

Editor's Introduction: Commodity Chains in and of the World-System

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In the two decades since the publication of Gereffi and Korzeniwicz's (1994) ground-breaking edited volume, *Commodity Chains and Global Capitalism*, scholars have conducted a vast quantity of research on international production networks.¹ Today there are voluminous literatures on constructs that are or would appear, at least morphologically, to be similar to the structure that Hopkins and Wallerstein defined as a "network of labor and production processes whose end result is a finished commodity" (1986: 159). Although the commodity chain, or one of its later variants, has been widely mobilized to address concerns quite distinct from those of its creators, the provenance of the concept in world-systems analysis is often noted (Raikes, Jensen and Ponte 2000; Leslie and Reimer 1999; Le Heron and Stringer 2012; Fernandes 2010). The term was first introduced by Hopkins and Wallerstein in a 1977 article outlining a research program to study patterns of development of the modern world-system. Specifically, they proposed to follow the production networks of particular commodities as a way to trace the incorporation of new areas into an emergent worldwide division of labor during the long sixteenth century. Observing that the sequential steps involved in the creation, cultivation, and transportation of a particular good could be conceived as a commodity chain, they and their colleagues studied several specific chains to ascertain where these activities were carried out, and how the unequal returns to these activities created a stratified world-system.

During the 1990s, in the context of growing academic and popular interest in what was perceived to be a novel and/or intensified phase of globalization, the commodity chain concept grew in popularity as one of the few analytical methods available for studying the growing complexity of international production networks. A new set of scholars—many of whom were unfamiliar with the macro-historical tradition of commodity chain research—embraced the chain construct to analyze changing industrial geographies, the rise of organizational practices such as outsourcing and off-shoring, and the implications of these developments for both core economies and developing countries.

As the commodity chain concept gained currency, it began to circulate far beyond the community of PEWS scholars that coined it, complicating the relationship between commodity chain analysis and world-systems analysis. The clearest indication of this growing estrangement was a marked change in the conceptualization of commodity chains as potential pathways for development or upward mobility. Accepting that all commodity chains include a combination of "core" activities (those earning relatively high returns) and "peripheral" activities (those earning relatively low returns), commodity chain analysts nevertheless observed that the mix of activities

¹ This special issue grew out of a paper session at the 37th Annual Political Economy of the World-System Conference at the University of California-Riverside in April 2013. In addition to the authors, I would like to thank, the conference organizers and the referees for the collection, who graciously provided insightful and constructive reviews of the manuscripts under a particularly tight deadline. I am also grateful to *JWSR* editor Jackie Smith for providing a home for this collection.

occurring within the borders of a particular territory could change over time. Hence, national economic development could be defined as increasing the ratio of core to peripheral activities occurring within a given unit. This formulation, which posited commodity chains as “potentially dynamic learning curves” that economic actors could use to “upgrade” (Gereffi 1999: 39), reoriented the central research question from how commodity chains structure global inequality at a systemic level to how they facilitate development at a unit level. Because the world-systems perspective recognizes that mobility within the world-economy is possible, as individual countries move up or down, this developmentalist turn in commodity chain research did not necessarily require a radical break with world-systems analysis. However, it did shift the object of inquiry from the structural dynamics and aggregate consequences of commodity chains to the properties of a *particular* chain (such as its “governance structure”), and the developmental (or “upgrading”) prospects of actors within in it (Gereffi 1994).

By the early 2000s, the commodity chain terminology was frequently being used interchangeably with other constructs, such as global production networks (GPNs). In recent years, one such alternative nomenclature—global value chains (GVCs)—has become hegemonic, especially within more applied or policy-oriented studies of global industries. Global value chain analysis has even been taken up enthusiastically by international financial institutions, including the World Trade Organization and the World Bank, as well as bilateral development agencies, such as the Department for International Development in the United Kingdom and the U.S. Agency for International Development (Nielsen 2013; Gereffi 2013).

On the one hand, readers of this journal might find it gratifying that a concept—or at least a variation on a concept—proposed and developed by world-systems scholars has resonated so widely with a diverse constituency composed of activists and organizers as well as academics and policymakers. Yet the profusion of chain and network constructs, and the veritable flood of research employing one or more of these terms, creates a complicated intellectual and analytical landscape, populated by neighboring and sometimes overlapping camps. Elsewhere (Bair 2005), I and others (Coe, Dicken and Hess 2008) have argued that there are salient conceptual differences among these constructs that merit consideration, even if there are considerable similarities across them in terms of how scholars approach their study empirically (Nielsen and Pritchard 2009; Levy 2008). But rather than revisit the relationship between these various chain-inspired approaches to the study of globalization, the question I want to pose here is the following: can one still identify a distinctly world-systems perspective on commodity chains?

Although the intent of this special issue is not to propose a litmus test or a set of evaluative criteria for deciding what ‘counts’ as world-systems analysis, I do believe the articles gathered here provide an affirmative answer to this question. Collectively, they suggest that what distinguishes the world-systems approach to commodity chain analysis is the use of the chain construct to illuminate the complex and concrete determination of a capitalist world-economy. Perhaps more than any other concept in world-systems analysis, commodity chains render the social system of modern capitalism tractable as an object of study. The contributions to this special issue, while displaying a methodological pluralism and substantive diversity characteristic of the broader field of world-systems research, are exemplary of the way in which commodity chain analysis can be mobilized to illuminate the contours, composition, and character of the modern world-system. Specifically, they address four questions that are at the core of a world-systems-inspired commodity chain research agenda:

- By what methods do states seek to shape commodity chains?

- What is the relationship between commodity chains and the stratification of the world-system, and how, if at all, does this change over time?
- Where does the surplus in commodity chains come from, and how are the returns to participation distributed among the actors in the chain?
- What kinds of structural and/or discursive openings do different commodity chains create for political organization and/or resistance?

States and Commodity Chains

The study of commodity chains provides a window into one of the structural tensions of the modern world-system (and one of the orienting concerns of world-systems analysis): that between the political organization of the globe into units called states, and the worldwide division of labor that is created by linked labor and production processes transcending the boundaries demarcating these units. But to point out that most commodity chains are not contained within a single state does not imply that states play no role in their configuration or operation. Indeed, the opposite is true, since, as Wallerstein notes, the fact that virtually all chains cross national borders means that they are “subject to interference by state authorities, because states have the sovereign right within the interstate system to establish rules about what crosses their frontiers” (2009: 83).

One of the many ways that states, at least core states, shape commodity chains is by fostering institutional contexts that instantiate their particularistic interests as the formal rationality governing trade and production networks. Their ability to do so, however, may be threatened by changes in the relative power and position of particular actors within the world-system. In her contribution to this special issue, Amy Quark interrogates the potentially destabilizing effects of such shifts, and how dominant actors respond to them, via an analysis of the cotton commodity chain. Quark draws from Arrighi’s (1994) work on hegemonic cycles in the world-system to consider how newly powerful states can emerge to challenge embattled hegemonies. Specifically, in applying this model to commodity chain analysis, she proposes the concept of *sectoral* hegemony to highlight how states, in (sometimes fraught) coalitions with other actors, seek to maintain the Gramscian legitimacy of these institutional contexts, and thus ensure their own privileged position within key sectors.

Quark’s analysis of sectoral hegemony focuses on cotton. One of the world’s most traded agricultural commodities, cotton is also one of the most contentious. Subsidies to U.S. cotton farmers have been at the center of a protracted dispute between the United States and a coalition of cotton-growing nations that includes major exporters such as Brazil as well as several African countries whose far smaller volumes of cotton shipments are nevertheless an important source of export revenue. While its *domestic* agricultural policy on cotton has subjected the United States to considerable international criticism, U.S. hegemony in the *global* cotton market has been maintained via its governance of the cotton commodity chain, and specifically its role in defining both the standards that determine cotton quality and the procedures used to verify them. But as Quark explains, China’s economic rise is posing a serious challenge to the stability of this system. Since 1995, the gradual phase-out of import quotas on textile products has permitted a rapid expansion of China’s global market share for apparel. China has required enormous volumes of cotton to fuel this growth in textile and clothing production; it is now the world’s largest domestic producer of cotton as well as the world’s largest cotton importer. The Chinese

government has sought to flex this newfound muscle by challenging the United States' sectoral hegemony over the cotton commodity chain. While it has not succeeded in dislodging the United States from its dominant position, China 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 coalition on which U.S. hegemony rests, insofar as the transnational cotton merchants that have allied historically with the U.S. government are now preparing for the possibility of a shift to Chinese hegemony.

In showing that the struggle for sectoral hegemony takes the form of a contest over commodity standards that involves both states and firms, Quark diagnoses the interrelated nature of commodity chain governance and the institutional contexts within which 'private sector' governance is exercised. In so doing, she fills an important lacuna in the existing literature. Studies of global commodity chains, and more recently global value chains, have tended to focus on how lead firms control, coordinate, or 'drive' chains, largely bracketing the role of states, or inter-state conflicts, in enabling or sometimes constraining lead firm governance. Although scholars identified with the global production networks (GPN) 'camp' emphasize this deficit, for the most part they consider the influence of regional or local institutions on commodity chains, and the degree to which institutions encourage synergistic forms of "strategic coupling" that embed economic activities in delimited territories. In contrast, Quark's analysis centers on the macro-institutional context of commodity chain governance. In addition to highlighting the tension between the global accumulation processes that structure the world-system and the geopolitical units that demarcate that system into states, her article suggests that struggles over sectoral hegemony provide a window into how shifts in the epicenter of these accumulation processes might occur.

The Returns to Commodity Chain Participation and World-System Stratification

Just as world-systems analysis challenges the centrality of the nation-state as the primary unit of analysis in historical social science, so too does commodity chain analysis provide an alternative way of understanding the relationship among these units. From a world-systems perspective, the core-periphery relationship emerges from a series of linked "economic activities structured in commodity chains that cut across state boundaries" (Arrighi and Drangel 1986:11). Some of these activities—those which are protected by higher barriers to entry—command relatively greater returns, while other nodes in a commodity chain—those which are more globally dispersed and characterized by higher degrees of competition—are remunerated less well. In their pioneering discussion of commodity chains as stratification mechanisms, Arrighi and Drangel (1986) referred to these activities as "core-like" and "periphery-like," while global value chains analysts more commonly use the language of "value-added" to describe the unequal returns to different links in the chain.² These activities 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. When the geopolitical map of states is superimposed on this global distribution of commodity chain links,

² As Ben Brewer (2011) has pointed out, this formulation of the relationship between the commodity chain activities occurring within a country and that country's position in the world-system position was largely tautological—a weakness addressed to some extent by later research (Arrighi, Silver, and Brewer 2008; Mahutga 2014).

it becomes clear that the varied combinations of “core” and “peripheral” links in the totality of commodity chains reflect and reproduce a stratified world-system.

The relationship between commodity chain dynamics, the stratification of the world-economy, and the composition of the particular strata comprising this system is fundamental to our understanding of global inequality. As noted earlier, the developmentalist turn in global commodity (and later global value) chain analysis put the last of these concerns at the center of the research agenda—that is, how “upgrading” trajectories might permit countries to improve their relative position. But this work typically does not address how the upgrading of one chain participant affects the distribution of returns to others, nor does it address how, if at all, mobility within the commodity chains comprising the world-system might alter the structure of that system diachronically.

Matthew Mahutga enters this debate by in some sense turning the question on its head. That is, he departs from both orthodox world-systems theory and the developmentalist turn of global value chain analysis by making no assumptions about the relationship between the positional power of states and the returns to their participation in global production networks (or GPNs, a terminology he prefers to the chain metaphor). Instead, he treats this question as the explanandum of a macro-comparative commodity chain analysis. Using trade data to infer the positional power of countries within particular commodity chains—i.e. the degree to which the firms located within states occupy “core” (lead) or “peripheral” (captive) positions within these networks—Mahutga evaluates three contending hypotheses regarding the implications of GPN participation: cooperation (mutually beneficial outcomes), exploitation (lead firms benefit at the expense of captive ones), or differential gains (captive firms experience absolute gains that are nevertheless smaller than the gains made by lead firms). To adjudicate among these possibilities, he examines returns to commodity chain participants in two well-studied commodity chains—the “producer-driven” auto industry and the “buyer-driven” garment industry—via panel regression models of hourly wage rates in these sectors across a sample of 96 countries.

Mahutga finds that returns to labor—as measured by the wage rates of workers in each commodity chain—do not support the cooperation hypothesis. In both the auto and apparel industry, returns to participants are uneven, as wages in countries containing more lead/core firms exceed those in countries where captive/peripheral firms predominate. This result supports the view that commodity chain dynamics increase polarization within the world-system. However, he also finds that only in the apparel industry do participants in the captive/peripheral position experience *absolute* declines in the form of falling wage rates, and only during the latter period (post-1980) of Mahutga’s analysis. Following Gereffi (1994), he explains the divergent fortunes of apparel workers with the diffusion of the buyer-driven model of network governance, or what he calls the entrenchment of this particular “organizational logic” (p. 17). In other words, it is only once lead firms succeed in externalizing production to subcontractors in lower-cost countries, and then use their buying power to stimulate completion among these globally dispersed suppliers, that the returns to participation approximate a zero-sum logic in which the states containing core/lead firms (and the consumers within these states) gain at the expense of the states containing peripheral/captive firms (and the workers within these states). Mahutga concludes that this variation across industries suggests that commodity chains express multiple, sector-specific logics, and as such, cannot be treated as a single, homogenous stratification mechanism.

Surplus Creation and Value Capture in Commodity Chains

If Mahutga's article focuses on the distribution of returns to commodity chain participation, the contributions by Wilma Dunaway and Donald Clelland explore, in distinct but complementary ways, where this surplus comes from. Dunaway's provocative essay begins by underscoring the dearth of attention given to gender in commodity chain analysis. Initially, this claim may seem surprising; after all, the relationship between patriarchy and capitalism is the subject of a large, interdisciplinary literature that addresses the implications of gender subordination for the exploitation of female labor, and since the 1980s, scholars have recognized the feminization of employment within the export sectors of developing countries as a constitutive feature of the new international division of labor (Elson and Pearson 1981; Fernandez-Kelly 1983; Mies 1986; Wolf 1991). But although much of this research has focused empirically on the contributions that women workers make to what are often deeply gendered commodity chains, the nexus between gender and commodity chains has not been theorized as such.³ Consequently, and with a few important exceptions (Ramamuthy 2001; Werner 2012), feminist scholars have rarely considered what their research might tell us about commodity chains; Gender, likewise, is rarely at the center of commodity chain analysis. This continues to be true today despite the fact that Hopkins and Wallerstein gestured towards the importance of gender and households in their original formulation of commodity chains more than three decades ago, noting that among the labor and production processes linked through these networks is "the reproduction of the labor forces involved in these productive activities" (1977: 127-138).

As an important corrective to the overwhelming emphasis in commodity chain analysis on economic units in the formal economy, Dunaway points out that commodity chains routinely incorporate multiple forms of labor, including non-wage, unfree, and non-compensated work, much of it done by women. Female (but also feminized) labor is critical for commodity chain dynamics because it generates part of the surplus that fuels accumulation, even as it is naturalized as "women's work," and thus rendered invisible (including, Dunaway would suggest, to commodity chains scholars). This essentialist characterization of gendered labor further conditions the distribution of surplus and the unequal returns to commodity chain participants. Dunaway's essay underscores three of the false analytical divides that have marginalized the study of gender within commodity chain analysis: 1) that between production and reproduction; 2) that between household and market; and 3) that between the informal sector and the commodity chain. Overcoming these divides is necessary if we want to understand commodity chains as the "warp and woof of [the capitalist world-economy's] system of social production" (Hopkins and Wallerstein 1994: 17).

In his contribution to this special issue, Donald Clelland also examines the varied sources of commodity chain surplus, though he does so via an intensive analysis of the commodity chain for a particular product: Apple's well-known electronic tablet, the iPad. Apple's dedication to Schumpeterian innovation and its ability to develop sleek and sophisticated products that revolutionize the way consumers use technology is often presumed to explain its vaulted status as the world's most admired company for (as of March 2014) seven years running. Yet through his analysis of the iPad commodity chain, Clelland provides a distinctly different take on Apple's

³ This lacuna in the commodity chain literature is not limited to gender. Marion Werner and I have proposed the concept of disarticulation to grapple with the varied ways in which multiple forms of difference—social as well as spatial—enable and condition commodity chains (Bair and Werner 2011).

success—one that draws insights from the global value chain camp (e.g. Gereffi, Humphrey and Sturgeon 2005) while remaining resolutely committed to an overarching world-systems perspective. Noting that Apple has externalized to independent suppliers virtually all of the “tangible” activities in its chain, as well as some of the “intangible” ones thought to be the source of much value-added for contemporary manufactures (Gereffi et al. 2001), Clelland sets out to determine the distribution of value-capture along the nodes of the iPad production network. In so doing, he starts with publicly available product teardowns for the iPad, which reveal the cost of specific components and the identity of some of the firms supplying them. Clelland shows that Apple is able to capture the lion’s share of the surplus in this chain by constructing degrees of monopoly in various areas, including 1) product development and design; 2) supply chain governance; and 3) marketing and retail. Additionally, he identifies Apple’s monopsonistic power over suppliers as an additional source of the company’s profitability.

But while a conventional value chain analysis might end there, Clelland is only getting started. Transcending what Dunaway describes as the false analytical divides that unduly narrow commodity chain analysis, Clelland examines the relationship between “bright value”—the surplus whose capture and distribution can be quantified (however imperfectly)—and “dark value,” which Clelland defines as “unpaid labor and uncosted externalities that are not transformed into bright value but are embedded in commodities as value beyond price that benefits consumers” (p. 103). Clelland identifies several sources of dark value in the nodes of the iPad commodity chain, including the under- or unpaid labor of wage workers employed in Asia by Apple’s suppliers, unremunerated reproductive labor provided in these employee households, and uncosted externalities in the form of environmental damage caused by the production process. He also estimates dollar values for each of these, arriving at a total dark value of \$1,077. The difference between this revealed value and the retail price of the iPad leads Clelland to conclude that the principal beneficiaries of this surplus drain are consumers, including workers in core countries whose ability to purchase Apple’s products is contingent on the international division of labor embodied in the iPad commodity chain.

Commodity Chains as Political Opportunity Structures

Contemporary commodity chains, like the one analyzed by Clelland, contain numerous layers of contractors and subcontractors, including companies that have their headquarters in one country and their factories in others. This organizational and spatial complexity has a political as well as an economic logic, as Immanuel Wallerstein has pointed out: “The opacity of the distribution of the surplus-value in a long commodity chain is the most effective way to minimize political opposition, because it obscures the reality and the causes of the acute polarization of distribution that is the consequence of the endless accumulation of capital, a polarization that is more acute than in any previous historical system” (2001: 58). But critical scholars and activists of various stripes are, in a sense, reverse-engineering these long commodity chains in order to reveal where and by whom decisions regarding how and under what conditions particular activities, including those that may compromise the well-being of workers, consumers, or the environment, are carried out (Anner 2007; Munro and Schurman 2009).

The final paper in this collection by Elizabeth Sowers, Paul Ciccantell, and David Smith explore commodity chains as political opportunity structures. Combining commodity chain analysis with the new historical materialism (Bunker and Ciccantell 2005), these authors examine what they term “lengthened” commodity chains” in two critically important sectors:

transport and oil/gas. The transport sector can be conceived as its own commodity chain, as well as a critical link in many globally fragmented commodity chains. The rise of inter-modal transportation and containerization permits unprecedented volumes of merchandise to flow (in a mostly westerly direction) across the globe, but this transformation also creates vulnerabilities in the form of chokepoints at which a relatively small number of mobilized workers can disrupt the movement of vast quantities of goods. The second commodity chain Sowers et al. examine is that for oil and gas—another sector that is undergoing profound transformation, as fracking enables the exploitation of new energy sources, and, at least potentially, the internalization of an energy commodity chain within North America.

But while the authors identify opportunities for labor and other civil society actors to leverage these chains, they also observe the challenges and constraints confronting activists. On the labor side, an increasingly variegated workforce within both sectors complicates the possibility of coordinated actions and mobilizations, since it requires that differently-situated workers achieve solidarity across the divide of a segmented labor market. In the oil and gas chain, the prospects for environmental activists in the United States to disrupt the commodity chain, perhaps in a “blue-green” alliance with energy sector workers, is limited by the potential for raw material flows to be redirected towards a different end market. In particular, China’s enormous demand for natural resources does not augur well for the likelihood of preventing or slowing the exploitation of North America’s oil and gas. In this sense, our discussion of the political economy of commodity chains comes full circle: A collection that begins with Amy Quark’s exploration of China as an emergent rival challenging U.S. sectoral hegemony in the cotton chain concludes with Sower et al.’s suggestion that China’s rise may also shape future prospects for commodity chain resistance.

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