Promoting win/win development of global value chains

Prepared for EWC-NSF workshop on Mega-Regionalism: New Challenges for Trade and Innovation

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December 2015

INTRODUCTION

In recent decades, networks of financially-independent companies located around the world have come to account for an increasing share of global production. These global value chains operate differently from other models of production, such as the export of finished products made largely in a single country, vertically-integrated multi-national operations, or arm's-length transactions across national borders. The rise of global value chains has significant implications for policies in areas such as international trade, national development, intellectual property, and international standards in areas such as cybersecurity, treatment of investors, workers, and the environment.

These global value chains offer the potential for complementary growth and development in the firms and nations that participate in them, as well as benefits for consumers. In this view, suppliers locate in nations that have comparative advantages in their particular part of the value chain. Alternatively, global value chains may facilitate a race to the bottom, as multinationals seek suppliers that accept ever-worse terms of trade. A variety of literatures address some, but rarely all, of these issues[1]. Policies affecting value chains are often based on implicit assumptions whose validity has not been robustly tested. This paper will sketch a conceptual framework and identify empirical research needed to identify sources of complementarity and policies that promote innovation and development for workers and firms throughout global supply chains.

Below, we outline three perspectives about the impact of trade policy on the development of global value chains:

1) The "multinational-led development" perspective. In this view, global value chains can play a key role in economic development if trade policy facilitates the actions of the multinational firms that lead these value chains. These policies give workers in less developed countries access to global production systems they otherwise would not come into contact with, by facilitating the flow of goods and services across borders and protecting firms' investments[2]. In addition to providing better employment in the short term, firms that start at the bottom of global value chains can eventually expand their competencies, and learn from production networks, thus capturing wealth and foreign investment.

[1] Useful studies of the development implications of GVCs include: Bruhn, 2014; Ravenhill, 2014; Stiglitz, 2013; OECD, WTO, UNCTAD, 2013; Draper and Freytag, 2014; OECD, 2013.

[2] This view is often called the "free trade" perspective, and indeed reducing barriers to trade such as tariffs are a key policy goal. However, as we discuss below, other elements of the proposed policies raise barriers to trade, for example by giving protection to intellectual property.

2) The "race to the bottom" perspective, in contrast, argues that such multinational-led development creates conditions for sustained poverty and exploitation. The fierce competition to enter global value chains means that firms who cut corners will generally win contracts. Even if lead firms or their customers desire high standards for workers as well as for investors, global value chains are far too complex for firms to maintain accurate information about all of their suppliers' suppliers, let alone enforce adherence to laws such as labor standards.
3) Somewhere between these camps is the "reform" perspective, which argues that trade agreements have produced highly inconsistent results, some desirable and some undesirable. There is little reason to believe that participation in global value chains will automatically allow emerging economy firms to capture wealth. However, with oversight and reform, it is possible to craft future trade agreements and strengthen domestic institutions in ways that mitigate or prevent the race to the bottom. In this case, trade could be a catalyst for sustained economic development, and could create benefits for supply chain workers and owners, lead firms, and consumers.

These perspectives have different implications for policy, as seen in the debate over the efficacy of agreements such as the Trans-Pacific Partnership, policy initiatives (such as the High Level Economic Dialogue between the US and Mexico) and private efforts to establish corporate codes of conduct in promoting the development of value chains. As we discuss below, a key tension is over which assets it is most important to nurture and protect – are intellectual property (often belonging to multinationals), domestic manufacturing eco-systems, worker and/or environmental rights the keys to future prosperity? Although differences of opinion in part represent differences in values, many of the disagreements reflect different models of how the economy works, so are in principle subject to empirical tests.

WHAT ARE GLOBAL VALUE CHAINS?

In recent decades, economic activity has become fragmented in a variety of ways, with different phases of production often located far away from each other. A "global value chain" (GVC) links companies, often in multiple industries and multiple locations, to design, produce components, assemble and distribute a final product (such as a car or a computer) (Banga, 2013).

A canonical example is Apple's iPod. Apple designed the product largely in the US, but does not manufacture it. The iPod's parts come from the US, Japan (hard disc drive from Toshiba), Korea (memory from Samsung), and China (small parts from anonymous companies). The manufacturing is overseen by Taiwanese companies with factories in mainland China. Apple captures about one-third of the output value; the value added in China from assembly, testing, and packaging is three percent or less of the output price (Dedrick et al, 2008).[3] Other studies of tablets, mobile telephones and laptops suggest a similar division of activities and value in global

[3] See also Ali-Yrkkö et al, 2011; Timmer et al, 2013.

production, in which advanced nations specialize in capital and high skilled labor, capturing most of the value.

Such imbalance often persists despite focused government effort to adjust it. China has established that upgrading its semiconductor industry is a national priority, and has unrolled a number of policy initiatives (such as protecting IP and harnessing market forces to incentivize higher value-added production) to advance the industry. However, as Ernst (2015) describes, "China is still playing second fiddle in the industry, because the state's indigenous innovation policy collides with the global technology sourcing needs of Chinese semiconductor firms." These examples illustrate many of the key features of global value chains: the lead firm designs and directs production by multiple tiers of suppliers in many locations; the lead firm directs production but does not own most of these suppliers (Timmer et al, 2013; Baldwin and Lopez-Gonzalez, 2013).

These global value chains operate differently from other models of production, such as vertically-integrated multi-national operations, arm's-length transactions across national borders, or the export of finished products made largely in a single country, vertically-integrated multi-national operations, or arm's-length transactions across national borders. Vertical integration was epitomized by Henry Ford's production model, in which most parts of the value chain were located close together, and were owned by Ford. In the 1920s, '30s, and '40s, Ford Motor Company's River Rouge production complex was a mile-and-a-half wide and over a mile long, with 93 buildings and 15.8 million square feet of floor space. It included offices for designing the product, furnaces for making iron and steel, electric power generation, plants for making tires, stamped parts, engines, transmissions, radiators, tool and die, and assembly. Ford also owned the natural resources needed to produce automobiles: 700,000 acres of forests, iron mines and limestone quarries, coal-rich land, and a rubber plantation (U.S. Department of Commerce, 2015).

Most global value chains are different from economists' model of perfect competition, in which transactions between firms are arm's-length, and the only information that crosses firm boundaries is price information. In their upper tiers at least, GVCs are characterized by firms making specialized products for a lead firm. Suppliers may have a role in designing the products they provide. The lead firm often exercises detailed control over the operations of suppliers, specifying quality-control procedures, inventory practices, etc. Lead firms thus find GVCs advantageous over perfectly competitive markets in that they are able to quickly obtain specialized components; GVCs have a disadvantage in that firms are often not able to quickly switch suppliers (U.S. Department of Commerce, 2015).

Much work is underway to quantify the importance of global value chains. Most sources agree that GVCs are increasingly important. However, as the Data Appendix shows, there is a difference of opinion about the level of GVC activity, and how much is foreign vs. domestic. In the US for example, supply chains are an important source of cost for most firms, and offer the potential for competitive advantage. However, these supply chains remain largely domestic. The average US firm buys intermediate inputs that for a multinational comprise about ¾ of their

output value and for domestically owned firm equal about one-half of output value. Only about 10 percent of these intermediates are imported (Fetzer and Strassner, 2015). (In US manufacturing, imported content is about 20 percent of the value of output for a typical firm (Nicholson and Noonan, 2015)). Globally, Timmer found that for 85 percent of GVCs the foreign value-added share has increased over the period from 1995 to 2008. The (unweighted) average share rose from 28 percent in 1995 to 34 percent in 2008 (Timmer et al, 2013).

There is significant variation in the structure of global value chains. Gereffi et al (2005) identify three industry characteristics that they see as critical determinants: the complexity of information that is relevant to an industry's transactions, the ease of communicating this information, and the level of supplier capability. For instance, industries with complex transactions, high supplier capabilities, and difficult-to-codify product specifications lend themselves to "relational value chain" governance. Firms in such industries develop trust-based supplier relationships in order to effectively communicate tacit knowledge and gain access to high-capability suppliers (86). This arrangement is common within the apparel industry. Conversely, the bicycle manufacturing industry, with uniform components and highly specialized supply firms, lends itself to "market based coordination." Essentially, suppliers need little direction from their customers and component price governs relationships.[4]

This characterization, while useful, ignores intra-industry variation in the structure of supply chains, and does not provide insight into their likely evolution (Coe and Yeung 2015). Much GVC literature simply assumes that that some aspect of "technology" exogenously determines attributes of transactions, such as the complexity of information to be communicated. In contrast, Helper and Levine (1992) present a model of endogenous determination of lead firm strategy and supplier capability. That is, product complexity and the nature of the governance mechanism are jointly determined; purchasers in this model can choose either a simple design with static supplier capability and arm's-length governance, or a complex co-design governed by a long-term contract, with mutual learning. A key determinant of what choice the lead firm makes is the amount of market power it has over its customers (Helper and Levine, 1992). For most of the 20th century, General Motors had a great deal of market power in the US, giving the firm an incentive to protect the resulting profits from its suppliers. GM did this by unbundling tasks (for example, separating design and production, dividing components into smaller subcomponents). Dividing work in this way reduces barriers to entry, creating competitive markets for individual tasks and allowing lead firms to protect their final-product market rents from being shared with suppliers. Such strategies were common in US manufacturing in the mid 20th century (Helper, 1991; Helper and Levine, 1992). Recent advances in communication and transportation have offered the possibility of subdividing tasks further and opening competition to suppliers around the globe.

To retain bargaining power in this set-up requires maintaining a credible threat to exit, meaning that the lead firm often offers only short-term contracts, and neither supplier nor purchaser invests much in relationship specific knowledge or equipment. Maintaining power in

[4] Gereffi et al outline 3 other options for value chains: "modular", "captive", and "hierarchy."

this way thus comes at a cost to efficiency. Over time, this separation between tasks can lead to a weakening of productive eco-systems and loss of national competitiveness. Particularly damaging is the geographic separation of innovation and production; the loss of knowledge about how to make a part leads to an erosion of knowledge about potential opportunities for innovation (Pisano and Shih, 2009; Berger, 2005).

In contrast, Toyota, also an automaker, established longer-term, more information-rich relations with suppliers, gaining information about the root causes of quality problems for example. Toyota helped to transform its suppliers in Japan from small workshops into world-class producers through extensive technical assistance (Nishiguchi; Smitka). Toyota too has globalized its supply base; problems in maintaining these deep levels of knowledge flow with new suppliers in dozens of countries as the company has grown account for a significant part of the automaker's recent quality troubles (MacDuffie and Fujimoto, 2010).

In general, manufacturing clusters or eco-systems are difficult to sustain through private action alone. When firms invest in their suppliers, they do not capture all of the benefits of doing so; firms that do not invest also benefit. Due to this "free rider problem", firms will underinvest in activities to upgrade suppliers by helping them invest in training, new equipment, or innovative processes (U.S. Department of Commerce, 2015). Nations that retain such rich eco-systems typically have a rich set of institutions, such as subsidized research offices, unions or works councils that promote use of "good jobs" or "high road" strategies, and technical assistance providers (Helper, Krueger and Wial, 2012; Ezell and Atkinson, 2011; Lazonick, 1993).

It is difficult for a lead firm to change its procurement strategy. For example, even after decades of competing with Toyota had reduced GM's market power to a point where there was little profit to protect from suppliers, GM still struggles to adopt the collaborative relational contracts that have worked so well for its rival. Changing such contracts is difficult, due to interaction with other corporate incentive structures (such as finance and engineering) and in credibility that collaboration will continue even if times are tough (Helper and Henderson, 2014).

GLOBAL VALUE CHAINS AND ECONOMIC DEVELOPMENT

In recent decades, regions and nations have embraced entry into global value chains as a key part of their development strategy. For example, Juarez, Mexico specializes in the production of wiring harnesses - a small part of a car. Harnesses are specified by multinational automakers and "first-tier" suppliers, produced in Juarez facilities owned by the suppliers (or sometimes Mexican subcontractors), and then shipped from Juarez, in the sequence in which they will be used, to automobile assembly facilities all over North America (Jorge Carrillo). This strategy contrasts with other forms of economic arrangement, such as

a) Import-substituting industrialization (ISI), in which a withdrawal from global production is held to promote development by promoting infant industries. The experience of countries such as Mexico, Brazil, and Argentina, which embraced this model in the mid-20th century, shows that

while some indigenous capabilities were developed, industries suffered from lack of economies of scale and inefficiencies bred by lack of competition.
b) Development of domestic supply chains via controlled engagement with foreign technology (eg, Korea, Japan). Through government action to allocate foreign exchange and coordinate access to foreign technology, these nations developed skilled lead firms of their own (Samsung, Toyota); by seeking to export much of their output, these nations avoided the insularity of ISI strategies (Amsden, 1992; Patrick and Rosovsky, 1976).

As Baldwin (2012) describes, a benefit of the new strategy of insertion into GVC's is that

> *Developing countries can now industrialize by joining GVCs instead of building their own value chain from scratch, as Japan and the Republic of Korea had to do in the 20th century. Developing countries can benefit from foreign-originated intellectual property, trademarks, managerial and business practices, marketing expertise, and organizational models.*

However, while global value chains facilitate entry into manufacturing, they may diminish returns from it because the GVC sector remains disconnected from the rest of the economy (Taglioni and Winkler, 2014).

How can value chains consistently achieve desirable outcomes such as wage growth, high workplace standards, and firm profitability for all participants? Each of our three perspectives has a different view on this question.

The "multinational-led" view points out three main benefits of engaging with corporate engines of growth:
1) Efficient specialization and access to new and larger customer markets. For example, after NAFTA Mexico's auto industry moved away from its old focus on the domestic market (making a wide variety of models, each with inefficiently small production runs) to assembling a few models and a few labor-intensive components (such as wiring harnesses), and began to export the vast majority of its production.

Similarly, in agriculture, countries can specialize in a few crops where they have competitive advantage, and import other crops. The growth of Peru's asparagus industry demonstrates the way in which free trade agreements can benefit fledgling industries by affording them access to new markets. The Peruvian asparagus industry saw large growth in the wake of the 2009 United States-Peru Free Trade Agreement (Abcarian, 2015). According to the U.S. Department of Agriculture's Foreign Agriculture Service, the United States imported over 204 million pounds fresh asparagus from Peru in 2014. The Peruvian asparagus industry is estimated to employ over 60,000 people and has led to low unemployment in the Ica region.
2) Participation in international networks that facilitate learning, and direct investment from large corporations. Technology transfer, knowledge diffusion, IP leakage, and access to higher quality intermediate inputs can all increase firm productivity. In a study of Colombian firms,

Fernandes (2005) found that the level of intermediate goods imported is positively correlated with plant productivity. Coe and Helpman (1995) examined the underlying mechanism of the knowledge transfer facilitated by imports, finding that firms in a country that experiences an increase in imports tend to borrow product ideas and reverse engineer products, allowing for knowledge transfer even when contact between firms or individuals is minimal.

A substantial amount of research has been done on inter-firm learning, a.k.a. knowledge spillovers, as a result of trade (Blalock and Veloso, 2007; Coe and Helpman, 1995). After lowering trade barriers in 1986, Indonesia saw an increase in intermediate imports across many manufacturing sectors. In a study of the period between 1988 and 1996, Blalock and Veloso (2007) found that learning and productivity improvements accompanied the rise in imports, with the strongest improvements in large firms, firms in highly competitive industries, and firms making complex products.

Liu and Buck (2007) identify three mechanisms for knowledge transfer: Knowledge diffusion, in which supplier firms learn from multinational enterprises (MNEs); Foreign direct investment by MNEs, which relocate R&D facilities; and personnel exchange or departure, in which employees and staff leave for other companies in the same industry or form their own companies which then become suppliers to the MNE. They observe that some MNEs have relocated their R&D headquarters to China, with “400 out of the biggest 500 MNEs” having recently established R&D centers there. They find that this results in positive knowledge spillovers for Chinese firms.

Trade agreements can benefit specialized production clusters because a geographic region or small nation no longer needs to meet its own consumption needs. It can develop production strengths in a small range of activities and import everything else. Israel, which maintains bilateral free trade agreements with seven nations as well as the EU and Mercosur, provides an example (Israel Foreign Trade Administration, 2015). Israel lacks the natural resources to meet many of its own consumption requirements, such as energy. Yet strong relationships with international trading partners have allowed it to focus instead on advanced technology clusters in areas such as communications, biotechnology, and computing (De Fontenay and Carmel, 2001). The proposition that free trade enables clusters may seem to contradict popular notions that clusters are no longer viable or valuable in a world with globalized sourcing. Pisano and Buciuni (2015) confront this paradox by examining centuries-old footwear production clusters in Italy. They argue that access to “tacit” knowledge, as well as co-location among suppliers who use similar technology, continue to explain why some clusters retain “stickiness” despite globalization.

In brief, the “multinational led” perspective supports the idea that trade promotes long-term improvements for supply chains in developing and developed nations. Increased trade itself, rather than government policy or the many details of trade agreements, is the primary mechanism by which fledgling industries become more profitable and productive over time. Importantly, this process should benefit manufacturers in the U.S. and Europe as well.

In theory, these phenomena can ultimately result in higher productivity and higher wages. Proponents of this perspective sometimes point out that these are long-term processes. While profits at the lower rungs of a global supply chain are initially low, over time firms learn to improve their value-adding processes and OEMs eventually come under pressure to improve working conditions throughout their industries.

To gain these benefits, policy (both international trade policy and domestic policies) should focus on attracting foreign investment, which is necessary for these outcomes to occur. Richard Baldwin of the Center for Economic and Policy Research writes:

> *If a high-tech firm is to locate production stages in a developing nation, the nation's government must ensure the necessary free movement of goods, services, information and the protection of tangible and intangible property rights. Old fashioned protection, anti-FDI policies, or lax property rights almost guarantee that the offshored stages will go somewhere else. Developing nations that got the offshored factories became hyper-competitive and wiped out the exports of developing nations that clung to import-substitution industrialisation. In the world of supply-chain industrialisation, protectionism has become destructionism… The justification for SDT [Special and Differential Treatment] also disappears. The cooperation helps developing nations credibly commit to policies that are good for them. Allowing a poor nation to not assure protection of the assets that trigger supply-chain trade would harm rather than help.* (Baldwin, 2012)

In contrast, proponents of the *"race to the bottom"* perspective argue that international trade generally leads to low or stagnant levels of development at the bottom of supply chains. With multitudinous sourcing options and substantial labor cost differentials, the basis of competition between large multinationals becomes cost rather than value-added. Direct investments in foreign suppliers are rare because MNEs switch suppliers frequently based on a supplier's ability to out-bid its peer firms. Short-term relationships are the norm (Mayer and Milberg, 2013).

While many MNEs would like to promote living wages, good working conditions, and technology investment throughout their supply chains, the way they have (collectively and individually) structured supply chains constrains their ability to effectively do so (see IBM example below). Multinationals often use 3rd or even 4th party logistics coordinators to manage their supply chains.[5] They often have trouble collecting high quality information beyond their first tier suppliers and these logistics coordinators. From the other end, managers and workers at lower tier suppliers sometimes have limited information about which multinationals their products are destined for. Under these conditions, it can be difficult for an OEM to exert consistent influence throughout its supply chain, or for it to monitor results.

Moreover, the incentives that lower tier suppliers face contradict one another. They find it difficult to simultaneously raise wages and invest in high-tech production processes while

[5] A 4th party logistics coordinator, a.k.a. 4PL, manages numerous 3rd party logistics coordinators.

underbidding their competitors. Race to the bottom proponents argue that the firms cutting corners typically win contracts. Worse, when wages in one developing nation gradually increase, MNEs often shift production to a new lower-cost location. Upwards mobility is fitful, and long-term gains are questionable.

Finally, some authors caution that absolute gains fail to become relative gains. As noted in the win-win discussion, one can find examples of low-cost regions like coastal China that gradually experience wage increases and technology transfer. However, wages and productivity remain low in relation to highly developed countries. Likewise, the technology transfer occurs too late in the product's lifecycle for the developing nation to ever control the innovation process Authors in this camp maintain that the global North is still the locus of innovation and design, and that globalization has done little to change this. In fact, companies use a variety of strategies to *avoid* transferring technology, as a way of protecting intellectual property. A 2010 *WSJ* article outlines tactics that some companies have begun using to limit IP leakage within their Chinese value chains. These include:

> *Not sharing the most sensitive intellectual property; sending more of their own employees to oversee manufacturing; partnering with a smaller firm that's less able to become a rival; and structuring joint ventures more carefully so that the Western firm has more control.* (Mattioli, 2010)

Similarly, a Stanford study notes, "It is critical for companies to maintain physical and electronic security to protect trade secrets and other confidential and proprietary information. Trade secrets and other proprietary information should be made available to employees and third parties on a need-to know basis, and subject to company procedures and confidentiality agreements. Multiple technological innovations can also be used by companies to safeguard their IP, examples of which include encryption of confidential information; restrictions on electronic documents so that they exist only for a limited amount of time, can only be accessed with a special code, and are restricted from being saved, forwarded, or printed; and more."

Manning and Baines' 2004 study of globalization among poultry industry supply chains finds other reasons for concerns. The authors find that the removal of trade barriers has caused the industry to leave Europe, instead clustering in countries with less environmental oversight and fewer restrictions on animal wellbeing. Intense competition on the basis of cost has reduced profit margins throughout the industry. Tyson's profit margin shrank from 11.2 in 2000 to 7.7 in 2002, which in turn created a margin-shrinking cascade effect throughout Tyson's supply chain. Globalization of the poultry industry also created a situation in which firms at the top of the industry now constantly shuffle supply chains to plug production gaps, and smooth seasonal production variations in an attempt to meet consumer demands throughout North America and Europe. This balancing act depends on a complex web of suppliers, making disease control more difficult, and globalizing the reach of disease outbreaks. In short, the poultry industry's experience shows how the removal of trade barriers can restructure an entire industry without creating any obvious benefits for suppliers, and even introducing new risks to consumers.

IBM's quest to monitor its product lifecycle code also illustrates many of these challenges. IBM uses a complex web of 18,000 suppliers in over 100 countries (Susman, 2015). While most of these firms are engaged in production activities, about 300 of these suppliers are downstream waste-disposal firms. These firms fall into two categories: those that collect and repurpose old IBM hardware, and those that dispose of hazardous and non-hazardous waste generated through IBM's manufacturing processes. Although IBM manufactures less than it did in the past, end-of-life repurposing volumes reflect the company's past focus on manufacturing

These downstream recycling and waste disposal firms are spread across 6 continents. While IBM strives to enforce high environmental standards for disposal of its hazardous and non-hazardous waste, it has significant difficulty enforcing its corporate code. Because it uses a 4th party logistics coordinator, many suppliers do not know they are working for IBM. Many of these firms are in parts of the world where IBM's brand carries little cachet. Its leverage also suffers from its declining volumes of waste material due to the aforementioned shift away from manufacturing. Thus, although IBM attempts to schedule regular site visits to monitor standards at these waste disposal facilities, employees report that suppliers often fail to respond to e-mail requests about scheduling such visits. Auditing a network of 300 waste management suppliers is also an unwieldy task for IBM's 26-person Corporate Environmental Affairs staff charged with this task.

Race to the bottom proponents argue that trade has had negative effects on manufacturers in advanced economies as well. Researchers have questioned the assertion that NAFTA has created jobs in North America, let alone lived up proponents' lofty initial predictions. The Council on Foreign Relations notes that trends in overall employment, productivity, and international trade do not appear to have changed significantly as a result of NAFTA (Sergie, 2014). The agreement may have contributed to broadening wage inequality and the flight of U.S. manufacturing (Rob Scott, EPI). The United States lost one-third of its manufacturing jobs in just the ten years from 2000-2010. Careful studies (using different methodologies) attribute one-quarter to one-half of this job loss to the entry of China into the World Trade Organization, an event which led to the substitution of Chinese for US suppliers in many value chains (Autor, Dorn, and Hanson, 2013; Pierce and Schott, 2012).

Studies in the "multinational-led" perspective often neglect to raise questions about GVCs' countervailing effects on suppliers in advanced industrial economies. For instance, the aforementioned study on Peru's asparagus suppliers does not explore the magnitude of decreased asparagus production in the U.S., or the environmental impacts of increased distances traveled. It does not consider the possibility that asparagus quality may vary based on region and transportation distance.

In sum, race to the bottom proponents generally view the long-term effects of trade agreements as inescapably negative. The destructive aspects of free trade are not functions of inadequate policy, but rather increased globalization itself.

The reform view is the third perspective. It is distinct from the previous approaches in that its supporters see increased levels of international trade as neither inherently productive nor undesirable for industries in developing nations. They note that trade agreements have incredibly diverse and complex outcomes. A developing nation's ability to benefit from free trade depends upon variables like government structure, policy decisions, the industries its suppliers participate in, existing competencies and assets, the other nations it primarily trades with, and even random decisions made by managers. Still, authors in this vein feel that with a good deal of work, future trade agreements can more consistently produce the desirable results past agreements have sporadically achieved.

A central tenet of this perspective is the inconsistency of outcomes. For instance, Frankel (1997) finds positive and statistically significant effects on trade flows due to Mercosur, but no statistically significant effects of the Andean pact. In instances when trade agreements do not produce higher absolute levels of international trade, it is difficult to see how lower-tier suppliers in developing nations can capture the theorized benefits of international trade.

If one accepts that trade agreements do increase international trade in many instances, the question then becomes what outcomes this has produced for firms and workers. Barrientos and Smith (2007) ask this question to the South African fruit industry, the Indian garment industry, and the Vietnamese garment and footwear industries. They find that as supply chains have become more globalized, firms have instituted Ethical Trading Initiatives (ETIs) intended to improve conditions for workers in the lower rungs of value chains. These have produced visible benefits in some categories but not others. For instance, ETIs tended to be effective at increasing health and safety standards, as well as leading to the creation of maternity benefits and some reductions of working hours. They were ineffective at resolving harsh worker treatment, or discrimination based on gender, ethnicity, and caste. The authors attribute this to management's tendency to focus on "outcomes" (working hours and workplace safety) instead of complex "processes" (discrimination and management style). They find it easier to influence outcome variables, and may be more accustomed to thinking about these variables as part of their jobs.

The outcomes of ETIs vary between regions and industries as well. Barrientos and Smith find that the South African fruit industry was already strongly unionized, and ETIs produced no impact on collective bargaining power. In Vietnam, where unions are affiliated with government, ETIs did result in greater collective bargaining power. In India, ETIs were ineffective at overcoming workers' common perception that union affiliation would threaten their jobs.

Factors such as the level of supply chain complexity, duration of supplier relationships, and the level of interdependence contributed to this variance in ETI efficacy. Suppliers who depended upon a single customer for a large percentage of their sales were more likely to adhere to that corporation's formal standards. Firms filling numerous contracts, or short-term contracts, were less aware of their customers' ETIs. Similarly, supply chains full of indirect relationships such as sub-contractors and "networks of agents" who source work on a project-by-project basis were less likely to adhere to an ETI. Suppliers were most likely to comply when they depended upon several different customers with similar formal standards; managers sometimes perceived a

"critical mass" of fairly similar ETIs. Barrientos and Smith find that ETIs have produced major health and safety improvements[6] in Vietnam and India, where such standards were previously low. In South Africa, national legislation had already led to health and safety improvements, so the effect of ETIs was trivial[7].

Liu and Buck's work echoes the idea that pre-existing political and workforce conditions strongly influence free trade's ability to generate positive externalities. A country needs a preexisting critical mass of scientists and engineers in order for MNEs to want to locate R&D facilities there. They conclude that the process whereby China captures positive high-tech spillovers "is not automatic" - it's related to the government's strategy of attracting R&D facilities for just this purpose. This may cast doubt upon whether this process is realistic in all developing nations. Liu and Buck also caution that foreign direct investment can have a negative effect on supplier learning, as it can allow foreign suppliers to monopolize a market for high-tech production.

Taiwan's experience developing and upgrading its IT industry tells both stories. In many ways Taiwan is a Cinderella story of economic development. Ernst (2013) explains how the poor, underdeveloped nation of the mid 20th century suffered from a number of size-related disadvantages. Taiwan's small domestic markets limited its ability to support "sophisticated lead user" firms. In larger nations, such firms can support robust domestic supply networks or grow internationally competitive without foreign support. Taiwan's small size also constrained its ability to absorb large fluctuations in international demand. Moreover, the country's lack of industrial diversity and depth limited its domestic knowledge base, forcing it to rely heavily on foreign "technology, tools, and ideas."

Yet Taiwan employed novel strategies to compensate for these deficits. It joined a diverse and constantly evolving array of industrial networks. This exposed Taiwanese firms to more learning opportunities than static relationships in a limited number of industries would have. Taiwan was also very effective at blending formal and informal learning relationships. Foreign direct investment, venture capital, and other contract-based relationships formed the basis of integration into formal networks, whereas a constant international exchange of students and workers formed the basis of informal network integration. Finally, Taiwan seems to have benefited by choosing a single, primary learning partner – in this case, the U.S.

Implementing these strategies allowed Taiwan to achieve what Ernst labels "fast-follower" status. That is, Taiwanese firms upgraded faster than the North American firms they supplied, narrowing the competency gap over time. However, Ernst does not anticipate that the same strategy will be available in the future. The new landscape of GVCs is characterized by shrinking margins and "decreasing returns of export-led industrialization" (Ernst, 2003). Taiwanese firms and policymakers are attempting to respond by finding ways to increase the amount of R&D done in domestic firms, but this type of upgrading is both costly and difficult.

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[6] This is defined as "clearer procedures, information and training, fire safety, personal protective equipment, safer use of chemicals, lighting and ventilation, toilets and drinking water."

[7] Some work on industrial organization of fair trade coffee finds that in the long run, workers' wages do not increase on average, due to entry and the high cost of certification (see De Janvry et al, 2015).

The Taiwanese experience therefore indicates that while appropriate development strategy can allow fledgling firms to capture wealth from GVCs, conditions change from one decade to the next, and past success does not guarantee continued success.

These findings support the idea that global supply chains can create channels for sharing knowledge, spreading legal compliance, and improving outcomes for workers. They also underscore how haphazard these results can be. Given the complexity and internal incentives of these supply chains, corporate intent is not always sufficient for producing desirable outcomes. Even when trade agreements or ethical trading agreements require better conditions at the lower rungs of supply chains, corporations find it difficult to enforce compliance (Locke, 2013).

These difficulties can be seen in the aftermath of the disastrous 2013 Rana Plaza collapse in Bangladesh, in which 1200 people were killed. Many (though not all) lead firms signed up for extensive efforts to monitor suppliers. In the succeeding two years, international monitoring agencies have inspected 3425 factories. However, only eight of these factories have been remediated such that they passed the final inspection. In addition, subcontractors have moved a significant amount of production to unregulated indirect suppliers, factories that are often unknown to regulators. An in-depth NYU survey found that only 27 percent of Bangladesh garment factories in the export sector were subject to the accord. The survey found 3 million more workers in the garment export sector than had been realized; these workers are not subject to the protections of the agreement (Labowitz and Baumann-Pauly, 2015).

In the reform view, trade agreements alone are not sufficient for generating desirable outcomes (GAO, 2014). They should be coupled with growth-oriented government investments as well as effective enforcement measures that maximize a trade agreement's efficacy. Rodrik characterizes the most successful complementary policies as:

> *pragmatic, opportunistic, often "unorthodox" and promotes domestic manufacturing industries – such as protection of home market, subsidisation of exports, managed currencies, local-content rules, development banking, special investment zones...*

Note that many trade agreements forbid items on this list, especially local content rules.

Some studies have focused more on private governance rather than the art of crafting effective trade agreements. Locke, Amengual and Mangla (2009) observe working conditions in the global apparel industry. They claim that compliance programs have had a lesser effect than a "commitment-oriented" approach where lead firms train suppliers in joint problem solving, information exchange, and diffusion of best practices. These programs require significant upfront investment, but provide benefits to lead firms (such as Nike) in reduced inventory and higher quality. The greater management and worker capability required to operate factories in this manner reduces the ability of suppliers to evade regulation by moving production to shadowy indirect contractors.

Similar efforts can lead to improved environmental performance. Plambeck, Lee and Yatsko (2011) note that the right incentives and collaborative efforts can help suppliers achieve better environmental performance. The experience of suppliers in China supports this idea: "Rather than simply monitoring Chinese suppliers' compliance with local environmental, health

and safety (EHS) standards, leading companies are giving suppliers tools and incentives to independently improve environmental performance."

Gereffi and Mayer hypothesize that four factors affect the success of private governance:

1) *the structure of the particular global value chain in which production takes place; 2) the extent to which demand for a firm's products relies on its brand identity; 3) the possibilities for collective action by consumers, workers, or other activists to exert pressure on producers; and 4) the extent to which commercial interests of lead firms align with social and environmental concerns.*

Thus, the most effective options to better global working conditions require the linking of public, private and social forms of governance (Coe and Yeung, 2015).[8] Gereffi and Mayer argue that trends in the dynamics of global supply chains mean that the power and information asymmetries that characterized what were referred to as 'buyer-driven' chains have diminished. The principal countries in which these supply chains are concentrated, such as China, India, Brazil, Indonesia and South Africa, now have greater bargaining power to pressure foreign companies for changes to benefit local interests.

Cambodia is a case in which a trade agreement, firms' desire to avoid egregious human rights violations in their supply chains, and home government desire for upgrading came together to generate positive outcomes. In less than a decade, Cambodia's garment sector was transformed from a "cluster of sweatshops where human rights violations were pervasive, into hundreds of monitored factories that are more likely to comply with labor law than they are to engage in forced overtime." In 2010, the ILO mechanism found that 98 per cent of surveyed factories did not engage in anti-union activity; union membership in the sector increased nine-fold, from 39,000 to 337,000 from 1998 to 2004. (Despite the advances in the garment industry, Cambodia's overall indicators of social protection remain among the world's worst.)

In 1999, Cambodia and the United States (its largest trading partner) signed a Bilateral Textile Agreement that offered Cambodia an increased quota of exports to the US if Cambodia could show that producers substantially complied with Cambodian labor law. The United States convinced the ILO to oversee a monitoring mechanism, and the precursor to what is now known as 'Better Factories Cambodia' began operation in 2001. The Cambodian government required all garment factories to participate in order to receive permission to export, thus ensuring widespread participation. The formal agreement expired with the end of the international quota

[8] This blended public-private logic echoes Albert Hirschman's seminal ideas on the most effective forms of development. Hirschman was deeply influenced by his time as a World Bank employee in Colombia during the early 1950's. The era's prevailing logic assumed successful development efforts should fit into an economy-wide vision, crafted by governments with the help of international financial institutions. These macro level plans envisaged "balanced" development, meaning simultaneous initiatives to develop all industries that would eventually constitute the nation's new economy. This logic was predicated on the assumption that underdevelopment in some areas would undermine investments in others; that a nation must essentially jump from a pre-industrial equilibrium to an industrial equilibrium, moving as quickly as possible through the unsustainable middle-ground (Alacevish, 2007). In contrast, Hirschman argued that imbalances in "backward and forward linkages" could be effective at catalyzing further development as firms sought to remedy bottlenecks or find uses for excess capacity (Hirschman, 1958).

system (the MultiFiber Agreement) in 2005. But the monitoring program continues today under the multi-stakeholder Better Factories Cambodia (BFC) program. Alisa DiCaprio writes:

> *Both the government of Cambodia and the manufacturing association supported this because they recognize the benefits to be gained from being able to verify labour standards for branded apparel companies that are sensitive to working conditions in their suppliers. It is this ability that attracts companies like Disney and GAP, which explicitly brand their clothing as socially responsible, to buy from Cambodia.* (DiCaprio, 2011)[9]

CONCLUSION

We have reviewed three perspectives on the impact of trade agreements on development of global value chains:

1) the "multinational-led development" perspective, that stakeholders in all parts of the supply chain do best if trade agreements and national policies focus on ensuring lead firms a return on their investment in building out supply chains, by promoting a smooth flow of goods and services, low tariffs, and strong protections for intellectual property and other investments
2) the "race to the bottom" perspective, that lead firms do not have incentives to promote development of firms or workers at lower levels of their supply chains
3) the "reform" perspective, that while GVC's do not automatically promote development, a combination of trade agreements that protect worker rights and allow space for national development; complementary domestic policies that help establish and upgrade productive eco-systems.

Our brief review of evidence suggests that it is unlikely that multinationals on their own have sufficient incentive to invest in all socially-beneficial supply chain collaborative activities. On the other hand, evidence shows that consumer pressure and the private benefits of innovation do mean that lead firms have some incentives to invest in supply chain upgrading. On balance therefore, the evidence favors the intermediate, "reform" perspective. But much work needs to be done to understand what kinds of international and domestic institutions are most effective in different circumstances, and how these institutions affect, and are affected by, supply-chain dynamics.

We need serious empirical research on the gains from global network integration and on its costs, especially in terms of barriers to domestic upgrading. Many empirical questions remain. While proponents of the different perspectives may differ in some of their value judgments (for example, the weight to be given to income equality), many of the questions are at least in principle susceptible to empirical analysis. Some thoughts that may guide this research:

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[9] See also Kolben, 2015.

1. *Counterfactual.* It is very important in estimating impacts of a policy to clearly specify a counterfactual. Would people employed as part of GVCs be unemployed if not part of a GVC? In regular employment in a domestic firm? Employed precariously in the informal sector? Participation in GVCs may have large impacts in affecting the choice set available to workers and firms. Particularly in agriculture, the increased value of cash crops from participating in a GVC may create incentives to overturn traditional land tenure arrangements, leading to displacement (sometimes violently) of small holders.
2. *Nature of impacts.* It is unlikely that trade agreements will have large lasting impacts on overall employment levels -- the economy tends to full employment, after a period of unemployment caused by the dislocation due to changed trade arrangements (Petri)[10]. Instead, we should look for impacts on productivity (due to specialization within supply chains, technical assistance by multinationals, incentives for innovation) and wage levels (which could rise due to increased productivity, or fall due to reduced bargaining power).
3. *Nature of interfirm ties.* Much of the GVC literature focuses only on the fact of outsourcing, and doesn't examine the impacts (on innovation, job quality, etc). of the collaborativeness of the ties. The impacts of Toyota's technical assistance to suppliers (both domestically and abroad) suggests that these ties matter a great deal. What is the relative effectiveness of policies that aim to create productive suppliers in contrast to those that aim to allow firms to quickly switch partners – that is, are good suppliers and customers "made", or are they simply "born", endowed with a special asset that makes them uniquely productive?
4. *Interaction of different institutions.* Above, we looked at several efforts to improve working conditions in the global garment industry: Cambodia's Better Work Program, Nike's supplier training in Mexico, and the Rana Plaza accords in Bangladesh. The first two efforts are regarded by their authors as successes, while little improvement has been seen in Bangladesh. By what standards are these efforts successful, and what factors account for these differential outcomes?
5. *GVC dynamics.* What forces internal and external to firms affect the evolution of GVCs—the incorporation of new countries and suppliers, the squeezing or upgrading of existing suppliers.
6. *Infant clusters?* Can/should productive, spillover-rich clusters be established and grow in the context of trade agreements that prohibit domestic content requirements? Or can such prohibitions in fact increase the dynamism of clusters by reducing their insulation from outside ideas and competitors?
7. *Data harmonization.* As the data appendix suggests, there is much we don't know even about the size of GVCs at a point in time. To what extent are GVCs comprised of a lead firm from an industrialized country and suppliers from an emerging market? This is the

[10] In a time of "secular stagnation" with unemployment in equilibrium, it is possible that increased net exports could lead to employment gains (Baker and Bernstein). However, the stimulative effect of reducing the current account deficit would be offset by reduced foreign investment in the capital account. See: Ikenson, 2013; Bernstein, 2014; Benedetto, 2014.

case focused on by the literature, but other data suggest that supply chains are often very heavily domestic, or involve mostly rich nations.

DATA APPENDIX

Much work is underway to quantify the importance of global value chains. Most sources agree that that GVCs are increasingly important. However, there is a difference of opinion about the level of GVC activity, and how much is foreign vs. domestic.

For example, in its World Investment Report 2013, the United Nations Conference on Trade and Development (UNCTAD 2013) estimated that 80 percent of international trade was organized through global production networks coordinated by lead firms investing in cross-border productive assets and trading inputs and outputs with partners, suppliers, and customers. Similarly, Johnson and Noguera (2012) found that intermediate inputs play an outsize role in international trade. They estimate that as much as two-thirds of gross trade is comprised of intermediate goods that pass a given customs frontier multiple times before becoming final goods and reaching their ultimate consumer.

Other figures are significantly lower. Timmer found that for 85 percent of the GVCs the foreign value-added share has increased over the period from 1995 to 2008. The (unweighted) average share rose from 28 per cent in 1995 to 34 per cent in 2008 (Timmer, 2013). Baldwin and Lopez report that, "About half of the world's output of goods and services are sold as intermediate inputs. An important misconception, stoked by a few examples of truly globalised production, concerns the relative openness of final and intermediate markets. The world is still more globalised for final goods than it is for intermediates; the domestic-sales-to-export split is about 60-40 for final manufactures while it is about 70-30 for intermediates (i.e. 70% sold locally and 30% exported). Overall, world production is not yet very internationalised: The imported intermediates share of total world manufacturing is only 16%; for the production of all goods and services, it is just 8%." http://papers.nber.org/tmp/48924-w18957.pdf.

It is important to understand the sources of these differences. Do Baldwin and Lopez do less double-counting than other sources? Not truly take into account the work using the new Trade in Value Added (TIVA) frameworks? Their numbers are consistent (I think) with https://www.wto.org/english/res_e/statis_e/its2013_e/its13_highlights4_e.pdf: "The share of intermediate goods in world non-fuel exports has hovered around the 50 per cent mark since 2000, dropping during the 2009 crisis and reaching its highest point (55 per cent) in 2011. The European Union was the biggest exporter of intermediate goods (36 per cent of all intermediate goods) in 2011. One-third of these goods were exported outside the European Union, two-thirds within the EU. China and the United States were the second and third largest exporters of intermediate goods respectively, with a share in world trade of 10.0 per cent and 9.8 per cent. The six largest exporters of intermediate goods - the European Union, China, the United States, Japan, the Republic of Korea and Hong Kong, China - represent nearly two-thirds of world trade in intermediate goods."[11]

[11] See also Ahmad and Ribarsky, 2014.

In the US, supply chains are an important source of cost for most firms, and offer the potential for competitive advantage. However, these supply chains remain largely domestic. The average US firm buys intermediate inputs that for a multinational comprise about ¾ of their output value and for domestically owned firm equal about one-half of output value. Only about 10% of these intermediates are imported (Fetzer and Strassner, 2015; Nicholson and Noonan, 2014). (In US manufacturing, imported content is about 20% of the value of output for a typical firm. (Nicholson and Noonan, 2014)). These figures are probably somewhat underestimated, due to the difficulties involved in properly setting prices for imported inputs (Houseman et al, 2010; Houseman and Mandel, 2015).

Clearly, more effort is needed in this area. A very useful roadmap (with particular focus on understand impacts of outsourcing on job quality) is provided by Appelbaum et al (2015).

Citations

Abcarian, Lora. "Peruvian asparagus already ahead of projected volumes." *The Produce News*, August 3, 2015: http://www.theproducenews.com/news-dep-menu/test-featured/16544-peruvian-asparagus-already-ahead-of-projected-volumes

Ahmad, Nadim and Jennifer Ribarsky. "Trade in Value Added, Jobs and Investment." International Association for Research in Income and Wealth, 33rd General Conference, Rotterdam, August 2014: http://unstats.un.org/unsd/trade/events/2014/mexico/documents/session1/IARIW%20-%20Session%204C%20-%20Ahmad%20Paper.pdf

Alacevich, Michele. "Early Development Economics Debates Revisited." The World Bank, December 2007.

Ali-Yrkkö, J., P. Rouvinen, T. Seppälä, and Ylä-Anttila. "Who captures value in global supply chains? Case Nokia N95 Smartphone." Journal of Industry, Vol. 11, 2011 (263-278).

Amsden, Alice H. *Asia's Next Giant: South Korea and Late Industrialization*. Oxford University Press, 1992.

Appelbaum, Eileen, Rosemary Batt, Annette Bernhardt, Susan Houseman. "Domestic Outsourcing in the U.S.: A Research Agenda to Assess Trends and Effects on Job Quality." Prepared for The Future of Work Symposium, U.S. Department of Labor, Washington DC, December 2015, version dated November 10, 2015.

Autor, David, David Dorn, and Gordon H. Hanson. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *American Economic Review*, Vol. 103, No. 6, 2013 (2121-2168).

Baier, Scott and Jeffrey Bergstrand. "On the Endogeneity of International Trade Flows and Free Trade Agreements." Researchgate, 2011

Baldwin, Richard. "WTO 2.0: Thinking ahead on global trade governance." Center for Economic and Policy Research, December 2012: http://www.voxeu.org/article/wto-20-thinking-ahead-global-trade-governance

Richard Baldwin, Javier Lopez-Gonzalez. "Supply-Chain Trade: A Portrait of Global Patterns and Several Testable Hypotheses" NBER Working Paper No. 18957,April 2013

Barrientos, Stephanie and Sally Smith. "Do Workers Benefit from Ethical Trade? Assessing Codes of Labour Practice in Global Production Systems." Third World Quarterly, vol. 28, no. 4, 2007.

Benedetto, John B. "Who Financed Recent U.S. Trade Deficits?" *Journal of International Commerce and Economics*, May 2014: https://www.usitc.gov/publications/332/journals/volume_vi_u_s_trade_deficit.pdf

Berger, Suzanne. *How We Compete: What Companies Around the World Are Doing to Make it in Today's Global Economy*. Crown Business, 2005.

Bernstein, Jared. "Full employment, trade deficits, and the dollar as reserve currency. What are the connections?" On The Economy blog, October 7, 2014: http://jaredbernsteinblog.com/full-employment-trade-deficits-and-the-dollar-as-reserve-currency-what-are-the-connections/

Blalock, Garrick and Francisco Veloso, "Imports, Productivity Growth, and Supply Chain Learning." World Development, vol. 35, no. 7, 2007.

Bruhn, Dominique. "Global Value Chains and Deep Preferential Trade Agreements: Promoting Trade at the Cost of Domestic Policy Autonomy?" German Development Institute discussion paper, 2014: https://www.die-gdi.de/uploads/media/DP_23.2014_01.pdf

Buciuni, Giulio and Pisano, Gary P. "Can Marshall's Clusters Survive Globalization?" Harvard Business School working paper 15-088, 2015: http://www.hbs.edu/faculty/Publication%20Files/15-088_cd4f1da8-4988-408b-b7eb-8c0e5798a398.pdf

Coe, D., Helpman, E., 1995. International R&D spillovers. European Economic Review 39 (859–887).

De Fontenay, Catherine and Erran Carmel. “Israel’s Silicon Wadi: The Forces Behind Cluster Formation.” Stanford Institute for Economic Policy Research, June 2001.

De Janvry, Alain, Craig McIntosh, and Elisabeth Sadoulet. “Fair Trade and Free Entry: Can a Disequilibrium Market Serve as a Development Tool?” *The Review of Economics and Statistics*, Vol. 97, No. 3, July 2015 (567-573).

Dedrick, Jason, Kenneth L. Kraemer, and Greg Linden. “Who Profits from Innovation in Global Value Chains? A Study of the iPod and notebook PCs.” Alfred P. Sloan Foundation Industry Studies Annual Conference, May 2008.

DiCaprio, Alisa. “The demand side of social protection: Lessons from Cambodia’s labour rights experience.” World Institute for Development Economics Research, Working paper No. 81, 2011: http://www.econstor.eu/bitstream/10419/53975/1/678365709.pdf

Draper, Peter and Andreas Freytag. “Who Captures the Value in the Global Value Chain? High Level Implications for the World Trade Organization.” E15 Initiative think piece, September 2014: http://e15initiative.org/publications/who-captures-the-value-in-the-global-value-chain-high-level-implications-for-the-world-trade-organization/

Ernst, Dieter. “Pathways to Innovation in the Global Network Economy: Asian Upgrading Strategies in the Electronics Industry.” East-West Center, No. 58, 2003.

Ernst, Dieter. “Industrial Upgrading through Low-Cost and Fast Innovation – Taiwan’s Experience.” East-West Center, No. 133, 2013.

Ernst, Dieter. “From Catching Up to Forging Ahead: China’s Policies for Semiconductors.” East-West Center, 2015.

Ezell, Robert D. and Stephen J. Atkinson. “International Benchmarking of Countries’ Policies and Programs Supporting SME Manufacturers.” The Information Technology & Innovation Foundation, September 2011: http://www.itif.org/files/2011-sme-manufacturing-tech-programs.pdf

Fernandes, A., Isgut, A. Learning-by-exporting, and productivity: evidence from Colombia. World Bank Policy Research Working Paper No. 3544, 2005.

Fetzer, James and Erich H. Strassner. "Identifying Heterogeneity in the Production Components of Globally Engaged Business Enterprises in the United States." Bureau of Economic Analysis, U.S. Department of Commerce, Washington, DC. June 2015.

Frankel, Jeffrey A. *Regional Trading Blocs*. Washington, DC, Institute for International Economics, 1997.
Gaston, Noel and Daniel Trefler. "The Labour Market Consequences of the Canada-U.S. Free Trade Agreement." *The Canadian Journal of Economics*, vol. 30, no. 1, 1997.

Gereffi, Gary, John Humphrey and Timothy Sturgeon. "The governance of global value chains." Review of International Political Economy, vol. 12, no. 1, 2005 (78-104).

Gillai, Barchi, Sonali Rammohan, and Hau Lee, "Managing Supply Chain Sustainability and Intellectual Property: Are They More Similar than Different?" Stanford Initiative for the Study of Supply Chain Responsibility, March 2014.

Government Accountability Office, Report to Congressional Requesters. "U.S. Partners are Addressing Labor Commitments, but More Monitoring and Enforcement Are Needed." November 2014: http://www.gao.gov/assets/670/666787.pdf

Helper, Susan and David I. Levine. "Long-Term Supplier Relations and Product-Market Structure." *Journal of Law, Economics, & Organization*, Vol. 8, No. 3, October 1992 (561-581).

Helper, Susan. "Strategy and Irreversibility in Supplier Relations: The Case of the U.S. Automobile Industry." *The Business History Review*, Vol. 65, No. 4, Winter 1991 (781-824).

Helper, Susan, Timothy Krueger, and Howard Wial. "Why Does Manufacturing Matter? Which Manufacturing Matters?" Brookings Institution, February 2012: http://www.brookings.edu/research/papers/2012/02/22-manufacturing-helper-krueger-wial

Helper, Susan and Rebecca Henderson. "Management Practices, Relational Contracts, and the Decline of General Motors." NBER Working Paper No. 19867, January 2014.

Hirschman, Albert. *The Strategy of Economic Development*. Yale University Press, New Haven 1958 (108).

Houseman, Susan et al. "Offshoring Bias in U.S. Manufacturing: Implications for Productivity and Value Added." Federal Reserve, International Finance Discussion Paper Number 1007, September 2010: http://www.federalreserve.gov/pubs/ifdp/2010/1007/ifdp1007.pdf

Houseman, Susan and Michael Mandel. “Measuring Globalization: Better Trade Statistics of Better Policy.” Upjohn Press, 2015: http://research.upjohn.org/up_press/232/

Ikenson, Dan. “Trade Deficit Oped In The New York Times Is Heavy On Fallacy And Wrong On Economics.” *Forbes*, November 8, 2013: http://www.forbes.com/sites/danikenson/2013/11/08/trade-deficit-oped-in-the-new-york-times-is-heavy-on-fallacy-and-wrong-on-economics/
Israel Foreign Trade Administration, Trade Agreements and bilateral issues, 2015: http://www.moit.gov.il/NR/exeres/00E158D1-2672-4B9F-B35C-29D4A6D56009.htm

Kolben, Kevin. “Dialogic Labor Regulation in the Global Supply Chain.” *Michigan Journal of International Law*, Vol. 36, No. 3, 2015.

Labowitz, Sarah and Dorothée Baumann-Pauly. “Beyond the Tip of the Iceberg: Bangladesh’s Forgotten Apparel Workers.” NYU Stern Center for Business and Human Rights, December 2015: http://people.stern.nyu.edu/twadhwa/bangladesh/downloads/beyond_the_tip_of_the_iceberg_report.pdf

Lazonick, William. *Business Organization and the Myth of the Market Economy.* Cambridge University Press, 1993.

Liu, Xiaohui and Trevor Buck. “Innovation performance and channels for international technology spillovers: Evidence from Chinese high-tech industries.” Research Policy, vol. 36, 2007.

Locke, Richard, Matthew Amengual, and Akshay Mangla. “Virtue out of Necessity? Compliance, Commitment, and the Improvement of Labor Conditions in Global Supply Chains.” *Politics and Society*, 2009.

Locke, Richard. *The Promise and Limits of Private Power: Promoting Labor Standards in a Global Economy*. Cambridge University Press, 2013.

MacDuffie, John and Takahiro Fujimoto. “Why Dinosaurs Will Keep Ruling the Auto Industry.” *Harvard Business Review*, 2010.

Manning, L. and R. N. Baines, “Globalisation: A Study of the Poultry-meat Supply Chain.” British Food Journal, vol. 106, no. 10/11, 2004.

Mayer, Frederick and William Milberg. “Aid for Trade in a world of global value chains: chain power, the distribution of rents and implications for the form of aid.” Capturing the Gains working paper 34, June 2013.

Mattioli, Dana. “In China, Western Firms Keep Secrets Close.” The Wall Street Journal, August 30, 2010: http://www.wsj.com/articles/SB10001424052748704913704575453612099883050

Morash, Edward and Daniel F. Lynch. “Public Policy and Global Supply Chain Capabilities and Performance: A Resource-Based View.” *Journal of International Marketing*, vol. 10, no. 1, 2002.

Nicholson, Jessica R. and Ryan Noonan. “Digital Economy and Cross-Border Trade: The Value of Digitally-Deliverable Services.” U.S. Department of Commerce, ESA Issue Brief #01-14, January 27, 2014: http://www.esa.doc.gov/sites/default/files/digitaleconomyandcross-bordertrade.pdf

Nishiguchi, Toshihiro. *Strategic industrial sourcing: The Japanese advantage*. Oxford University Press, 1994.

OECD, WTO, UNCTAD. “Implications of Global Value Chains for Trade, Investment, Development and Jobs.” G-20 Leaders Summit, September 2013: http://unctad.org/en/PublicationsLibrary/unctad_oecd_wto_2013d1_en.pdf

OECD. “Interconnected Economies: Benefiting from Global Value Chains.” Synthesis Report, 2013: http://www.oecd.org/sti/ind/interconnected-economies-GVCs-synthesis.pdf

Patrick, Hugh T. and Henry Rosovsky, eds. *Asia’s New Giant: How the Japanese Economy Works*. Brookings Institution, 1976.

Pierce, Justin R. and Peter K. Schott. “The Surprisingly Swift Decline of U.S. Manufacturing Employment.” National Bureau of Economic Research, working paper 18655, December 2012: https://www.usitc.gov/research_and_analysis/documents/Pierce%20and%20Schott%20-%20The%20Surprisingly%20Swift%20Decline%20of%20U.S.%20Manufacturing%20Employment_0.pdf

Pisano, Gary P. and Willy C. Shih. “Restoring American Competitiveness.” *Harvard Business Review*, 2009: https://hbr.org/2009/07/restoring-american-competitiveness/ar/1

Plambeck, Erica, Hau L. Lee, and Pamela Yatsko. “Improving Environmental Performance in Your Chinese Supply Chain.” MIT Sloan Management Review, December 2011:

http://sloanreview.mit.edu/article/improving-environmental-performance-in-your-chinese-supply-chain/

Ravenhill, J. “Global value chains and development.” Review of International Political Economy, Vol. 21, No. 1, 2014 (264-274).

Rodrik, Dani. “THE FUTURE OF ECONOMIC TRANSFORMATION IN DEVELOPING COUNTRIES”, Report for Overseas Development Institute, 2015. http://set.odi.org/wp-content/uploads/2015/07/Dani-Rodrik_The-future-of-economic-transformation-in-developing-countries_Event-report_23-June-2015.pdf

Sergie, Mohammed A. “NAFTA’s Economic Impact.’ Council on Foreign Relations, February 2014: http://www.cfr.org/trade/naftas-economic-impact/p15790

Smitka, Michael. *Competitive ties: Subcontracting in the Japanese automotive industry*. Columbia University Press, 1991.

Stiglitz, Joseph E. “South Africa breaks out.” 2013. Project Syndicate: http://www.project-syndicate.org/commentary/joseph-e--stiglitz-on-the-dangers-of-bilateral-investment-agreements

Susman, Gerry. “Selecting and Evaluating Environmentally Responsible Suppliers of Hazardous, Nonhazardous Special Waste and Product-End-Of-Life Management Services.” Prepared by Gerry Susman for The Second Smeal Sustainability Case Competition, Fall 2015.

Taglioni, Daria and Deborah Winkler. “Making Global Value Chains Work for Development.” The World Bank, Economic Premise, No. 143, May 2014: https://openknowledge.worldbank.org/bitstream/handle/10986/18421/880530BRI0EP140d0VC0knowledge0notes.pdf?sequence=1

Timmer, Marcel P. et al. “Slicing Up Global Value Chains.” Groningen Growth and Development Centre and The Vienna Institute for International Economic Stucies, May 2013.

Tinbergen, Jan. *Shaping the World Economy*. New York, The Twentieth Century Fund, 1962.

“Supply Chain Innovation: Strengthening America’s Small Manufacturers.” The Executive Office of the President and the U.S. Department of Commerce. March 2015: https://www.whitehouse.gov/sites/default/files/docs/supply_chain_innovation_report.pdf

General:
This paper makes a lot of great points: https://www.die-gdi.de/uploads/media/DP_23.2014_01.pdf

See also:
http://unctad.org/en/PublicationsLibrary/unctad_oecd_wto_2013d1_en.pdf and
http://e15initiative.org/publications/who-captures-the-value-in-the-global-value-chain-high-level-implications-for-the-world-trade-organization/
http://www.oecd.org/sti/ind/interconnected-economies-GVCs-synthesis.pdf
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2464136