

Global Value Chains: Asymmetries, Realities and Risks



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I. INTRODUCTION

Manufacturing and international trade have witnessed a paradigm shift over the past few decades. Firms no longer manufacture and export exclusively final and finished products. Instead of undertaking all the stages of production at one geographical location, firms tend to specialize in specific stages of the production process that can be dispersed geographically. These related tasks combine to create a global value chain (GVC). Baldwin (2006) describes this phenomenon as production being “sliced and diced” into separate fragments that can be spread around the globe. As a result, “international trade takes place at a more granular level rather than at the goods level” (Van Assche, 2012). With the objective of optimizing costs, horizontal and vertical integration of the production process have existed for the last few decades, but GVCs have become more widespread in recent years. Existing literature has mostly focused on the positive impact on developing countries of participation of their firms in global value chains. Growing prominence of GVCs is viewed as having “far-reaching effects on competitiveness, cross-national transfer of new technology, ideas, skills, knowledge and learning, and potentially offers greater opportunities for achieving welfare gains” (UNIDO, 2004). However, it is also a reality that global value chains have thrived on the back of many asymmetries; an aspect that has not been analysed in detail in existing literature. Further, there is scant exploration of the role of international trade and investment agreements in creating and deepening the asymmetries. This short paper seeks to identify some of the asymmetries in GVCs, and the role of international trade and investment agreements in deepening them.

Subsequent sections of this paper are organised as follows: Section II briefly reviews the literature on definitional aspects of global value chains and discusses some of the factors that explain the rise of global value chains. Thereafter, it discusses some of the policy-related variables that influence the decision of lead firms to locate various activities of a global value chain in specific geographies. Section III summarises two approaches for measuring integration of countries in global value chains. Section IV identifies some of the asymmetries in global value chains and uses case studies from different sectors to illustrate the asymmetry in incomes generated from different value chain activities. Section V provides some reasons why firms from developing countries remain locked-in at the lower end of global value chains. Section VI

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discusses the role of international trade and investment agreements in creating and deepening some of the asymmetries in global value chains. This provides the context for Section VII, which discusses the narrative emerging on GVCs, particularly suggestions for closer international cooperation for facilitating trade through global value chains. Section VIII concludes the study and provides suggestions for future research on linkages between global value chains and international trade and investment agreements.

II. WHAT ARE GLOBAL VALUE CHAINS AND WHY DID THEY EVOLVE?

a. What are Global Value Chains?

A global value chain (GVC) "is a chain of separate but inter-linked and coordinated activities, which can be undertaken within a single firm or be divided among multiple firms in different geographical locations" (UNCTAD, 2007). Sturgeon defines GVCs as "the sequence of productive (that is, value added) activities leading to and supporting end use" (Sturgeon 2001). GVCs can cover a full range of interrelated activities performed by firms in different geographic locations to bring out a product or a service from conception to complete production and delivery to final consumers. Typically, a GVC is structured around a lead firm, frequently located in a developed country, and a network of suppliers in developing countries. The suppliers can either be foreign affiliates of the lead firms or subcontractors.

b. Different types of GVCs

GVCs can be broadly classified into two categories: buyer –driven supply chains and producer-driven supply chains. Buyer-driven chains refer to those industries in which large retailers, marketers, and branded manufacturers play the pivotal role in setting up decentralized production networks typically located in developing countries. Production is generally undertaken by networks of developing countries' firms that manufacture finished goods for foreign buyers. The specifications of the goods to be manufactured are generally supplied by the large retailers or marketers that order the goods. One of the main characteristics of the firms that fit the buyer-driven model is that these companies design and/or market. However, they do not manufacture the branded products they order. Retailers such as Wal-Mart, Sears, and J.C. Penney and athletic footwear companies including Nike and Reebok, are good examples of buyer-driven supply chains. Profits in buyer-driven chains accrue from "research, design, sales marketing, and financial services that allow the lead firms to coordinate and link overseas factories and traders with evolving product niches in their main consumer markets" (Gereffi 1999). In producer-driven chains, manufacturers making advanced products like aircraft, automobiles, and computers are the lead firms. They exert control over backward linkages with raw material and component suppliers, and forward linkages into distribution and retailing. The lead firms in producer-driven chains usually belong to global oligopolies. Subject to a few exceptions, most of

the GVCs are buyer-driven in the sense that the lead firm as the buyer exercises control over the chain even in the absence of ownership. The nature of relationship between the buyer and suppliers - generally referred to as GVC governance - is determined by various factors, including supplier competence and risk of supplier failure.

c. How do lead firms benefit from GVCs?

Off shoring and the rise of GVCs can be viewed as a consequence of broader corporate strategy shift, which has given firms "the chance to raise profits while keeping price increases low by reducing costs, raising flexibility, offloading risks, and occasionally bypassing labor and environmental regulation, all the while retaining rents from design, marketing, and financial activity" (Milberg and Winkler, 2013). Lead firms in GVCs benefit from labour cost arbitrage based on geographic variation, efficient infrastructure, and capabilities in manufacturing, marketing and logistic. By relocating production processes and various upstream and downstream activities in different countries, lead firms can "take advantage of the best-available human or physical resources in different countries, with a view to maintaining their competitiveness by augmenting productivity and minimizing costs" (UNCTAD, 2011). Lead firms seek to reduce the cost of organising the chain, coordinate with dispersed and varied suppliers, decide what is to be produced and by whom, and monitor performance. This may involve a trade-off between gains derived from lower manufacturing costs at distant geographical locations, and costs incurred in transportation, managing risks and coordination across different locations (WTO 2011).

d. What factors explain the rise of GVCs?

Sharp reduction in transportation costs, advancements in information and communication technology, and trade and investment liberalisation have facilitated fragmentation of the production process across multiple countries. This has resulted in increasing the importance of GVCs. As a result of advancements in international transport, intermediate goods move faster to manufacturers, and final goods reach customers quickly and at declining costs. This is extremely important in the context of GVCs; as products in a value chain usually cross multiple borders in distant locations, transportation costs get magnified. Overall freight rates are estimated to have declined by 65 per cent between the 1950s and the 1990s (WTO, 2011). This has significantly reduced the cost of undertaking task trade, and enabled economies to disperse production in geographically distant locations (Yi, 2003). This has contributed to the evolution of GVCs.

Rapid advancement in production technology and cheaper and faster intercontinental communication has enabled various industries to unbundle and slice up their production process. This has allowed "far-flung businesses and production centres to coordinate geographically

separated tasks" (WTO, 2011). GVCs in the electronics sector provide a useful illustration of the role of technological advancements in facilitating technical divisibility of production processes. Digitisation has facilitated codification and standardization of components and other system elements. This has "enabled production in dispersed geographical locations with minimal risk of miscommunication and modest cost of monitoring and coordination" (Leamer and Storper, 2001; Blinder, 2006). This "product modularity" has also enabled component producers and other firms in the supply chain to be substituted without a need for fundamental and comprehensive engineering changes to redesign the entire product (Langlois and Robertson, 1995; Balconi, 2002; Langlois, 2003). Furthermore, advances in communication technologies have reduced the cost of exchange of data and facilitated coordination between chain actors by standardisation of processes (Trienekens, 2011).

e. Drivers of integration into GVC

The decision of lead firms to locate various activities of the GVC is based on a complex mix of variables. GVCs initially focused on shifting production to the lowest cost location. Subsequently, other factors such as benefits of locating different stages of production in geographical proximity, reducing shipment costs, ease of logistics management; increased timeliness in delivery, institutional and legal framework of a country etc. became important determinants of decisions regarding location of dispersed production (Van Assche, 2012). Some of the trade and investment policy related variables that can influence the decision of the lead firm to locate GVC-related activities in specific countries include import tariffs, duty-free market access in other countries and investment protection. Lead firms generally prefer to delocalise the last blocks of GVCs in countries that benefit from duty-free or preferential access to final markets. This explains the trend towards delocalising the automotive industry to Latin America or Eastern Europe so as to take advantage of duty-free access to large consumer markets in geographical proximity (UNCTAD, 2011).

Trade policies and favourable business environment are undoubtedly crucial in facilitating integration of firms into GVCs. Existing evidence suggests that low tariffs on inputs and intermediate products have contributed to the delocalisation of production processes in industries such as information technology and communication. However, the relative role of the trade and investment policy variables as drivers of GVC integration may have changed over time. To illustrate, UNCTAD (2013) has estimated that the increase in trade on account of change in business environment would be three times higher than the increase in trade from lowering of tariffs on intermediate products for low-income to middle-income countries; and almost ten times for middle-income to high-income countries. This underscores the diminishing role of tariffs as a driver for integration into GVCs. As more countries move towards zero duty trade regimes under FTAs, the relative advantage provided by open trade policies may be necessary,

but not sufficient, to make a country attractive for the localisation of the fragmented global production. At least three other factors are equally important.

First, availability of adequate resources including technical knowledge and managerial capabilities constitutes one cluster of conditions necessary for successful integration into GVCs (Trienekens, 2011). Second, in order to reduce inventory costs and synchronise delivery schedules for different tasks, GVCs rely on just-in-time goods flow. Poor transport infrastructure results in high transportation costs because of higher fuel consumption and maintenance, large inventories and inventory costs, long and uncertain delivery times and congestion in port areas (Memedovic et al, 2008). Gamberoni et al (2010) have found evidence that a location's ability to export on time is at least as important a source of comparative advantage as the costs of labour, capital and other inputs in the export of intermediate goods. Thus, a lead firm must have access to efficient transportation system and trade-related infrastructure in the country of its suppliers. Third, availability of efficient logistics services and a wide range of business services - business coordination, sourcing of raw and semi-finished components, technical support, financing, marketing, etc. - have also become a key determinant of the decision to outsource. This factor explains the rise of Hong Kong China and Singapore as hubs for global supply chain activities including business services, logistics and entrepôt services. These territories have also achieved specialisation as freight distribution clusters and consequently, they facilitate the transshipment of intermediate goods, particularly of Chinese origin (WTO, 2011).

III. MEASURING GVC INTEGRATION OF COUNTRIES

In order to identify the countries that are prominent beneficiaries of GVCs, it is useful to understand how integration of countries into GVCs is measured. While there is no universally accepted methodology for assessing the extent of trade through GVCs and integration of countries into GVCs, various studies have used two approaches. As fragmented production processes frequently require parts, components and sub-assemblies to cross borders multiple times before finished goods are shipped for final consumption in final markets, some studies use trade in intermediates as a good indicator of GVC trade (see, for example, Feenstra, 1998). The second approach relies on assessing the import content of exports using input output tables. This approach has been refined substantially by the OECD-WTO Trade in Value Added (TiVA) database. This section also briefly discusses India's participation in GVCs.

a. Trend of trade in parts and components

Trade in parts and components and other intermediate products lies at the heart of a GVC. In a GVC, typically intermediate products would cross national boundaries multiple times. The (WTO, 2011) shows that intra-EU and EU-North American trade account for the largest proportion of trade in intermediate manufacturing products. Most trade in intermediate goods is conducted intra-regionally (Athukorala and Yamashita 2006; Curran and Zignago 2011),

suggesting that sequential manufacturing stages in the value chain are located in proximity to each other. Trade in intermediate inputs accounts for roughly two-thirds of international trade (Johnson and Noguera 2012).

Based on the data compiled by Authokorala and Nasir (2012), it is seen that trade in network products as a percentage of world manufacturing exports increased from 43.74 per cent in 1990, peaked at 55.89 per cent in 2000, and thereafter dipped gradually to 50.85 per cent in 2010. Further, trade in parts and components increasingly accounts for a larger share of overall trade in network products. During the 1990s, 51 per cent of trade in network products was on account of trade in parts and components. The share of parts and components trade in total network trade increased to 58 per cent in the decade of 2000. This 20-year trend highlights not only the increasing salience of trade in network products, but also the important role being played by trade in parts and components in overall network trade.

b. Using foreign value-added as an indicator of GVC integration

A more sophisticated approach to assessing the extent of GVC trade and integration of countries into GVCs is based on Koopman et al (2010). Under this approach, an international supply chain distributes value-added shares among countries in a particular industry. Within the supply chain, each producer purchases inputs and then adds value, which is included in the cost of the next stage of production. The Koopman framework distributes all value-added in a country's exports to its original sources. It completely decomposes each country's gross exports into its value-added components, thereby establishing a formal relationship between value-added measures of trade and standard trade statistics. Under the approach, gross exports are split into domestic value-added that is exported, domestic value added initially exported but ultimately returns in home country's imports, and foreign value added embodied in gross exports. Domestic value-added export is split into four parts. This allows for clearly distinguishing each country's position and role in global value chains. Domestic value-added exports can be either absorbed by the importing country or exported to third countries. The portion that is absorbed by the directly importing country includes domestic value-added in: (i) final goods exports, and (ii) intermediate exports that are transformed into final goods and absorbed by the direct importer. The portion not absorbed by the direct importer includes domestic value-added in two additional parts: (iii) intermediate inputs that are transformed into final goods and exported to a third country for consumption, and (iv) intermediate inputs that are used to produce other intermediates and sent to a third country for further processing. Measuring value-added embodied in exports requires construction of a database detailing international production and use for all flows of value-added. To precisely define such chains across many countries, the database must quantify the contribution of each country to the total value-added generated in the process of supplying final products (Koopman et al., 2010).

Using the foreign value-added in gross exports in 2004 as a basis for assessing the integration of different economies in GVCs, Mexico, Philippines, Taiwan, Malaysia, Thailand, Vietnam and China emerge as being more integrated in GVCs than the EU, Japan and the US (Table 1).

Table 1: Share of Foreign Value-Added in Gross Exports (2004)

Country	Share of Foreign Value Added in Gross Exports (2004)
Advanced Economies	
Australia, New Zealand	11.5
Canada	28.1
EFTA	25.2
EU	11.4
Japan	12.2
United States	12.9
Asian NICs	
Hong Kong	27.5
Korea	33.9
Taiwan	41.1
Emerging Asia	
China	35.7
Indonesia	22.9
Malaysia	40.5
Philippines	41.9
Thailand	39.7
Vietnam	37.0
Rest of East Asia	21.7
India	20.1
Rest of South Asia	21.3
Other emerging economies	
Brazil	12.7
EU accession countries	30.8
Mexico	48.0
Rest of Americas	14.4
Russian Federation	10.2
South Africa	18.2
Rest of the world	14.6
World average	21.5

Source: Koopman et al. (2010)

Using an approach similar to that of Koopman et al (2010), OECD has constructed a detailed database called Trade in Value-Added (TiVA) Database. The 2015 edition of the TiVA database includes 61 economies covering OECD, EU28, G20, most East Asian and South-east Asian economies and a selection of South American countries. The industry list covers 34 unique industrial sectors, including 16 manufacturing and 14 services sectors. The years covered are 1995, 2000, 2005 and 2008 to 2011. At the backbone of the TiVA Database are the harmonized Input-Output (I-O) tables from different countries, which are linked with bilateral trade data in order to estimate the share of domestic value-added both in exported and imported goods and services. It also tracks down foreign value-added to the original source country. The OECD TiVA methodology takes cognizance of the possibility that a part of the value of the imports from the last known exporting country may originate from third countries. Overall, the methodology underlying the TiVA Database requires a full set of inter-country I-O tables, where all bilateral exchanges of intermediate goods and services are accounted for (Trade in Value-Added: Concepts, Methodologies and Challenges: Joint OECD-WTO Note available at <http://www.oecd.org/sti/ind/49894138.pdf>).

Table 2 provides the details of total foreign value-added in gross exports of some of the economies included in the TiVA Database. Extracts from two country notes – India and Korea-suggest that the OECD appears to use the foreign content of exports as the indicator of integration of a country into GVCs. “India has seen an acceleration in its integration into global value chains over the last two decades with the foreign content of its exports more than doubling from less than 10% in 1995 to nearly one quarter in 2011” (OECD October 2015, Trade in Value-Added: India, available at http://www.oecd.org/sti/ind/tiva/CN_2015_India.pdf). “Korea is highly integrated within global value chains, with the highest share of foreign content (41.6%) of exports in 2011 in the G20” (OECD October 2015, Trade in Value-Added: Korea, available at http://www.oecd.org/sti/ind/tiva/CN_2015_Korea.pdf).

Table 2: Total Foreign Value-Added in Gross Exports (%)

	2008	2009	2010	2011
Australia	13.75	13.08	12.98	14.1
France	24.77	21.59	23.74	25.13
Germany	24.77	21.87	23.34	25.54
Italy	25.79	21.2	24.95	26.49
Japan	15.77	11.2	12.73	14.68
Korea	41.76	37.53	39.24	41.7
Mexico	32.75	33.55	34.47	31.71
Norway	16.19	17.49	17.68	17.16
United Kingdom	19.54	18.89	21.14	23.05
United States	15.62	11.6	13.44	15.03

Brazil	12.54	9.99	10.34	10.77
China	31.77	30.82	32	32.16
Hong Kong, China	21.98	19.2	20.14	20.41
India	22.66	20.97	22.31	24.1
Indonesia	14.62	11.08	11.08	11.97
Malaysia	41.23	40.04	41.73	40.62
Philippines	31.93	27.05	27.72	23.58
Russia	13.89	12.7	13.1	13.72
Singapore	37.47	41.85	41.32	41.81
South Africa	23.8	18.81	17.92	19.47
Chinese Taipei	44.22	37.86	41.77	43.58
Thailand	39.25	34.58	36.57	38.99
Viet Nam	35.42	32.85	34.71	36.26
Rest of the World	10.91	12.17	11.39	10.64

Source: OECD Stat, Trade in Value Added (TiVA) – October 2015

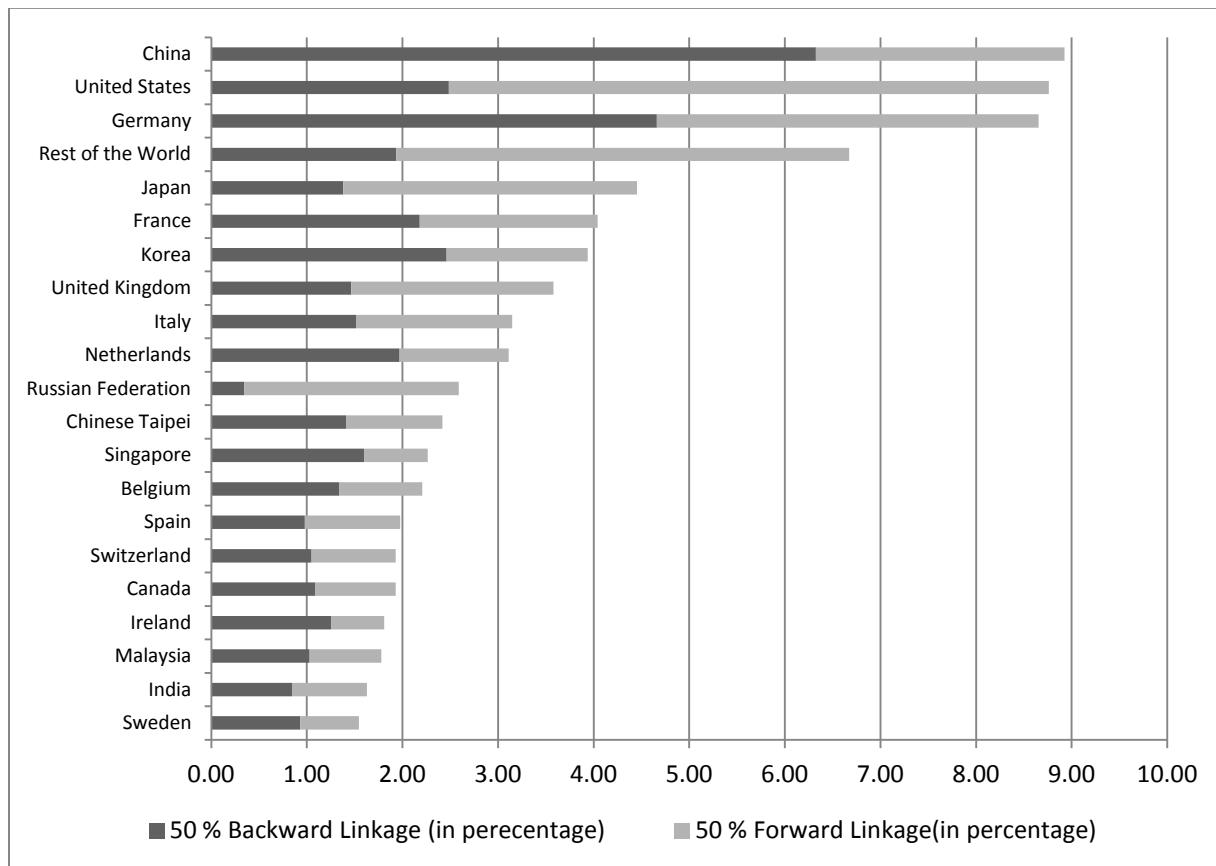
The OECD approach of using foreign value-added in gross exports as an indicator of GVC integration is consistent some other studies in literature. To illustrate, Miroudot and Ragoussis (2009) estimate that the average import content of exports rose for OECD countries from 26 percent in 1995 to 31 percent in 2005, indicating the increasing integration of these countries in GVCs. However, this approach appears to ignore the reality that a country may be integrated into GVCs even if its domestic value-added is contained in further downstream exports of another country. Under the OECD methodology, the US would not appear to be integrated into GVCs. This shortcoming is addressed by an alternate view of participation in GVCs as discussed in the next sub-section.

c. An alternate view of participation in GVCs

A country's integration into GVCs can be through two channels. First, upstream foreign value-added imports contained in the country's gross exports (Backward Linkage); and second, domestic value-added exports of the country which are embodied in further exports of other countries downstream (Forward Linkage). The extent of integration of a country into GVCs through either of the two channels can be assessed by its share in Forward Linkage and Backward Linkage. Overall participation rate of a country in GVCs can be assessed by taking the average of the shares in Forward and Backward linkage (Banga, 2013). Her study finds that the share of OECD countries in participation in GVCs is 66%, share of China is 9 % and that of other BRICS countries is 7%; while the share of the rest of the world, which includes all LDCs and developing countries (excluding BRICS) is 18%. In contrast to the OECD approach, which relies mainly on foreign value-added in gross exports to assess the integration of a country in GVCs, Banga (2013) adopts a more composite perspective by using both Forward and Backward

linkage to calculate the participation in GVCs. Using the methodology of Banga (2013), figure 1 shows the participation rate of the top 20 economies in 2009. Under this methodology, China has the highest participation in GVCs. It is of interest to note that the country second to China in terms of GVC participation is the US. In fact, the US contributes the maximum value-added to further downstream exports of other countries. This fact remains completely masked under the approach of OECD-WTO, which focuses attention mainly on foreign content of gross exports as an indicator of GVC integration.

Figure 1: Participation Rate (in %) of top 20 economies in 2009



Source: Authors' calculations based on Banga (2013) using TiVA Database May 2013 version

d. GVCs and India

Having discussed some of the approaches used for analysing integration of countries in GVCs, this sub-section specifically discusses India's integration. Based on the OECD- WTO Trade in Value-Added (TiVA) database, OECD has concluded that India has seen acceleration in its GVC integration. As evidence, the OECD points out that over the last two decades, the foreign content of India's exports increased from 10% in 1995 to 24% in 2011. Koopman et al (2010) estimate the extent of foreign value-added in India's exports in 2004 to be 20%.

However, there is little empirical estimation of India's domestic value-added that is contained in further downstream exports of other countries. Instead of taking the foreign content of India's exports as an indicator of GVC integration, Banga (2013) uses the TiVA database (2013 version) to analyse participation of different countries in GVCs in 2009 by using the share in total value-added created by GVCs through both Forward and Backward linkages. While China (9.8%), the USA (8.8%) and Germany (8.5%) have high participation in GVCs, India's participation is relatively lower at 1.8 %. It is relevant to note that, at this juncture, this methodology for calculating GVC participation is not possible for a more recent year as the latest update of the OECD TiVA database has failed to continue to provide granular data regarding downstream flow of value-added originating in different countries.

While the OECD has viewed the increase in the foreign content in India's exports to be the indicator of an acceleration in its GVC integration, Banga (2016) has empirically established that the higher foreign value-added in India's exports has significantly and adversely impacted industry-level employment growth in India. Further, growth in forward linkage was found to have statistically insignificant impact on employment growth.

There are few sector-specific studies on GVCs and India. Automobile industry is often perceived as a success story in GVC. India's automobile industry has achieved a global footprint. While most global original equipment manufacturers (OEMs) and component majors are well-established in India, local OEMs, such as Tata Motors, Mahindra and Mahindra and TVS Motors, suppliers such as Bharat Forge and Sundaram Fastners, have a significant global presence. Many OEMs perceive India as a significant global sourcing hub for auto components as well as specific products such as small cars (Nag 2011). The increase in the IT-embeddedness of automobile components and India's established capacity in IT-enabled design has led to companies in India further strengthening their position within component design and manufacture (Nathan and Kalpana, 2007).

Turning to the apparel sector, most of the Indian firms that are integrated into GVCs are full package suppliers to some global brands. An important trend observed is that buyers like Gap, banana republic, retailer and department stores such as J. C. Penny, source small volume of high value products from India. Another important trend is that several EU and US speciality stores such as Nike source from Indian producers when the items have complicated design with complex patterns, many fabrics and a variety of colours. Given the complexity of such orders, a mass producer in China may not be able to handle it. The historically small scale of operations in Indian apparel sector, which has constrained productivity growth, has opened new and distinct paths to value addition (Tiwari 2005). Another study by Tiwari (2001) indicates that some of the Indian firms in the textile and clothing sector are seeking to access distribution channels for their products by acquiring a stake in small European companies. These firms are progressively utilising the logistics capabilities and distribution channels of their affiliates to learn about new products, and to access a new demanding market.

IV. ASYMMETRIES IN GVCs

GVCs are characterised by many asymmetries which have implications not only for developing country firms integrating into the supply chains, but also for trade policy and future international trade negotiations. The ability of lead firms to generate and maintain the asymmetry is at the core of their cost-cutting and maximising rent seeking strategy. It is, therefore, important to turn our attention to some of the key asymmetries in GVCs.

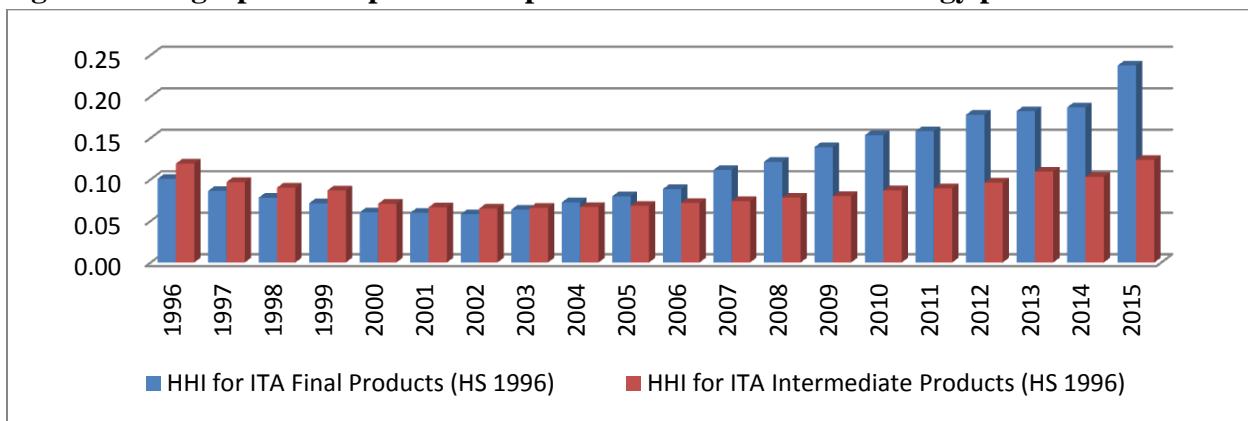
a. Asymmetry of market structures with oligopoly lead firms and intense competition among suppliers

First, in general there are very few lead firms in supply chains of final products. Thus, GVCs are characterized by oligopolistic market conditions in the markets for the final products of the lead firms, but intense competition among suppliers of parts and components (Milberg and Winkler, 2013). This asymmetry in market structures at the top of the GVCs and those in different tiers below appears to have deepened over time. As GVCs are prominent in the manufacture and sale of computers and other information technology products, it is relevant to consider the structure of markets for these products. The market for personal computers was initially dominated by a few lead firms, including Compaq, IBM, NEC, Apple, HP, Dell, Toshiba and Fujitsu. In 2003, Acer and Asus joined the ranks of top lead firms in this sector. In 1996, the top three lead firms accounted for 24.6 per cent of global sales of personal computers. However, with the top three lead firms constituting 51.6 per cent of global sales in 2005, the market at the top of the supply chain got significantly concentrated over the next two decades. This example illustrates the “global business revolution,” which has “produced an unprecedented concentration of business power in large corporations headquartered in the high-income countries” (Nolan et al. 2002).

A concomitant analysis (figure 2) suggests that over the years exports of information technology final products that are included in WTO’s Information Technology Agreement have become geographically more concentrated than the exports of intermediates in this sector. Herfindahl-Hirschman Index (HHI)³ for geographical concentration of exports of final products increased from 0.063 in 2003 to 0.237 in 2015. On the other hand, the HHI for intermediates increased from 0.064 in 2003 to 0.123 in 2015. Overall, these trends taken together appear to suggest greater consolidation at the top of the value chain, as compared to the lower tiers.

³ Increasing HHI suggests that fewer countries are exporting the final products.

Figure 2: Geographical dispersal of exports of Information Technology products



Source: Authors' calculation using World Integrated Trade Solution (WITS) data

b. Asymmetric relationship between lead firms and suppliers

Second, there is asymmetry in the relationship between GVC lead firms - based mostly in developed countries- and developing country supplier firms linked to the lead firm. This is a result of oligopolistic conditions prevailing at the top of value chains, while intense competition, consistent with oligopsonistic conditions, prevail in supplier markets mainly in the manufacturing segments. It is not surprising that the relationship between lead firms and suppliers is considerably skewed in favour of the former. Lead firms often dictate the terms of supply, because "they select and place orders on suppliers" (Sturgeon and Memedovic, 2011). Supplier firms being subject to pressure from buyer lead firms on supply price, delivery time, quality, and payment schedule appears to be the norm in GVCs (Milberg and Winkler, 2013). Further, in industries in which production technology is standardized, for example apparel, footwear, airlines, computers, consumer electronics and even to some extent automobiles, branding tilts bargaining power in the production process to the firm that holds the brand design (Milberg and Winkler, 2013).

c. Asymmetric liberalisation in different segments of GVCs induced by bilateral and multilateral trade agreements

It is relevant to address an important question - what has led to asymmetric market structures at the top of GVCs and those in the lower tiers? Due to progressive tariff liberalisation at GATT/WTO, manufacturing has low barrier to entry, resulting in high competition. On the other hand, non-manufacturing segments of GVCs are almost totally insulated from competition, in part due to strong protection of intellectual property rights. While we will address this issue in more detail subsequently, it is relevant to recall that "those who command rents, and have the ability to create new domains of rent when barriers to entry fall, are the beneficiaries. By contrast, those

who are stuck in activities with low barriers to entry lose, and in a world of increasing competition, the extent of these losses will increase over time" (Kaplinsky, 2000).

d. Asymmetry in GVC activities undertaken by firms in developed countries and those in developing countries

Fourth, there is an asymmetry in the location of firms by activities. Developing country firms are concentrated mainly in the manufacturing segment of GVCs. On the other, firms from developed countries significantly dominate activities preceding manufacturing segment of GVCs, such as research and development, product design, product testing and succeeding the manufacturing segment of GVCs including freight and logistics, marketing, branding, financing, and after-sales service.

e. Asymmetry in incomes generated in manufacturing and non-manufacturing segments of GVCs

Fifth, there is considerable case-study based literature suggesting that there is asymmetry in the incomes generated from different activities in the GVCs. Incomes from the manufacturing segment of GVCs are significantly lower than incomes derived from other GVC related activities. This reality is captured in the so-called "smiley curve". Further, the gap between incomes from non-manufacturing activities and manufacturing segment of GVCs has deepened over time (Baldwin, 2012). "The competitive nature of the market at the lower ends of manufacturing increases the substitution possibilities, and thus reduces the bargaining power of any one firm" (Milberg and Winkler, 2013). Consequently, in a world in which shifting competitive advantage leads to producers being forced out of the market, it is not surprising that manufacturing tasks generate the least valued added in a GVC. The lead firms benefit from the severe competition among numerous and almost identical suppliers, and select the ones that meet their short-term requirements. On the other hand, lack of competition in the non-manufacturing segment of GVCs through instruments such as patents and trademarks have ensured that lead firms based in developed countries continue to capture most of the incomes from GVCs.

Literature provides many case studies suggesting that manufacturing generates the least income compared to other activities in a GVC. It is useful to briefly mention some of these studies from different product groups. These cover a wide range of products (IT products, textiles, agricultural products, etc.), and generally suggest that most of the incomes in GVCs arise from activities at the non-manufacturing segment.

Using the iPod as an example of global manufacturing, Linden, Kraemer and Dedrick (2007) have estimated that in this product only \$ 4 out of the total retail price of \$ 299 can be attributed to producers located in China while most of the value accrues to the US, Japan and Korea. The

tasks that create high gains include product design, software development, product management, marketing and other high value functions undertaken in the US.

Decomposing the total retail price of Nokia N95, Ali-Yrkko et al (2011) have shown that, although the phone is mostly 'made' in Asia, most of the value-added accrues in Europe. In the case of an N95 assembled in China and sold in the US almost 68 per cent of the value-added is in Europe. An analysis of iPad tablet computer has estimated Apple's gross margin for the product to be 54 per cent (Hesseldahl 2010).

Another interesting case study of the distribution of gains in GVCs is provided by Sturgeon and Kawakami (2011), who studied the personal computer value chain. Their analysis shows that IBM accounted for more than 50 per cent of profit in sale of Dell computers, followed by 20 per cent made by the lead firm (Dell) and extremely low profit of below 5 per cent made by the Taiwan based contract manufacturer Quanta. This underscores the important point that compared to other activities in a GVC, the manufacturing segment usually generates the lowest income.

In a study of the textile and apparel industry, Tiwary (2005) recounts the experience of an Indian producer focusing predominantly on home furnishing of silk for high-end export market. The company imported quality inputs from China, and focused on design and rapid delivery of small batches of highly customised home furnishing fabric. Despite producing a high-end exclusive home furnishing product, the producer's unit value was on an average about US \$20 per metre. However, these products were retailed on almost 5 to 6 times the unit value of the producer by its clients in the US and the EU. This example illustrates how most of the value of the retail textile product was captured in the EU and the US and not by the Indian manufacturer.

Agriculture value chains typically comprise primary producers, processors, international traders and global retailers. Most of the gains in agriculture-based GVCs are concentrated in international trading. Examples of high concentration of gains are found in many agribusiness value chains. In the coffee industry, for example, the four largest international trading companies account for 40% of the gains and roasters have a share in gains of 45%. In the cocoa market, share in gains of trading companies, cocoa grinders and confectionary manufacturers range from 40% to 50% (World Bank, 2007). Liberalisation of world cocoa markets has resulted in a strong concentration in downstream part of the value chain, where a few trans-national corporations (TNCs) form an oligopsony. Hence, despite Cote d'Ivoire accounting for 40 per cent of world cocoa supplies, it is not in a position to exercise its selling power (Dorin, 2008).

Dolan et al (1999) show how the lion's share of income in exports of fresh vegetables from Kenya accrues to the marketing end of the GVC. According to their estimate, income to the producers account for about 14 per cent of the final price. In contrast, more than thrice of this income (around 45 per cent) accrues to supermarkets. In the case of canned deciduous fruit, incomes accruing to growers (12.4 per cent) are less than half of the incomes of retailers in developed countries (26.7 per cent) (Kaplan and Kaplinsky, 1999).

Overall, based on illustrations across different sectors, it can be concluded that the manufacturing segment generates relatively lower income compared to other activities in GVCs. It is the skewed bargaining strength of the lead firms over the suppliers, rather than market forces, that determine the distribution of incomes among different sections of GVCs.

f. Asymmetry in employment generated by different activities in GVCs

Sixth, there is an asymmetry in the level of employment generated in different segments of the GVCs. Milberg and Winkler (2013) provide the illustrative case of Apple, which had only about 60,000 employees in the United States in 2012, whereas its subcontractors abroad employed approximately 700,000 workers. Apple employees in the United States have an average annual profit per employee of about \$400,000, whereas many workers at Foxconn (the Taiwanese-owned, China-based contract manufacturer that does the iPhone assembly) earned less than \$400 per month in 2012 (Duhigg and Bradsher 2012; Barboza and Duhigg 2012).

g. Asymmetry among countries in GVC participation

Seventh, despite the growing importance of China, overall participation in GVCs through backward and forward linkages is skewed in favour of developed countries. as already pointed out in Section III (c) Banga (2013) has estimated that the share of OECD countries in participation in GVCs is 66%, share of China is 9 % and that of other BRICS countries is 7%; while share of rest of the world, which includes all LDCs and developing countries (excluding BRICS) is 18%.

h. Asymmetry in value-added generated by GVC exports

Eighth, not all countries gain equally from GVC participation. Japan, the USA and in a few cases China, gain disproportionately higher amounts from participation in GVCs compared to other countries. To illustrate, our calculations using OECD Trade in Value-added (TiVA) database (May 2013 version) show that while \$1,000 of Mexico's GVC exports⁴ generate \$186 of value-added in the USA, on the flip side \$1,000 of USA's GVC exports generate only \$8 in Mexico. Similar disparities in relative value-added creation from GVC exports exist for Chinese Taipei, Cambodia, Malaysia, Philippines and Singapore on one hand, and the USA on the other. This asymmetry perhaps reflects the difference in the type of value chain activities undertaken by the US (mainly non-manufacturing activities) on the one hand and those by the other countries (mainly manufacturing), on the other.

i. Asymmetry in value-added generated by firms in developed and developing countries

Ninth, the most important asymmetry is the fact that overall, most of the value added in a GVC is captured by firms in developed countries, with only a small fraction accruing to developing

⁴ Mexico's domestic value-added contained in further downstream exports of other countries.

countries' firms. This conclusion can be deduced from the eight asymmetries discussed in the preceding part of this section.

Given the asymmetries highlighted above, a logical conclusion could be that developing country firms that are integrated in GVCs should move away from the manufacturing segment; instead they should undertake more value-added activities in the non-manufacturing segments. The next section of the paper discusses the reasons for developing countries remaining locked-in at the lower end of the GVCs.

V. WHY DO FIRMS FROM DEVELOPING COUNTRIES CONTINUE TO REMAIN LOCKED-IN AT THE LOWER END OF GVCS?

It has generally been recognised in literature that activities which generate most of the income are those that precede and succeed the manufacturing stage of GVCs. In other words, most of the income in a GVC is concentrated in activities performed mainly in developed countries such as research and development, product design, logistics, sales, advertising, branding, after-sales activities etc. On the other hand, labour-intensive manufacturing, which is undertaken mainly in developing countries, accounts for a relatively lower share of value-addition in the entire GVC. Tasks based on knowledge-intensive activities are responsible for creating the largest share of a final product's value and provide firms with the largest profit margins.

As discussed earlier, manufacturing activities capture relatively less value compared to activities that precede and succeed the manufacturing segment of GVCs. If developing country producers have to capture higher value from GVCs, it is necessary that they move up the value chain by performing value-added activities instead of being restricted to manufacturing activities. This is generally referred to as functional upgrading. Functional upgrading can take place in intermediary functions, such as a role in collection, category management, packaging and sales of products. We discuss some underlying factors that prevent developing country firms from functional upgradation.

Broadly, there are two main categories of reasons why developing country firms find it extremely difficult, if not totally impossible, to undertake functional upgradation in GVCs. Firstly, reasons intrinsic to capabilities of developing country firms, policy, institutional and infrastructural environment in which they function; and second, extrinsic reasons mainly focusing on governance of the GVC, and asymmetry in power relationship between lead firms and suppliers.

a. Intrinsic reasons explaining the locking-in of developing countries

Typical constraints faced by firms in developing countries include lack of specialised skills and difficulty in accessing technology, inputs, market, information, credit and external services. In general, the more knowledge-intensive an activity, the more lead firms are dependent on specialised and reliable suppliers (UNCTAD 2011). This is one of the reasons why most enterprises in the developing countries are stuck at the low value-added segments of chains, and are operating in sectors where chains are shorter and less technologically-intensive (i.e. the apparel and agro-food sectors).

Important barriers for developing country producers also include the absence of an facilitating eco-system comprising institutional and infrastructural support, availability of resources-financial, technical and manpower- and efficient and effective coordination in value chains. In particular small-scale producers are at a disadvantage because they have little capital to invest, use traditional techniques, depend on family labour and lack contact with (international) market players (De Janvry and Sadoulet 2005; Daviron and Gibbon 2002; Reardon and Barret 2000). Moreover, the enterprises often supply a single lead firm, thus making the entrepreneurship less dynamic and more vulnerable to shocks (UNCTAD 2011). Attempts by developing-country enterprises to develop their own brands, and eliminate intermediaries, more often than not have failed (UNCTAD World Investment Report, 2009).

b. Extrinsic reasons: Lead firms actively resist functional upgradation

Turning to reasons extrinsic to developing country firms, there is considerable literature which recognises that the distribution of value added among various actors is dependent on the governance structure and organizational arrangements in the value chain, bargaining position of actors and information asymmetry between chain stages. Overall, the evidence suggests that lead firms tend to outsource lower-value-added activities, including final assembly, while retaining control over the higher-value-added areas of their core competency, such as R&D, intellectual property, design and distribution (Gereffi and Fredrick, 2010). To illustrate, in the apparel GVC the most valuable activities are found in design, branding and marketing of these products. The high value activities are performed by the lead firms, which typically include large global retailers and brand owners. On the other hand, the manufacturing activities are outsourced to a global network of suppliers, mainly in the developing countries.

Differences in market power and dependency relationships between the lead firms on the one hand, and network of suppliers on the other, have a bearing on the choice of governance regime in trade relationships in GVCs. A powerful party can dictate governance mechanisms and also the distribution of incomes along the value chain. In many cases, the network of contract manufacturers is critically dependent on downstream parties in the chain, such as intermediaries, transporters or exporters, for input supplies and credits on the one hand and market access on the

other. This severely limits the bargaining power of producers in GVCs. Giuliani et al. (2005, referring to Humphrey and Schmitz, 2002) observe that “...firms become tight into relationships that often prevent functional upgrading and leave them dependent on a small number of powerful customers”.

In some sectors, it has been observed that most of the retail buyers (which are also the lead firms in the GVC) discourage, if not obstruct, design, marketing and branding by local producers. Thus, "local producers face obstacles to functional upgradation because such upgrading encroaches on their buyers' core competence" (Schmitz and Knorringa, 1999).

Kaplinski has perhaps provided one of the most insightful reasons explaining why developing countries remain at the lower end of GVCs. According to him “in all product groups the importance of intangible activities and elements in value chains are increasing. This is represented by a shift of costs and rents from the transformation of tangible goods. Thus just as barriers to entry in manufacturing are falling, so barriers to entry in branded marketing are increasing. Similarly, while capacity to physically transform materials into outputs is diffusing (for example, sewing of clothes or manufacture of furniture), the increasingly sophisticated optimisation of inventories and logistics is providing greater power to systems-integrators (such as The Gap and IKEA)” (Kaplinski 2004).

VI. ROLE OF TRADE AND INVESTMENT AGREEMENTS IN CREATING AND DEEPENING GVC ASYMMETRIES

Having discussed the asymmetries in GVCs and the barriers to functional upgradation, it is important to discuss in detail the fundamental question - what is the role of international trade and investment agreements in creating and deepening asymmetries in GVCs. In this section, we explore how international trade agreements have induced significant competition in the manufacturing segment of GVCs, while erecting barriers to entry in some of the non-manufacturing segments including research and development, product design, branding etc. The asymmetries in GVCs have helped the lead firms to maximise their returns. However, maximising returns is not sufficient, if the lead firms do not have the ability to undertake international payments and transfers without restrictions. This objective has been achieved, at least in part, by provisions in international investment agreements (IIAs) and through the General Agreement on Trade in Services (GATS). This section discusses both these aspects in detail.

a. Multilateral and bilateral trade agreements have resulted in deep liberalisation of import tariffs

Intense competition among suppliers in the manufacturing segment of GVCs is a direct consequence of deep liberalisation undertaken by countries during successive rounds of trade negotiations at the GATT, and subsequently at the WTO through three linked channels. First, GATT Contracting Parties decided to bind tariffs on some products; thereby committing not to increase the customs duty above the negotiated bound rates. Second, the bound rates were progressively lowered in successive rounds of multilateral trade negotiations. Third, the percentage of products with bound tariffs was gradually increased. At the conclusion of the Uruguay Round of GATT leading to the establishment of the World Trade Organisation, the developed countries increased the binding coverage of tariff lines from 78% to 99 %, while the developing countries bound 73% of the tariff lines - a significant liberalisation as only 21 % of the tariff lines were bound earlier. Developed countries reduced their tariffs on industrial goods from an average of 6.3 per cent to 3.8 per cent, a 40 per cent reduction. Calculations for 26 developing countries undertaken by the GATT Secretariat suggest that these countries reduced tariffs on industrial products by 30 per cent (GATT Document COM.TD/W/512, dated 10 November 1994). As the initial level of import tariffs was significantly higher in developing countries, as compared to the developed countries, the developing countries have made steeper reduction in their tariffs in absolute terms.

Subsequent to the establishment of the WTO, 82 countries accounting for more than 97% of world trade in information technology products agreed to eliminate import duties on IT products. The process of deepening liberalisation of import tariffs and enhancing competition in IT products was given a further spur in 2015, when 50 countries agreed to eliminate import duties on 201 additional products. It is relevant to mention that the products covered by the Information Technology Agreement and its subsequent expansion include IT products and some consumer electronics as well. Owing to product modularity, these sectors are particularly susceptible to production fragmentation resulting in the prevalence of GVCs. The process of liberalising in the manufacturing segment of GVCs has gathered further momentum through the implementation of 242 preferential trade agreements after the establishment of the WTO in 1995.

b. Curtailing competition in non-manufacturing segments through stringent protection of intellectual property rights

Deep liberalisation in the manufacturing segment of GVCs through trade agreements has been accompanied by a contrasting trend in some other segments of GVCs. In respect of activities undertaken directly by the lead firms in GVCs, such as research and development, product designing, branding etc., multilateral and bilateral trade agreements have been used to restrict competition and to create oligopolistic markets. The Uruguay Round of multilateral trade negotiations resulted in the agreement for protecting trade-related intellectual property rights, popularly referred to as the TRIPS Agreement. While the initial mandate for negotiations on this

issue was aimed at developing a multilateral framework of principles and rules for dealing with international trade in counterfeit goods, the final agreement provided, in part, a comprehensive framework for protection of intellectual property rights. In addition, the provisions of many of the existing legal instruments for protection of IPRs were incorporated by reference in the TRIPS Agreement. These include the Paris Convention for the Protection of Industrial Property, the Berne Convention for the Protection of Literary and Artistic Works, the Rome Convention for Protection of Performers, Producers of Phonograms and Broadcasting Organisations and the Washington Treaty on Intellectual Property in Respect of Integrated Circuits.

These pre-existing legal instruments already provided important basic standards of intellectual property protection. However, there were important gaps in these treaties, which were filled in by the TRIPS Agreement in multiple ways, thereby erecting more stringent entry barriers in segments preceding and succeeding the manufacturing part of GVCs. The outcome of research and development activities of lead firms is protected through patents. The Paris Convention is silent on some important issues relating to the subject matter of patentability, the scope of patent rights and their duration. These gaps were filled by the TRIPS Agreement. The TRIPS Agreement provides for a 20 year period for protection of patents. Further, as the TRIPS Agreement does not define "inventive step", developed countries have set the bar low and treat minor or incremental developments as being patentable. This has allowed lead firms in developed countries to sustain their oligopoly in markets by introducing new brands by minor tweaking of technology.

Although the Berne Convention provides protection to literary and artistic works, the TRIPS Agreement provides for protecting computer programs under copyrights, whether in source or object code, as literacy works under the Berne Convention. The TRIPS Agreement further clarifies that databases and other compilations of data or other material shall be protected as such under copyright even where the databases include individual pieces of data that are not protected under copyright (Taubman et al. 2012). With computer-aided design becoming the norm in a large number of products manufactured mainly through GVCs, copyright protection for computer programmes and databases has helped perpetuate the overwhelming dominance of lead firms in product design and development.

Designs are an important element in imparting distinctiveness to products, and hence are also relevant for product branding. They may consist of three-dimensional features, such as the shape of an article, or of two dimensional features, such as patterns, line or colors. Under the provisions of the TRIPS Agreement, at least ten years of protection must be available for industrial designs. During the period of protection, the owners of protected designs have the right to prevent the manufacture, sale or importation of articles embodying essentially the protected design. This has helped lead firms in many sectors to prevent other firms from imitating their designs. With the possibility of product designs being protected as industrial designs, this has created barriers to entry in the branding segment of GVCs.

Another channel through which entry barriers have been created in product designs is through the provisions in the TRIPS Agreement, which require countries to protect the layout-designs or topographies. These provisions build on the provisions of the Treaty on Intellectual Property in Respect of Integrated Circuits by specifying the term of protection, the treatment of non-willful infringers, the application of the protection to articles containing infringing integrated circuit etc. It can be conjectured that these provisions have prevented developing country firms from building their competence in high end design in information technology products and in consumer electronics.

Branding is another high value-added activity in GVCs through which lead firms have benefitted from trade agreements. Without being linked to a specific brand, a product becomes merely one among similar other products in the market and will be sold like a commodity. The essence of branding is based on identification and differentiation. The identification comes through the name, term, sign or symbols associated with a product. The differentiation is derived from unique features, characteristics or benefits associated with the product. By differentiating itself through branding, the branded product becomes "unique and cannot be easily substituted by other products offering similar physical characteristics. If a customer identifies with a brand and finds value in it, it is likely that the customer will continue to purchase the brand over a period of time" (Sharma, 2015).

Lead firms have been enabled to create brands and reduce competition from other similar products through different protection of different IPRs. Trademarks help consumers to distinguish the product from similar goods that are produced by other firms. Trademarks help consumers to reliably identify a product or service on the basis of previous purchases or through advertising, what is referred to as the experiential value of a brand. Thus, trademarks have become an essential element of branding strategies of lead firms. The TRIPS Agreement defines trademarks and specifies the rights conferred by registered trademarks. It also contains provisions on limitations and on the term of protection. Further, the TRIPS Agreement provides stronger protection for well-known trademarks. In design-intensive industries, such as automobiles, computers, consumer electronics and equipment, product design, protected by provisions on industrial designs, has become an important integral part of branding.

c. Role of international investment agreements in deepening the asymmetries in GVCs

An important aspect of GVC is the ability of lead firms to undertake international current and capital account transfers with minimum restrictions. This flexibility has been incorporated in Article XI of the GATS, which was negotiated during the Uruguay Round of Multilateral Trade Negotiations. Article XI of the GATS prohibits countries from imposing restrictions on international transfer and payments for current account transactions in respect of services sectors for which specific obligations have been taken. Article XVI of the GATS commits a WTO member to allow cross-border movement of capital in respect of services and modes of supply of services in respect of which market-access obligations have been taken by the country

concerned. While these provisions are applicable in respect of international transfer and payments arising from delivery of services, provisions on this aspect in IIAs are broader in scope and expand the flexibility available to foreign investors.

Provisions in IIAs generally contain a list of financial transfers and capital flows related to the covered investments that are to be necessarily permitted out of the territory of the country receiving the foreign investment freely and without delay. These generally include contributions to capital; profits, dividends, interest, capital gains, royalty payments, management fees, technical assistance fees and other fees; and proceeds from the sale of covered investment or from the partial or complete liquidation of the covered investment. These provisions have ensured that profits and royalty arising from operations of lead firms in developing countries can be repatriated to the home country without delay. It should be noted that the provisions in IIAs cover international transfers and payments of both capital and current account; and are applicable for investment related to both goods and services. Thus, the IIA provisions have significantly enhanced the flexibility available to foreign investors under GATS for undertaking international transfers and payments.

Given the importance of IIAs in deepening the flexibilities available to foreign investors, and hence also the GVC lead firms, it is relevant to briefly get an idea of how widespread these agreements are. According to UNCTAD IIA Database, 2621 IIAs are in force. Table 3 provides details of the number of IIAs in force for select countries.

Overall, this section has clearly brought out how provisions in multilateral and bilateral trade agreements have created oligopoly markets at the top of GVCs and intense competition in the lower tiers. This has skewed the bargaining power in favour of lead firms and deepened the disparity in rents extracted by the lead firms and incomes generated in other segments of the GVCs.

Table 3: Number of IIAs in force for select countries

Country	Bilateral Investment Treaties	Treaties with Investment Provisions	Total Number of Treaties
Germany	135 (132 in force)	67 (54 in force)	202 (186 in force)
United Kingdom	106 (96 in force)	67 (54 in force)	173 (150 in force)
China	129 (110 in force)	19 (18 in force)	148 (128 in force)
USA	46 (40 in force)	67 (50 in force)	113 (90 in force)

India	82 (72 in force)	13 (9 in force)	95 (81 in force)
Malaysia	68 (49 in force)	24 (19 in force)	92 (68 in force)
Japan	28 (20 in force)	20 (17 in force)	48 (37 in force)
Thailand	39 (36 in force)	23 (19 in force)	62 (55 in force)
Singapore	44 (36 in force)	30 (25 in force)	74 (61 in force)
Brazil	20 (0 in force)	17 (13 in force)	37 (13 in force)

Source: UNCTAD IIA Database

VII. EMERGING NARRATIVE ON GVCs AND RISKS

Given the deep interest of lead firms in sustaining their gains from GVCs, it is not surprising that attempts are being made to reduce the impediments for GVC lead firms for expanding and deepening their operations. A narrative appears to be emerging in many inter-governmental organisations, which seeks to argue that the process of GVC integration should be deepened further, particularly through negotiating new rules at the WTO. In order to provide the basis for seeking initiation of negotiations, the narrative seeks to highlight the gains for developing country firms from GVC integration. This section starts with briefly discussing some of the developments at the WTO and other inter-governmental organisations seeking to initiate negotiations on GVCs. In the subsequent sub-section, the claims made for gains for developing country firms arising from GVC integration are critically analysed.

a. Creating a narrative for initiating negotiations on GVCs at the WTO

A few countries have articulated the need for making suitable changes in the WTO agreements for addressing the realities of GVCs. Some inter-governmental organisations, particularly the OECD, have been at the forefront of urging international cooperation to reap the full benefits of GVCs and to ensure that new strategies of firms benefit all. According to OECD, “ambitious economic integration agreements that more coherently cover all dimension of market access can help countries to maximise the gains from production sharing.” (OECD et al., 2013) Keeping the past trend of the outcome of multilateral and bilateral trade agreements in mind, it is apprehended that any future negotiation at the WTO, or at the bilateral level, for facilitating GVC trade will further deepen the existing asymmetries in GVCs. We can glean the likely contours of future multilateral trade negotiations by analysing the text of the Trans-Pacific Partnership Agreement, which has been projected time and again from various quarters as the template for future negotiations. The G-20 Leaders Communiqué, Hangzhou Summit (4-5 September 2016) also noted the important role that bilateral and regional trade agreements can

play "in the development of trade rules".⁵ A study by OECD-World Bank has argued that developing and implementing rigorous IP legislation to protect innovative assets would facilitate integration of SMEs in GVCs (OECD and World Bank, 2015).

In line with past trade agreements, the provisions of the TPP seek to further liberalise trade in goods and services, while imposing more stringent rules for protecting IPRs. The TPP seeks to eliminate import duties on all products, with a few narrow exceptions. Implementation of such a provision at the WTO would further intensify competition in the manufacturing segment of GVCs. Further, the TPP prohibits countries from imposing export duties and taxes. This would prevent the countries, particularly developing countries rich in natural resources, from using this policy instrument for promoting domestic value addition in raw materials and establishment of downstream processing industries. This would enable lead firms in GVCs to access natural resources at competitive prices, while creating barriers for firms in developing countries to move up the value chain in the processing segment.

The architecture of commitments under the services sector in the TPP template is significantly different from that under the General Agreement on Trade in Services (GATS) at the WTO. Unlike the GATS, the TPP follows a negative list approach in scheduling commitments. This implies that countries agree to take commitments for all sectors except where the exceptions have been specified in the schedule as non-conforming measures. The positive list approach under the GATS permitted countries to take commitments in those sectors and modes of supply in which there was domestic preparedness. This allowed countries to align their services commitments with their national priorities. Negotiations in services based on a negative list approach will result in deep liberalisation that may not be in line with the developments priorities of developing countries. From the perspective of lead firms, competition induced by deep liberalisation in services would further lower costs associated with some GVC activities, including financial services, logistics and transportation. Given the significant presence of developed countries' firms in delivering these services, it may not be incorrect to apprehend that the small share of developing countries' firms supplying these services in GVCs may get further eroded.

If the provisions in the TPP become the template for future negotiations at the WTO, then on the one hand it would further intensify competition in the manufacturing segment of GVCs, but on the other hand provisions requiring more stringent protection of IPRs would raise the entry barriers in non-manufacturing segments in GVCs. These provisions would also enable the lead firms to extract higher rents from their activities. To illustrate, the TPP makes it mandatory for countries to abide by commitments going beyond the TRIPS Agreement by mandatorily acceding to the Singapore Treaty on the law of Trademarks, the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonogram Treaty (WPPT). The Agreement seeks to reduce the complexity in obtaining a patent across all signatory countries by harmonizing procedures

⁵ http://www.g20.org/English/Dynamic/201609/t20160906_3396.html

and processes. Further, provisions in the TPP seek to lower the bar on patentability. Thus, any new use of a known substance or a new process of using a known substance or a new method of using a known substance would be the subject matter of a patent. With the objective of compensating for the delays in patent office, the term of patent protection could exceed the benchmark of 20 years under the TRIPs Agreement. These, and some other provisions in the TPP, would further entrench the oligopolistic market structures at the top of GVCs.

b. Examining the reality of claims of gains for developing countries from GVC integration

It is relevant to examine the reality of the narrative being created by some inter-governmental organisations that it is in the interest of firms in developing countries to get linked to GVCs (OECD and World Bank, 2015; UNESCAP). First, the narrative suggests that countries do not need to develop sophisticated and vertically integrated industries to participate in global trade. Instead, it is enough to develop capacities in specific stages of production, tasks or business functions and integrate into GVCs. Second, participation in GVCs can be an important to economic growth and development on a sustainable basis. Third, GVC participation also produces wider economic spillovers in terms of technology, productivity and skill upgrading, and ideally leads to endogenous technology creation. Fourth, on reaching higher levels of development, there is the possibility for specialising in higher value-added tasks, such as component manufacture, ultimately culminating in research and development. It is important to critically examine these claims, based on the experience of developing countries and their firms that have integrated into GVCs.

Limiting specialisation by the contracting firms to a few specific stages of production in GVCs makes them over dependent on and hence vulnerable to, the lead firms for GVC access (OECD et al., 2013). Such shallow integration "weakens the bargaining positions for developing countries' firms and manifests itself in asymmetric power relations between lead firms and suppliers" (TDR, 2016). Shallow specialisation may also prevent suppliers from enhancing their capacities in other product lines, or other activities of the GVC. Kaplinsky R and Morris M, (2000) document how a firm in the Dominican Republic that specialised in a narrow function (sewing) within a particular link (production) in the value chain could not sustain its integration in the GVC when lower cost options became available to the lead firm. Its value-added was too low to allow for enhanced efficiency, and most of the value anyway was appropriated in the design and branding links in this chain (Kaplinsky R and Morris M, 2001).

Establishing a significant presence in a GVC does not ensure the continued participation of a firm in the GVC. There is considerable case-study based literature detailing how lead firms severed their ties with previous suppliers and instead shifted to other low cost suppliers. Gereffi (1999) shows how apparel production has moved over time to lower and lower cost (such as wage) locations. As shown in the study of Sialkot cluster manufacturing hand-stitched soccer footballs, a few stray cases of non-compliance with labour standards can undermine even long-established buyer-supplier relationship (Nadvi, 2008). A study of women's leather shoes in

Brazil illustrates how the same lead firms that previously used to source from Brazil, systematically cultivated manufacturing capabilities in China in the 1990s and then to Vietnam in the 2000s due to lower wage seeking behaviour (Kaplinsky 2000).

No doubt integration in GVCs can provide opportunities for firms in developing countries to enter export markets. However, there is little empirical evidence that GVC integration has been instrumental in developing a vibrant industrial sector over the past two decades, or has facilitated in establishing sophisticated domestic production going beyond low value-added activities (TDR, 2016). Further, some studies highlight how integration of developing countries' firms in GVCs resulted in *very few* spillovers to the domestic economy in the form of productivity improvement and imitation by domestic firms. This was partly due to limited linkages of the lead firm and their suppliers with local firms and labour markets (Fons-Rosen et al., 2013; Paus, 2014). The experience of Mexico and Central American countries as assembly manufacturers has been likened to the creation of an enclave economy, with few domestic linkages (Gallagher and Zarsky, 2007; Dussel Peters, 2008). Another study, citing the example of Malaysian electronic companies, has found that when "windows of opportunity are missed, integration in global production networks can have a *negative impact* on industrial upgrading, generating lock-in effects that can trap domestic firms within established - and increasingly counterproductive-modes of operation from which they cannot easily be released" (Phillips and Henderson, 2009).

Higher profits would be expected to result in a rise in investment by GVC lead firms; thereby enhancing economic growth through static and dynamic gains. However, the reality appears to be different. An important feature of offshoring is that it not only reduces the costs for the lead firms, but also reduces the need to reinvest profits at home; resulting in a greater share of profits for distribution to shareholders (Milberg and Winkler 2013). This marks a shift from an emphasis on the retention of earnings and reinvestment of profits, to a focus on downsizing and distributing profits to shareholders (Lazonick and O'Sullivan, 2000). This has weakened the nexus between profits and investment, thereby reducing the dynamic gains from offshoring (Milberg and Winkler, 2013).

Overall, it may not be inaccurate to conclude that integration of firms into GVCs may be a mixed blessing for firms in developing countries. Gains from GVC integration are not automatic and cannot be assumed. In fact, case study-based literature suggests that in certain situations GVC integration may have detrimental impact on economic growth.

VIII. CONCLUSIONS AND WAY FORWARD FOR RESEARCH

What are some of the key messages emerging from our paper? First, lead firms in GVCs have succeeded in creating, expanding and sustaining international networks of production, using direct investment, joint ventures, and subcontracting. Lead firms have benefited from intense competition among suppliers, which has facilitated them to minimize input costs and raise

flexibility in their supplier base. Cost reduction, an important driver of GVC integration, coupled with high entry barriers in some segments of GVCs, has increased the profits of lead firms.

Second, the success of lead firms is based on many asymmetries in GVCs. Most of firms from developing countries are linked at the lower end of the value chains, which generate the least income. The distribution of income from different activities in GVCs is generally skewed in favour of non-manufacturing activities. These are mainly undertaken by firms in developed countries, particularly by the lead firms. Due to intrinsic and extrinsic reasons, very few firms from developing countries have been able to move up the value chain. Instead, they remain locked into the low end of the value chains.

Third, GVCs are characterised by oligopoly of lead firms at the top of the supplier chain and oligopsonic market conditions at the lower tiers.

Fourth, the contrasting market structures in different segments of GVCs are an outcome of multilateral and bilateral trade agreements, as well as international investment agreements. These agreements have resulted in significant liberalisation in manufacturing segment of GVCs but have erected entry barriers in other segments, mainly through stringent protection of intellectual property rights.

Fifth, it is apprehended that future multilateral trade negotiations could further intensify competition in lower segments of GVCs, while raising the barriers at the high end of the value chain. As lead firms are based mainly in developed countries and developing country firms are in the manufacturing segment, gains from international trade through GVCs are likely to be further skewed in favour of the lead firms. As most of the lead firms are based in the developed countries, GVC trade is thus likely to deepen the income inequality between countries.

Some of the features of GVCs include the following: maximising rent extraction by lead firms, no incentive for making investment for improving productivity, little augmenting of domestic capital in developing countries, economic drain through repatriation of profits and royalty to lead firms, and producers being unable to expand into value-added activities. This would sound familiar to those who follow the economic history of the colonial period. It is important that economists, legal experts and trade policy analysts critically examine the development implications of firms in developing countries linking into global value chains, and suggest suitable prescriptions for trade negotiators and policy makers.

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