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economies**

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ABSTRACT

In recent decades, profound changes in the structure of the global economy have reshaped global production and trade and have altered the organisation of industries and national economies into global value chains (GVCs). As GVCs became global in scope, more intermediate goods were traded across borders, and more imported parts and components were integrated into exports. In 2009, world exports of intermediate goods exceeded the combined export values of final and capital goods for the first time. New governance structures reinforce the organisational consolidation occurring within GVCs and the geographic concentration associated with the growing prominence of emerging economies as key economic and political actors. Emerging economies are playing significant and diverse roles in GVCs. During the 2000s, they were simultaneously major exporters of intermediate and final manufactured goods (China, South Korea, and Mexico) and primary products (Brazil, Russia, and South Africa). However, market growth in emerging economies has also led to shifting end markets in GVCs, as more trade has occurred between developing economies (often referred to as South-South trade in the literature), especially since the 2008–09 economic recession. China has been the focal point of both trends: it is the world’s leading exporter of manufactured goods and the world’s largest importer of many raw materials, thereby contributing to the primary product export boom.

JEL classification: F16; F23; L25.

Keywords: Global Value Chains; Governance Structures; Economic Upgrading; Social Upgrading; Emerging Economies; Industrial Policy; China.

I. GLOBAL VALUE CHAINS AND INTERNATIONAL COMPETITION

Globalisation has given rise to a new era of international competition that is best understood by looking at the global organisation of industries and the ways in which countries rise and fall within these industries (Gereffi, 2011). Using core concepts like “governance” and “upgrading,” GVCs highlight the ways in which new patterns of international trade, production, and employment shape prospects for development and competitiveness. GVC analysis documents the international expansion and geographic fragmentation of contemporary production networks and focuses primarily on the issues of industry (re)organisation, coordination, governance, and power in the chain (Gereffi and Lee, 2012). Its concern is

to understand the causes and consequences of the organisational reconfiguration taking place in global industries.¹ The GVC approach also explores the broader institutional context of these linkages, including trade policy, regulation, and standards.

In the past two decades, profound changes in the structure of the global economy have reshaped global production and trade and have altered the organisation of industries and national economies (Gereffi, 2014). As supply chains became global in scope, more intermediate goods were traded across borders, and more imported parts and components were integrated into exports (Krugman, 1995; Feenstra, 1998). In 2009, world exports of intermediate goods exceeded the combined export values of final and capital goods for the first time, representing 51% of non-fuel merchandise exports (WTO and IDE-JETRO, 2011, p. 81). Because of the unique ability of the GVC framework to show how international supply chains link economic activities at global, regional, national, and local levels within particular industries, international organisations such as the United Nations Conference on Trade and Development (UNCTAD), the Organisation for Economic Co-operation and Development (OECD), the World Bank, and the World Economic Forum, are utilising the GVC approach to structure new donor initiatives and data collection programs on global trade and development (UNCTAD, 2013; OECD, 2013; Cattaneo et al., 2010; World Economic Forum, 2013).

Emerging economies are playing significant and diverse roles in GVCs (Gereffi and Sturgeon, 2013). During the 2000s, they became major exporters of intermediate and final manufactured goods (China, South Korea, and Mexico) and primary products (Brazil, Russia, and South Africa). However, market growth in emerging economies has also led to shifting end markets in GVCs, as more trade has occurred between developing economies (often referred to as South-South trade in the literature), especially since the 2008–09 economic recession (Staritz et al., 2011, pp. 1-12). China has been the focal point of both trends: it is the world’s leading exporter of manufactured goods and the world’s largest importer of many raw materials, thereby contributing to the primary product export boom.

II. THE RISE OF GVCs

In the 1970s and 1980s, U.S. retailers and global brands joined manufacturers in the search for offshore suppliers of most categories of consumer goods. This led to a fundamental shift from what had been “producer-driven” commodity chains, which include capital- and technology-intensive industries like automobiles and electronics, to “buyer-driven” chains, which include a broad range of consumer products like apparel, footwear, toys, and sporting goods (Gereffi, 1994a). The geography of these chains expanded from regional production-sharing arrangements to full-fledged global supply chains, with a growing emphasis on East Asia (Gereffi, 1996). In the 1960s and 1970s, large, vertically integrated transnational corporations dominated the landscape in most international industries (Vernon, 1971), and the prevailing development strategy was import-substituting industrialisation (ISI). Well established in Latin America, Eastern Europe, and parts of Asia since the 1950s, ISI was a state-led effort to build domestic industries by requiring foreign manufacturers to replace imports with locally made products, beginning with the assembly of final goods and working back to key components, in return for guaranteed

¹ The seminal publication is *Commodity Chains and Global Capitalism*, which applied the global commodity chains concept for the first time to a broad range of contemporary industries (Gereffi and Korzeniewicz, 1994). In the early 2000s, the global commodity chains research agenda helped to spawn the closely related global value chain and global production network approaches (for comprehensive literature reviews, see Gereffi, 1994b; 2005; Bair, 2005; 2009, ch. 1; and Lee, 2010).

market access (Gereffi, 1994b). These domestic industrial policies were intended to nurture a set of full-blown national industries in key sectors that could significantly reduce, if not fully eliminate, imports from the industrialised nations (Baldwin, 2011).

The death knell for ISI, especially in Latin America, came from the oil shock of the late 1970s and the severe debt crisis that followed it (Urquidi, 1991). The ISI approach was creating large and persistent trade deficits because the manufacturing sectors in ISI countries were simply importing intermediate goods rather than reducing imports altogether, and escalating debt service payments led to a net outflow of foreign capital that crippled economic growth in the 1980s.

Under pressure from the International Monetary Fund (IMF) and the World Bank, many developing countries made the transition from ISI to export-oriented industrialisation (EOI) during the 1980s (Gereffi and Wyman, 1990; Haggard, 1990). This new outward-oriented development model focused on exports to the global market by local firms, and it removed the state requirement that foreign firms had to produce for protected domestic markets, which mainly benefitted larger developing economies. There was an equally profound reorientation in the strategies of transnational corporations (Grunwald and Flamm, 1985). The rapid expansion of industrial capabilities and export propensities in a diverse array of newly industrialising economies in Asia and Latin America encouraged transnational companies to accelerate their own efforts to outsource relatively standardised activities to lower-cost production locations worldwide. Precisely this change in the strategies of transnational companies enabled the transition from ISI to EOI in developing economies, and it corresponds with the shift from producer-driven to buyer-driven commodity chains at the level of global industries (Gereffi, 1994a, pp. 97-100).

The rise of GVCs occurred in a period of falling trade barriers, the emergence of the World Trade Organization (WTO), and the policy prescriptions associated with the “Washington Consensus”—i.e., that governments had only to provide a strong set of “horizontal” policies (such as education, infrastructure, and macroeconomic stability) and be open to trade in order to succeed (Gore, 2000). Of course, many observers noted that the dynamic emerging economies did much more than establish a set of economy-wide enabling institutions for growth. They frequently also targeted key domestic industries for support, under either ISI or EOI policies that tended to alternate over time in both Latin American and East Asian nations (Gereffi and Wyman, 1990; Haggard, 1990).

Today, industrial policy is on the upswing (OECD Development Centre, 2013; Crespi et al., 2014; Salazar-Xirinachs et al., 2014). WTO accession often comes with allowances for selective industrial policies (e.g., trade promotion, local content rules, taxes, tariffs, and more indirect programs that drive local production) to remain in force for specified periods. Bilateral trade agreements can supersede such allowances under WTO rules, and a handful of relatively large and advanced emerging economies (such as those in the G-20) that have more clout in the institutions of global governance are using them to create policy space to design and implement activist industrial policies.

The organisation of global industries into GVCs in which production and trade networks are spread across many countries and regions has reinvigorated industrial policy debates (Baldwin, 2011). There is not likely to be a return to the ISI and EOI policies of old, however. Domestic industries in both

industrialised and developing countries no longer stand alone, competing mainly through arm's length trade. Instead, they have become deeply intertwined through complex, overlapping business networks created through recurrent waves of foreign direct investment and global sourcing. Companies, localities, and entire countries have come to occupy specialised niches within GVCs. Because of this, today's industrial policies have a different character and generate different outcomes than before. Intentionally or not, governments currently engage in GVC-oriented industrialisation when targeting key sectors for growth (Gereffi and Sturgeon, 2013).

New governance structures reinforce the organisational consolidation occurring within GVCs and the geographic concentration associated with the growing prominence of emerging economies as key economic and political actors (Gereffi, 2014, pp. 15-17). After 1989, the breakup of the Soviet Union, the opening of China to international investment and trade, and the liberalisation of India brought a number of very large economies onto the global stage, known initially as BRICs (Brazil, Russia, India, and China).² This resulted in what Richard Freeman called "the great doubling" of the global labour pool from about 1.5 billion workers to 3 billion workers (Freeman, 2008). The rise of the BRICs spurred the globalisation process, as GVCs began to focus their investment and sourcing operations in big and dynamic emerging economies that offered abundant raw materials, large pools of low-wage workers, highly capable manufacturers, and rapidly growing domestic markets.

Faced with slow growth at home, large transnational lead firms in GVCs rushed to set up operations in BRIC countries, especially China, in an effort to carve out brand recognition and market share in rapidly expanding consumer markets and to cut costs on goods produced for export back to home markets (Naughton, 1997; Ross, 2006). In producer-driven chains, the lead firms that to a large degree defined the structure of these industries were largely global manufacturers like General Motors, Ford, IBM, and HP. In buyer-driven chains, the lead firms were a mix of retailers (like Walmart, JCPenney, and Carrefour), global marketers (such as Nike, Liz Claiborne, and Polo Ralph Lauren), and supermarkets and food multinationals (like Tesco, Sainsbury's, Kraft Foods and Nestlé) (Gereffi, 1994a). The lead firms in buyer-driven chains were particularly influential in the globalisation process because they accelerated the process of "global sourcing" based on orders from developed countries, which relied almost entirely on production carried out in developing economies (Gereffi, 1999; Dicken, 2011).

As retailers and branded manufacturers in wealthy countries became more experienced with global sourcing, developing countries enhanced their infrastructure, and suppliers in those countries upgraded their capabilities in response to larger orders for more complex goods.³ In the 1990s, many U.S.- and Europe-based manufacturers quickly became huge global players, with facilities in scores of locations around the world (e.g., Siemens, Valeo, Flextronics) (Sturgeon, 2002; Sturgeon and Lester, 2004). A handful of elite East Asian suppliers (e.g., Pou Chen, Quanta, Foxconn) and trading companies (e.g., Li & Fung⁴) also took on more tasks for multinational affiliates and global buyers (Appelbaum,

² Jim O'Neill (2011), the Goldman Sachs executive who coined the term BRICs in the early 1990s, now argues that there are a much larger number of "growth economies" (BRICs plus 11) that fall into this category, including South Korea, Mexico, Turkey, and Indonesia, among others.

³ See Hamilton and Gereffi (2009: 153-159), who describe how U.S., European, and Japanese buyers worked with suppliers in South Korea and Taiwan to create the necessary conditions for expanding and diversifying exports of a broad array of consumer goods in both economies.

⁴ Li & Fung, the largest trading company in the world, has about 30,000 suppliers globally and operates in 40 countries (Fung, 2011).

2008). These firms expanded production throughout Asia and more recently in Africa, Eastern Europe, and Latin America (Morris et al., 2011; Pickles and Smith, 2011; Smith et al., 2014; Hernández et al., 2014).

Lead firms themselves are getting bigger and increasing their global market shares through mergers, acquisitions, and the decline of many rivals (Gereffi, 2014, p. 16). This has been coupled with a growing recognition of the strategic vulnerabilities of global supply chains, linked to the risk of single-source relationships and the danger of lead firms losing access to critical inputs and raw material supplies (Lynn, 2005). This is particularly apparent in the agrifoods sector, in which consumer goods firms such as Cadbury, Coca-Cola, and Unilever are expanding their direct involvement in the procurement and sustainability of the raw material sides of their value chains, such as those involving cocoa, coffee, and sugar (Barrientos and Asenso-Okyere, 2008; Oxfam, 2011). This is also evident in the automobile and electronics industries, in which concern about the availability of raw materials such as lithium and coltan (Nathan and Sarkar, 2011), respectively, are spurring greater engagement between GVC lead firms and host country suppliers and governments (Sturgeon and Van Biesebroeck, 2011; Sturgeon and Kawakami, 2011). These examples suggest that a number of GVCs, especially in natural resource-based industries, are giving greater attention to strategic collaboration as a counterweight to the long-term trend toward specialisation and fragmentation of supply chains.

III. GOVERNANCE AND UPGRADING IN GVCs

The GVC framework focuses on globally expanding supply chains and how value is created and captured therein (Gereffi and Lee, 2012). By analysing the full range of activities that firms and workers perform to bring a specific product from its conception to its end use and beyond, the GVC approach provides a holistic view of global industries from two contrasting vantage points: top-down and bottom-up (Gereffi and Fernandez-Stark, 2011). The key concept for the top-down view is the “governance” of global value chains, which focuses mainly on lead firms and the organisation of global industries; and the main concept for the bottom-up perspective is “upgrading,” which focuses on the strategies used by countries, regions, and other economic stakeholders to maintain or improve their positions in the global economy (Gereffi, 2011, pp. 39-40).

The concept of governance is the centrepiece of GVC analysis. It examines the ways in which corporate power can actively shape the distribution of profits and risk in an industry and the actors who exercise such power through their activities. Power in GVCs is exerted by lead firms. In the governance typology outlined in Figure 1, the market and hierarchy poles of the GVC governance continuum are driven by price and ownership within vertically integrated firms, respectively. The remaining three categories are stable forms of network governance (modular, relational, and captive), in which different kinds of GVC lead firms control to a large degree the ways in which global supply chains operate and the main winners and losers within these chains (Gereffi et al., 2005).

Figure 1 about here

While governance issues have attracted a good deal of attention among GVC scholars, the research on economic upgrading has been at least as important because many of the people who use the GVC framework have a very strong development focus. “Economic upgrading” is defined as the process by which economic actors—firms and workers—move from low-value to relatively high-value activities in GVCs (Gereffi, 2005, p. 171). The challenge of economic upgrading in GVCs is to identify the conditions under which developing and developed countries and firms can “climb the value chain” from basic assembly activities using low-cost and unskilled labour to more advanced forms of “full package” supply and integrated manufacturing.

IV. CONNECTING GVCs TO ECONOMIC DEVELOPMENT

GVCs matter for economic development in several ways, since the ability of countries to prosper depends on their participation in the global economy, which is largely a story about their role in GVCs (Gereffi and Lee, 2012). Connecting countries to GVCs involves both investment and trade, which rely heavily on efficient global supply chains in order to contribute to growth.⁵ A key factor in such efficiency is infrastructure development, which enables global trade through the construction and improvement of the physical facilities that link national economies: ports and canals, airports, roads, and a wide range of information and communication technologies (Dicken, 2011, pp. 400-406; WTO and IDE-JETRO, 2011, pp. 28, 30)). Improving trade flows at the border can be enhanced by infrastructure investments inside the border (i.e., in roads and facilities that connect rural regions and small firms to larger domestic markets), and also by investments beyond the border, especially in infrastructure facilities that connect a country to its nearby neighbours in regional supply chains (Mayer and Milberg, 2013). These regional markets are often underappreciated because of the importance given to developed country markets in the 1990s and early 2000s, but in the current era, regional value chains are becoming a new focus for investment planning by development banks and international organisations (Gereffi and Lee, 2012, pp. 28-29).

GVC studies are pervasive in academic publications that examine a wide range of global industries.⁶ The framework has also been adopted by many of the most important international organisations concerned with economic development, such as the WTO, UNCTAD, the OECD, the World Bank, and the World Economic Forum.⁷ The international institutions that have provided the underpinning for the Washington Consensus (such as the World Bank, the IMF, and the WTO) and major bilateral donors (such as the U.S. Agency for International Development (USAID) and the UK’s Department for International Development (DFID), which is now also using a UK Aid logo) have embraced new models of development thinking, with an emphasis on sectoral analysis that links macro issues such as international trade and investment more closely with the micro development issues of

⁵ According to a recent study, reducing supply chain barriers to trade could increase gross domestic product up to six times more than could removing tariffs (World Economic Forum, 2013, p. 13).

⁶ Over 925 GVC publications and more than 1,300 researchers are listed on the Global Value Chains website (<http://www.globalvaluechains.org>), which is maintained at Duke University, as of April 1, 2015.

⁷ Illustrative publications include: World Bank-IDE-JETRO, 2011; UNCTAD, 2013; OECD, 2013; Cattaneo et al., 2010; World Economic Forum, 2013. Many more publications and interviews with members of international organisations that have utilised the GVC framework are available at the website for the Duke Global Summit (see <https://dukegvcsummit.org/>). This conference, which was held at Duke University on October 29-Nov. 1, 2014, brought together 30 organisations and more than three dozen academic and practitioner participants who are actively involved in GVC programs and research related to international development agencies in order to explore topics related to development, economic and social upgrading in GVCs, advances in GVC metrics related to value creation and value capture, and the future of global governance.

employment, gender dynamics, and sustainable livelihoods (M4P, 2008; Staritz and Reis, 2013; Milberg and Winkler, 2013). In addition, new alliances have emerged among diverse UN and other international agencies (such as the World Bank and the ILO) to promote joint research agendas that explore the links between economic and social upgrading, explicitly using the GVC framework (Cattaneo et al., 2010; Barrientos et al., 2011; Rossi et al., 2014).

This is an area in which GVC analysis and supply chain management research can be mutually beneficial. Sophisticated value chain data disaggregated by business functions can complement existing country-level trade statistics and industry-level input-output data, providing a clear picture of who is gaining and losing in GVCs (Sturgeon and Gereffi, 2009). When combined with data on employment, they will greatly advance our understanding of both economic and social development opportunities in the global economy.

Today virtually all major bilateral and multilateral donor agencies use value chain analysis as an instrument of private sector development (Gereffi, 2014). According to Altenburg (2007), there are two principal reasons for the increasing popularity of the GVC approach within the international donor community since the end of the 1990s: first, the accumulating evidence of a link between economic growth driven by the private sector and poverty reduction; and second, the fact that global integration of trade and production through GVCs transmits the pressures of global competition to domestic markets in developing economies, leaving less space for local firms to design, produce, and market on their own. Given the pervasiveness of GVCs, the question for many is not if but how to integrate into value chains in a balanced way that addresses both competitiveness and equity issues and that allows for the incorporation of a growing proportion of the workforce while increasing productivity and output.

There is no simple way to connect GVC analysis to private sector development, given that the firms in a value chain range from transnational corporations to microenterprises, and the institutional context and geographic scope of value chains vary enormously. Generally, however, donor interventions have four objectives: strengthening the weakest link to address potential bottlenecks; improving flows of knowledge and resources to make all firms in the chain more productive; working on specific links between firms to improve efficiency; and creating new or alternate links in the chain to promote diversified outcomes (Humphrey and Navas-Alemán, 2010).

Much of this research and theoretical work has focused on how lead firms in specific GVCs have driven this process in various ways. Decisions about outsourcing and offshoring are, after all, strategic decisions made by managers. But such decisions are not made in a vacuum. The policies and programs of countries and multilateral institutions set the context for corporate decision-making, and there has been an evolution in the form and effects of industrial policy along with the evolution of the business networks that comprise GVCs.

Today the organisation of the global economy is entering a new phase—what some have referred to as a “major inflection point” (Fung, 2011)—that could have dramatic implications for firms and workers in emerging and industrialised countries. As world trade rebounds from the 2008–09 economic crisis, emerging economies have become a major engine of growth.

V. DEVELOPING ECONOMIES IN GVCs: UPGRADING EXPERIENCES IN DIVERSE SECTORS

Many examples could be provided to illustrate how developing countries are participating in GVCs. For purposes of this paper, we will focus on three aspects of GVCs particularly relevant to economic upgrading and inclusive development goals: (1) building export capabilities – the cases of coffee, apparel and automobiles; (2) leveraging services to build knowledge capabilities and move to high-value niches in GVCs – the cases of a traceability system for the cattle industry in Uruguay and environmental services in Costa Rica; and (3) the role of public-private partnerships to narrow the human capital gap in India and Latin America, and to develop the aerospace industry in Mexico.

A. Promoting Growth and Upgrading in Export-Oriented GVCs

The Coffee Value Chain in Central America and East Africa

The world coffee market is large, with retail sales of US\$70 billion and demand growing steadily at about 2.5% annually.⁸ The biggest global producers are Brazil and Vietnam, followed by Colombia and Indonesia. The United States is the largest consumer market, spending an estimated \$30 billion in 2009. Within the coffee GVC, there are important quality distinctions that translate into significant price variations for coffee producers as well as distinct market segments for large branded manufacturers in the coffee sector. The two main varieties of coffee are Arabica (higher quality) and Robusta (lower quality). These correspond to segmentation at the retail end of the GVC: there is a commercial grade segment (e.g., Folgers), which sells large volumes at relatively low prices; and a specialty or high/quality gourmet segment (e.g., Starbucks, Illy coffee), which sells in niche markets and commands premium prices. Within the United States, the specialty coffee market has grown rapidly, with a number of boutique and super high grade coffees, and this offers great potential for growth by developing country coffee producers (Ponte, 2002).

Central America is recognised as one of the world's leading specialty coffee producers. In most countries of the region, over half of their production is classified as premium coffee (i.e., above commercial grade). Guatemala and Honduras are perhaps the best established Central America coffee suppliers in global markets, with Nicaragua and Panama rapidly gaining market share in the specialty coffee segment. In 2010, Guatemala's coffee exports were valued at \$718 million, involving more than 171,000 producers; Nicaragua exported \$351 million of coffee produced by nearly 90,000 growers (World Bank, 2012, p. 19). Whereas specialty coffee accounted for just 20% of Guatemala's coffee exports in 1980s, it now accounts for over 80%.

Most specialty coffee in Central America comes from small producers, and the challenge is how to provide them with a sustainable niche in the specialty coffee GVC. The potential economic, social and environmental upgrading gains of specialty coffee are not in question. Smallholders growing for the specialty market can sell their coffee at premiums significantly higher than certified coffee and receive a larger share of the retail price. For example, compared to the 2014 minimum price established for Fair

⁸ The material for this section is drawn primarily from the World Bank (2012, pp. 19-32).

Trade, Organic Certified coffee, \$1.90 per pound, the average price specialty coffee growers received during the first nine months of 2014 was \$2.72, and as high as \$3.60 (Farmers to 40, 2014). Consumers tend to prefer single-origin coffee with an emphasis on new and unique varieties⁹ and source authenticity (like premium wine), and there is a high value attached to socially and environmentally sustainably grown coffee as well.

There are various difficulties, however, in capturing these price premiums within Central America. The specialty coffee value chain is typically dominated by a few large exporters, along with roasters who are located near the final consumers in North America, Europe and increasingly East Asia. Infrastructure investments are required to build the wet processing plants to assure the quality of premium coffee. For smallholders, it is usually not economical to have washing stations on the farm, and thus they are built at the cooperative level or by private firms.¹⁰ Given infrastructure needs and the relatively high cost of inputs (e.g., fertiliser), inadequate short-term financing for Central American smallholders is a major obstacle in the specialty coffee segment. In addition, given the importance of quality control, branding and coordination across the chain, the creation of strong national or regional coffee associations could provide a major boost to export producers in Central America.

The coffee value chain is considered an important sector for economic upgrading of smallholder farmers in other regions of the world, including South America, Asia and sub-Saharan Africa (Talbot, 2004; Daviron and Ponte, 2005). Within East Africa, coffee represents a significant share of agricultural exports in Ethiopia, Kenya, Uganda, Rwanda, Tanzania and Burundi. Despite nearly ideal growing conditions for the Arabica coffee needed to produce specialty coffee, production in the Rwandan coffee sector declined sharply in the 2000s. Struggling to regain its economic growth after the 1994 Rwandan genocide, many of Rwanda's smallholders had abandoned coffee production, leaving about 400,000 still committed to the sector in 2002 (Abdulsamad et al., 2015, p. 31).

In 2000, USAID initiated several projects to help smallholder coffee growers in Rwanda to improve the quality of their coffee to meet specialty status, which substantially increased shareholder revenues. To ensure the sustainability of these gains, USAID implemented a development alliance made up of U.S. and Rwandan universities, enterprises, and non-governmental organisations, which over a 10-year period proved highly successful.¹¹ The positive outcomes for smallholders required the establishment of cooperatives and coffee washing stations to create a local processing infrastructure that permitted smallholders to partner with specialty roasters in the coffee value chain.¹² This established some balance of power between smallholders and large international coffee buyers, and allowed specialty roasters to introduce the prestigious Cup of Excellence coffee competition to Rwanda in 2008, the first such competition ever held in Africa (Abdulsamad et al., 2015, p. 36). As in Central America, Rwandan smallholders growing coffee for the specialty market sold their coffee at higher price premiums than

⁹ Guatemala alone produces seven distinct varieties of specialty coffee due to its diverse geography.

¹⁰ In Guatemala, estimates for larger producers show the following distribution of costs across the coffee value chain: 15% for producers with wet mills (who buy from small farmers that do not possess wet mills, which reduces their share of the value chain), 13% for traders, and 72% for the roasters (World Bank, 2012, p. 25).

¹¹ For a detailed analysis of the varied public-private partnerships in Rwanda's coffee sector, see Abdulsamad et al. (2015).

¹² Between 2000 and 2010, the number of coffee washing stations in Rwanda increased from 2 to 187, and the fully washed coffee value chain grew from exporting 32 tons of coffee in 2002 and 5,800 tons in 2010 (Oehmke et al., 2011). An audit conducted in 2010 estimated that these partnership projects delivered 82% higher incomes for beneficiaries, as well as a 17% lower incidence of poverty by 2010 (Abdulsamad, 2015, p. 37).

certified coffee and for a larger share of the retail price, without having to pursue a costly certification process (Abdulsamad et al., 2015, pp. 39-40).

Nicaragua, Lesotho and Swaziland in the Apparel Manufacturing Global Value Chain

The Nicaraguan apparel industry's exports nearly doubled from US\$716 million in 2005 to \$1.36 billion in 2011 (Bair & Gereffi, 2014, p. 256). Nicaragua mainly participates in the low-value "Cut-Make-Trim" stage of the apparel value chain (see Figure 2). Leveraging the country's competitive wage advantage (Portocarrero Lacayo, 2010), the industry employed more than 51,300 people in 2010 (ILO & IFC, 2010).¹³ In 2009, 89% of Nicaraguan apparel exports were destined for the United States. The country is still considered a small regional supplier, but since 2004 it has steadily gained U.S. market share in certain segments, such as woven pants and cotton shirts, as a result of its preferential trade status within the Dominican Republic-Central American Free Trade Agreement (Bair & Gereffi, 2014). Apparel manufacturers in Nicaragua focus on trousers, mainly denim jeans and twill pants, as well as t-shirts.

The industry consists of a large proportion of foreign-owned firms, with very few locally owned companies. Among the foreign firms, Korean and U.S. ownership dominates, with the remainder coming from El Salvador, Honduras, Mexico, and Taiwan. A significant proportion of these firms are part of larger global or regional networks; particularly in Central America, this structure allows global firms to provide full-package services for their clients by leveraging the interactions of multiple country operations. Knit-based firms sell to buyers such as Walmart, Target, and Ralph Lauren. Woven apparel firms are more regionally focused, with operations in neighbouring countries such as Guatemala, Honduras, and Mexico, and leading buyers include Levi Strauss, Cintas and Kohl's.

Figure 2 about here

Between 2005 and 2010, the volume of Nicaragua's apparel exports grew by 8.6%, but despite this increase, Nicaragua has had limited success in moving up the apparel value chain and mainly competes through low-cost apparel assembly. The country's apparel exporters have not achieved significant product upgrading; the value of exports only increased by 4.5% (ProNicaragua, 2010). Rather, this period was characterised by an increase in the production of t-shirts and knitwear, which are low-value-added product segments. Prior to the economic crisis, the country had seen increases in the value of its exports in woven trousers, but due to the economic slowdown in the United States, 2009 exports fell back to their 2006 levels.

Nicaragua remains vulnerable in terms of economic upgrading because its apparel exports are dependent on U.S. trade policy (specifically, the Tariff Preference Level or TPL exception offered to Nicaragua that allowed it to import textiles from East Asia). However, the country has shown advances in social upgrading, due in large part to the efforts of the tripartite National Free Trade Zones Commission to join the interests of workers, the private sector, and government. It also has become part of the Better Work program by the International Labour Organization (Bair & Gereffi, 2014).

¹³ The industry reached a peak in employment in 2007, with 88,700 employees. However, pressures from the economic crisis forced layoffs and closures during 2008 and 2009.

The trade-policy dependency of Nicaragua and other Central America Free Trade Agreement (CAFTA) countries on the U.S. market is paralleled by the similar dynamics found in sub-Saharan Africa's apparel-exporting economies that are covered by the African Growth and Recovery Act (AGO), such as Lesotho and Swaziland (Morris et al., 2011). As with Nicaragua, apparel exports by Lesotho and Swaziland are concentrated on the U.S. market, which absorbs over 98% of clothing exports from both countries. However, the phase out of the Multi-Fibre Arrangement (MFA) in 2004, which ended the apparel quota system, and the 2008-09 global economic crisis prompted a sharp drop in clothing exports by both countries to the United States. Many of the Taiwanese firms that concentrated on supplying the U.S. market left in the wake of the crisis.

However, Sub-Saharan Africa had a different dynamic that buffered Lesotho and Swaziland from the global economic recession. A new type of investor – South African clothing manufacturers – moved into Lesotho and Swaziland not as a production base to take advantage of AGO preferences for access to the U.S. market, but rather because of their lower labour costs in comparison to South Africa as a new export market. The South African Customs Union provides duty-free access for apparel produced in member countries (which include Lesotho and Swaziland), which allows South African retailers to maintain low prices and a growing market share (Morris et al., 2011, p. 98). Furthermore, South African-owned firms are far more likely than their Taiwanese counterparts to utilise local production, supervisory and management skills in their apparel operations in Lesotho and Swaziland, thus promoting additional upgrading prospects in these countries. Sustaining these advantages, however, would require more active government policies to incentivise added skill development within local clothing manufacturers in both countries (Morris et al., 2011, pp. 115-117).

Automobiles in Mexico and Brazil

The automobile industry typifies the sharp contrast in patterns of GVC participation found within Latin America's manufacturing sector.¹⁴ Beginning in the 1980s and accelerated by Mexico's entry into the North American Free Trade Agreement (NAFTA) in 1994, Mexico shifted from an import-substituting industrialisation strategy to an export-oriented model in its automotive sector, which relied on low-cost Mexican workers and extensive FDI from the United States, Europe and Japan, interested in establishing a strong network of carmakers and autoparts suppliers that could turn Mexico into a world-class export hub, focused on sales to the U.S. market. On the basis of its strategic proximity to the United States and its trade agreements with over 40 countries, Mexico has become one of the top automotive export countries in the world. While this has created significant job opportunities, the relatively low level of wages has not kept pace with Mexico's growing productivity, and the industry still has relatively weak linkages with local suppliers.

The model of GVC participation in Brazil's automotive sector is quite different. The Brazilian strategy is to emphasise sales to its large internal market and regional connections with its MERCOSUR partners (mainly Argentina, but also Paraguay, Uruguay and Venezuela), using high tariffs on automotive products imported from outside of MERCOSUR to increase the technological capabilities of Brazilian

¹⁴ This section draws on the discussion of these two industries in UNCTAD (2014: 67-69).

affiliates of foreign carmakers. In addition, Brazil has introduced various incentives for exports, higher levels of local content, and investment in new plants in the country.

Both Brazil and Mexico attract significant amounts of FDI into the automotive sector.¹⁵ However, the role played by transnational corporations (TNCs) is different. In Brazil the exports are lower, but local suppliers are more fully integrated into the operations of the TNCs, with higher levels of local innovation and research and development (R&D) capabilities. In Mexico, the range of activities in the automotive value chain is more diverse, since it supplies the needs of Japanese, German and American automakers in both Mexico and the U.S. market. The automotive GVC has created more jobs in Mexico, but higher skill levels and technological capabilities in Brazil. The current development policies in each country related to autos are intended to fill in the gaps left by their current strategies.

B. Leveraging Local Knowledge to Add Value in Resource-Based GVCs

Creating Knowledge: A Traceability System for the Cattle Industry in Uruguay

With over 12 million head of cattle in Uruguay, cows outnumber people by four to one and beef is Uruguay's leading export. In 2010, Uruguay exported US\$1.1 billion in bovine beef products (UNComtrade, 2012). The global beef industry, however, is extremely vulnerable to health and food safety problems. Uruguay has not been immune to these difficulties; a 2000 outbreak of foot-and-mouth disease led to a multi-year ban on exports to the United States and the European Union, as well as numerous other countries including Chile, Israel and South Korea. In order to mitigate the impact of these challenges on key export revenues, Uruguay embarked on the development of a sophisticated bovine traceability system, which would allow the country to quickly and efficiently track the source of and contain potential problems, and maintain consumer and regulatory confidence of their products in the developed world.

The livestock traceability system was developed through a collaborative multi-stakeholder initiative bringing together producers, local governments, transport personnel, the private sector, information technology companies, and the central government (the Ministry of Agriculture, in particular). Today, this is the only system in the world with real-time monitoring of 100% of the national cattle herd. A chip implanted in each cow's ear at birth allows the system to keep centralised and accurate information regarding the animal from birth through to sales and distribution points. Approximately 2.5 million new animals are registered on an annual basis (Crescionini, 2012; SONDA, 2012).

Uruguay has a great opportunity to capitalise on its knowledge and experiences, exporting these services to other countries that face similar issues. Indeed, Colombia has already begun to roll out this information system for its cattle herd. This means that Uruguay can participate in different segments of the cattle value chain. In addition to continued beef exports, Uruguay now has the potential to export advanced services not only for the beef industry, but the broader livestock sector as well. In the face of

¹⁵ In Brazil, FDI to the automobile industry (assembly and auto parts) soared from an annual average of \$116 million in 2007-2010 to \$1.6 billion in 2011-2012 (UNCTAD, 2013, p. 61). Between 2007 and 2012, the automotive industry in Mexico had an influx of \$3.6 billion in announced FDI (PwC Mexico, 2013, p. i).

rising concerns in meeting increasingly strict global food safety standards, this is a tremendous competitive advantage for the country.

Environmental Services Offshoring: An Opportunity for Costa Rica

Costa Rica is recognised worldwide for its unique approach to environmental protection and is a leader in the field among both developing and developed countries alike. As a result of conservation incentives put in place in the 1980s, today tropical forest covers more than half of the country. Illegal farming is down to just 15% and farmers are paid to manage and protect their natural surroundings (Conservation International, 2012). To date, however, this know-how has been used principally to support domestic priorities. Experts work for national non-governmental organisations (NGOs) and foundations, and the country has not yet seized the opportunity to commercialise the significant expertise it has built over many years. With the rising prominence of climate change on the global development agenda, there is significant demand for services in these areas.

Due to its critical mass of qualified human capital to sustain this niche (Chassot, 2012; Rodriguez, 2012), Costa Rica is in an excellent position to export high-demand environmental services, such as natural resources management, environmental impact studies, threatened and endangered species assessments, protected areas evaluations, and environmental education and training, among many others. More than 18 other countries, including China, have consulted Costa Rica to learn about its conservation policies (Conservation International, 2012). As with many developing countries, however, limited knowledge of potential markets and undeveloped entrepreneurship skills undermine the potential for translating these consulting opportunities into profitable service exports (Chassot, 2012). The promotion of this industry will require the internationalisation of local firms, on one hand, and the attraction of foreign environmental firms, on the other, to use Costa Rica as a platform to export environmental services. Linking these two types of firms will be critical for the development of this niche activity.

C. Skills for Upgrading

Public-Private Partnerships to Narrow the Human Capital Gap in India and Latin America

National “finishing schools” represent a promising tool to narrow the gap between the human capital needs of GVCs and the skills supplied by national education systems. The finishing school model has been tested in India and the Philippines, and recently applied in Latin America with the support of the Inter-American Development Bank (IDB). These schools help recent graduates and workers develop high-demand skills, making them more employable. In turn, by increasing workforce employability, finishing schools can help a country improve its position in the value chain.

Finishing schools build upon the fundamental skills acquired in academic institutions, filling in specific gaps in knowledge and soft skills. These gaps are determined by the skill sets needed by a particular industry, as compared with the workforce’s current skills. In India, the most effective finishing schools were those that collaborated with companies to identify the desired skill sets, and match trainings to these gaps (Tholons, 2012). In the global services industry, these skills often include technical (IT) skills, English abilities, and soft skills such as relational skills, confidence, and presentation skills.

Programs at finishing schools that train workers for careers in IT services can run from five weeks to up to one year in duration (Tholons, 2012, p. 14). Often, these schools target youths who have recently graduated from high school or university, but they can also play a role in re-training adult workers (IDB, 2012).

Public-private partnerships are central to creating effective financing and governance mechanisms to support finishing school programs in developing countries. Although in India, finishing schools may be run by either the government or a private institution, in Latin America there is increasing recognition that collaborative policies and institutions provide the most effective support to finishing school initiatives.¹⁶ The public-private model offers two key advantages: (1) such partnerships create opportunities for co-financing, reducing the cost burden borne by any one sector; and (2) the content of the programs is determined by the employers themselves, ensuring that the skills developed match industry needs (IDB, 2012). Thus, the finishing school model recognises the role of all stakeholders, “the State, the academe, and industry – in shaping the capabilities of the labor pool towards in delivering information technology and business process outsourcing services” (Tholons, 2012, p. 14).

The Aerospace Industry in Querétaro, Mexico¹⁷

The aerospace industry in Querétaro has grown rapidly. Bombardier – one of the leading companies in the sector, based in Canada – arrived to the area in 2006, marking the entry of Querétaro into the aerospace GVC. The French group Safran and Spanish airframe manufacturer Aernnova quickly followed suit, establishing operations in 2007. Under the leadership of the Secretariat for Sustainable Development, Querétaro's aerospace cluster has since become one of the four leading locations in Mexico. By 2012, there were over 30 foreign firms operating in the state, with projected employment of over 6,000, about 20% of the country's aerospace workforce. Mexico's exports in the sector had reached US\$4.5 billion by 2011, up from US\$1.3 billion in 2004.

Growth was supported by a clear commitment to the development of the industry by the state government, including the creation of the National Aeronautics University of Querétaro (UNAQ) in 2007, which housed several technical programs developed in public-private initiatives and created the first aerospace engineering program in the country. State investments in UNAQ amounted to US\$21 million by 2009. In addition to training teaching staff in both Canada and Spain, UNAQ drew teachers from aerospace firms working in the region. By 2012, there were 488 technical and professional students at UNAQ. UNAQ's contributions to human capital development in the state added to an already strong engineering training base. In 2009, engineering graduates accounted for 41% of undergraduate degrees, while 65% of master's degree programs available in the state were in engineering fields (Casalet et al., 2011).

Additionally, in 2007 an aircraft maintenance program was established in Querétaro by the National Mexican Technical Training Institute, which graduates 90 technicians annually. This has supported the ongoing development of the state's maintenance and repair operations capacity, and helped

¹⁶ The IDB replicated the public-private partnership models developed in India to its first pilot projects in Uruguay and Colombia.

¹⁷ The description of this case is drawn from Fernandez-Stark et al. (2014).

capture large investments, including the 2012 Delta-Aeromexico deal to establish a US\$50 million maintenance, repair and overhaul (MRO) facility in Querétaro with seven production lines to serve both airlines.

VI. THE HETEROGENEITY OF EMERGING ECONOMIES AND THEIR EXPORT PROFILES

Focusing on a set of seven contemporary emerging economies—China, India, Brazil, Mexico, Russia, South Korea, and South Africa—will give a broader sense of the role of GVCs and development policies in the developing world. They are all centrally involved in distinct types of GVCs in agriculture, extractive industries (mining, oil, and gas), manufacturing, and services (Gereffi and Sturgeon, 2013). Together, these seven emerging economies account for 45% of the world’s population, 25% of global exports, and 24% of gross domestic product (GDP) in 2013, and, and their GDP growth rates are substantially higher than the world average (3.2% versus 2.2%) (see Table 1). The economic and social characteristics of these countries are quite diverse, however. The specific roles of these countries in the global economy vary according to their openness to trade and foreign investment; their endowments of natural, human, and technological resources; their geopolitical relationships to the world’s most powerful countries; and the characteristics of their immediate neighbours.

Tables 1 and 2 about here

As GVCs have expanded in scope and complexity, emerging economies have clearly benefitted, surging ahead of the advanced industrial countries in terms of export performance. Between 1995 and 2007, the global export market shares of the United States and Japan fell by 3.8% and 3.7%, respectively, while China more than doubled its market share from 4% in 1995 to 10.1% in 2007, making it the world’s export leader (ahead of Germany, the United States and Japan). South Korea, Mexico, Turkey, South Africa, and the former transition countries in central Europe also increased their export market shares during this period. Even more surprising, emerging economies made their most significant gains in high and medium-technology industries, which previously were the stronghold of OECD countries. This phenomenon was mainly driven by processing exports from China, whose share of high technology exports soared by 13.5% in the period 1995-2007, moving it ahead of the United States as the world’s largest exporter of electronics (Beltramello et al., 2012, pp. 9-10).

Although collectively these seven nations have considerable economic clout, China is the global pacesetter of the group. While China and India are the most populous countries in the world, with 1.36 and 1.25 billion inhabitants, respectively, China is the undisputed export leader, with \$2.2 trillion in exports in 2013. China’s export total is greater than that of Russia, South Korea, India, Brazil, Mexico and South Africa combined (\$2.14 trillion), and its GDP has grown by over 9% per year for over 30 years. It is now the second-largest economy in the world (after only the United States) and has overtaken Germany as the world’s largest exporter (Beltramello et al., 2012, p. 9). Notwithstanding its rapid economic growth, however, its GDP per capita in US dollars was the third-lowest among these emerging economies in 2013 (\$6,807), well ahead of India (\$1,498) and a little larger than South Africa (\$6,618),

but only 60% that of Brazil (\$11,208) and less than half the per capita income of Russia (\$14,611), and just over one-quarter that of South Korea (\$25,977). On average, the GDP per capita of these seven emerging economies was about 18% above the world average in 2013, using purchasing power parity (PPP) indicators.

The export profiles of these emerging economies indicate the roles that they play in GVCs. Using a classification scheme that categorises traded goods according to primary products plus four types of manufactured exports (resource-based, low-tech, medium-tech, and high-tech) (Lall, 2000), Table 2 highlights some of the differences between the export profiles of these countries in 2013. Three of the emerging economies are heavily oriented toward primary product or resource-based exports: Russia (84%), Brazil (66%), and South Africa (56%). Over half of India's exports are resource oriented, and another 20% are low-tech (primarily apparel products) manufactured goods.¹⁸ China, South Korea, and Mexico, by contrast, are heavily involved in manufacturing GVCs. About 90% of China's exports are manufactured goods, while a preponderance of the exports of South Korea (71%) and Mexico (64%) are medium-tech (automotive, machinery) and high-tech (mainly electronics) exports.

China's export success has been a particular challenge for Latin America's two largest economies, Brazil and Mexico. In 2010, China was Brazil's largest trading partner, accounting for about 15% of Brazil's exports and imports. Between 2000 and 2010, Brazil's exports to China increased almost thirty-fold, and since 2002, imports have grown sixteen-fold. Although the Lula administration in Brazil was keen to develop a strong economic partnership with China, concern has arisen due to both the composition of Brazil's exports to China (the primarisation of Brazilian exports mentioned earlier), and their concentration in a relatively small number of products and exporting firms. About 70% of Brazil's global exports in 2011 were primary products or resource-based manufactures. Furthermore, these two categories accounted for just over 60% of Brazilian exports to countries other than China in 2009, compared to almost 90% to China (Sturgeon et al., 2013, pp. 29-30). Brazil's exports to China are concentrated in a very limited number of products, with iron ore and soybeans alone accounting for over two-thirds of the total in 2009.¹⁹

What is particularly notable about Brazil's trading relationship with China is that it is skewed to the export of products (both primary commodities and manufactured goods) with a very low level of processing, while imports tend to be technology intensive components and machinery. The soybean value chain is a good example of the former. About 95% of Brazil's soybean exports to China in 2009 were unprocessed beans. In contrast, there were virtually no exports of soybean meal, flour or oil to China. In order to pursue its strategy of promoting the Chinese soybean processing industry, China imposed a tariff of 9% on soybean oil imports, while the tariff on unprocessed soybean imports was only 3%. More processed imported soybean products also paid a higher value-added tax rate in China than unprocessed beans. This same protectionist policy of tariff and non-tariff barriers imposed by the Chinese government to protect its domestic producers was applied to a range of other primary and processed intermediate products from Brazil, including leather, iron and steel, and pulp and paper (Jenkins, 2012, pp. 28-29).

¹⁸ Lall's categories only cover goods, however, and India is also the world leader in exports of offshore services, with 45% of the global total. See Fernandez-Stark et al. (2011), which defines and analyses recent trends in the offshore services industry using a GVC approach.

¹⁹ This is reflected in Brazil's top 10 exports in 2011, where the top seven items are primary products or processed intermediates (see Sturgeon et al., 2013, Table 3).

On the import side, Brazil has also been influenced by China's structure of international trade. In 1996, low-technology products accounted for 40% of Brazil's imports from China, while high-technology products accounted for 25%. By 2009, the pattern was nearly reversed: high-technology products were 41.4% of the total, and low-technology products were 20.8%. If we look at this trend in terms of the end use of imports, consumer goods imports from China to Brazil fell from 44% to 16% between 1996 and 2009, while the imports of capital goods and their parts doubled (Jenkins, 2012, pp. 29-31). Thus, Brazil has been subordinated to occupy the lowest rungs of the value-added ladder in its trade with China in recent decades, which poses long-term structural imbalances for Brazil if the situation doesn't change.

From a GVC perspective, which focuses on the location of value added in global production systems, high-technology imports from Mainland China are most often driven by the products and strategies of firms based in OECD countries, along with their business partners (e.g. trading companies, contract manufacturers, and component producers) based elsewhere in the world, especially Taiwan, Hong Kong, and Singapore. Thus, the historic reliance of Brazil on the "global North" for technology-intensive products has in essence remained, even as China's importance as a trading partner has risen. In other words, China has become a major conduit for technology from the global North.

Notwithstanding the unprecedented momentum of China's rise in the global economy, these competitiveness problems for Brazil can be ameliorated, or even reversed. Mexico, which is Latin America's second-largest economy, appears to be in the midst of a remarkable turnaround, based on a little publicised manufacturing revolution that is allowing the country to become a credible competitor to China, after losing U.S. market share to China for more than a decade (Gereffi, 2009). Mexico currently exports more manufactured products than the rest of Latin America combined, and it has begun to diversify its export profile, with exports to the United States falling from 90% of total exports a decade ago to less than 80% today.

The main elements of Mexico's success include a very high degree of trade openness – it has free trade agreements with 44 countries, which is more than twice as many as China and four times more than Brazil. Rising wages and fuel prices have made it increasingly expensive to export from China to the U.S. market. Mexico's wages, which used to be nearly four times higher than China's a decade ago, are just 29% higher today. Also, while Mexico still has an abundance of cheap labour (more than half of its population of 112 million is under 29), its workers are also becoming more skilled, with growing proportions of graduates in engineering, architecture, and other professions (Thomson, 2012). Furthermore, Mexico's geographical proximity to the United States allows shorter supply chains, lower transport costs for bulky items, and quicker delivery times in the context of increasingly popular "fast fashion," "just in time," and other "rapid response" business models. However, this turn-around is not based on the success of domestic firms. As with China, Mexico is a platform for multinational enterprises seeking to locate labour-intensive aspects of GVCs (including both manual and knowledge work) in a country that is both low cost and close to the huge United States market.

VII. THE ROLE OF INDUSTRIAL POLICIES IN GVCs

Industrial policies that take the new realities of GVCs into account include traditional measures to regulate links to the global economy, especially the regulation of trade, foreign direct investment, and the exchange rates used in ISI and EOI policies that sought to elevate the position of “national champions” (Salazar-Xirinachs et al., 2014). Today, GVC-oriented industrial policy focuses to a greater extent than in the past on the intersection of global and local actors, and it takes the interests, power, and reach of lead firms and global suppliers into account, accepts international (and increasingly regional) business networks as the appropriate field of play, and responds to pressures from international non-governmental organisations (NGOs) (OECD Development Center, 2013; Crespi et al., 2014).

There are three distinguishable types of industrial policies: “horizontal” policies that affect the entire national economy; “selective” (or “vertical”) industrial policies targeted at particular industries or sectors; and GVC-oriented industrial policies that leverage international supply chain linkages or dynamics to improve a country’s role in global or regional value chains (Gereffi and Sturgeon, 2013: 342-343). “Horizontal” policies focus on the basic building blocks of competitive national economies, such as education, health, infrastructure, and R&D expenditures. Although these areas all provide attractive opportunities for private investors, the public sector typically plays a role in providing widespread access to these factors as public goods. Domestic industrial policies tend to be “selective” or “vertical” because they are associated with prioritising particular industries or activities at the national level. GVC-oriented industrial policies go beyond the domestic economic focus of ISI-style policy regimes, which try to recreate entire supply chains within a national territory. Given the expansion of international production networks associated with GVCs, this new type of industrial policy explicitly utilises extraterritorial linkages that affect a country’s positioning in global or regional value chains.

Several major features highlight the distinctive nature of GVC-oriented industrial policies (Gereffi and Sturgeon, 2013, pp. 353-354). One is the role of global suppliers. GVC-oriented industrial policies require an increasingly sophisticated understanding of the global-scale patterns of industrial organisation that have come to the fore in GVCs since at least the 1990s. Lead firms are relying on global suppliers and intermediaries for an array of processes, specialised inputs, and services and demanding that their most important suppliers have a global presence. Hence suppliers, not lead firms, are making many of the new investments that developing countries are seeking to capture. In many cases, suppliers generate the bulk of exports as well. The capability to serve multiple customers also takes on heightened importance.²⁰ Thus, it is no accident that Brazil sought investments from Foxconn, rather than Apple, in its desire for iPhones and iPads to be produced in the country for domestic consumption and export elsewhere in Latin America.

A second feature of industrial policies in the GVC era is global sourcing and value chain specialisation. Policies that promote linkages to GVCs have very different aims than traditional industrial policies that intend to build full-blown, vertically integrated domestic industries (Baldwin, 2011). Policies can target specialised niches in GVCs. These can be higher-value niches suited to existing capabilities, or they can be generic capabilities pooled across foreign investors. Either of these can serve both domestic and export markets. This sort of value chain specialisation assumes an ongoing dependence on imported inputs and services. Global sourcing means that the entire value chain may

²⁰ Multiple customers provide global suppliers with sufficient business to justify capital-intensive investments that may have high minimum-scale requirements, such as electronic displays and automated production lines.

never be captured, but it also assures ongoing involvement in leading-edge technologies, standards, and industry best practices.

Third, firms in emerging economies like China and Brazil are seeking to move to the head of GVCs, regionally if not globally. Encouraging global suppliers to establish facilities within a country has long-term advantages. Local lead firms can rely on global suppliers in their midst and on broader GVCs for a wide range of inputs and services, from design to production to logistics to marketing and distribution. This can lower risk and barriers to entry for local firms, provide access to capabilities and scale that far outstrip what is available domestically, and ensure that products and services are up to date.

The use of industrial policies by emerging economy policymakers should not come as a big surprise. Both developed and developing countries have deployed these policies in the past, often with considerable sophistication, as in the case of East Asian economies such as Japan, South Korea, Singapore, Taiwan, and now China. Looking towards the future, the traditional rulemaking and finance-oriented international organisations of the Washington Consensus era, such as the WTO, the International Monetary Fund, and the World Bank, face the challenge of constructing a new global economic order that aligns with the shifting roles of both the emerging and developed economies. A stable foundation for sustainable development will require both bold vision and a flexible pragmatism to guide a new generation of inclusive growth policies and institutional arrangements within the global economy.

CONCLUSION

Economic globalisation is a by-product of international production and trade networks organised by transnational firms, and it is embedded in various kinds of regulation, including rules of the game established by international institutions, national government policies, and various forms of private governance that non-state actors use to manage activities in GVCs (Mayer and Gereffi, 2010). Public governance will likely “be called upon to play a stronger role in supplementing and reinforcing corporate codes of conduct, product certifications, process standards, and other voluntary, non-governmental types of private governance that have proliferated in the last two decades, and multi-stakeholder initiatives involving both public and private actors will arise to deal with collective action problems” (Gereffi, 2014, p. 29).

The challenge is to link economic and social upgrading of both material work conditions and the quantity and quality of jobs created in contemporary GVCs (Barrientos et al., 2011). For developing countries, the trade, investment, and knowledge flows that underpin GVCs provide mechanisms for rapid learning, innovation, and industrial upgrading (Staritz et al., 2011). GVCs can provide local firms with better access to information, open up new markets, and create opportunities for fast technological learning and skill acquisition. Because transactions and investments associated with GVCs typically come with quality control systems and prevailing global business standards that exceed those in developing countries, enterprises and individuals in developing countries can acquire new competencies and skills by participating in GVCs.

Still, GVCs are not a panacea for development. Very rapid or “compressed” GVC-driven

development can create a host of new economic and social policy challenges in areas such as health care and education (Whittaker et al., 2010). GVCs can create barriers to learning and drive uneven development over time, even as they trigger rapid industrial upgrading, because of the geographic and organisational disjunctures that often exist between innovation and production. There is considerable evidence that greater profits accrue to those “lead firms” in the value chain that control branding and product conception (e.g., Apple) and to the “platform leaders” that provide core technologies and advanced components (e.g., Intel). At the same time, contract manufacturers and business process outsourcing service providers (e.g., call centres) tend to earn slim profits and may never develop the autonomy or capabilities needed to develop and market their own branded products. Typically, firms that provide routine assembly tasks and other simple services within GVCs earn less, pay their workers less, and are more vulnerable to business cycles, not least because they are required to support large-scale employment and fixed capital (Lüthje, 2002).

As developing economies have become key players in GVCs, a new set of issues has emerged regarding how countries can maximise their upgrading opportunities in the global economy. Central to this challenge is how countries can move up the value chain by engaging local firms, assimilating new knowledge and improving employment conditions, with appropriate policies and institutions to facilitate economic, social and environmental upgrading. The various examples of GVC participation reviewed in this paper highlight a variety of options that countries would be wise to consider in trying to improve their international competitiveness. Several targeted recommendations are provided below that highlight what developing countries can do to improve their positions in GVCs.

Infrastructure. Large-scale infrastructure development projects involving roads, shipping terminals and airports are a major focus of development banks and national governments in their efforts to modernise economies and improve their access to global markets. Increasingly, China and other emerging economies are stepping in to fill what they perceive as a significant infrastructure gap for developing economies.²¹ However, our GVC case studies reveal that more specific forms of infrastructure can be highly beneficial to upgrading local economies. As the coffee case in Central America illustrated, sector-specific infrastructure like coffee washing stations that permit wet milling are essential for smallholder farmers to attain the quality needed for specialty coffee exports. For many of the higher value services, world-class information technology infrastructure is essential, which increases connectivity for small and large users alike.

Trade Policy. A prominent feature of the global economy in the last several decades has been the rapid growth of regional trade agreements (e.g., NAFTA, CAFTA-DR and MERCOSUR in Latin America, AGOA in Sub-Saharan Africa, and ASEAN in Asia), and the proliferation of bilateral trade agreements as well (e.g., Mexico has over 40 such agreements and Chile more than 20). While these policies have greatly facilitated the access of developing economies to world-class imports and key export markets, regional agreements can also have a restrictive impact in terms of their country-of-origin requirements. In Nicaragua’s apparel industry, for example, the country was able to negotiate a 10-year

²¹ China has taken the lead in launching a new Asian Infrastructure Investment Bank, with appears to be winning the support of U.S. allies not just in Asia (such as Australia, New Zealand, South Korea, Singapore and Thailand) but in Europe as well (Britain, France, Germany and Italy have all expressed interest in joining the bank as founding shareholders). China is also a central player in the new “BRICS” Development Bank (with Brazil, Russia, India and South Africa), and a proposed Silk Road development fund to boost connectivity with its neighbours in Central Asia (*The Economist*, 2015).

TPL agreement with the United States to give them access to non-U.S. fabrics (mainly from Asia) for their apparel exports. However, the expiration of the TPLs in 2014 has created considerable uncertainty among foreign investors, and could lead to an outflow of FDI that could cripple the country's apparel exports (Frederick et al., 2014).

Developing countries should be wary of building up their competitive advantage in GVCs on the basis of short-term trade policy advantages. Many of the preferential trade agreements have market access aspects that are of limited duration. Countries should view these as “windows of opportunity” that permit the development of capabilities that could lead to more sustainable niches in specific GVCs. Often this involves the creation of backward or forward linkages, like textiles in apparel and cold-storage facilities in the fresh fruit value chain. Global buyers in GVCs prefer “one-stop shopping.” If these capabilities cannot be built at a national level in terms of scale or cost constraints, then another option would be to develop the capabilities that could permit functional upgrading in the GVC with nearby countries in the region.

Industrial Policy. There has been a long history of industrial policy in developing economies, built around the import-substituting industrialisation (ISI) strategy of the 1950s to 1970s, especially in Latin America and East Asia (Gereffi and Wyman, 1990). From the 1980s through the early 2000s, state-led industrial policy fell out of favour, and the “Washington Consensus” championed by the World Bank and the International Monetary Fund advocated export-oriented industrialisation based on the East Asian model. Due to a variety of factors, including the global economic recession of 2008-2009 and the rise of large emerging economies such as China, India and Brazil, the Washington Consensus is now in disarray and industrial policy is back (Gereffi, 2014). However, as a result of economic globalisation and the predominance of GVCs, a return to traditional ISI industrial policy based on protected domestic markets, local content requirements, mandatory joint ventures, and other measures from the ISI toolkit is unlikely to be effective.

Industrial policy in the GVC era needs to recognise that many of the multinational corporations that act as lead firms in GVCs are streamlining their supply chains from hundreds or even thousands of suppliers spread across dozens of countries in every continent of the world,²² to a much smaller number (perhaps just 20-30) of larger, more capable and strategically located manufacturers. In addition, there is also considerable geographic concentration, in which a few countries are controlling larger shares of global output in each industry (Gereffi, 2014). These shifts imply a much greater concentration of industrial production within the global South, higher levels of South-South trade, and the rise of emerging economy TNCs that play a far more significant role in GVCs.

In this context, there are several key features of GVC-oriented industrial policy that are likely to become more significant in developing economies (Gereffi & Sturgeon, 2013): (1) GVC-oriented industrial policies may want to target global suppliers or contract manufacturers that make significant

²² In 2011, for example, Nike's products were made in 930 factories in 50 countries, employing more than one million workers. However, Nike itself had just 38,000 direct employees, most of whom work in the United States. All of the other workers in Nike's global supply chain were employed by subcontractors based in developing economies (Locke, 2013, p. 48). Over 80% of Wal-Mart's more than 60,000 suppliers are located in China alone (Gereffi & Christian, 2009, p. 579).

investments in developing economies, rather than the branded lead firms in GVCs;²³ (2) value-chain specialisation heightens the importance of joining rather than building GVCs (Baldwin, 2012; Cattaneo et al., 2013), and the policies that promote linkages to GVCs are very different from those intended to build vertically integrated domestic industries; (3) industrial policies should seek to identify GVC lead firms and global contractors that have an interest in partnering with and developing the capabilities of local firms; and (4) in a GVC-oriented world, the industrial policies among emerging economies are increasingly likely to be in conflict, with China often finding itself in the middle of these controversies.

Workforce Development. A skilled workforce is an essential ingredient of GVC upgrading, especially for high-value services, which case studies show can add value to virtually every kind of industry: extractive, agricultural, manufacturing, professional services and even tourism. In the context of GVCs, however, the skills required for upgrading must be oriented to highly dynamic global demand, as defined by key private sector actors. Therefore, workforce development programs in Latin America should involve a combination of basic education and more specialised training, with private companies supplementing the role played by public agencies (Gereffi et al., 2011; Wadhwa et al., 2008).

Standards and Certifications. Global production must meet very high international standards for quality and safety, especially for industries related to food, health, and with a potentially big environmental impact (like oil and mining). A dizzying array of industry standards and product certifications are linked to GVCs. While there are often significant price premiums for producers of qualifying products, acquiring appropriate certifications can be costly and complex, especially for small firms. Financing to support certifications is likely to facilitate entry by small and medium enterprises (SMEs) into GVCs, but the gains from certification aren't guaranteed unless the global demand and prices for these products continue to be high.²⁴ Therefore, complying with standards and certifications is best seen as a necessary but not sufficient condition for economic upgrading, which is most likely to affect SMEs.

Public-Private Partnerships. Given the key role played by the private sector in GVCs, international donors and development agencies have shown a great deal of interest in supporting public-private partnerships in developing countries (UNGC, 2011; Bella et al., 2013; USAID, 2014). Since private capital and trade flows in the global economy dwarf official donor assistance, these global flows in GVCs have heightened concerns over how to make sure that positive development trajectories are related not only to economic but also social and environmental objectives. Thus, multilateral and bilateral donors have engaged the private sector to take on a variety of pro-poor development roles. While public-private partnerships can positively impact growth at the industry level through increased investment, output, exports, and employment, the economic gains do not automatically translate to smallholders, SMEs and local households due to the power asymmetries that are embedded in many GVC relationships (Mayer and Milberg, 2013). Therefore, the wide variety of "Aid for Trade" schemes and other forms of public-private partnerships should seek to assure that SMEs and other targeted beneficiaries of inclusive

²³ Foxconn Technology Group, the largest electronics contract manufacturer in the world, has its home office in Taiwan, but its production and exports for leading brand name multinationals like Apple are concentrated in mainland China, where it employs more than one million workers, making it by far the largest private employer in the country. Li & Fung, the largest trading company in the world, is headquartered in Hong Kong but does most of its sourcing from China, and it has extensive operations in the Americas (Fung, 2011).

²⁴ As we saw in the coffee case, the price for specialty coffee could be double that for certified organic or Fair Trade coffee.

development projects acquire the productive capabilities needed to respond to dynamic markets through appropriate financing of required infrastructure, affordable certification, technical assistance, improved information flows, and mechanisms to enhance bargaining power to protect worker rights and community development objectives.

There is no magic bullet to improve international competitiveness in GVCs, given the great diversity of experiences and interests within Latin America. However, by acknowledging and addressing the new realities of the global economy, countries in the region can improve their ability to define manageable goals and capture a greater share of the gains in GVCs.

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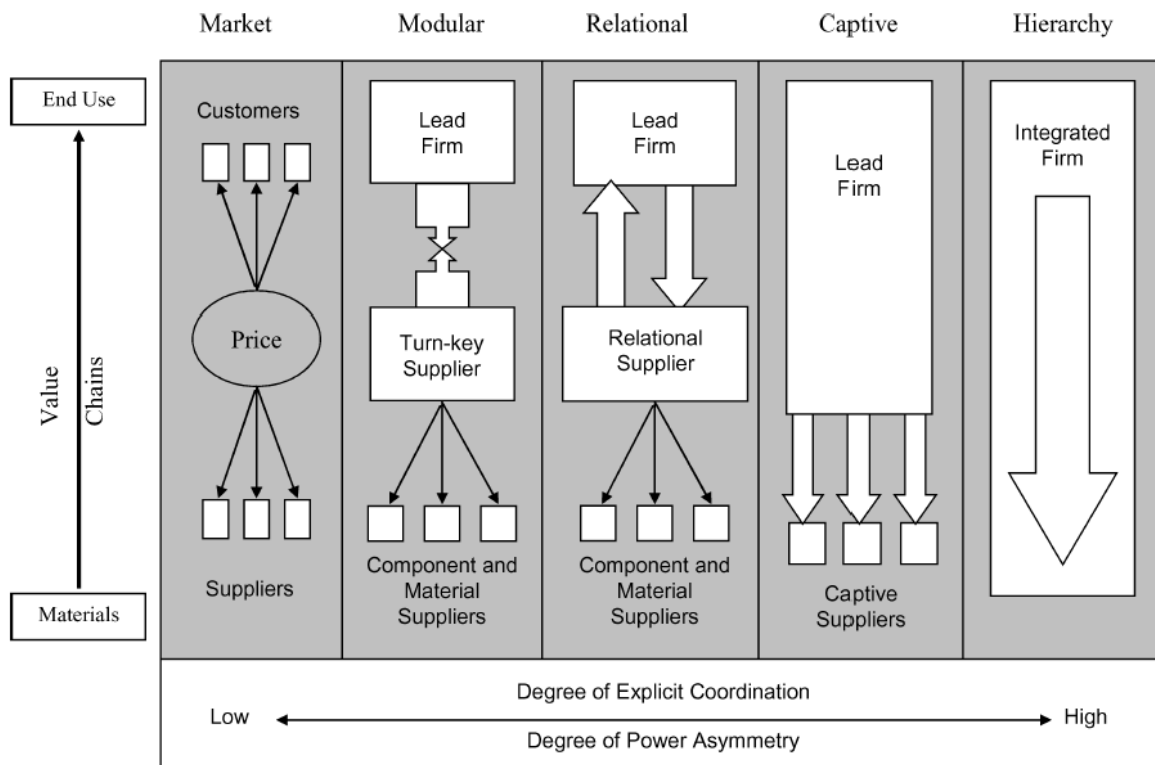
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Figure 1: Five Types of Global Value Chain Governance



Source: Gereffi, Humphrey and Sturgeon (2005, p. 89)

Figure 2. Curve of Value-Added Stages in the Apparel Global Value Chain: Nicaragua

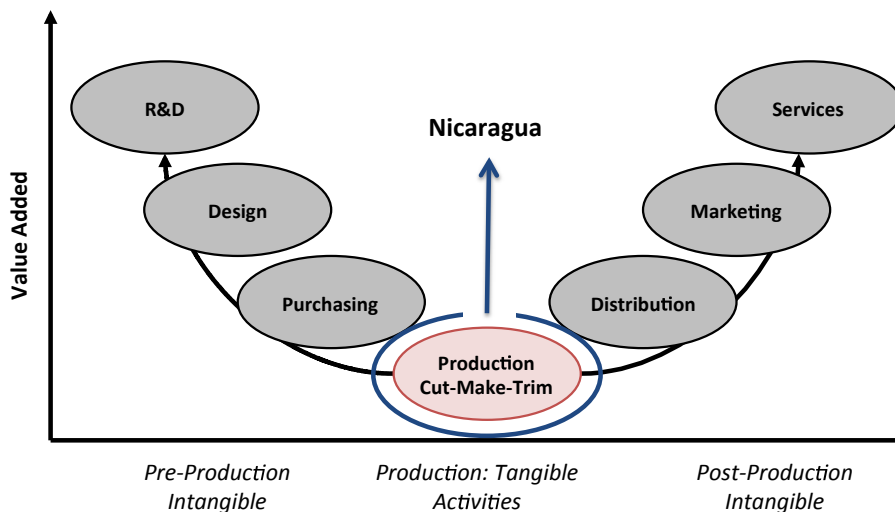


Table 1. Seven Selected Emerging Economies in Comparative Perspective, 2013

Country	Population (Millions) ¹	Exports (\$Billions) ²	GDP (\$Billions) ¹	GDP/capita (USD) ¹	GDP/capita (PPP) ¹	GDP growth YoY (%) ¹	Percent of GDP ³		
							Agriculture	Industry	Services
China	1,357	\$2,209	\$9,240	\$6,807	\$11,906	7.7	10	44	46
South Korea	50	\$560	\$1,305	\$25,977	\$33,140	3.0	3	39	58
Russia	143	\$527	\$2,096	\$14,611	\$24,114	1.3	4	38	58
Mexico	122	\$380	\$1,261	\$10,307	\$16,463	1.1	4	36	60
India	1,252	\$337	\$1,877	\$1,498	\$5,412	5.0	17	26	57
Brazil	200	\$242	\$2,246	\$11,208	\$15,038	2.5	6	26	68
South Africa	53	\$95	\$351	\$6,618	\$12,507	1.9	3	29	68
Total or Avg.	3,177	\$4,350	\$18,376	\$11,004	\$16,940	3.2	7	34	59
World Total	7,125	\$17,635	\$75,593	\$10,610	\$14,397	2.2			
% of World Total	45%	25%	24%	104%	118%	146%			
Sources:	(1) World Bank, World Development Indicators: http://data.worldbank.org								
	(2) UN Comtrade, International Trade Center: http://comtrade.un.org/								
	(3) CIA World Factbook, Country Profiles: https://www.cia.gov/library/publications/the-world-factbook/								

Sources: World Bank: <http://data.worldbank.org>; United Nations Comtrade, International Trade Center.

Table 2. Export Profiles of Emerging Economies, 2000-2013

	Share of exports by sector in 2013*					Total Export Value (\$Billions)	Change in total export value, 2000-2013	Percentage point change in share of exports by sector, 2000-2013				
	Primary Products	Resource Based	Low-Tech	Medium-Tech	High-Tech			Primary Products	Resource Based	Low-Tech	Medium-Tech	High-Tech
China	3%	8%	32%	23%	34%	2,209	786%	-4	0	-10	4	11
South Korea	2%	17%	9%	43%	28%	560	226%	0	6	-8	10	-8
Russia	55%	29%	2%	8%	2%	527	412%	6	10	-3	-3	-2
Mexico	16%	8%	9%	42%	22%	380	129%	3	3	-6	4	-6
India	14%	38%	20%	18%	8%	337	702%	0	9	-19	7	3
Brazil	33%	33%	5%	21%	4%	242	340%	13	6	-7	-4	-8
South Africa	25%	31%	6%	27%	3%	95	265%	8	1	-3	1	-1
*Exports totals do not include uncategorized exports, and therefore they may not equal 100%.								Legend: x ≤ -6 -5 ≤ x < 0 0 ≤ x ≤ 9 x ≥ 10				

Sources: United Nations Comtrade, SITC Rev. 2.

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