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## **Finance, Trade, and Income Distribution in Global Value Chains: Implications for Developing Economies and Latin America**

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# Finance, Trade, and Income Distribution in Global Value Chains: Implications for Developing Economies and Latin America<sup>1</sup>

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## **Abstract**

Global Value Chains (GVCs) led by transnational corporations (TNCs) have reshaped the world division of labor over the past two decades. GVCs are pervasive in low technology manufacturing such as textile and apparel as well as in more advanced industries like automobiles, electronics, and machines. This hierarchical division of labor generates wild competition at the lower value-added stages of production, where low wages and low profit margins prevail for workers and contract manufacturers in developing countries. At the top of the hierarchy another kind of competition prevails, centered on the ability to monitor and control intellectual property rights related to innovation, finance, and marketing. In Latin America and elsewhere, the legislative and institutional changes associated with globalized trade and finance have enhanced corporate mobility, making it easier for firms to reduce wage costs and shift accounting profits to low-tax jurisdictions. This increased mobility has increased rents for large firms and helped redistribute income along the value chain from productive workers to shareholders and salaried executives.

**Keywords:** global value chains, rents, inequality, intellectual property rights.

**JEL codes:** O13, O40, E6

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## Introduction

Global Value Chains (GVCs) led by transnational corporations have reshaped the world division of labor over the past two decades. The emergence of these vertical production networks was made possible by the extraordinary progress of information and communications technologies and by extensive economic liberalization in developing countries. GVCs are pervasive in low technology manufacturing such as textile and apparel as well as in advanced industries like automobiles, electronics, and machines.

This hierarchical division of labor generates wild competition at the lower value-added stages of production, where low wages and low profit margins prevail for workers and suppliers operating out of export processing zones in underdeveloped countries. At the top of the hierarchy another kind of competition prevails, centered on the ability to monitor and control intellectual property rights related to innovation, finance, and marketing.

Enforcement of intellectual property rights, privatization, and financial deregulation, have been major features of the world economy since 1980, stimulating capital centralization and enlarging the economic rents appropriated by financial interests, CEOs, and owners of patents and intellectual property rights. These features were closely related, for the expansion of global production networks after 1990, commanded by large multinationals from the advanced capitalist core, required both a weaker regulatory environment with regard to trade, investment, and finance and a stronger regulatory environment with regard to the protection of extraordinary profits.

This article comprises 5 sections, in addition to this Introduction. Section 1 analyzes different concepts of rent in classical political economy and uses them to discuss two key sources of rent in modern GVCs: finance and intellectual property rights. Section 2 discusses the rise of modern production networks and argues increased outsourcing and offshoring, together with the strengthening of IPR regimes worldwide, have enlarged rent appropriation for lead firms in GVCs. Section 3 argues that the steps taken toward the internationalization of property rights law since 1990, along with the abdication of industrial policies and national innovation strategies in most underdeveloped countries, have transferred income and rents to lead firms in GVCs. Sections 4 and 5 analyze the

role of developing countries, particularly Latin America, in global production networks, arguing that the gains from global trade remain heavily skewed in favor of wealthy countries. Section 6 concludes the paper.

## Section 1: Old and New Sources of Rent

According to classical political economy, economic rent, understood as the fraction of surplus appropriated by landowners, comes from two different processes. The first, examined by Smith and Marx, originated from the power of landowners to charge producers for the use of their land, resulting in prices that exceed production costs (which includes the normal rate of profit). The second, analyzed by these authors and by Ricardo, occurs when two different techniques of production (or lands of different productivity levels) are simultaneously in use but the normal price is governed by the inferior technique (the less fertile land). Both forms of rent originate from a market price exceeding production cost, but they are formed by different principles. Only the first type of rent, or absolute rent, is an independent source of price; it is a kind of monopoly price. Different from Ricardo, where unused land was a non-scarce resource, in Smith and Marx absolute rent derives from the control of property. Monopoly price arises when scarcity, natural or created through exclusionary practices, gives owners the power to fix price above production cost.

The search for absolute rent, is a private strategy in which firms exploit privileged positions in the market in order to extract rents. Neoclassical literature regards such behavior as a rational response to pervasive State intervention, but as authors such as Thorstein Veblen pointed out long ago, it is standard procedure for modern corporations. Veblen, it is worth adding, contrary to Schumpeter (who believed the extra profits of innovators rapidly dissolved through the forces of competition), saw the control of innovation through patents and other exclusionary practices as the main source of corporate profits.

The distribution of surplus to the vested interests of shareholders, financiers, monopolists and rentiers is a central feature of modern capitalism. For Marx and Veblen, profit is, like rent, an unearned income appropriated by the owners of capital. Profit, however, is for these authors subject to the “risk and trouble” of productive investment and is the main mechanism for the creation and appropriation of wealth. Rents, on the other hand, which accrue to the owners of certain kinds of assets—land, technology, finance, CEO pay—have no direct productive or industrial purpose, nor are they subject to the same laws of competition; they exist simply because owners have the power to charge a price above

production cost. This surplus extraction can be a burden to the normal profit rate of industrial capital or, as has been more likely since 1980s, to the wage rate paid to unskilled labor.

Two sources of rents associated with services and particularly relevant for the world division of labor through GVCs are finance and intellectual property rights (IPR). They did not emerge to solve productive necessities or stimulate growth but to enlarge the value appropriated by transnational corporations (TNCs) in an era of slower economic growth. New financial products have developed through speculative and gambling activities financed by credit. Rather than stimulate productive investment, these activities increased the profitability of banks and financial capital. The extension of property rights to intellectual, manufacturing and service activities are not a necessity required by innovation but an institutional device to increase monopoly rents.

Pagano and Rossi (2011) explore the “property rights paradox” in the knowledge economy. Unlike physical capital, ideas and knowledge are non-rival goods and thus can be reproduced without additional cost. Given this possibility and the complementary innovations that come with the reproduction of knowledge, they generate increasing returns of scale through diffusion. Despite this feature, exclusion through intellectual property rights law is possible. A firm’s ability to monopolize the use of such disembodied capital goods through intellectual property rights (IPR) is proportional to the resources it has available to defend its right of exclusivity, or charge fees for the use of its property. “Here the property right paradox of the modern knowledge economy becomes particularly evident: the non-rival nature of knowledge, which could in principle favour small and even self-managed firms, produces artificial economies of size and makes the acquisition and the defense of property rights so difficult that only big firms can effectively afford it” (Pagano and Rossi 2011, p. 288).

Barriers to free access of resources, markets or technology created by exclusive property rights generate scarcities and rents for the owners of these protected assets. This includes not only traditional forms of rents like land but also infrastructure and high tech services in computing, software and finance. Financial and IPR rents facilitated capital centralization in the modern economy and transferred power from those that control production to those that control existing assets that yield rent.



## Section 2: Globalization and Corporate Control of Economic Rents

As Hopkins and Wallerstein (1986) noted in their pioneering analysis of “global commodity chains”, global production networks are as old as capitalism itself. Nonetheless, the ones that emerged after 1980 have several distinguishing features. First, they are characterized by a more intense division of labor than was ever before possible. Furthermore, the modern network firm has enlarged rent appropriation relative to the postwar era and enhanced control over foreign affiliates and suppliers. Modern TNCs exercise great power both “below the legal frontier of the firm (within dispersed affiliates of TNCs) and beyond the legal frontier of the firm (through subcontracting and retailing networks)” (Smichowski et. al. 2016).

Value chains today are characterized by a vast “splintering” of production into numerous stages and tasks (Nathan and Sarkar 2011) and the subsequent outsourcing of these tasks to affiliates and independent suppliers all over the world. This was made possible by trade liberalization, labor market deregulation, improvements in information and communications technologies (ICT), and geopolitical shifts—notably the fall of the Soviet Union and the incorporation of China into Western trade networks—that vastly increased the size of the capitalist labor force.

The rise of GVCs after 1980 dramatically reduced the bargaining power of labor in the advanced capitalist nations, and not simply because of greater competition from low wage workers in poor countries. As Nathan and Sarkar (2011, p. 54) point out, one of the great advantages of outsourcing, from the perspective of firms, is that it allows them to more efficiently segment labor markets. One of the drawbacks of the large integrated firms of the postwar era was that, though they had substantial monopoly power, their employees could demand relatively high wages, not only because they belonged to trade unions but because they were legally a part of the firm and felt they had a right to a share of the excess profits. Worker knew, furthermore, that their employers could “afford to pay them”<sup>2</sup>. As a result, the rent “earned by the integrated monopoly firm is likely to have an

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<sup>2</sup> The quote, as noted in Nathan and Sarkar (2010), comes from Kalecki’s (1971) discussion of the effect of monopoly power on wages.



effect on wages in the firm as a whole”, from unskilled workers on the assembly line to those with advanced degrees doing R&D.

Transnational corporations (TNCs) today are less likely to be vertically-integrated firms than commanders of supply chains in which they focus on specific tasks like design, R&D, and marketing and outsource “non-essential” tasks to suppliers. The key to this arrangement, and one of the main sources of higher rents, is that suppliers usually operate in a more competitive environment than the lead firm itself<sup>3</sup>.

Far from being limited to relatively simple tasks like cleaning services or call centers, outsourcing today encompasses complex activities in apparel, electronics, automobiles, aeronautics and other sectors, putting suppliers and contract manufacturers in intense competition with one another to secure contracts with flagship companies. Lead firms cherry-pick the activities they want to maintain in-house and outsource the rest, paying efficiency wages to the employees they retain. As noted above, the great thing about global outsourcing, from the perspective of brand name firms, is that such firms sell their products in uncompetitive markets while sourcing inputs from suppliers, located in developing countries, operating in highly competitive markets. This means lead firms will capture the lion’s share of rents<sup>4</sup>.

This is not the case, of course, in every industry. A well-known example is in personal computers, where Microsoft and Intel control technology and standards, and lead firms like Dell and Acer obtain smaller shares of value-added. Furthermore, in highly competitive product markets, reductions in production cost may simply translate into lower prices for final consumers. Kaplinsky (2005), for example, argues profits for global

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<sup>3</sup> Nathan and Sarkar (2011) offer the example of a firm outsourcing janitorial services. Barriers to entry in the lead firm’s market will likely be higher than those in the market for cleaning services, so the supplier’s margins will be relatively thin. Janitors thus will not be able to bargain for their “cut” of the profits, and the value of the wage bill that once went to janitors employed at the lead firm will now be shared with the owners of the services company. “The supplier”, the authors note, “will charge a rate to the lead firm, based not on the profits the lead firm earns but on the volume of work to be performed”. As a result, “the rents earned by the lead firm would not percolate to the supplier firms...”, much less to their employees (p. 54).

<sup>4</sup> Nathan and Sarkar (2011) cite the case of a garment industry in India, where production is outsourced to home producers paid piece-rates. The pay the apparel makers receive “is the same irrespective of whether their work goes into the making of a high-valued branded product...or a low-valued undifferentiated product...”

retailers like Walmart are very low, as reductions in production cost have led to a fall in relative prices (p. 115). This means “extra profits earned by pushing down costs in producing countries would tend to be passed on to consumers and thus increase real incomes in the importing country” (Nathan and Sarkar 2011, p. 55).

Studies of the value chains of several lead firms, however, suggest that such cases are not the norm, and that brand-name firms and large TNCs indeed obtain large rents (Dedrick et. al. 2010; Kraemer et. al. 2011). With regard to electronics, Sturgeon and Kawakami (2010, p. 30) emphasize the “advantages of incumbent lead firms with deep technological expertise”, and observe that “the world’s major contract manufacturers have been trapped in low value-added segments of the electronics GVC...” Even in the PC industry, where input suppliers dominate the value chain, “most of the industry’s profits have been captured by branded lead firms such as Dell and Hewlett-Packard, and especially by platform leaders” Microsoft and Intel.

Outsourcing and globalized production, however, also involve risks for TNCs, specifically, technological diffusion and competition from suppliers seeking to move up the value chain. It is thus not a coincidence that the rise of GVCs was accompanied by efforts to strengthen and universalize intellectual property rights laws. As Anderson and Razavi (2010, p. 266) note, “In an increasingly globalized world, the importance of protecting intellectual property across national boundaries has risen exponentially”.

Global companies have the power to engage in rent-seeking activity through their capacity to influence the agenda of global organizations like the WTO and push for the creation of “closed access knowledge” (Pagano and Rossi 2011, p. 8). In pharmaceuticals, computers, and other knowledge-intensive industries, the “accumulation of private property rights over intangible knowledge” (Pagano and Rossi 2011, p. 10) became a dominant strategy after 1990. The TRIPS agreement, signed in 1994 in the context of the creation of the WTO, established for the first time a set of enforceable, international IPR standards.

Prior to the agreement, IPR issues were managed by the World Intellectual Property Organization (WIPO), a specialized division within the UN created in 1967. Influential industries in wealthy countries eventually “grew tired of the WIPO” and began calling for stronger IPR laws domestically and abroad (Anderson and Razavi 2010, p. 270).

TRIPS was preceded by several important changes in US patent law. In 1980, the US Supreme Court accepted a patent application on bacteria, setting a precedent for the patenting of living organisms. In that same year, Congress passed the Bayh-Dole Act, allowing individuals and firms to patent the results of publicly funded research. Mazzucatto (2014) notes that this legislation “encouraged the emergence of the biotechnology industry, as most of the new biotech companies were new spinoffs from university labs receiving heavy State funding” (loc. 1319).

“[T]he shift from WIPO to TRIPS was largely brought on by the US in response to inability to advance its objectives under the framework then in place” (Anderson and Razavi 2010, p. 274). Pharmaceuticals, chemicals, computing, biotechnology, and entertainment took the lead in pressuring governments to put intellectual property rights and copyrights at the center of trade negotiations. TRIPS became effective in 1995 and its rules, including 20-year patents in various technology fields and 50-year copyrights for most copyrightable materials, apply to all WTO members (Anderson and Razavi 2010, p. 274-5).

With TRIPS as a baseline agreement, wealthy countries since the mid-1990s have signed hundreds of bilateral investment treaties (BITs) with developing countries in order to strengthen these baseline provisions. As a result, “IPR commitments are theoretically higher now than they have been at any previous time” (Anderson and Razavi 2010, p. 282). As discussed further in Section 4, the strengthening of IPR laws has helped guarantee that wealthy countries benefit disproportionately from global trade. “[T]he tale of the past 15 years, told through the eyes of developing nations, is that these investment agreements markedly favor developed nations over developing ones” (Anderson and Razavi 2010, p. 267).

Like the pressure for tougher patent regimes, the successful push for privatization and financial deregulation after 1980 became a major source of rents in the global economy. Wealth and income disparities increased throughout the developed world in this period, while corporate decision-making power became concentrated in the hands of small groups of investors (Glattfelder 2012). In the US, wages for unskilled workers stagnated while compensation for CEOs and other high-level executives soared. Stiglitz (2016) noted there is little correlation between such payments and firm performance, reinforcing the idea that worsening income distribution reflects rent-seeking behavior. CEOs in big

business and finance were not the only ones to benefit from these trends; compensation for skilled professionals in computing, software and other high-tech activities also rose significantly in recent decades.

Examining developments in the financial sector, Baker (2009) notes that the internet and advances in computing technology offered asset holders extraordinary opportunities to capture value from speculative operations, opportunities that only exist because of financial deregulation and other institutional changes. Privatization of social security systems or privately-funded contributions increased asset prices and gave enormous power to pension funds and other institutional investors. Finally, the expansion of the private health insurance industry led to a major increase in health costs and enlarged the rents appropriated by insurance companies and health management organizations.

The connections between the privatization, deregulation, and the strengthening of IPR regimes are strong. In the US pharmaceuticals industry, innovation and basic R&D is funded largely by the federal government while private industry reaps all the profits through its control of drug patents. Taking advantage of financial deregulation, Big Pharma has used these profits in recent years to buyback stocks. This reflects a general tendency towards the commercialization of science and increased influence of financial interests in high-tech industries. As observed by Mazzucato (2013), the symbiotic evolution of venture capital and NASDAQ enlarged the policy space for speculative investment. Financial and intellectual property rents stimulated a huge centralization of capital in the modern economy and shifted power from those that control production to those controlling existing assets that yield rent (Sayer 2015).

### **Section 3: From State Control to Private Appropriation of Rents**

The institutional changes described above had crucial effects on developing economies, the main focus of the following sections. Historically, backward economies nationalized and exerted control of economic rents (land, technological learning and finance) for developmental or distributive purposes. In developmental states, these rents were appropriated by domestic firms in industrial activities or were transferred to social groups by public policies.

Deregulation, privatization and the strengthening of patent regimes after 1980 led to the dissolution of public control over economic rents in developing countries. New forms of private property in nature and knowledge created new areas of rent formation and appropriation. The emergence of China and other low cost manufacturers generated fierce competition and commodification in all activities in which knowledge could not be appropriated and monopolized.

At the same time, the dependence of Third World manufacturing exports on foreign technology has increased. Though the most successful developing countries, like Taiwan, South Korea, and China, have invested heavily in fostering indigenous capabilities, others, such as the Latin American countries, have opted for more passive “integrationist” strategies. Rather than promote national innovation systems, they “clone themselves to foreign investors as a national growth strategy” (Amsden 2001, p. 14).

The new division of labor in global manufacturing led by TNCs generates an uneven value distribution between activities (mainly in services) where economic rents are pervasive and activities (mainly in manufacturing) where competition is fierce. This hierarchy stimulates capital centralization at the top and immiserating growth at the bottom. Though power asymmetries within global value chains are widely recognized (Milberg and Winkler 2015; Gereffi 2014; UNCTAD 2015), current estimates of value appropriation within GVCs cover only part of this process. Hidden incomes in GVCs are pervasive.

## Section 4: Incomes, Division of Labor, and Value-Added Erosion in Global Value Chains

Network trade is dominated by TNCs headquartered in wealthy countries and is characterized by regional blocks centered around the US, Japan, Germany, and, increasingly, China (Baldwin and Gonzalez 2013). Most activities related to GVCs, furthermore, are carried out in wealthy countries and a select few developing countries, most of them in East Asia. China alone accounts for over 30% of the developing world's share in GVC trade<sup>5</sup>.

GVCs expanded rapidly after 2000, and this coincided with an increase in the technological sophistication of developing country exports and higher rates of GDP growth. Primary exports accounted for 75% of developing country exports in 1980. By 2010, this percentage had fallen to around 35%, with the share of manufactures in developing country exports increasing from 9% to 46% (UNCTAD 2015). Most of this change, however, reflected changes in East Asia, as the export structure of Africa and Latin America changed little in the period.

UNCTAD researchers pointed out in the early 2000s that the increasing sophistication of developing country exports was largely a “mirage” (UNCTAD 2015, p. 7), as it involved a heavy reliance on imported inputs. Contrary to the case of South Korea in the 1970s, Mexico became a quintessential case of an economy in which manufacturing value-added does not grow in tandem with manufacturing exports. “Broadly speaking, the tendency for countries to trade extensively but to add relatively less value from doing so has persisted or intensified”. As shown in more detail below, between 1995 and 2011 the domestic value added (DVA) share of gross exports fell in every Asian country except the Philippines and Indonesia. Vietnam's DVA share fell from roughly 79% to 64%, Thailand's from 76% to 61%, Malaysia's from 70% to 59%, and Cambodia's from 87% to 63% (OECD-TiVA database).

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<sup>5</sup> This calculation does not count Taiwan, Singapore, and Hong Kong as developing countries. We use methodology adopted in Banga (2014) based on OECD data.

In most developing countries, “exports have increased substantially without having led to comparable increases in DVA, therefore weakening the production-linked gains commonly expected with export-led growth” (UNCTAD 2015, p. 30). In the 1970s, South Korea’s export share of GDP was similar to that of Malaysia and Thailand today, but the domestic value-added (DVA) share of its gross exports was well over 75%.

Several studies (Kowalski et. al. 2015, OECD et. al 2014) have argued that participation in GVCs by developing countries have positive effects on economic growth, leading to knowledge and productivity spillovers and the convergence of GDP per capita between developed and developing countries (Baldwin 2013, p. 22). With regard to income convergence, it is worth noting that the much-discussed reduction in cross-country income inequality after 2000, measured on the basis of market exchange rates or on purchasing power parity (PPP) basis, is almost entirely attributable to output growth in China (Milanovic 2012).

There is little evidence, furthermore, linking intensity of participation in GVCs to output growth. Analyzing value-added trade data, Smichowski et. al. (2016, p. 12) conclude that “contrary to what the prevailing view describes, there is not a straight-forward positive link between GVC participation and direct economic benefits”.

One reason for the absence of a direct link between GVC expansion and output growth is the recent increase in “value-added erosion”, above all in developing countries. Using the World Input-Output Database (WIOD; see discussion below), Carballo and Jiang (2016) note that the share of domestic value-added in gross exports fell in 87% of the countries in their sample. The authors find a strong negative correlation between DVA and foreign high-skilled labor embodied in a country’s exports. Since high-skilled labor tasks in value chains are generally carried out in wealthy countries (see Table 4 below), GVCs appear to put developing countries at a disadvantage: the more dependent you are on sophisticated foreign inputs, the more your DVA share of gross exports tends to fall. This means, of course, that domestic firms and workers will obtain a smaller slice of the value embodied in the goods they produce.

Carballo and Jiang’s findings corroborate well-known evidence from high-tech sectors in China and other Asian manufacturers that the DVA of exports of computers,

telecommunications equipment, electronics devices and other advanced goods is very low, perhaps 30% or less according to one study (Koopman and Wang 2012).

Wealthy countries capture a disproportionate share of the benefits from GVC trade (Tables 1-4). Estimates based on OECD data suggest the share of developed nations in total value added created by GVCs was 62%, or 65% if we include relatively developed regions such as Taiwan, Hong Kong and Singapore. The top 6 OECD countries captured around 33% of global GVC trade: US 8.2%, Germany 7.7%, Japan 4.6%, South Korea 4.2%, UK 3.8%, and France 3.6% (UNCTAD 2015, p. 26). We discuss these figures in more detail below.

Modern GVCs emerged from the expansion of mainly American TNCs in the 1960s and 1970s, as manufacturers and retailers in footwear, apparel, and electronics took advantage of low-wage labor costs in newly-industrializing regions like Taiwan and South Korea. In later decades, and especially after 1990, electronics and high-tech firms from the US and Japan were at the forefront of production outsourcing. Within Europe, outsourcing was led by German capital, using Eastern Europe as a manufacturing base and assembly hub. As UNCTAD (2013, p. 122) noted, TNC expansion was very rapid up to 2007: “Since 2000, global trade and FDI have both grown exponentially, significantly outpacing global GDP growth, reflecting the rapid expansion of international production in TNC-coordinated networks”.

Production outsourcing can take many forms, involving both FDI (the traditional mode of TNC expansion through the creation of foreign affiliates) as well as “non-equity modes” of production through the use of contract manufacturers, the preferred form for Apple, Dell and electronics-related firms. In either case, the organizational effects of GVC expansion are the same, reinforcing the world division of labor into “headquarter” economies (mainly the US, Japan, and Germany) and “factory” economies located in North America (Mexico), Eastern Europe, and Southeast Asia (Baldwin and Gonzalez 2013)<sup>6</sup>. Baldwin and Gonzalez (2013, p. 1696) use these terms to refer to the “technological asymmetry in the international production network” created by TNC

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<sup>6</sup> Though Baldwin includes China in the group of “headquarter” economies, here we use the term to refer to wealthy economies in the West and Japan.



expansion into lower-wage regions. Generally speaking, “firms in the headquarter economies...arrange the production networks; factory economies provide the labour”.

Data on GVC trade permit a rough understanding of how income is distributed along product chains. The World Input-Output Database project (WIOD), funded by the European Commission, along with the OECD-WTO’s database on Trade in Value-Added (OECD TiVA), are at the forefront of initiatives to trace the origin of value-added in GVCs. Other databases exist, but are either not publicly available or provide data for a more limited set of countries (Timmer et. al. 2014). We now discuss findings derived from the OECD-TiVA database, before turning to results based on WIOD data.

As mentioned above, high-income countries (HICs) retain larger shares of their gross exports in the form of domestic value-added than low and middle-income countries. Table 1 compares the foreign value-added (FVA) share in gross exports of five wealthy economies with the FVA share of “factory” economies from 1995 to 2011. Though the increase in the FVA share of gross exports was generalized, the FVA shares of lower-wage economies are much higher<sup>7</sup>.

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<sup>7</sup> Exceptions exist, notably South Korea, which is essentially a headquarter economy, though the FVA share of its gross exports is around 40%. See UNCTAD (2013) and Banga (2014).

**Table 1: Foreign Value-Added Share of Gross Exports, 1995, 2005, and 2011**

<b>Countries</b>	<b>1995</b>	<b>2005</b>	<b>2011</b>
<b>United States</b>	11.5	13.1	15.0
<b>Germany</b>	14.9	21.3	25.5
<b>Japan</b>	5.6	11.1	14.7
<b>United Kingdom</b>	18.3	17.1	23.1
<b>France</b>	17.3	23.4	25.1
<b>Mexico</b>	27.3	33.0	31.7
<b>China</b>	33.4	37.4	32.2
<b>Malaysia</b>	30.5	46.0	40.6
<b>Philippines</b>	30.1	38.0	23.6
<b>Thailand</b>	24.3	36.8	39.0
<b>Vietnam</b>	21.3	30.8	36.3
<b>Cambodia</b>	12.7	42.2	36.8
<b>Hungary</b>	30.1	48.1	48.7
<b>Slovakia</b>	31.9	47.2	46.8
<b>Czech Republic</b>	30.5	42.6	45.3
<b>Poland</b>	16.1	28.3	32.4
<b>“Headquarter” Average</b>	13.5	17.2	20.7
<b>“Factory” Average</b>	26.2	39.1	37.6

Source: Authors’ calculations, based on OECD-TiVA database.

We obtain further insight by comparing the ratio of “forward” to “backward” linkages in wealthy and in lower-wage economies. “Forward linkages” are defined as the domestic value-added embodied in the exports of other countries, while “backward linkages” are defined as the foreign value-added (FVA) incorporated in the value of a country’s own gross exports. For example, if firms located in the US produce inputs used in Mexico to produce cars for export to third countries (such as the US itself, or Canada), then this represents a “forward linkage” for the US economy and a “backward linkage” for the Mexican economy. Banga (2014) adopts the forward-backward ratio (F-B ratio) as a rough measure of the “net value-added gains” from participating in GVCs. As shown in Table 2, the “gains” for headquarter economies are on average greater than those of factory economies.

**Table 2: Ratio of Forward to Backward Linkages, 2011**

<b>Countries</b>	<b>2011</b>
United States	1.7
Germany	0.9
Japan	2.2
United Kingdom	1.1
France	0.9
Mexico	0.5
China	0.5
Malaysia	0.5
Philippines	1.2
Thailand	0.4
Vietnam	0.4
Cambodia	0.3
Hungary	0.3
Slovakia	0.4
Czech Republic	0.4
Poland	0.7
“Headquarter” Average	1.4
“Factory” Average	0.6

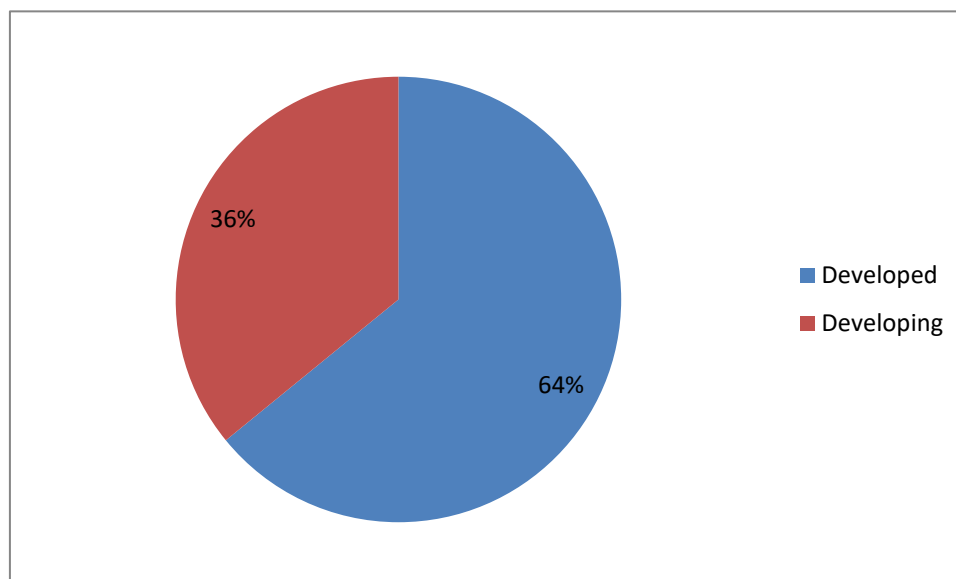
Source: Authors’ calculations, based on OECD-TiVA database.  
OECD-TiVA

Tables 1 and 2 offer a somewhat simplified picture of GVC trade. South Korea is a wealthy economy with a high FVA share in gross exports and a fairly low F-B ratio, while the Philippines is a relatively poor economy with an F-B ratio greater than one. Other developing countries, such as Brazil and Indonesia, have very low shares of FVA in their gross exports, and F-B ratios greater than that of some wealthy economies. But in general, the FVA share of developing countries is, as UNCTAD (2013) notes, “significantly higher than in the United States and Japan – or than in the EU”. This is especially so in areas of East and Southeast Asia and Central America, including Mexico, highly integrated into GVCs and “where processing industries account for a significant part of exports” (p. 126).

Updating estimates provided in Banga (2014), Figure 1 offers a measure of the relative gains of developing countries in global value chains. A country’s share in the “gains”

from GVC trade is calculated as the sum of the country's forward and backward linkages divided by the sum of world forward and backward linkages. The developed countries of Figure 1 include 34 OECD countries plus Taiwan.

**Figure 1: Relative Gains of Developed and Developing Countries in GVCs\***



Source: OECD-TiVA database, October 2015

\*Developed countries = OECD + Taiwan

Though useful as a rough sketch, these calculations are somewhat arbitrary. While forward linkages indeed represent a “gain” from participating in GVCs, backward linkages simply indicate the degree to which a country's takes part in value chains, and may in fact reflect structural weaknesses. Mexico, for example, has more backward linkages than most economies; this is not a “gain” for Mexico, as it reflects the country's dependence on high-tech inputs manufactured in the US and China. On the other side of the spectrum, American firms earn significant income by outsourcing low value-added stages of production to low-wage economies and then exporting final goods to third countries or selling the imported goods in the US market. These operations will not appear as “forward linkages” for the US economy, though they certainly represent “gains” from GVC trade, particularly for CEOs and shareholders.

In one of the most comprehensive studies currently available, Timmer et. al. (2014) use WIOD data to estimate the distribution of value-added between developed and developing countries and between capital and labor for a wide range of manufactured goods produced within GVCs. The results confirm the trends discussed above, revealing

widening income disparities between capital and labor and suggesting that wealthy countries benefit disproportionately from trade within GVCs.

“In 64% of the chains”, the authors note, “the share of value-added by capital has increased...The increase in income shares for high-skilled workers was particularly pervasive...happening in 92% of the chains” (p. 107). The share of value-added allocated to medium-skilled labor declined in 56% of the product chains, while the low-skilled labor share fell in 91% of the chains. In terms of factor shares, high-skilled laborers in wealthy countries were the biggest winners, with a positive increase of 5%.

The authors also found an increase in the high- and medium-skilled labor share in developing countries, while the share allocated to low-skilled workers in these countries fell dramatically. The latter, in fact, fell by 6.3%, the largest variation (positive or negative) among any of the factor groups analyzed in the study. This finding is particularly impressive, as worldwide employment in export-processing zones in developing countries increased by around 25 million over the course of the 2000s (Milberg and Winkler 2010).

With regard to the geographical distribution of GVC income, Timmer et. al. (2014) conclude that 55% of value-added generated within GVCs accrues to 21 high-income countries: the US, Japan, South Korea, Taiwan, Australia, Canada, and the 15 pre-2004 members of the European Union. Though significant, this figure is below current estimates based on OECD-TiVA and well below Banga’s (2014) estimate of 67% accruing to OECD countries.

One of the factors likely explaining why wealthy countries reap the lion’s share of gains within GVCs is the control of technical progress by TNCs headquartered in these countries. Among triadic patents filed in 2012, over 60% were filed by residents of the US and Japan, and over 80% were filed by residents of the US, Japan and the European Union. China’s share, though clearly on the rise, was 3.3% in 2012 (OECD Patent Database). To the extent that technological capabilities ultimately determine the allocation of value-added in value chains for more sophisticated products, it seems clear that firms from wealthy countries remain in the driver’s seat. In 2008, there were only three companies from LMICs among the top 100 non-financial TNCs, ranked by foreign asset holdings. In the same year, the international assets and foreign revenues of the top

100 TNCs from developing countries, which includes firms from countries such as South Korea, Hong Kong, Qatar, were equal to only 14% of those of the world's 100 largest TNCs (UNCTAD 2015, p. 32-3). In 2015, only six of the world's top 100 non-financial multinational enterprises were from developing countries.

Timmer et. al.'s calculations, however, almost certainly underestimate the share of GVC income appropriated by wealthy countries. OECD and WIOD data are compiled on a domestic rather than national basis, meaning that if a French multinational operating in Vietnam exports a machine to Japan, the capital income is credited to Vietnam, not France. Given that FDI stocks and income are overwhelmingly from high-income countries (UNCTAD 2008), estimates of value-added trade on a domestic basis will inflate the developing world's share. Dedrick et. al. (2010) and Kraemer et. al. (2011) took the opposite and arguably more realistic approach in their well-known studies of the iPod and iPhone supply chains (crediting income to the country of origin of multinational firms), leading them to conclude that China retains almost none of the value-added created in these chains even though Chinese workers provide almost all of the labor.

A methodological note by the OECD recognizes the shortcomings of value-added trade data, noting that "measuring flows of value-added reflects only part of the 'global trade' story, as "part of what is referred to as operating surplus in the National Accounts, may be repatriated to the parent company." Furthermore, national accounts data will only track payments within a value chain for produced assets, ignoring payments made from partners or affiliates of a TNC in developing countries making payments "for the use of those intellectual property products that are not recognised as produced assets in the National Accounts".

Improving data collection with regard to FDI income, however, will not entirely resolve the problem of measuring the gains from GVC trade. Large multinationals like Apple and Boeing hide foreign income and avoid repatriation for tax purposes. Rather than repatriate income, they leverage foreign cash holdings in order to borrow cheaply in financial markets and reward stockholders through share buybacks.

Another problem is the use of basic or ex-factory gate prices for final products in manufacturing, which excludes transportation, distribution and retail margins. Much of the income earned on the production of typical GVC goods like laptops, automobiles and

apparel surfaces only in the retail stage of the value chain, where lead firms exercise strict control and obtain large premiums on sales to consumers<sup>8</sup>.

“[P]rofits by lead firms”, Timmer et. al. (2015) recognize, “are not made by charging other firms in the production chain...but by having exclusive right to sell the particular product with a premium through...tightly controlled sales channels” (p. 593). The authors use the example of the Porsche Cayenne, a German automobile manufactured and assembled for the most part in Eastern Europe. Though in the case of the Cayenne the country-of-completion is Germany, the only task carried out in the latter is the placement of an engine in a factory in Leipzig in a “near-finished car assembled in” Slovakia. Thus the value-added that will appear using WIOD methodology, and apparently that of the OECD-TiVA database as well (see OECD-WTO 2012), will reflect the value of the automobile as it leaves the factory in Leipzig, not the much higher retail value out of which the owners of Porsche capture profits and rents.

Existing methodologies will only capture income flows to lead firms if suppliers make explicit payments to lead firms for the use of proprietary technology or tacit knowledge related to design. In Apple’s case, few such payments are made, as this firm obtains its margins on the sale of the final product to retailers, cellular phone carriers, and Apple Store shoppers. For lead firms like Apple, profits reflect control over “intangible” assets related to product design and technology, and “the use of these intangibles is typically not compensated for by a direct money flow from the users” (Timmer et. al. 2015, p. 593).

Kraemer et. al. (2011) suggest that similar arrangements are in place for a wide-range of electronics goods. “It is a common misconception”, the authors note, “that China, where the iPad is assembled, receives a large share of the money paid for electronics goods. That is not true of any name-brand products from US firms that we’ve studied” (p. 5). Kraemer et. al.’s assignment of profit along the value chain, as noted, is based on the corporate headquarters of the suppliers.

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<sup>8</sup> The country-of-completion of an iPhone, for example, is China, and the ex-factory gate price that Apple pays Taiwan-based Hon Hai Precision (Foxconn) for the device is a fraction of the price charged final consumers in the US.

The difficulties with respect to tracking income flows within GVCs lend support to the use of FDI data to estimate a country's participation in GVCs, as several authors have suggested (UNCTAD 2016). Developed countries own roughly 80% of the world's outward FDI stock, a figure that increases significantly if we include among the developed countries South Korea, Taiwan and Hong Kong (UNCTAD 2016, Annex tables). Though FDI outflows from developing countries have increased in recent years, "most developing economy FDI tends to occur within each economy's immediate geographic region", meaning that it is what is known as "South-South" FDI, which does not result in income flows from wealthy countries to poorer ones. These figures suggest that FDI income is heavily lopsided in favor of firms headquartered in wealthy countries. "[T]he large gap between TNCs from the developed and developing groups remain", UNCTAD (2008) noted, as "the total foreign assets of the top 50 TNCs from developing economies in 2005 amounted to roughly the amount of foreign assets of General Electric" (p. 76).

There is a strong positive correlation between FDI flows and GVC participation rates, confirming the widely-held assumption that much of network trade, even when it translates into an increase in the developing country exports, is organized and led by TNCs (UNCTAD 2013, p. 135). This means, of course, that much of the "capital income" earned in global trade will accrue to the owners of these firms rather than to workers and firms in developing countries. It is worth noting in this respect data the prevalence of foreign enterprises in China, the most successful case in the post-Cold War era of developing country integration into GVCs. As Xing (2010) noted, "high-tech exports are basically dominated by foreign invested firms", which, the author estimates, accounted for around 85% of China's high-tech exports in 2008. The export share of foreign firms in high-tech sectors, Xing adds, increased after 1998 "as more and more FDI [flowed] into China" (also see UNCTAD 2015, p. 32).

Starrs (2014) goes beyond FDI statistics and calls attention to the persistent dominance of American, Japanese, and European multinationals in a range of categories, namely profitability, foreign asset holdings and patent holdings. Given the imprecision that remains in value-added trade data, data on patents, profits and foreign assets held by TNCs may in themselves be as good an indication as trade in value-added data regarding the distribution of gains within GVCs.



In addition to contributing to the erosion of domestic value-added, the rise of GVCs has also led to an erosion of the tax base in both developed and developing countries. Taking advantage of financial deregulation, TNCs have made aggressive efforts in recent years to minimize tax contributions. UNCTAD (2015) notes a marked increase in the use of special purpose entities (SPE) and offshore financial centers (such as the British Virgin Islands) in order to shift profits to low-tax jurisdictions. By the end of 2010, roughly 30% of world cross-border investment flows was routed through offshore hubs, up from less than 20% at the start of the decade.

TNCs employ two key strategies to dodge taxes: transfer pricing and debt financing schemes. In essence, both schemes involve the creation of fictitious legal entities in offshore financial hubs, to which artificial payments are made in order to reduce accounting profits in the corporation's higher-tax countries of origin. Citing the case of Google, UNCTAD (2015) argues the practice is widespread, and results in fantastic gains for corporations: "There is significant anecdotal evidence of the occurrence of profiting shifting through offshore investment hubs. Google achieved an effective tax rate of 2.4 per cent on its non-United States profits in 2009 by routing profits to Bermuda, with Ireland and the Netherlands playing a key role in the structure" (p. 192). The strategy has the effect of "artificially deflating the average rate of return of foreign investments", thus reducing, or eliminating entirely, tax obligations in a TNCs home country. Firms such as Verizon and Pfizer, for example, paid no federal income taxes in the US between 2010 and 2012 (Klinger et. al. 2013).

In transfer pricing schemes, used typically by high-tech companies, intellectual property is transferred to a foreign subsidiary domiciled in a low-tax jurisdiction, like, say, Bermuda. Profits are then shifted between various subsidiaries abroad, located in Ireland or the Netherlands, and then channeled to the Bermuda-based entity through the payment of royalties and licensing fees. The second strategy is very similar to the first, substituting artificial interest payments for payments related to IPR. In this case, the multinational creates an intermediary company in a low-tax jurisdiction which makes fictitious loans to the parent company, or to a subsidiary located in a third country. In the case of a multinational operating in a foreign country through an affiliate, the interest payments reduce the affiliate's recorded profits and inflate profits in the intermediary, controlled by the parent company. "The underlying idea of financing schemes is to use loans from an

offshore-based entity to maximize the payments of passive interests at the level of the (high-tax jurisdiction) loan recipient” (p. 195).

Debt financing schemes such as the one just described “can be employed also in the presence of tangible assets and are particularly suitable for highly capital-intensive industries (such as the extractive industry)”. An example would be a TNC such as Shell producing oil or other raw materials in a developing country like Peru or Nigeria. Paying interest to an intermediary in an offshore tax haven will reduce profits and thus tax payments in the country where production actually takes place (UNCTAD 2015, p. 195).

Transfer price schemes, based on the transfer of IP rights, may or may not entail foreign direct investment by the special-purpose entities located in low-tax jurisdictions, while the second type of scheme more often does use FDI to tie the offshore hub to the country where value is actually created and “to create a direct channel for profits to easily reach offshore locations” (UNCTAD 2015, p. 198). ----

Transfer pricing, furthermore, is not a new phenomenon nor does it necessarily involve the transfer of intangible assets, like knowledge and patent rights, to offshore entities. US oil companies, for example, famously employed such tactics in the 1960s and 70s, making foreign tax payments appear as large as possible in order to deduct these payments from their US tax obligations (Bernard and Weiner 1990). “[A]lthough intangibles-based schemes are increasingly relevant at the global level, transfer pricing manipulation related to intra-firm trade (trade mispricing) of tangible goods is also common, especially to the detriment of developing economies where basic expertise and instruments to detect transfer pricing abuses are missing” (UNCTAD 2015, p. 194).

Developing countries are particularly vulnerable to revenue losses through transfer price schemes, since they generally have weaker regulatory and bureaucratic resources to monitor corporate compliance with tax laws. “There is a clear [negative] relationship between the share of offshore investment in host countries’ inward FDI stock and the reported (taxable) rate of return on FDI. The more investment is routed through offshore hubs, the less taxable profits accrue” (p. 200). UNCTAD estimates that about \$450 billion in profits is shifted yearly from developing countries to offshore entities, causing annual tax revenue losses of \$90 billion, which amounts to more than 10% of total estimated tax payments made by foreign affiliates of multinationals in developing countries. These

figures do not include, furthermore, the substantial revenue losses—on the order of \$140 billion—caused by the use of fiscal incentives to attract foreign investment (p. 203).

## Section 5: Latin America's Role in Global Value Chains

Latin America as a whole plays a limited role in global production networks. Mexico, arguably Latin America's most active participant, accounts for less than 2% of the forward and backward linkages created in world trade (Figure 2). "Existing assessments of the extent of GVC participation in Latin America", a recent study observes, "suggest that it is lower than in other developing regions". Despite factors seeming to favor regional integration, such as a common language and borders, "[i]ntra-regional links seem particularly weak, in contrast to the strong role of regional value chains in Southeast Asia, Europe or North America..." (Cadestin et. al. 2016, p. 6).

Latin America's participation in GVCs since 1985 has been well below that of Southeast Asia, especially in manufacturing, and concludes: In assessing the participation of developing countries in GVCs, it is perhaps more accurate to regard Latin America as the norm, and Southeast Asia, with its strong intra-regional trade links and high GVC participation rate, as the exception. Cadestin et. al. (2016, p. 10) observe that outside Southeast Asia, "the share of intra-regional GVC participation [in developing countries] is lower than the share of extra-regional links".

Despite a relatively low participation rate in GVCs compared to Southeast Asia, Latin America is characterized by significant levels of FDI in natural resource sectors and manufacturing activities oriented toward internal markets and for export processing. In recent years there has been a sharp increase in investment from offshore tax havens and special-purpose entities. Though the US remains the main foreign investor in the region (measured in terms annual flows between 2004 and 2013 or by stocks in 2013), the Netherlands appears as the second largest investor. For some countries, notably Brazil, Holland has become the largest foreign investor in terms of FDI stock. Almost 30% of all FDI in Latin America in 2014 came from the Netherlands and Luxembourg alone, with the Netherlands becoming the region's largest foreign investor, surpassing even the United States.

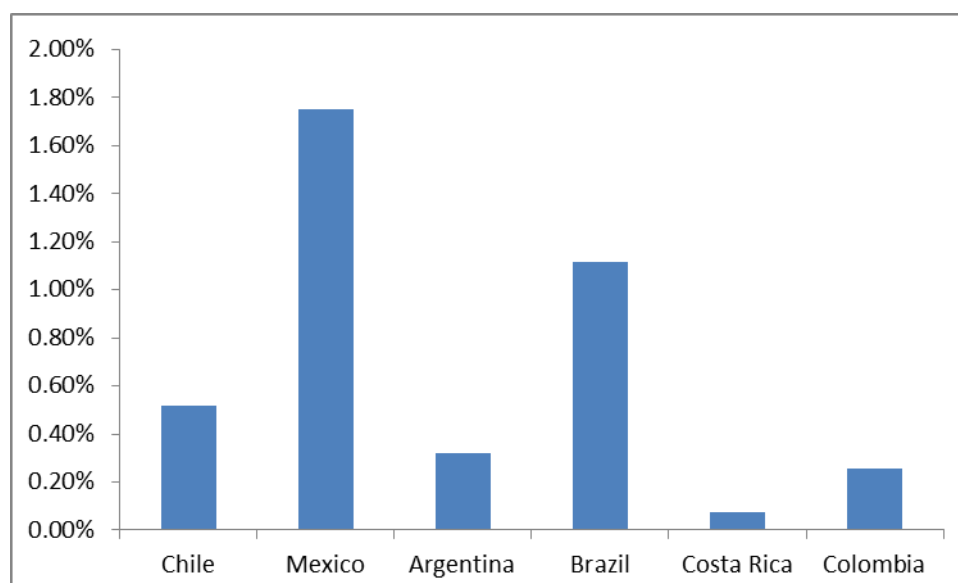
Though evidently not "economic powerhouses", ECLAC (2015b) explains, "the Netherlands and Luxembourg act as conduits for investment from other countries. Ideally, these investment flows should be attributed to their original source countries, but this is not always possible" (p. 30). Though high interest rate differentials explain the sharp

increase in external financing in Latin America over the course of the 2000s, the increase in intercompany loans unquestionably account for the rise in FDI flows during this period. As noted above, these loans likely reflect the use of financial engineering to shift accounting profits to low-tax jurisdictions.

Latin American countries participate in global trade mainly as raw materials producers and assemblers of manufactured goods with high levels of foreign value-added. Generally speaking, South America falls into the first category, while Mexico and several Central American countries, such as Honduras, belong to the second. As raw materials producers, the South Americans have relatively weak backward linkages and strong forward linkages (see Section 3), while the opposite is true in Mexico and Central America, a result of their greater dependence on imported inputs.

Using the share of forward and backward linkages in gross exports as a measure of GVC participation, Chile is Latin America's most active participant in GVCs, followed by Mexico, Costa Rica, Colombia, Brazil, and Argentina (Cadestin et. al., p. 11). Alternatively, if we measure GVC participation as a country's share in world forward and backward linkages, Mexico becomes Latin America's most active participant, followed by Brazil, Chile, and Argentina (Figure 2).

**Figure 2: GVC Participation Rates in Latin America**



Source: OECD-TiVA. Participation rates calculated as the share of a country's forward and backward linkages in world linkages.

As noted above, Mexico and much of Central America participate in GVCs as exporters of processed goods containing high levels of foreign value-added. While the foreign value-added in Mexican and Costa Rican exports (32% and 28%, respectively, in 2011) reflects high-tech imported inputs and payments for skilled labor, that of the Central American countries comes in the form of raw materials and low-tech goods used in textile and apparel manufacturing. Imported inputs, mainly yarns and fibers from North America and East Asia, account for an astounding 80% of the value-added in Honduran textile exports. Among the Latin American countries, Honduras, Mexico and Costa Rica recorded the highest shares of foreign value-added in gross exports in the mid-2000s (35% - 50%), followed by Uruguay, Nicaragua, and Guatemala (Blyde 2014, p. 16-17).

Though the average share of forward linkages in gross exports in Latin America is comparable to Asian countries, this is due to the presence of large primary goods exporters such as Brazil and Argentina. Considering only manufacturing exports, the forward linkages of Latin American countries are much smaller. “Latin American countries participate more than Europe and Asia in international value chains as suppliers of primary inputs, while Europe and Asia participate more than Latin America as suppliers of manufacturing inputs...” (Blyde et. al. 2014, p. 19).

Weak intra-regional trade links in Latin America allow firms in North America, Europe and Asia to reap large shares of the value added in Latin American exports. Cadestin et. al. (2016, p. 15) estimate that in Mexico and Costa Rica, only 3% and 11% of foreign inputs, respectively, come from other Latin American countries, while 40% come from the US and Canada. Similarly, Blyde (2014, p. 22) estimates that only 29% of the foreign value-added in Latin American exports accrues to countries within the region, compared to 50% in both Asia and Europe. Furthermore, while firms headquartered in Europe, North America and Asia account for well over half of the total foreign value-added in Latin American exports, Latin America’s share in the FVA of exports from these regions is minimal (Blyde 2014, p. 23).

One of the reasons for Latin America’s marginal role in GVCs is that while wages in the region are not as low as in Southeast Asia, the quality of its transportation and communications infrastructure is similar to or inferior to that of countries in the latter region. Furthermore, as noted in Section 4, very few of the multinational corporations that

organize and command these international supply chains are headquartered in Latin America. Noting the strong trade links between the US, Western Europe and East Asia, one recent study notes that “most multinational parent companies are located in industrialized countries, and a very large number of their foreign affiliates are also located in” these countries, leaving most poor and middle-income countries essentially out of the loop (Blyde et al. 2014, p. 24).

In general, Latin American countries integrated themselves into GVCs through the adoption of “low road” strategies based on low wages and weak regulatory systems. Though registering relatively high growth rates in the 2000s, Mexico and Central America remain highly dependent on primary exports and participates in very low value-added segments of global apparel production. Their export sectors, furthermore, are dominated by foreign firms, highly dependent on the US market, and vulnerable to changes in shifts in US trade policy. US demand accounted for 89% of Nicaraguan apparel exports in 2009. Nicaraguan knitwear and woven apparel manufacturers focus on “cut-and-trim” production, the lowest value-added segment of the industry value chain, and compete in buyer-driven supply chains run by Levi Strauss, Cintas, Kohl’s and other retail giants (ECLAC 2014, p. 85-6).

Exceptions to the passive and subordinate “integrationist” model (Section 3) exist, evidenced by aerospace industries in Mexico and Brazil, electronics and medical device clusters in Mexico and Costa Rica, and engineering services firms in Chile (ECLAC 2014, p. 88-9). Though important developments, technical know-how and other intangible assets in these segments remain, concentrated in the hands of foreign-owned multinationals. The medical equipment cluster in Baja California (Mexico), for example, consists mainly of US firms taking advantage of the maquila import-export regime to exploit “low-cost opportunities for labor-intensive processes in very close proximity” to the US (ECLAC 2014, p. 87). In Costa Rica, less than a third of the medical device firms are Costa Rican and 60% are US multinationals.

Brazil’s aerospace industry, on the other hand, constitutes a more genuine exception to the historic role of Latin American countries as suppliers of low-value added goods to wealthier countries. Contrary to Mexican aerospace and Costa Rican electronics clusters, it did not emerge in the post-1990 era of GVC expansion, nor was it the product of passive

“integrationist” policies (see Section 2) seeking to entice TNCs to outsource production tasks. Rather, it was the result of a decades-long effort on the part of public authorities to create indigenous technological capacity in aircraft production and aeronautics. Today, the industry consists mainly of the former state-owned company Embraer and domestic spin-off firms founded in the 1990s. Embraer is one of the world’s largest aerospace firms and competes with Bombardier in the production of mid-sized passenger aircraft. Though Embraer has been privatized and its shares largely sold off to foreign investors, Brazil’s success in aerospace reflects progress in “engineering-intensive” sectors crucial to improving a country’s relative position in value chains (CEPAL 2007).

The rapid expansion of GVCs after 1990, and the repudiation of state-led industrial policies, did little to improve technical progress in Latin America relative to the wealthy countries. Bértola and Ocampo (2015) note that the decline in Latin American labor productivity relative to the US between 1950 and 2008 is entirely a post-1980 phenomenon, continuing throughout the liberalizing reforms of the 1990s. Ocampo (2015, p.100) adds that the average share of engineering-intensive sectors in industrial value-added in Latin America was 23% the US level between 1996 and 2007, compared to 99% in the developing economies of Asia. In Brazil, this share was 70% between 1974 and 1981, when public investment in capital-intensive sectors was high, but fell to around 55% in the mid-1990s (Cepal 2007, p. 60).

Gallagher and Shafaeddin (2009) reinforce these observations in their comparison of industrial policy in China and Mexico since 1980. Prior to the 1980s, Mexico was home to a moderately successful electronics and information technology (IT) industry, a result of technological policies designed to promote domestic capabilities and limit foreign control over advanced sectors. Market-oriented reforms dismantled these and other policies related to foreign investment and technology transfer. “Built-up during the ISI period, Mexican electronics firms were virtually eliminated after trade liberalization and replaced by a foreign enclave economy with few linkages, minimal R&D, and limited partnerships with universities beyond process innovation” (p. 15). By 2000, “only a few of the original 50 Mexican IT firms were still in business”, and less than 5% of inputs in Mexican IT production were sourced locally (Gallagher and Zarsky 2007, p. 7). Multinationals, furthermore, transferred very little to Mexico in terms of technology and R&D facilities.



The Mexican case contrasts starkly with that of China, where market reforms also began in the 1980s but where state-owned enterprises maintained a central role in high-tech research. Even in a more restricted policy environment following WTO accession, China continued to pursue industrial policies, and the central government dramatically increased funding after 2001 for science and high-tech research. As a result, Chinese electronics firms have been able to prosper in domestic and world markets (Gallagher and Shafaeddin 2009, p. 34).

The development of information and communications technology (ICT) in Brazil in the 2000s also compared favorably to that of Mexico, and for essentially the same reasons as those outlined above. Despite market reforms and a generalized retrenchment of industrial policies after 1990, Schatan and Rodriguez (2015, p. 161) note that Brazil “has maintained a sector-specific industrial policy for ICT goods, including “public policies focused on long-run technical progress”. While Mexico placed its bets on exports, “industrial policies have been comparatively more vigorous” in Brazilian ICT, explaining the latter’s superior performance over the course of the 2000s (p. 170-1).

## Section 6: Conclusion

The ability of big business to extract technological and financial rents—to “get something for nothing”, as Veblen put it—explains much of the social and economic polarization of modern capitalism. The rise of GVCs led by a select group of powerful corporations has created a vast and unequal international division of labor dividing the world into “headquarter” economies located in Japan and the West and “factory” economies located in Southeast Asia, Eastern Europe, and Latin America (Baldwin and Gonzalez 2013). Tangible activity, mostly in manufacturing and assembly, takes place in developing countries, while intangible intellectual work, mainly in services (R&D, design, finance and marketing), is concentrated in wealthy countries. The “core business” of every TNC, irrespective of its particular branch, is to control and capitalize on these intangible assets.

Relatively little of the value-added generated within GVC accrues to workers and firms in developing regions such as Latin America. For the most part, Latin America has taken the “low road” in integrating itself into GVCs: barring a few exceptions, the most active GVC players in the region, such as Mexico and the Central American economies, participate in value chains as processors of imported inputs and low value-added assemblers of manufactured goods. While South America may appear to be relatively isolated from global production networks, the region’s economy is in fact heavily internationalized with foreign investors playing a major role in manufacturing, services, natural resources, and, above, the financial sector. Though ultimately originating in investments decisions made by large firms based in the United States and Western Europe, increasingly large amounts of FDI and financial flows have come from offshore financial centers such as the Netherlands, Luxembourg, Bermuda, and other regions. These have arrived largely in the form of intercompany loans intended to artificially inflate interest payments from Latin American affiliates to shell companies located in tax havens.

In Latin America and elsewhere, the legislative and institutional changes associated with globalized trade and finance have increased corporate mobility in two key ways: first, they have made it easier for firms to outsource activities and relocate facilities to lower-wage areas, putting downward pressure on wages in their countries of origin; second, they have made it easier for firms to transfer funds around the world and shift accounting

profits to low-tax jurisdictions. This increased mobility has increased rents for large firms and helped redistribute income along the value chain from productive workers to shareholders and salaried executives.

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