitra *et al.*, 2020) Thus, the World Development Report (2020) concludes that GVC participation and FDI go hand in hand.

To understand the connection between FDI and GVC participation, (Luna Ge Lai et al, 2022) adopt a social network analysis approach and it was found that those countries which are at the centre of global FDI network are also the hubs of GVCs. They also reported correlation coefficients between FDI centrality and trade centrality ranging from 0.69 to 0.8 in order to explore the link between the FDI network and the trade network. Buelens and Tirpák (2017) consider FDI Stock at bilateral level and used augmented gravity model to explain that there was a positive association between bilateral FDI stock and bilateral import content of exports (backward GVC integration). Similar results were reported by Kowalski *et al.* (2015) and Stehrer and Stöllinger (2015) in their regression models. According to Banerjee and Zamen (2020), FDI is associated with a more upstream position in GVCs because higher stocks of inward FDI are connected with higher forward linkage and higher GVC participation rate.

## C.  Institutional Factors and Governance

The international transactions have become highly complex in the globalised era and in this context, the role of institutions and governance as factors enhancing economies' global integration have increased. Better institutions promote rule of law and enhance firms' ability to enforce contracts and this reduces trade costs and facilitate both backward and forward linkages (Ignatenko et al, 2019). Levchenko (2007) explains that trade flows especially in products that are characterised by significant complexity can be influenced by institutional aspects. Similarly, Nunn (2007) found that good contract enforcement boosts the export performance and creates comparative advantage. Since access to finance is an important determinant of trade, it is also likely to facilitate higher GVC participation (Chor, 2010; Kowalski, 2011).

Kuroiwa and Umezaki (2019) explains determinants of GVC participation of Sub-Saharan African countries and their empirical finding revealed that quality of institutions and governance do matter to facilitate GVC participation through backward integration. Countries with better institutions like strong property rights and quality of law (rule of law) have higher global engagement whereas many Sub-Saharan countries have weak institutions or neighbours with weak institutions. (Miranda and Wagner, 2015; Dollar, Ge, and Yu, 2016; Dollar and Kidder, 2017).

Kowalski et al (2015) highlighted regional differences in the quality of institutions and their empirical findings revealed that countries in West and Central Asia, South Asian Neighbours and Eastern and Southern Africa tend to perform worse than countries in Middle East and North Africa and South East Asia.

Tagolini and Winker (2016) conducted regression exercises for World Input-Output Database (WIOD) country sample and also for OECD country sample and reported that the contract enforcement did not have a significant role in facilitating GVC integration for WIOD country sample whereas in case of OECD country sample contract enforcement had a significant positive impact. Similarly, van der Marel (2015) and Dollar *et al.* (2016) also reported a positive and significant pair-wise correlation between rule of law and political stability and overall GVC participation rate.

Banerjee and Zamen (2020) used control of corruption as a proxy for governance and reported that better is the perception of control of corruption higher is the backward linkages and GVC participation rate which is the sum of backward and forward linkages. This indicates that countries that have fared well in controlling corruption have attracted production process in GVCs that are import intensive rather than domestic resource intensive. Barbero and Rodriguez-Crespo (2020) distinguish between backward and forward GVC participation while studying the role of institutional factors in promoting GVC participation. The study considered six indicators provided by Worldwide Governance Indicators (Kaufmann *et al.*, 2010, 2015) and they are Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. Panel Data regression exercise conducted for a sample of 63 OECD and non-OECD countries during the period 2005-2015, revealed that there is a positive association between institutional quality and participation in GVCs. It was also found that the effects were higher for backward integration as compared to forward integration.

### D. Firm-related factors

Given the role played by Small and Medium Enterprises (SMEs) in the economic activities of developing countries, few studies on GVCs have focused explicitly on identifying firm related factors which facilitate integration to GVCs. In most emerging economies, SMEs constitute around 90% of total number of firms, 60-70% of total employment and also contribute to around 70% of total value added in the country. SMEs also supply small parts and components required by large assembling firms in GVCs. Harvie, Narjoko, and Oum (2010) conducted one of the early studies

on analyzing the characteristics of firms that have greater GVC participation and for this, firms in Thailand, Indonesia, Malaysia, the Philippines, Viet Nam, Cambodia and People's Republic of China. They performed an econometric analysis and found that factors which were important for SMEs were high productivity, foreign ownership, favorable financial access, active innovation activity, and positive and challenging managerial/ entrepreneurial attitudes. Size of the firm although found to be insignificant for GVC participation, it did matter for upgrading of a firm in GVCs.

A firm-level probit estimation conducted by Wignaraja (2013) for SMEs in five ASEAN countries, namely Malaysia, Thailand, the Philippines, Indonesia, and Viet Nam using World Bank's enterprise survey data which covers 5,900 manufacturing enterprises revealed that factors like firm size, foreign ownership, Managers' educational background, Workers' educational background, Access to finance ISO certificates, and patents are significantly positive, while firm age is significantly negative. A Malaysian study by Arudchelvan and Wignaraja (2015) conducted by obtaining data from a survey of 234 exporters and importers in Malaysia, used probit estimation found that firm size, licensing of foreign technology, and research and development investment are positively associated with GVC participation, while firm age, foreign ownership, and labor productivity have no statistically significant correlation with GVC participation. Similar study by Lu *et al.* (2018) was conducted for Chinese firms with a sample size larger than 2,00,000 and they identified that financial constraint affects first-time exporters but not continuous exporters. Also, firm size, R&D, market concentration, processing trade, state-owned enterprises and foreign firms, have positive correlation with a firm's GVC participation while firm age has a negative correlation.

The empirical findings of Urata and Baek (2020) are also consistent with the earlier studies and they found that factors like labor productivity, high technological capability, firm size, foreign ownership, and quality certification have statistically significant and positive influence on both GVC participation and GVC participation index. This indicates that these factors not just promote GVC participation but also increase the level of engagement in GVCs. Masunda and Mupaso (2019) use firm-level data to explore microeconomic factors affecting global value chain (GVC) participation in Zimbabwe and found that access to credit and firm size are important in promoting intra-firm trade.

## CONCLUDING REMARKS

This paper attempts to identify the important factors enhancing a country's integration into global economy and it was found that the empirical studies

on GVC determinants have been scarce but growing. It is indicated in most of the GVC studies that relative importance of each factor differs when different indicators of GVC participation are considered. Few of the prominent GVC indicators discussed in the empirical literature are backward participation, forward participation, VAX ratio etc. Higher per capita GDP may promote higher backward GVC participation as it enables a country to import more but it may not influence forward participation positively unless some structural changes are also made.

Studies have also attempted to distinguish between the effects of policy and non-policy factors on traditional trade and GVC trade and have reported that the effect of factors like trade policy, FDI, geographical distance, and factor endowments on GVC trade is more than on traditional trade. However, such attempts to distinguish the effects of various other factors on GVC trade and traditional trade must be continued.

There are studies which offer a broad picture of GVC participation in the world by considering several factors but such studies need to be complemented by country specific studies. The paper considered several policy, non policy, institutional and firm related factors which promote GVC participation and it is clear that the factors affect different regions and countries differently. For example, a long operation period is found to be important for increasing the level of GVC participation for SMEs across the world, but not for SMEs in Asia. This necessitates country specific studies.

Also the current literature on GVCs focuses less on examining the causal relationship between these factors and GVC participation. In case of factors like FDI, firm productivity and GDP per capita, the relationship between them and GVC participation could go both ways and this remain largely unexplored. The paper concludes by suggesting that there is a huge scope for exploring the characteristics of countries having higher GVC engagement and the key drivers behind it.

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