

Commodity Chains and Development*

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This chapter reviews the contributions of the commodity/value chain framework as they relate to the problem of economic development. It begins by highlighting the conceptual origins of the chain construct in world-systems analysis, whereby commodity chains were understood as mechanisms of unequal exchange through which territories became integrated into a stratified world-system. A major transition in the literature, signaled by a change in nomenclature from “commodity” to “value” chains, saw chains recast as dynamic opportunity structures that could be leveraged by developing country-firms and regions looking to upgrade their position in the global economy. This newer conceptualization of value chains as harbingers of economic development is hotly contested, however, and the resulting tension points toward a set of new research questions. These include the degree to which particular commodity/value chains might be more or less likely to promote development, the degree to which commodity/value chain “governance” can explain this variation, and whether the criteria for evaluating the development potential of incorporation into commodity/value chains should be relative or absolute gains.

Key Words: Commodity chains, Global Value Chains, Production Networks, governance

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Introduction

Although the term commodity chain is used by scholars from multiple disciplines and diverse theoretical frameworks, its origin as an analytical concept lies squarely in world-systems theory. For world-systems scholars, following the movement of particular commodities, and the connections that their circulation forge between people, places, and processes, is a way of tracing how new areas became incorporated into an emergent worldwide division of labor during the long sixteenth century. From this perspective, changes in the dynamics of accumulation along trade and production networks, and shifts in the territorial configuration of the particular nodes that constitute them, are important for what they tell us about the development of this single, integrated world-system.

But starting with the publication of the edited volume *Commodity Chains and Global Capitalism* in 1994, some researchers began to focus on how commodity chains were enabling what they suggested were new and qualitatively different relationships among economic actors, and the implications these emergent inter-organizational networks had for the mobility of units within the world-system. The approach that emerged from this shift—the global commodity chain (GCC) framework—moved commodity chain analysis away from the central concerns of the world-system paradigm and towards those associated with the comparative sociology of national development. As the study of commodity chains became both more interdisciplinary and more policy-oriented, the field diverged yet again, leading to the formation of a global value chains (GVC) paradigm in which development is reconceived as upgrading (or potentially downgrading) along a chain of value-added activities. In this chapter, we review the changing perspective on commodity chains and development, concluding with a discussion of more recent literature that takes the developmental implications of commodity chains as the key explanandum,

and develops an exchange theoretic perspective to specify inter-firm power asymmetries as the key explanan.

1. Commodity Chains as Vectors of Incorporation and Stratification

The term ‘commodity chain’ dates from a 1977 article published in *Review*, the journal of the Fernand Braudel Center for the Study of Economies, Historical Systems, and Civilizations at Binghamton University. In it, Terrence Hopkins and Immanuel Wallerstein suggest that commodity chains both integrate the world-system, insofar as they incorporate different geopolitical units into an emergent division of labor, and stratify it, insofar as they distribute unequal returns to the territories participating in this system, thereby creating and reproducing core and peripheral zones. The authors explain that commodity chain analysis begins at the end of the chain with an ultimate consumable item; “trace back the set of inputs that culminated in this item – the prior transformations, the raw materials, the transportation mechanisms, the labor input into each of the material processes, the food inputs into the labor. This linked set of processes we call a commodity chain. If the ultimate consumable were, say, clothing, the chain would include the manufacture of the cloth, the yarn, etc., the cultivation of the cotton, as well as the reproduction of the labor forces involved in these productive activities (Hopkins and Wallerstein 1977: 128).

Studying a particular commodity chain over time is a method for analyzing the development of the modern world-economy, including the secular growth of the system over time; cyclical rhythms of economic expansion and contraction; the modes of labor control and reproduction found across and within different territories, and the changing geographic configuration of particular activities.¹ A group of researchers at the Fernand Braudel Center was

among the first to advance the commodity chains research agenda, studying two products central to the historical development of the modern world-economy: ships and wheat flour (see Özveren 1994 and Pelizzon 1994). By analyzing these commodity chains over the period of 1590 to 1790, scholars demonstrated how the world-economy emerged from the incorporation of regions into trade and production networks that stretched across the geographic boundaries demarcating political units. This research supported a central claim of world-systems theory—namely, that “transstate, geographically extensive, commodity chains are not a recent phenomenon, dating from say the 1970s or even 1945, . . . they have been an integral part . . . of the functioning of the capitalist world-economy since it came into existence in the long sixteenth century’ (Wallerstein 2000: 2).

The modern world-economy as a historical social system emerged from the “warp and woof” of interlocking commodity chains (Hopkins and Wallerstein 1994: 17), and for world-systems theorists, development is a process that refers to the emergence and evolution *of the system*. This definition of development contrasts with that found in conventional development economics and most comparative-historical sociology, where the unit of analysis is not the system, but the discrete units comprising it. World-systems theorists regard this focus on “national development” as a misguided tenet of modernization theory and developmentalism more broadly, which treat economic growth and social development at the unit level as an essentially self-contained process occurring within states, as opposed to one that is inextricably bound with the dynamics of the larger system of which such states are part.

Commodity chains not only integrate territories into this larger system; they simultaneously stratify it because the rewards to commodity chain participation are uneven. Those links in the chain that are more globally dispersed and more competitive are less lucrative,

while activities where entry barriers are higher and competitors fewer are more profitable. Referring to these activities as “core-like” and “periphery-like,” Arrighi and Drangel (1986) observed that they are not distributed randomly across space, but rather tend to cluster such that some areas have a greater proportion of “core-like” activities relative to “periphery-like” ones, while in other parts of the world, the reverse is true. The core-periphery organization of the world-system emerges from a series of linked “economic activities structured in commodity chains that cut across state boundaries” (ibid: 11). In any given chain, the participants engaged in activities with low rates of return will try to move to more profitable ones, but if enough of them succeed in doing so, the downward pressure that heightened competition places on this formerly “core-like” activity erodes the returns to participants. In this way, all “core-like” activities are subject to “peripheralization” over time because what determines the rate of return across different links in the chain is not the nature of the activity, but rather the degree of competition at that link in the chain. Core countries, then, are those political entities that contain a greater number of “core-like” versus “peripheral-like” links across the totality of commodity chains.

Frequently states seek to maintain and/or improve the proportion of more profitable links occurring within their borders by shielding those activities from competition, or otherwise trying to secure an advantageous distribution of returns to commodity chain participation (Wallerstein 2009). Scholars have documented this process for a variety of commodities. Perhaps the most extensively studied among these is coffee. This research has yielded particularly rich insights because the regulation of trade in coffee under the International Coffee Agreements (ICA) generated an unusually detailed set of time series data that permit scholars to trace the changing distribution of surplus along the chain. John Talbot’s comprehensive analysis of the coffee commodity chain demonstrates that, under the ICA, coffee-exporting states received relatively

favorable returns. He also details how a number of the states benefitting from the ICA used coffee revenues to move up the chain from exporting raw coffee beans to producing instant coffee for international markets. However, Talbot's (2004) analysis also underscores the limits of (peripheral) state action insofar as it also recounts the efforts of core states to reassert their power within the coffee chain, both by eliminating the ICA and promoting competition among exporters of coffee beans, and by undermining the instant coffee industries promoted by some coffee-exporting governments as a way to capture the value generated by processing the raw beans (cf. Paige 1998). The result was a shift in the distribution of the consumer's coffee dollar, away from producers and towards chain actors, such as roasters and specialty retailers, located in core countries. A counterexample of 'successful' repositioning can be found in Paul Gellert's (2003) study of the wood-products commodity chain in Indonesia. Gellert demonstrates how an alliance between the Suharto government and an oligopoly of timber-producing firms enabled Indonesia to improve its position within this chain, specifically by becoming an exporter of manufactured plywood as opposed to an exporter of raw timber.²

Amy Quark (2013) examines another of the world's most traded agricultural commodities, cotton. One of the ways (beyond subsidies) in which U.S. cotton farmers have ensured high returns on commodity chain participation has been via the role of the international standards that define cotton quality, and the procedures used to verify these standards. Quark explores how the hegemonic coalition of the U.S. government and the leading firms in the global cotton trade have secured their advantageous position in the chain by defining both the standards that determine cotton quality and the procedures used to verify them. But as Quark explains, China's economic rise—as both the world's largest domestic producer and largest importer—is mounting a serious challenge to the United States' "sectoral hegemony" in cotton (Quark 2014).

While China has not succeeded in dislodging the United States from its dominant position, it has nevertheless achieved significant concessions in the form of revised standards and a more inclusive system of sectoral governance. Perhaps most significantly, the struggle over the cotton chain has weakened the hegemonic coalition on which U.S. dominance rests, insofar as the dominant private economic actors in the coalition—the transnational cotton merchants—are preparing for the possibility that a shift to Chinese hegemony will occur.

2. Global Commodity Chains as Mechanisms of Upgrading and Development

For Hopkins, Wallerstein, and Arrighi, as well as for the many scholars who work in the broad streams of world-systems analysis they forged, commodity chains are first and foremost mechanisms by which a stratified capitalist world-economy develops. Yet while this conceptualization of commodity chains has been a recurrent theme in the literature (see Bair 2014), it is also a contested one. Starting in the 1990s, Gary Gereffi and others associated with the global commodity chain (GCC) framework proposed a shift in research emphasis towards the study of contemporary global industries. They argued that participation in commodity chains is a pathway for upward mobility for developing countries. This pivot towards studying commodity chains as opportunity structures facilitating development did not necessarily entail a radical break with the precepts of world-systems analysis. Accepting the premise that all commodity chains include a combination of “core” activities (those earning relatively high returns) and “peripheral” activities (those earning relatively low returns), GCC scholars decided to study how the mix of activities occurring within the borders of a particular territory could change over time. Hence, within a particular, delimited unit—say, a country or region— a condition of economic

development is increasing the ratio of core to peripheral activities occurring therein. The process of shifting to higher value-added activities soon became referred to as industrial upgrading.

The concept of industrial upgrading, as developed by Gary Gereffi, grew out of his earlier work, first on dependent development in Mexico (1983) and later on comparative industrialization trajectories in East Asia and Latin American (1990). Gereffi observed that one factor contributing to the relative success of East Asian countries as compared with their Latin American counterparts was the ability of the former to actively reposition themselves within and across commodity chains that linked them to foreign markets. Focusing on the garment industry, Gereffi argued that exporting countries such as Hong Kong and Taiwan used their participation in a low value-added, labor-intensive link in the apparel commodity chain to move “up” to higher value-added activities (such as design and product development) and “out” to other, more capital-intensive industries (such as electronics). The commodity chains linking retailers and brokers in the U.S. and Europe to local manufacturers based in Asia represented “potentially dynamic learning curves” that developing country-exporters could use to upgrade (Gereffi 1999: 39). This formulation of upgrading as a positive outcome of commodity chain participation reoriented the central research question of the field: rather than asking how commodity chains structure and *reproduce global inequality at a systemic level*, a growing set of scholars—many of whom came to the GCC paradigm not via world-systems theory but from economic geography, development studies, international business, and other social science fields—began studying how they could *facilitate development at a unit level*.

Originally, Gereffi approached upgrading as a progression of export roles; drawing from his work on the success of Asian manufacturers in the apparel commodity chain, he outlined a series of steps from basic assembly subcontracting of imported components; to a more

demanding type of contract manufacturing, or “full-package” production, which involves some procurement activities as well as pre- and post-assembly activities; to ODM, or own design manufacturing, which involves delimited contributions of product development at the behest of lead firms; to OBM, or own brand manufacturing, which involves the design and marketing of apparel under one’s own label or brand (Gereffi 1999). As firms move up the chain, the barriers to entry become higher meaning that there are fewer competitors and thus higher returns. In comparison, much of the apparel that is produced off-shore in Mexico and Caribbean countries is manufactured in *maquiladoras*, which are in-bond factories that assemble goods from imported components made in the United States. Since the barriers to entry in the assembly subcontracting link of the chain are low, so too are the returns to this export role.³

Implicitly, this scheme assumed that manufacturers needed to deepen and expand their capabilities, and acquire new financial, material, or creative resources in order to progress through these successively more challenging export roles. Early efforts to operationalize the concept of upgrading extended this insight by identifying four different types of upgrading that can take place in commodity chains (Humphrey and Schmitz 2002): 1) *process* upgrading: increasing efficiency by reorganizing the production process and/or introducing improved technology; 2) *product* upgrading: moving into more complex or more sophisticated products; 3) *functional* upgrading: acquiring new capabilities and/or expanding the repertoire of activities performed; 4) *inter-sectoral* or *inter-chain* upgrading: moving from a less skill- or capital-intensive chain to a higher one. The first three types describe a repositioning within or movement up a particular chain, while the last category refers to switching from one chain to another. While the last of these is more likely to occur at the level of a region or cluster as opposed to an individual firm, it translates into a commodity chain vocabulary the traditional notion of “ladder

industrialization”—whereby economies move from labor-intensive light manufacturing to more capital- and/or skill-intensive industries.

Among the first empirical investigations of upgrading were several studies of the textile and apparel commodity chain in developing countries. Bair and Gereffi (2001) found that the passage of the North American Free Trade Agreement (NAFTA), which introduced new rules of origin that allowed garments manufactured from fabrics originating in any of the NAFTA countries to enter the U.S. duty-free, increased the interest of U.S. brands and retailers in sourcing from Mexico. Simultaneously, NAFTA paved the way for the transition of the maquiladora model, in which Mexican factories simply assembled garments from pre-cut pieces of imported fabric, to a qualitatively new kind of sourcing model. Fieldwork in the blue jeans-producing region of La Laguna, Mexico yielded evidence of extensive functional upgrading. At the firm level, the region’s largest manufacturers developed the capabilities necessary to provide “full-package production” to an expanded set of U.S. clients. Rather than simple assembly, “full-package” producers procured or manufactured in-house all of the necessary inputs for garment production. At the regional level, growth in apparel exports spurred production in upstream and downstream links in the chain, including textile mills, cutting rooms, industrial laundries, and distribution centers.

Kessler’s (1999) research in a different area of Mexico yielded similar evidence of upgrading on the part of local firms, while in a comparative study of the Indian textile and Kenyan horticultural sectors, Dolan and Tewari found that producers participating in global commodity chains experienced product, process, and functional upgrading. Although the foreign clients sourcing from local producers controlled activities such as design and distribution, and imposed demanding criteria for their suppliers to meet in terms of product standards and quality

requirements, the opportunity to work closely with these buyers “offers opportunities for learning and skill acquisition for those who are in the chain and some protection against substitution in the short term” (2001: 101). In addition to apparel (Plankey-Videla 2005; Pickles et al. 2006) and horticulture (Dolan and Humphrey 2001; Selwyn 2011), researchers have examined the prospects for upgrading in the commodity chains for autos (Rothstein 2005; Humphrey and Memedovic 2003), electronics (Hobday and Rush 2007; Sturgeon and Kawakami 2011), tourism (Tejada, Santos, and Guzman 2011; Bair 2010); aquaculture (Ponte, Kelling and Jespersen 2014; Phyne and Mansilla 2003), and furniture (Ivarsson and Alvstam 2010; Kaplinsky, Readman, and Memedovic 2009). While these studies yielded evidence of product, process, and functional upgrading, they also generated a degree of skepticism about the developmental potential of commodity chains and upgrading therein.

3. The Contested Terrain of Commodity Chains as Development Project

The shift towards commodity chains as (potential) vectors of development spawned a robust stream of commodity chain research, which, since the 1990s, has grown into a vast interdisciplinary, and increasingly policy-oriented, literature of what are now more commonly referred to as global value chains (GVCs).⁴ Much of this literature documents the processes by which actors in a commodity chain leverage (or attempt to leverage) their participation in global production networks into positive outcomes, ranging from increased profitability or stability (for firms), greater value-added and generation of backward and forward linkages (for regions), and improved wages and working conditions (for workers). Yet this body of research yields mixed results. On the one hand, studies of upgrading across diverse industry and country contexts largely confirm that participation in commodity chains—and more specifically, the inter-firm

networks relationships linking local manufacturers in developing and emerging economies to foreign clients—provide opportunities for learning that firms can leverage to achieve process, product, and functional upgrading.. Yet many of the same studies also underscore the limitations of upgrading as a model of development. Specifically, three main avenues of criticism have emerged.

The first focuses on the narrowness of industrial upgrading, particularly with regard to the question of labor. Centrally, this critique boils down to a single question: upgrading for whom? Even assuming upgrading enables greater value capture at the firm level (a claim challenged by the second set of critiques discussed below), there is nothing in the upgrading paradigm that suggests how these benefits are likely to be distributed within the firm—either between capital and labor, or among workers. Calls for greater attention to the conditions of those at the “bottom of the chain” has been joined with a plea for a more multi-dimensional concept that would move beyond the narrow focus on industrial upgrading (Palpacuer 2008).

In response to these criticisms, scholars of GVC have expanded the upgrading concept to include a social dimension as distinct from the economic one (Barrientos, Gereffi and Rossi 2011). Arianna Rossi, for example, has applied this dual conceptualization of upgrading to her analysis of Moroccan apparel manufacturers, essentially examining empirically what had been assumed previously: that a positive relationship exists between economic upgrading at the firm level and social upgrading in terms of the wages, working conditions, and rights of workers. Rossi finds that the relationship between economic and social upgrading was more complicated than a linear upgrading-as-improvement model would suggest. On the one hand, she finds that process upgrading, which can result in shorter through-put times, more effective use of the workday, and more accurate estimation of production schedules, helped reduce wage and hour

violations associated with excessive overtime. But on the other hand, she found that functional upgrading at the firm level actually had negative implications for some workers; as garment manufacturers expanded into additional activities such as handling the logistics, and packing and shipping finished garments, they found themselves dealing with sharply fluctuating demand for workers in these new links of the chain. Although these firms were becoming the highly flexible, “full-package” suppliers sought after by clients, their ability to functionally upgrade was linked to the development of a secondary labor force whose employment conditions were irregular and precarious. In this sense, *economic upgrading* was linked to *social downgrading*, at least for one set of workers (Barrientos et al. 2012: 231; also Anner, Bair and Blasi 2013; Goto and Enda 2014). Other studies have generated similar findings, underscoring the degree to which upgrading may not be a uniform process, but rather one that deepens or creates new forms of exclusion—particularly along lines of social difference, such as gender, race, and ethnicity (Werner 2012; Dolan 2002; Nakazibwe and Pelupessy 2014; Barrientos 2001).

Research has also emphasized the degree to which small-scale producers may face bleaker upgrading prospects than their larger counterparts. Studies show that small and medium enterprises are often excluded from global value chains entirely, while at other times they are incorporated, but in a subordinate and secondary position that offers them very little opportunity to increase their share of surplus (i.e. as a subcontractor to larger local firms connected to foreign buyers) (Dolan, Pascal-Harris and Humphrey 2001; Bazan and Navas-Aleman 2004). Overall, upgrading is, at best, an uneven process, both within and between commodity chains. As Peter Gibbon has observed, this unevenness is one of the constituent features of upgrading, as there is “clearly a tradeoff between upgrading and exclusion, whose identification is one of the key elements of GCC analysis. If in certain GCCs the upgrading of a few (larger-scale) developing

country producers seems to be accompanied by the marginalization of many (smaller-scale) others, then the positive implications for growth of dedicating resources to promoting involvement in these GCCs may be counterbalanced by negative implications for equity and perhaps also poverty reduction” (Gibbon 2001: 350).

The second set of criticisms points to the conflation of upgrading as process and outcome, and the need to disaggregate conceptually and empirically the relationship between the former and the latter. Simply put, upgrading does not necessarily produce benefits for suppliers in the form of increased profitability or stability, nor does it redress the power imbalance in the buyer-supplier dyad. Studies consistently find that while suppliers can and do learn from their clients, the latter focus their lessons on particular abilities and skills—namely, those prized by the lead firms. While process upgrading in particular can be a “win-win” scenario, lead firms are able to obstruct forms of supplier upgrading that would challenge their own power and profitability. In this sense, commodity chain participation represents “a double-edged sword. It facilitates inclusion and rapid enhancement of product and process capabilities,” but at the same time it “can lead to producers being tied into relationships that provide functional upgrading and leave them dependent on a small number of powerful customers” (Schmitz 2006: 566). This conclusion is echoed by Pavlinek and Zenka (2011), who use firm-level data such as turnover per employee, R&D expenditures as a percentage of value-added, and capital and labor productivity to assess upgrading among auto suppliers in the Czech Republic between 1998 and 2006. Although they find some limited evidence of product and functional upgrading, these outcomes were far less pervasive than process upgrading. Indeed, the authors suggest that rather than a strategy for increasing value-added or moving up the chain, process upgrading is becoming a necessary (if not sufficient condition) of chain participation: “The cutthroat competition in the

automotive industry compels firms to continuously improve production processes to enhance their overall efficiency and productivity that allow them to keep prices low while achieving high product quality” (2011: 581).

Similarly, in a study of the electronics industry in Asia, Hobday and Rush discuss upgrading using an export role trajectory similar to the one that Gereffi introduced in his seminal research on upgrading in the global commodity chain for apparel. They find that between the 1960s and 1990s, a few countries, such as Singapore, managed to move from assembly contracting to more sophisticated forms of manufacturing that include process engineering, product development and R&D activities. Yet they find that this trajectory is not being replicated to the same degree in Thailand, where upgrading, though present, is more uneven. They find that upgrading is limited when lead firms tightly control overseas subsidiaries and suppliers. In such chains, “non-routine engineering decision-making (e.g. the choice of capital goods, installation of machinery, new product development and process innovation) were undertaken by the parent...Decisions not to develop technology within Thailand were not negative or obstructive, but were part of a coherent corporate strategy towards global markets and technologies” (2007: 1354).

These and similar findings underscoring the unevenness of upgrading outcomes, even within the same country or industry, led researchers to ask what factors explain this variation (e.g. Palpacuer, Gibbon and Thomsen 2005; Goto and Enda 2014). Schmitz and Knorringa (2001) argue that the type of linkage connecting a local manufacturer to the global commodity chain creates conditions more or less conducive to upgrading. They conclude that indirect sourcing—i.e. via brokers or trading houses—creates more space for local firms to move into high value-added activities. Such activities include “intangibles” (design, marketing) that are the

most lucrative niches in contemporary commodity chains, and thus most closely guarded by lead firms. Kadarusman and Nadvi (2013) go so far as to suggest that developing-country suppliers should seek opportunities to serve local, domestic or emerging markets, where opportunities to move into “lead” roles within the chain may be greater.

Morris and Staritz (2014) emphasize the importance of differentiating among lead firms when evaluating opportunities for and implications of upgrading. In a study of the Madagascar apparel industry, they find that Asian multinationals have little interest in upgrading, since their presence in the region is motivated by a desire to access the U.S. market under the preferential terms provided by the U.S. Growth and Opportunity Act. Because these companies can shift orders rapidly among an extensive network of owned and operated facilities and subcontractors scattered throughout world regions, their operations are loosely anchored in the locations serving as export platforms. Thus, their continued presence in any given country and region is contingent on the trade policy environment—a factor over which local stakeholders have little to no control. Morris and Staritz (2014) conclude that, in the case of Madagascar, apparel firms exporting to the European market, many of which are owned by Mauritians of French ancestry, are more sustainable and have more auspicious upgrading prospects than their Asian-owned counterparts exporting to the U.S. market. The trade-dependent nature of Asian-based commodity chains in Latin America led to similar pessimism about the upgrading prospects for firms in Central America which became a more prized sourcing location after the passage of the Dominican Republic-Central America Free Trade Agreement with the United States (Bair and Dussel Peters 2006).

In short, the principal observation that emerges from this second stream of criticism is that upgrading is not a reliable means to the end of value capture because it is a process that

tends to take place on terms set by lead firms. Leads firms are not likely to encourage, and may even prevent, suppliers from developing competencies that threaten their control over the chain. This brings us to the third criticism of upgrading: efforts to identify the conditions under which upgrading takes place are futile precisely because the very act of successful upgrading erodes the barriers to entry that protect particular links in the chain, and thereby reduces the returns accruing to the incumbents of those links. Andrew Schrank drew this conclusion based on the finding that an ever larger number of apparel manufacturers in Latin America (and elsewhere) were transitioning from assembly subcontracting to full-package production, but these improved efficiencies and expanded capabilities did not result in improved outcomes, whether measured in terms of the unit value of exports (Schrank 2004), the financial position of the firm (Pickles et al. 2006, or even the firm's very survival (Bair and Werner 2011). Schrank (2014: 125) concluded that the declining returns to full-package producers were happening not in spite of widespread upgrading but precisely because of it: "A general theory of industrial upgrading is a contradiction in terms, for readily replicable development strategies are likely to undermine the oligopolistic underpinnings of developmentally nutritious sectors and are therefore likely to be devalued or 'downgraded,' by the very act of diffusion" (also see Tokatli 2013; Tewari 2006).

Brewer (2011) accepts Schrank's indictment of upgrading—but elevates this insight to an explanation for persistent inter-country income inequality (also Arrighi, Silver and Brewer 2003). For Brewer, the upgrading turn was, from the beginning, a misguided departure from the tenets of world-systems theory. Within this tradition, what is referred to as "national development" is, in reality, a description of mobility among the system's stratified tiers. Thus Brewer describes the upgrading paradox as one inherent to a "research program that is focused on unlocking the keys to successful commodity chain upgrading, but which is itself an offshoot

of a theoretical framework that views “national development” as a “illusion” (Brewer: 2011: 312).

While Brewer recommends jettisoning the concept of upgrading, the thrust of Schrank’s critique pushes in the direction of greater attention to the political-economic and policy environments in which these networks operate. This conviction is shared by the many scholars who study Global Production Network (GPN), a framework that is closely analogous to that of the GCC and GVC approaches to understanding the developmental implications of globalization. Rooted primarily in economic geography, the GPN perspective emphasizes the territorial and institutional embeddedness of global networks—a term they prefer to chain, which is rejected as overly deterministic in its linearity and directionality (Henderson et al. 2002; Coe, Dicken and Hess 2008). In place of the upgrading focus found in much research on global commodity chains, GPN scholars highlight the importance of “coupling” for positive development outcomes. Coupling refers to a kind of matching process between the assets—human, material, physical, etc.—of a particular location and the strategies of corporate actors. Successful coupling is an impediment to capital flight, as firms and industries that derive from local resources and assets are more likely to become rooted in situ. Unlike much commodity chain research, which, from the vantage point of GPN research tends to be overly firm-centric, scholars of GPNs emphasize the importance of non-firm actors as potential agents of coupling, and thus, development. These include state and local governments, public-private partnerships, industry associations, trade unions, and NGOs, among others. Yet despite variation in theoretical emphases, in practice there is considerable overlap between the methods, findings and conclusions of GVC and GPN research. The concept of governance is central to both literatures, and represents the lynchpin connecting upgrading (or coupling) to development outcomes.

4. Global Commodity Chains as Governed Networks and the Distribution of the Gains

Therein

Proposed as one of the three original dimensions of the GCC framework (Gereffi 1994: 97), governance refers to the “authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain.”⁵ In their review of the governance literature, Ponte and Sturgeon explain that “[t]he idea of governance in GVCs rests on the assumption that, while both disintegration of production and its re-integration through inter-firm trade have recognizable dynamics, they do not occur spontaneously... Instead these processes are ‘driven’ by the strategies and decisions of specific actors. The relevance of GVC governance is that it examines the concrete practices, power dynamics, and organizational forms that give character and structure to cross-border business networks” (2014: 200).

The precise formulation of chain governance has been a moving target. Gereffi’s (1994) original distinction between buyer and producer-driven commodity chains (BDCC/PDCC) focused on developing the concept of buyer-drivenness. What was crucial to this formulation of governance was that buyers (rather than producers) set the conditions for accessing the chain, and thereby appeared to determine the degree and distribution of returns as well. Examples include apparel (brands and retailers), footwear (marketers like Adidas and Nike), and horticultural chains, which were characterized by an “increasing degree of “buyer-drivenness,” deriving largely from supermarkets’ increasing concentration of control over information concerning consumer trends” (Dolan, Harris Pascal and Humphrey 2001). In each of these cases, lead firms specialize in “intangible” activities such as product design and development and marketing, contracting out the “tangible” activities of production to a set of independent

contractors (Gereffi et al. 2001). In this context, driving the chain refers to deciding what is produced, where, by whom, and at what cost. In contrast, the returns to lead firms in producer-driven chains derive not just from their control of intangible activities such as research and development, but also from their ownership of relatively scarce physical assets such as the capital goods needed to engage in complex manufacturing.

Contributions in early 2000s began to challenge the utility of this dichotomy, with researchers calling for an expanded typology of governance structures, especially outside of the manufacturing sector. Gibbon (2001: 350-352) proposed that some agricultural chains were better described as “trader-driven,” insofar as international “trading companies play a coordinative role in these commodity chains,” and “entry barriers to the trading function are very high.” That is, Gibbon understood governance as a demarcation of which actors were involved in coordinating economic activity in the chain, as well as which links in the chain captured the greatest returns, insofar as high entry barriers correspond to greater gains. Much like the original dichotomy, in trader-driven chains the lead firms both performed the key coordination functions and secured the highest returns.

The first serious critique of the central organizing principle of GCC governance came from Timothy Sturgeon (2002), whose analysis of the electronics industry caused him to problematize the very concept of driven-ness. In the electronics industry, relations between lead firms and key suppliers were more symmetrical—it was not clear who was driving the chain per se, nor whether the returns to manufacturing were higher/lower than those to “buying.” Sturgeon initially called this mode of governance “relational,” roughly corresponding to the conceptualization of the “embedded” network in sociology. But, in 2005, Gereffi, Humphrey and Sturgeon proposed a new scheme for categorizing value chain governance, where particular

combinations of three variables—complexity, codifiability and capabilities—produce five forms of governance: market, modular, relational, captive, hierarchy. What Sturgeon had previously described as relational was now conceptualized as “modular,” with relational now referring to relationships in which transactions require a degree of asset-specificity that makes exchange partners *mutually dependent* on each other. This is in contrast to either modular networks, in which the absence of asset-specificity gives partners a degree of *mutual independence*, or captive networks, which refer to situations of *asymmetrical dependence*. What was particularly appealing to scholars of the newly branded Global Value Chains (GVC) literature was that (a) there were now a range of governance types that seemed to do a better job capturing the observed variation in governance across value chains and (b) governance was now understood as a dynamic process that would evolve with changes in any of the three key variables as opposed to ideal types associated with specific industries.

Among the key differences between the original GCC and the new GVC modes of governance was that power asymmetry was a variable outcome of the latter. That is, power asymmetry was an inexorable characteristic of the GCC framework’s buyer-driven and producer-driven typology—the locus of power and the way in which it was exercised differed between these two types of governance, but buyers in buyer-driven chains were no less powerful than producers in producer-driven chains. In the new GVC typology, “power” varied with the type of governance—it progressed from low (market) to high (hierarchy) in the order implied above. While the argument that inter-firm power asymmetry varies with governance is not only intuitive, but also corresponds to inter-firm relations observed empirically, it is unclear that the particular conceptualization of power in this formulation, and the characterization of the five

governance types in terms of power, represents analytical progress (Gibbon and Ponte 2005; Bair 2005).

First, power is conceptualized by Gereffi et al (2005) both in terms of the degree of power asymmetry between firms *and* of the extent to which a single actor controls the production process, but this leads to conceptual slippage across categories. For example, Gereffi et al. (2005: 87) claim that the degree of explicit coordination and power asymmetry is highest in the hierarchy form of governance but, while it is clearly the case that a single firm has complete control over a production process when it is entirely internal to the firm, it is far less clear how this conception of power—the formal authority of administrative fiat *within* an organization—is comparable to the nature of power in relationships *between* firms. Second, and perhaps more fundamentally, by making governance an outcome of industry and process characteristics, the GVC scheme obfuscates the role of lead firms in developing and coordinating global value chains. The formation and governance of inter-firm networks are bound up with the competitive strategies of firms, and those with the ability to do so will use their relationships with other chain actors to secure their competitive position in an industry. This differential capacity of firms to shape chain dynamics was a premise of the earlier producer-driven and buyer-driven distinction, and it is in this sense that the reformulation of GVC governance operates with a blunted and underspecified sense of power.

Thus, more recent theoretical work takes the basic insight that power is a variable characteristic of commodity chains as a point of departure, and then attempts to understand *why* this is the case (Gibbon and Ponte 2005; Mahutga 2012; 2014a). One approach is to combine the initial GCC focus on barriers to entry with classic relational treatments of power in exchange networks (e.g. Cook 1977). In the original GCC formulation, it was simply taken as given that

“increasing barriers to entry...exist as one moves along” the chain from supplier to lead firms (Bair 2005: 165). The link between entry barriers, firm power, and value capture was relatively under-theorized beyond the intuition that all three worked together to the benefit of lead firms.

To more clearly specify the relationship between entry barriers to manufacturing and inter-firm bargaining power, or power asymmetry, Mahutga (2014a) begins by unpacking the concept of barriers to entry. First, the particular entry barriers often highlighted in the GCC literature—global brands, access to lucrative consumer markets, proprietary technology, deep capital stocks, etc.—are resources that make commodity chains driven by lead firms attractive “markets” for suppliers. Second, the very concept of entry barriers presupposes that there are relatively few firms engaged in activities protected by high entry barriers, and many firms engaged in activities protected by low entry barriers. Thus, entry barriers should also affect the relative supply of buyers and producers in different ways across industries. The relatively few firms protected by high barriers to entry should enjoy a high degree of bargaining power *vis-à-vis* the relatively abundant supply of potential exchange partners because the former “have both (1) a large number of partners with whom it would be possible to exchange; and (2) partners who are limited in their ability to exchange with alternative partners” (Mahutga 2014a: 161). Thus, entry barriers make leading firms attractive exchange partners for suppliers world-wide, and also give them a degree of asymmetrical bargaining power *vis-à-vis* suppliers.

This more recent exchange theoretic conceptualization of governance is in some ways consonant with the GVC governance categories proposed by Gereffi, Humphrey and Sturgeon (2005). For example, an exchange theoretic perspective would expect that “modular” value chains/networks, in which the ratio of the supply of buyers to producers approaches 1—have a relatively low degree of power asymmetry, and this expectation is consistent with the description

by Gereffi et al of modular value chains. On the other hand, however, Gereffi et al.'s (2005: 83) claim that power asymmetries are lowest in "markets" rests on the intuition that "the costs of switching to new partners are low for both parties" in market transactions. In their framework, market governance arises in the context of low complexity, high codifiability, and high capabilities in the supply base. Yet we would argue that the degree of power asymmetry in a market transaction cannot be determined a priori from the value of these variables; it is a function of the exchange ratio between buyers and suppliers. In other words, when the number of suppliers is far greater than the number of buyers—a scenario consistent with the market form as they describe it—and thus the ratio of exchange partners is strongly skewed in the favor of the latter, an exchange theoretic conceptualization of interfirm power suggests that "market" governance is likely characterized by a significant degree of power asymmetry.⁶ While, this work is ongoing, emergent exchange theoretic conceptualizations of governance portend a shift in the way that academics and practitioners think about the causes and consequences of inter-firm power differentials in global commodity/value chains and production networks.

This shift will, of course, have important implications for how the relationship between commodity chains and development is theorized and investigated. As we discussed above, conclusive developmental implications of GCC/GVC/GPNs are allusive, and part of the reason is that development is understood and operationalized at different scales and in different ways in different studies. What these exchange theoretic conceptualizations of chain governance do is imply a more singular focus on the *relative gains* from participating in globally networked economic activities, or in other words the distribution of the gains in GCC/GVC/GPNs. This, in turn, lends itself to two types of questions (Mahutga 2014b; 2014c).

The first is rather consonant with the entire stream of literature dating back to the GCC formulations and even the world-systems tradition: If most commodity chains are characterized by *some* degree of power asymmetry between firms, then a critical question to ask is to what extent do the gains enjoyed by the firms with power come at the expense of those with less power? Put differently, how do the relative developmental returns among chain participants vary across powerful and subordinate chain/network positions? The second type of question follows logically from the differences in governance across particular chains/networks. Assuming that we can answer the first question posed above, the second question is to what extent observed differences in returns to dominant and subordinate positions vary across chains with different types of governance, and to what degree do we need to examine other factors (such as institutional influences) to explain this variation. Empirically, the exchange theoretic conceptualizations of chain/network governance emerging in the literature call for comparisons of developmental returns both across differentially positioned actors *within* similarly governed chains/network, as well as across similarly positioned actors *between* differentially governed chains/networks.

A final, enduring challenge for commodity chain scholars is to clarify how the distribution of returns to chain participants facilitates, delimits, or otherwise shapes the macro-processes of capital accumulation, economic growth, and improved well-being that are typically understood to connote development. As noted above, research seeking to identify and explain the relationships that exist between economic upgrading and social upgrading represent one such effort. Another research frontier is that on the ecological dimensions of upgrading and the environmental consequences of commodity chains, as well as the degree to which these elements

are implicated in governance dynamics (Bowen and Valenzuela Zapata 2009; Ciccantell and Smith 2009).

Conclusion

The commodity chain construct originated in World-Systems analysis as a heuristic for understanding the production and reproduction of a stratified world-system and the structural necessity of underdevelopment in such a system. Overtime, the construct came to be used as a means through which to understand observed changes in the organizational structure of the world manufacturing economy associated with economic globalization, and the implications of these changes for less developed countries. As a result, the construct shifted from a description of macro-structural vectors of incorporation and stratification to a diagnostic of the potential for industrial upgrading made possible by economic globalization. This shift also eventuated a new terminology, as scholars subscribing to this latter formulation of chain as developmental opportunity structures came increasingly to refer to global value chains as opposed to global commodity chains.

However, the transition of commodity chains to value chains arguably created more problems than it solved, insofar as it conflated firm level upgrading with economic development. Thus, cases of successful upgrading can be read alongside cases of failure, and even cases of successful upgrading have ambiguous implications for economic development if upgrading is dependent on a small number of powerful lead firms, if successful upgrading strategies are undermined by their replication elsewhere, or if they do not “upgrade” the social position of workers and the larger community in which an upgrading firms is located. In short, the transition

from commodity chain as vector of incorporation and stratification to value chain as mechanism of upgrading and economic development has created a set of paradoxes in need of explanation.

To resolve these paradoxes, more recent research focuses on the implications of commodity/value chain/production networks not for their *developmental* implications per se, but rather for how they distribute returns to the actors who participate in these organizational structures. One emergent project is an effort to make the degree of power-asymmetry between lead firms and their suppliers the key explanandum. Here, the power of a lead firm *vis-à-vis* others in the network is theorized as a joint function of the scarcity and attractiveness of the resources the lead firm possesses, and the number of exchange partners available to it. Networks in which lead-firm resources are both attractive and scarce, and in which lead firms have a large number of potential suppliers from which to choose, will be characterized by a higher degree of power-asymmetry between lead and other participating firms. Alternatively, when lead firms do not have attractive/scarce resources, or the ratio of lead firms and suppliers is more balanced, inter-firm relations will be more symmetrical. The other emergent project is to treat the degree of power asymmetry among differentially governed chains/networks as the key explanans for the *distribution of the returns* to commodity/value chains and production networks, where greater degrees of power-asymmetry are expected to cause a more unequal distribution of the returns therein.

While we feel this more recent research represents a promising direction, it also raises a number of questions about how best to study commodity/value chains. Because these structures typically transcend national borders, the standard approach to studying them has been the qualitative case study, often involving interviews with lead firms and/or fieldwork in (frequently distant) production sites. While these studies have generated a wealth of knowledge and help

explicate some of the precise mechanisms underlying inter-firm governance, they are perhaps ill suited to analyzing the distributional kinds of questions outlined above, especially at the macro level. At the same time, commodity/value chains are also difficult to capture with statistical data collected and disseminated at the level of the nation state.⁷ Thus, future analysts will have to think creatively about how best to design qualitative research to capture the totality of a given commodity/value chain, and repurpose available quantitative data to measure things it was not designed to measure. We see these realities as opportunities rather more than limitations, and believe that the most illuminating research on global commodity/value chains is very much in front of us.

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Endnotes

1 Consistent with the chain metaphor, many commodity chain scholars refers to the discrete segments of the chain as “links.” Hopkins and Wallerstein referred to these alternatively as “boxes” or “nodes.” The term nodes is particularly resonant with the morphology expressed in Hopkins and Wallerstein’s 1986 definition of the commodity chain as a “network of labor and production processes.”

2 See Chang 2002 for a discussion of the difficulties that contemporary development policies pose for semi-peripheral and peripheral countries trying to move up the commodity chain.

3 This discussion points to a unit of analysis problem that has long troubled the field of commodity chain research. While the concept of export roles that Gereffi proposed suggests that countries upgrade—as in the suggestion that East Asian economies have been more successful than Latin American ones in moving from assembly subcontracting to full-package production—the discussion of how upgrading occurs makes clear that this is a process occurring at the firm, not country, level. See also Bair 2005.

4 Although the decision by a set of key scholars in the field to shift from the commodity chain to the value chain terminology is briefly discussed below, see Bair 2005 and Sturgeon 2009 for more detailed explanations and interpretations of the change.

5 Governance was later defined more narrowly as the “authority and power relations *between firms*,” while a new dimension—institutional context—was added to the GCC framework to capture the importance of the state and other non-firm actors that may influence commodity chains (1995: 133, emphasis added).

6 In fact, such conditions would seem to apply well to apparel—the classic buyer-driven commodity chain—and we know from empirical research on apparel that “the costs of switching are decidedly higher for producers than buyers” (Mahutga 2014a: 189; also see Gibbon and Ponte 2005; Anner, Bair and Blasi 2013; Mahutga 2012).

7 The OECD-WTO Trade in Value-Added Initiative is a recent effort to better capture the nature of global production. As a rough approximation of global value chains in 18 industries, it uses input-output tables to measure the participation of 57 countries in integrated production networks. See <http://www.oecd.org/sti/ind/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm>.