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Abstract

In this article we review the evolution and current status of Global Value Chain (GVC) governance theory and take some initial steps toward a broader theory of governance through an exercise in ‘modular theory-building.’ We focus on two GVC governance theories to which we previously contributed: a theory of linking and a theory of conventions. The modular framework we propose is built on three scalar dimensions: (1) a micro level – determinants and dynamics of exchange at individual value chain nodes; (2) a meso level – how and to what extent these linkage characteristics ‘travel’ up- and down-stream in the value chain; and (3) a macro level – looking at ‘overall’ GVC governance. Given space limitations, we focus only on the issue of ‘polarity’ in governance at the macro level, distinguishing between unipolar, bipolar and multipolar governance forms. While we leave a more ambitious analysis of how overall GVC governance is mutually constituted by micro/meso factors and broader institutional, regulatory and societal processes to future work, we provide an initial framework to which this work could be linked. Our ultimate purpose is to spur future efforts that seek to use and refine additional theories, to connect theories together better or in different modular configurations, and to incorporate elements at the macro level that reflect the changing constellation of key actors in GVC governance – the increasing influence of, for example, NGOs, taste and standard makers, and social movements in GVC governance.

1. Introduction

The rise of industrial capabilities in emerging economies has rendered static notions of *permanent* dependency and underdevelopment obsolete. Regions, countries, and individual localities *can* improve (and have improved) their relative position in the global economy. Still, others have been excluded, marginalized or expelled from this process, or have experienced increased inequality and social polarization. A main difference from past development dynamics has been the geographic fragmentation of the value chain and functional integration of various fragments in spatially extensive systems that have been characterized as ‘global value chains’ (GVCs) (Gereffi et al, 2001; Dicken, 2007). GVCs can lower barriers to entry for developing countries by opening up specialized, yet large-scale industry segments as possible drivers of export-oriented economic development and technological learning. GVC governance theory can provide important contributions in understanding the specifics of how and why inclusion and exclusion take place at industry level, and with what outcomes.

In this article we review the evolution and current status of various strands of the GVC governance literature. The modular theory building approach draws out and links compatible elements across otherwise distinct, and often interdisciplinary theoretical realms. Points of contact and compatibility across theoretical ‘modules’ are used to build broader, flexible, multi-scalar theoretical frameworks that can be used for explanation in areas of high complexity, dynamism and variation. The goal is to seek out, accommodate, and link key theoretical insights from various literatures and disciplinary fields, rather than ignoring or dismissing these insights because they are inadequate, partial, or obfuscating. Because we believe in multi-causality, we view endless substitution of one partial theory with another as a self-limiting exercise.

In building a modular theory of GVC governance, we are not seeking a single comprehensive theory or a static menu of existing and relevant theories. Our goal is at once more ambitious and more modest: to refine and link highly compatible existing theories in a framework that is incrementally broader than what has come before. In order to keep the modular theory building process within the limitations of an article-length piece, we focus on two GVC governance theories to which we previously contributed: a theory of linking in GVCs, based on an elaboration of Gereffi et al (2005), and a theory of conventions in GVCs, based on an elaboration of Ponte and Gibbon (2005).

The GVC governance framework we propose has three scalar dimensions: (1) the micro level – seeking to explain determinants and dynamics of bi-lateral exchange as embodied in individual value chain links; (2) the meso level – examining how and to what extent micro-level aspects ‘travel’ up- and down the value chain; and (3) the macro level – focusing on the issue of ‘polarity’ in the ‘overall’ governance of GVCs. We feel this aspect of GVC governance is of particular importance because much of the existing literature implicitly characterizes governance as unipolar, where power-in-the-chain resides mainly in one functional position in the value chain (for exceptions, see Fold, 2002; Islam, 2009). We propose an explicit distinction between unipolar, bipolar and multipolar governance forms.

Given space limitations, we cannot take on a more ambitious analysis of how overall GVC governance is mutually constituted by broader institutional, regulatory and societal processes.

We do, however, acknowledge that this is an important area for future work and hope that the incremental improvements we make here can provide an impetus and initial structure for such efforts. We recognize that the current effort takes a narrow approach to the role of agency by focusing on mostly on inter-firm dynamics, thus controlling for the agency of workers, social movements, NGOs, local communities, gendered/domestic household labor, and states in shaping GVC governance. While previous work has focused on issues of inclusion, exclusion and marginalization (see, for example, Gibbon and Ponte, 2005 and Sturgeon, 2009, p. 118), we are aware that our focus on how actors participate in GVCs gives an ‘inclusivist’ bias to our framework that places alternative outcomes and perspectives to one side (temporarily we hope), such as the disarticulation approach proposed by Bair and Werner (2011).¹ The additive, inclusive impulse behind modular theory building invites future efforts to build out and refine our framework by developing links to additional theoretical elements and realms at the micro, meso and macro levels of analysis.² Ideally, the end result will be a broad and flexible framework of GVC governance that can help guide research and analysis of overlapping and shifting constellations of key GVC actors, reveal the complex roles they play in shaping chain governance, and inspire effective responses to the dynamic forces of economic globalization.

Why is a theory of GVC governance needed? We split this question into two elements: (1) why GVC analysis as opposed (or in addition) to other approaches? and (2) why a *modular* approach to theory building?

Why global value chain governance?

Dicken (1992) argues that it is the *functional integration* of internationally dispersed activities that differentiates the current era of ‘globalization’ from an earlier era of ‘internationalization’, characterized by the simple geographic spread of economic activities across national boundaries. The GVC governance literature has provided important insights into functional integration, not least by describing the various ways that spatially dispersed economic activity can come with tighter coordination (a seeming paradox), both within an expanding set of multinational firms (Zanfei, 2000), and between firms (Borras et al., 2000; Sturgeon and Lester, 2004). The GVC governance literature has highlighted the expanding global sourcing networks serving retailers and branded merchandisers (Gereffi, 1994, among many others; see also Feenstra and Hamilton, 2006) as well as ‘manufacturers’ and agro-food processors that have shed internal capacity as they rely more heavily on an emergent set of global and regional contract manufacturers,

¹ Bair and Werner (2011) offer a ‘disarticulation’ perspective on GVCs that looks at the dynamics of exclusion and expulsion in GVCs (see also other contributions in the same special issue). Building on earlier work by Bair (2009), this perspective calls for a return to the long-range, macro historical roots of GVC analysis, with a focus on historical change, disjunctions, fragmentations and disarticulations. Disarticulation scholars argue that the GVC literature has developed a bias on inclusion dynamics and that attention should be paid to *how* links in the chain are forged, not only in material terms, but also ideologically and in relation to the creation of subjectivities. They examine the set of social relations that secure commodity production and related processes of exclusion (Bair and Werner, 2011) and highlight the social and spatial contours of production through everyday practices and struggles over the creation and appropriation of value (see also Neilson and Pritchard, 2009; Bair, 2011).

² This does not mean that any theory can be simply ‘plugged into’ our framework. GVC perspectives are generally ‘activity-oriented’, thus, for example, an accumulation perspective to understanding the global economy is less likely to fit in our framework of GVC governance.

contract farming schemes, intermediaries, and franchise operators (Sturgeon, 2002; Gibbon and Ponte, 2005; UNCTAD, 2011).

Beyond highlighting these changes, the GVC governance literature has chronicled and sought to explain why and how new opportunities have opened up for firms, localities, and countries to engage in the global economy — as suppliers, processors, value-added resellers, distributors, contractors, intermediaries, and service providers. These roles are venerable, of course, but what GVC scholars have been documented as novel is the ease with which companies can establish and manage long-distance business linkages, a dynamic that is both enabled by, and helps to drive, vertical specialization in the global economy (Sturgeon and Lee, 2005; Kawakami, 2011). GVCs have created new challenges, risks and value distributions, as well as opportunities in both developed and developing countries. Because cross-border activities are being integrated in at an increasingly granular level, pressure has increased for firms and individual workers that may have been insulated from global competition in the past. The result is accelerating change and an increased sense of economic insecurity, even among the ‘winners’ in the global economy.

Policy-makers responsible for responding to the pressures of global integration are eager for more open, inclusive, and flexible conceptual frameworks and theoretical constructs to guide their work, which often includes making difficult trade-offs in the context of extremely complex and rapidly changing situations. The so-called ‘Washington Consensus’ view that countries simply need to get their macroeconomic house in order and be open to international trade and investment to advance in the global economy provides little guidance to policy-makers and non-governmental activists dealing with the concerns of workers, communities, and industries that are in the midst of wrenching change or which remain completely severed from the global economy. The rising power of emerging economies and the recent economic crisis have opened a period of questioning and experimentation for policy-makers. One tendency has been to look back to industrial policy, to revive the selective sectoral approaches that many argued have been behind the success of recently industrialized countries such as South Korea, Singapore, and Taiwan (Amsden, 1989; Wade, 1990). But at the same time, there is growing recognition that the world has changed since the 1980s, that the very meaning of ‘industry’ has morphed from a localized, cluster-based concept to value chain forms that exhibit greater spatial dispersion and more detailed and immediate operational integration. For the places most deeply integrated GVCs, the process of development has become ‘compressed’ to the point where many of the old rules and assumptions of economic development — for example, that the gains from trade and domestic innovation accrue within national industries and labor forces — are being set aside (Whittaker et al., 2011). While there has always been a need to break open the black box of firms and industries, understanding how and by whom GVCs are governed, and what the consequences of various governance patterns are, has become essential.

Why a modular approach to theory building?

Sound macroeconomic policy, sector-specific industrial development policies, technological borrowing, and firm-level responses to the demands of overseas buyers have all been put forward as explanations and prescriptions for rapid upgrading and economic development in East Asia and elsewhere (Amsden, 1989; World Bank, 1993; Wade, 1993; Feenstra and Hamilton, 2006). Proponents of these different views have debated each other to a standstill, or have simply

chosen to talk past each other. The specificities of technology, industry, society, and historical moment all have the potential of being decisive in shaping individual, aggregate and distributive outcomes for places, firms, farms and workers. As a result, the variety that can be observed in the global economy can hamper the process of theory building. Given the complexity of economic systems, any theory aiming to comprehensively explain and predict outcomes for entire industries, countries, regions, or the global economy as a whole should be treated as highly suspect, at best. Because multiple forces of change are always at play, theory, if used in a totalizing manner, can obscure as much as it reveals. But complexity and contingency should not lead to the abandonment of theory. It is better to develop discrete theoretical areas that can help answer specific questions and then search for points of complementarity and contact between them.

Theories with a modest and clearly defined explanatory scope that identify one or a few important mechanisms that can be used to *partially* explain and perhaps even predict outcomes – absent other, more powerful determining factors – can have great utility. What is important is to recognize the limits inherent in partial theories and to actively seek compatibility and linkages with complementary frameworks. Not least, this modular approach to theory building is useful because it directs us to a manageable set of questions that can be tested in the field or applied to specific policy problems. But because of the variety of explanatory factors at work in the global economy, it is important to be cautious, and actively consider alternative explanations and approaches. In this article we approach two specific theories in this pragmatic way.

In the next section, we provide a brief review of the existing debate on GVC governance and then focus on two specific theoretical areas: linkages and conventions. In section three, we build a modular framework at three scalar levels: micro, meso and macro. At the macro level, we focus on ‘polarity’ of governance as an analytical lens, but also provide a broader framework within which other theories and factors shaping ‘whole chain’ governance might be added. In the last section, we reflect upon what our framework can be used for and provide indications for further research.

2. The Governance of Global Value Chains

GVC scholars approach the question of governance in the global economy differently from most other literatures. For mainstream international political economy and law, global economic governance is embedded in institutions (WTO, IMF, World Bank, G20). This literature mainly asks how effective these institutions are in comparison to regional and national governance systems (e.g., Kirton et al., 2010). Radical political economy looks at the relation between global capital (mainly multi-national corporations) and these same institutions and other actors such as the World Economic Forum, which are understood to represent the interests of corporations as well as of some governments (Cammack, 2003; Held, 2010). Both political economy perspectives are internally divided on how effective global economic governance is, in whose interest and by what means governance is exercised, and with what implications for whom.

The GVC governance literature underscores the role played by particularly powerful companies, especially those that exert ‘buyer power’ by placing large orders in their value chains, but instead of focusing on how they influence governments or international organizations to obtain favorable

rules, ‘lead firms’ are mainly of interest as core actors in cross-border business networks. These networks are both internal to the (multinational) firm, and linked to independent suppliers and customers in increasingly elaborate and spatially extensive systems of sourcing, production, distribution, and consumption. The 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, automatically, or even systematically (Gibbon et al., 2008). 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.

In the rest of this section, we unpack three approaches to GVC governance by adopting and adapting some of the categories illustrated in Gibbon et al (2008):³ ‘governance as driving’, ‘governance as linking’ and ‘governance as normalizing.’

2.1. Governance as driving

The early approach to governance developed by Gereffi (1994) framed governance of what he then called Global Commodity Chains (GCCs) as the process of organizing activities along a value adding chain. The end result is an observable functional division of labour with a specific geography. Because some activities have higher entry barriers and are more profitable than others, this division of labour influences the allocation of resources and distribution of gains among chain actors (firms and workers). As for who does the organizing, a group of ‘lead firms’ play a critical role by defining the terms of supply chain membership, incorporating or excluding other actors, and allocating where, when, and by whom value is added (Gereffi 1994; Gibbon and Ponte 2005; Kaplinsky 2005).

In Gereffi’s GCC framework there are two types of lead firms: buyers and producers. The producer-driven variant is akin to the internal and external networks emanating from large multinational manufacturing firms, such as General Motors and IBM. Multinational firms have long been a focus of research and debate among scholars of the global economy (e.g., Hymer, 1976; Caves, 1982; Zanfei, 2000; Doz et al, 2001). This work examined and debated the methods, timing, and motivations of multinational firms’ engagement with the global economy, with some scholars focusing on the degree that they acted as conduits for the transfer of capabilities from developed to developing countries (Lall, 2000). The novel aspect of the GCC framework was the attention it paid to a set of firms that had been largely ignored in previous research: ‘global buyers.’ Global buyers include large retailers, such as JC Penny, Sears, and later, Wal-Mart, Tesco and Carrefour, as well as highly successful branded merchandisers and agro-food processors, such as Nike, Liz Claiborne, Nestle and Kraft. The research of Gereffi and others (Gereffi et al., 1994), initially focused on the apparel industry, found that global buyers often do more than place orders; they actively help to create, shape, and coordinate their supply chains, sometimes directly from headquarters or ‘overseas buying offices’ and sometimes through intermediaries, which include a wide range of actors, most notably international trading

³ The original classification in Gibbon et al (2008) mentioned governance as ‘driving’, as ‘coordination’ and as ‘normalization’. Here, we adopt the term ‘linking’ instead of coordination to avoid confusion in Figure 2, where we will use both linkages and conventions to explain the nature of coordination at individual nodes of the value chain. We also use the term ‘normalizing’ instead of ‘normalization’ to use the same grammatical form for all three.

companies such as Hong Kong's Li & Fung. While global buyers typically own few, if any, of their own factories and processing plants, the volume of their purchases affords them great power over suppliers. Global buyers sometimes specify in great detail what, how, when, where, and by whom the goods they sell are produced. But even when explicit coordination is not present, extreme market power has allowed global buyers to extract price concessions from their main suppliers. Suppliers have responded by locating more of their operations in low-cost locations and working hard to extract price reductions from their own workers and upstream suppliers.⁴

Why are commodity chains buyer- or producer-driven? Gereffi did not explore this question in detail, but instead let the empirical evidence speak for itself: capital and technology intensive industries such as electronics and autos tend to be governed by producers (multinational manufacturers), while labor intensive industries such as apparel and consumer goods tend to be governed by buyers (retailers and branded merchandisers). But how are capital and technological intensity related to an industry's governance characteristics? Because innovation in buyer-driven GCCs lies more in product design and marketing than in manufacturing know-how, it is relatively easy for lead firms to outsource the manufacturing of labour-intensive products. In the more technology- and capital-intensive items made in producer-driven chains, technology and production expertise are core competencies that need to be developed and deployed in-house, or in closely affiliated 'captive' suppliers that can be blocked from sharing them with competitors.

The buyer- and producer-driven GCC typology was thus based on a historical depiction of technology and barriers to entry that was appropriate for a specific set of industries in a specific time period, mainly the 1970s and 1980s. While the buyer- and producer-driven lead firm categories are still useful, technological change, firm- and industry-level learning, and the emergence of new norms and standards are ongoing processes. The chain governance shifts of the 1990s highlighted the need for a more nuanced and dynamic theory to help explain the changes in the organization of global industries over time. This led Gereffi et al (2005) and a group of close collaborators to develop a dynamic model that could help to explain shifts between buyer-driven and producer-driven governance forms and highlight new ways that firms were linking activities in value adding chains.⁵

⁴ Feenstra and Hamilton (2006) describe in detail the ways in which retailers gained power relative to manufacturers, beginning in the United States in the 1960s, a trend that continues to the present day. This 'retail revolution' has been a major factor in de-industrialization within the United States, as retailers increased overseas sourcing of apparel, electronics and consumer goods, in turn forcing manufacturers to move their own facilities offshore and increase sourcing in low cost locations in East Asia. At the same time, it spurred 'late' industrialization and industrial upgrading, first in Japan, and later in Korea and Taiwan (Amsden, 1989; Wade, 1990; Evans, 1995).

⁵ Global Production Network (GPN) scholars (Dicken et al, 2001; Henderson et al, 2002; Hess and Yeung, 2006; Coe et al, 2008; Yeung, 2009) have been similarly motivated to respond to the perceived limitations of the GCC approach: that it was too structuralist and long-range historical in nature, 'linearist' (using the value added chain for specific commodities as the unit of analysis), and focused on a narrow binomial approach to governance (buyer-driven vs. producer-driven) (Gereffi, 1994; Gereffi, 1999). Much has been made in the literature of the differences between the GVC and GPN approaches. The GPN perspective, rooted in the field of economic geography, is less concerned with the hierarchy of power in specific cross-border industries and more concerned with how business networks are embedded in, and intertwine with, institutions and the social and cultural contexts extant in specific locations. Because of this, the GPN literature tends to highlight complexity, messiness and variety in production networks (Dicken et al, 2001; Henderson et al, 2002; Hess and Yeung, 2006). However, many similarities are also apparent. Both sets of literature approach the 'global' in 'bottom-up' fashion, through generalization from field

At the same time, many researchers in the field were motivated to replace the term ‘commodity’ with ‘value’ because of popular connotations of the word ‘commodity’ with undifferentiated products, especially primary products such as crude oil and bulk agricultural goods (*not* the stuff of ‘driven’ chains), and because the term ‘value’ captured the concept of ‘value added,’ which fit well with the chain metaphor, and also focused attention on the main source of economic development – the application of human effort, often amplified by machinery, to generate returns on invested capital. Hence, the theory-building focus partially shifted from chain ‘drivers’ to the characteristics of inter-firm linkages as the term ‘global value chain’ began to replace ‘global commodity chain’ in published work.

2.2. Governance as linking

In moving beyond the historically-based typology of chain governance developed in the GCC stream, Gereffi et al (2005) constructed an operational theory that could, absent other factors, account for observed changes and anticipate future developments in how inter-firm linkages are governed in GVCs. The first step was review research on a range of global industries to identify: (1) what activities tend to be bundled in one node of the chain or split among various nodes; (2) how knowledge, information and materials are passed from one node to the next; and (3) where like nodes tend to be located.

From this comparison, Gereffi et al identified five generic ways that firms set up and govern linkages in value chains: (1) simple *market* linkages, governed by price; (2) *modular* linkages, where complex information regarding the transaction is codified and often digitized before being passed to highly competent suppliers, governed by standards; (3) *relational* linkages, where tacit information is exchanged between buyers and suppliers with unique or at least difficult-to-replicate capabilities, governed by trust and reputation; (4) *captive* linkages, where less competent suppliers are provided with detailed instructions by very dominant buyers, governed by buyer power; and (5) linkages within the same firm, governed by management *hierarchy*. Gereffi et al (2005) posited that these five linkage types would be associated with predictable combinations of three variables: the *complexity* of information exchanged between value chain tasks; the *codifiability* of that information; and the *capabilities* resident in the supply base relative to the requirements of the transaction (see Figure 1).

research on product-and even firm-specific experiences. They provide macro representations extrapolated from case studies highlighting the ideal-typical dynamics of inter-firm exchange in specific industries, rather than by examining anonymous trade and investment flows at the level of nation-states. The GVC and GPN literatures have a similar interest in mapping the spatial and organizational division of labor and understanding the qualitative aspects of how value is created, allocated and captured in specific industries and locations. They share a normative interest in the upgrading trajectories of less developed places and how value creation processes and learning dynamics can benefit or exclude disadvantaged regions and actors. Finally, the more recent GVC literature has in a way been more GPN-like by paying increased attention to institutional, regulatory and standard-making processes (Neilson and Pritchard 2009; Cattaneo et al. 2010; Ponte et al. 2011). It has strived to include in its analysis some of the insights of cultural political economy, has reflected upon differences in business culture or normative expectations of how a ‘good business’ is organized (Gibbon and Ponte, 2005; Ponte, 2009; Bair and Werner, 2011), and has been fine-tuning the territorial and contested dimensions of restructuring in global value chains (Neilson and Pritchard, 2009; Mahutga, 2012).

Figure 1. Global Value Chain Linkage Mechanisms and Stylized Network Characteristics

Key Variable: Linkage type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	
Market	Low	High	High	
Modular	High	High	High	
Relational	High	Low	High	
Captive	High	High	Low	
Hierarchy	High	Low	Low	
Characteristics: Linkage type	Stylized network form Lead firm(s)—Supplier(s)	Tolerance of distance	Requirement for explicit coordination	Tendency toward power asymmetry
Market		High (Global) 	Low 	Low
Modular				
Relational				
Captive				
Hierarchy				
		Low (Co-located or internalized)	High	High

Notes: 1) There are eight possible combinations of the three variables. Five of them generate global value chain types. The combination of low complexity of transactions and low ability to codify is unlikely to occur. This excludes two combinations. If the complexity of the transaction is low and the ability to codify is high, then low supplier capability would lead to exclusion from the value chain. While this is an important outcome, it does not generate a linkage, and therefore no governance type is assigned.
 2) PL = Platform Leader. In some products and industries (e.g., personal computers and bicycles) key component or sub-system suppliers (e.g., Intel and Shimano) set *de facto* standards that frame and partially constrain the actions of lead firms.
 3) The shaded box denotes corporate ownership and control.

Source: Elaborated from Gereffi et al (2005) as adapted by Dicken (2007: 158).

As the top half of Figure 1 shows, this framework yielded three network forms (based on linkage characteristics) situated between market and hierarchy poles established in the transaction costs literature (Coase, 1937; Williamson, 1985). The first, and most ‘hierarchy like’ of the network forms was for lead firms to dominate their supplier’s business to the point where they were unlikely to act in opportunistic ways (the captive form). The second was for buyers and suppliers to maintain relationships in the face of asset specificity, either by building up mutual trust, or by simply tolerating it out of necessity because of the barriers to easy internalization created by learning or scale (the relational form). The third was for buyers and suppliers to reduce asset specificity by passing very complex information in codified form, according to standard protocols, while keeping tacit knowledge contained within each firm or node of the value chain (the modular form). The bottom half of Figure 1 further elaborates the 2005 framework by showing the stylized network forms related to each linkage type, the possible role of very powerful component suppliers, or ‘platform leaders’ (PL), in the modular type, and the encapsulating function of hierarchy, with the shaded area in the figure denoting the ownership boundary. As mentioned earlier, the GVC governance framework added a focus on the character of dyadic transactions characterized by linkages to the GCC framework’s focus on role that powerful lead firms play in shaping the character of geographically extensive business networks.⁶

The role of power, a key concept in organization theory, was not ignored, but nuanced and linked into an operational theory of GVC governance based on linkage characteristics. The theory posits a range of lead firm-supplier power asymmetry from high (lead firm dominance), in the case of hierarchy and captive network forms, to low in the context of arms-length spot markets, as shown in Figure 1. Along with this comes a tendency, and need, for lead firms to explicitly coordinate the GVC, for example by setting precise requirements for quality and delivery, production processes, and component and material sources. Running counter to these tendencies is different levels of tolerance of geographic distance: from low in the relational form, where the exchange of tacit knowledge favors co-location, to high in the market form, where simple transactions and transparent, price-based information exchange diminish the need for proximity. In the captive form and within corporate hierarchies, stark power differences can sometimes ensure compliance, even at great distance. Hence, internalization or near-internalization can stand in for co-location.

To sum up, ‘governance’ in Gereffi’s (1994) GCC formulation refers to the role played by powerful firm-level actors, or chain ‘drivers’ (buyers or producers), while Gereffi et al (2005) focus on the determinants of ‘make-versus-buy’ decisions in transactions and the characteristics of linkages between firms. While these perspectives differ, they share, among other things, a firm-level frame of reference. The Gereffi et al (2005) framework is therefore not a grand theory of globalization or economic development, but a more circumscribed theory of linkages. While the character of linkages present in key nodes of a value chain may have great influence on how

⁶ It also drew in key concepts from a range of ‘outside’ literatures: the asset specificity problem and the markets versus hierarchy frame from institutional economics, the social embeddedness of economic life from industrial sociology, the relationship between tacit knowledge sharing and spatial agglomeration from economic geography, the enabling role of technology and standards from technology management, and the pragmatic approach to firm-level learning from management and evolutionary economics. As such, the GVC governance framework can be seen as an exercise in modular theory building.

a value chain in its entirety is governed, it is clear that most value chains (and industries) contain a range of linkage types. Network forms are rarely if ever pervasive. Firms may form different types of linkages with different business partners. Linkages typically differ between different segments of the value chain. Hence, it is risky to characterize the macro-level governance of a GVC, much less entire industries, from research on inter-firm linkages alone. Certain types of linkages do seem to be more common in certain industries and between certain business functions and the link between lead firms and their most important suppliers can go a long way in characterizing a GVC, but other factors can easily overwhelm the influence of the three variables identified by Gereffi et al (2005), for example institutional effects (see Sturgeon, 2007). This suggests a need to parse the concept of governance into several levels, from micro to macro, something that we will return to in section 3.

2.3. Governance as normalizing

The approach to ‘governance as normalizing’ moves a step away from Gereffi et al’s parsimonious approach to explore the discursive dimension that frames buyer-supplier relations. The term ‘normalizing’ does not mean ‘making things normal’ but re-aligning a given practice to be compatible with a standard or norm (Gibbon et al., 2008). While the focus on standards resonates with the governance as linking approach just discussed (especially the modular form), much of the work on GVC governance as normalizing has drawn on convention theory (Ponte, 2002, 2009; Ponte and Gibbon, 2005; Ouma, 2010).⁷ Convention theory builds upon the seminal work of Boltanski and Thévenot (1991), who argue that establishing equivalence between different people, firms or objects is often based on a form of judgement drawn from some ‘higher principle.’ They identify six ideal-type ‘orders of worth,’ drawn from philosophical texts, and illustrate how they are used to frame the justification of human interaction and economic practice, including the organization of firms (see also Boltanski and Chiapello, 1999). To illustrate how these orders of worth are used as justificatory devices in practice, they examine a set of action-oriented manuals for business managers, showing that multiple and competing orders of worth may co-exist within organizations. Even when one is dominant at one particular time, it may be challenged thus leading to clarification, adaptation, compromise and/or demise over time.

Convention theory has been used not only to explain internal firm organization (see review in Jagd, 2011), but also how coordination takes place among firms via the establishment of product quality conventions (Eymard-Duvernay, 1989; 2006a and b; Wilkinson, 1997; Thévenot, 1995; Ponte and Gibbon, 2005; Ponte, 2009). Table 1 provides an elaboration of how each of these six orders of worth⁸ and related organizational principles can lead to different foci of justification once they are challenged; how these challenges are based on different sets of testing questions and measures of product quality; and, most importantly, how they have different transmission

⁷ Other work on governance as normalization has been carried out through the lenses governmentality (Gibbon and Ponte, 2008).

⁸ This list is not meant to be exhaustive. Other contributions have examined a ‘connectivist’ convention (Boltanski and Chiapello, 1999) and a ‘green’ convention Latour (1998). However, much of the literature engaging with conventions actually uses only three typologies (market, industrial and domestic), sometimes four (including civic). Ponte (2009), however, has found it helpful to engage with all six conventions that parallel the six orders of worth in Boltanski and Thévenot (1991).

potential along value chains, a feature that we will draw on to construct a modular connection with the governance as linking approach in section 3.

Table 1: Key features of orders of worth and quality conventions

	<i>Orders of Worth and Quality Conventions</i>					
	Market	Industrial	Domestic	Civic	Inspirational	Opinion
Organizational principle	Competitiveness	Productivity	Loyalty	Representation	Creativity	Reputation
Focus of justification	Product units	Plans, systems, controls, forecasts	Specific assets	Negotiation, consultation, distributional arrangements	Innovation, creation	Public relations, media coverage, brand reputation
Key testing questions	Is it economic?	Is it technically efficient, scaleable, functional?	Does it follow tradition? Can it be trusted?	What is the impact on society? Is it safe, healthy, environmentally sound?	Is it new? Is it a breakthrough?	Is it accepted by the public?
Measure of product quality	Price	Objective technical measurement	Trust, repetition, history	Social, labour, environmental, collective impact	Spirit, personality, osmotic processes	Opinion poll, social media coverage, subjective judgement by expert
Ease of transmission along value chains	High	High	Low	Medium	Low	Medium

Source: Authors' elaboration the six orders of worth (as in Boltanski and Thévenot 1991) in relation to five main elements: entries in organizational principle, measure of product quality and ease of transmission are adapted from Ponte (2009); entries in focus of justification and key testing questions are adapted from Gibbon and Riisgaard (2012).

Price is the main measure of quality only if there is no uncertainty about the quality of the product or service that is being exchanged (Eymard-Duvernay, 1989). If this is the case, differences in price are equal to differences in quality. Such *market* quality conventions are easily transmitted along a value chain because, once established, exchange does not require co-location or multiple interactions to be maintained (see Table 1). This convention underpins what Gereffi et al characterize as a 'market linkage'. When price alone cannot evaluate product quality, and quality is difficult to measure, buyers and sellers adopt more detailed and specific conventions to solve uncertainty. Under an *industrial* quality convention, quality is verified via instrument-based testing and inspection, and sometimes assured by external parties via certification against a set of *a priori* norms or standards. When these standards are universally accepted, or once an objective measure has been agreed between the parties of exchange, industrial conventions can operate in ways that are quite similar to market conventions. Industrial quality conventions are easily adopted, and thus transmittable along the value chain, as long as there is common agreement on the objectivity of indicators and measurement devices. Industrial conventions often underpin modular GVC linkages. In relational linkages, also referred to as 'incomplete contracts' in contract law, outcomes and requirements cannot be specified in advance. Nevertheless, agreement over outcomes can often be measured according to industrial conventions, so they can play an *ex-post* role in governing relational GVC linkages. Under a *domestic* quality convention quality is determined through trust, repetition and history. This makes them difficult to transmit along the value chain, although systemic approaches to solve place-based quality uncertainty (such as appellations or indications of geographic origin) can

partially ease this barrier. Domestic quality conventions often characterize relational and captive GVC linkages.

While these three quality conventions (market, industrial, domestic) are clearly associated with specific types of inter-firm GVC linkages developed by Gereffi et al (market, modular/relational, relational/captive), the other three quality conventions (civic, inspirational and opinion) cannot be linked unequivocally to a specific form of GVC linkage. Under a *civic* quality convention, collective commitment to welfare is explicit, and the quality of a product is judged by its impact upon society, specific groups or the environment. When the measurement of impact is embedded in widely agreed-upon third-party certification systems, civic conventions are similar to industrial conventions, but in cases when the definition of welfare and its operationalization are contested, equivocal and/or locally-embedded, conventions can be less than clear, shifting, or geographically variegated (see Ponte and Gibbon, 2005; Ponte 2009 for empirical examples). Because civic conventions are part of an embedded political dynamics, we characterized the ease of transmission of civic conventions along value chains as ‘medium’ in Table 1.

Under an *inspirational* quality convention, quality is judged on the newness of products or the personality of one of the actors in the exchange, i.e. the perception of his or her genius, intuition, creativity or vision. Alternatively, one of the parties in the exchange can invite the other to absorb a particular ‘spirit’ of doing things or the ‘feeling’ that is created, for example, in retail spaces (see Gibbon and Ponte, 2005). While the technological and artistic developments underpinning inspirational conventions can easily transcend specific locations, they cannot be easily separated from the individuals that inspire them. Because of this need to establish personal connections (not necessarily repetitive, though), and to understand the specificities and experiences that inhabit a particular space, these conventions tend to be difficult to transmit along the value chain over the short term. However, when personality becomes (or is embedded in) celebrity or products are consumed widely enough to influence cultural norms, inspirational conventions can take the traits of opinion conventions and thus travel more easily.

Finally, in an *opinion* quality convention, uncertainty about quality is resolved through two main mechanisms: the subjective judgment (rather than objective measurement) of an expert that is external to the exchange (e.g. Robert Parker’s score for a specific wine); and/or the reception by the ‘public’ through measuring media coverage, social media response (e.g. how many Facebook ‘likes’ a product attracts) and opinion polls. While these conventions tend to be more easily portable along a value chain than domestic or inspirational conventions because they underpin perceptions (i.e., public image), they are typically more contested and localized than market or industrial conventions. French retailers, for example, are less likely to base their wine quality assessment on Robert Parker’s scores than US or UK retailers; hence, the ‘medium’ classification on ease of transmission in Table 1.

While quality conventions typically overlap, one or a specific combination (for example, market and industrial, or domestic and opinion) often form a dominant underpinning for linkages in a value chain node at a particular time. However, conventions and their combinations also evolve, are subjected to testing, and are adjusted or give way to different conventions or combinations over time. Convention theory allows researchers to ask questions about the normative nature of coordination that go beyond the three GVC linkage variables of complexity, codifiability, and

supplier competence. At the same time, examination of the conventions underpinning GVC linkages can contribute to a deeper understanding of how commonly agreed notions of ‘quality’ in a transaction actually take shape – and thus how transactions can become more or less ‘codified’ as products, business practices, and technologies change (an issue addressed by Gereffi et al., 2005). Repeating the exercise of examining GVC linkages across several nodes of a value chain (see an empirical application in Ponte, 2009) can highlight whether dominant conventions ‘travel’ along a chain, what makes them travel, and what actors have the normative power to impose one convention over another beyond a single value chain node. This provides the meso-level bridge between micro-level explanations of linkages and the macro-level governance of value chains.

3. A Modular Approach to GVC Governance Theory

In this section, we use a modular theory building approach to develop a GVC governance framework with three scalar levels: (1) the micro-level — how linkages and conventions are forged at individual nodes of the value chain; (2) the meso-level — how readily linking mechanisms and conventions regulating exchange at one node ‘travel’ up- and down-stream the value chain to other nodes; and (3) the macro-level — how governance is shaped at the level of ‘whole chain.’ Again, we are not proposing a grand theory, only further elaborating and linking previous theoretical work to create a broader frame of reference with the hope of encouraging further theoretical work along these lines.

3.1. Micro-level

Figure 2 illustrates how different GVC linkage mechanisms and conventions can help to explain the characteristics of exchange at individual nodes of the chain (micro-level). We begin modestly with just two modules. Module 1 lists the five GVC linkage mechanisms developed in Gereffi et al (2005) (see Figure 1). Module 2 lists the typology of conventions (see Table 1). These modules can be applied, sequentially or in combination, to an overall framework (middle box in Figure 2) that represents a simplified succession of stylized value chain nodes (represented by circles) where exchange takes place – either internally in a firm or externally between independent firms.⁹

Figure 2 shows how these two modules can be applied to different value chain nodes. In Step 1, they are applied to the node between lead firm and their first-tier supplier. But the same exercise can be carried out successively to other value chain nodes – for example, in Step 2, between first-tier and second-tier suppliers; and in Step 3, between lead firms and retailers, or between retailers and consumers.¹⁰ This means that: linkage mechanisms and types of conventions can differ at different nodes of the chain and need not apply to the whole chain; and that different kinds of conventions can overlap, creating layers at any given point in the chain. As explained earlier, there can be parallels between the linkage categories on the left and the upper three

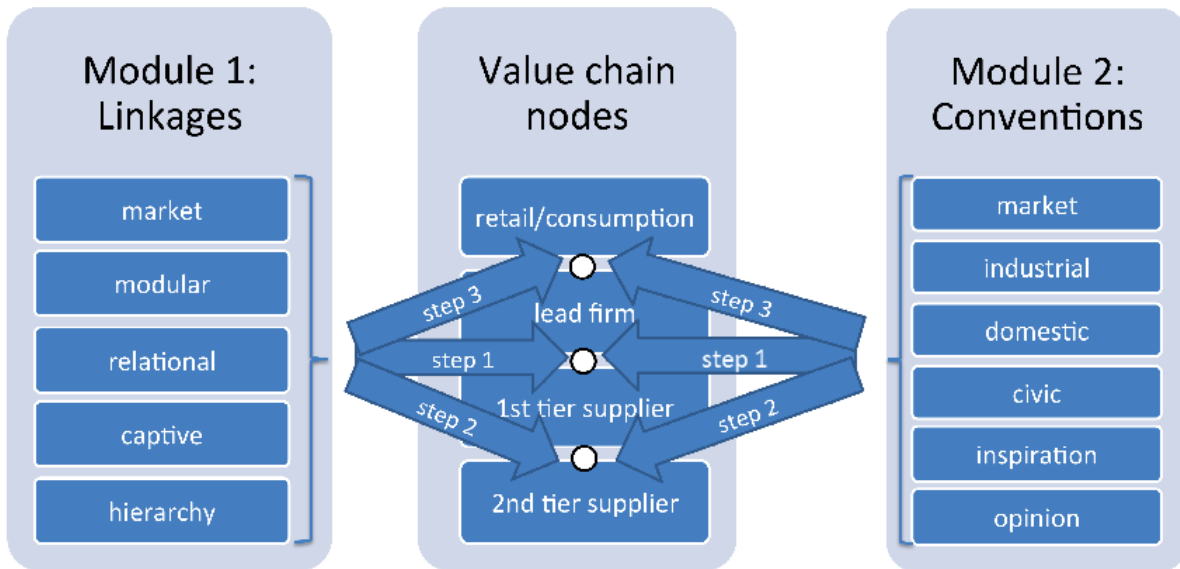
⁹ These nodes are only meant to illustrate the analytic process; they are not meant to be exhaustive.

¹⁰ Of course, the analysis does not need to start with the linkages between lead firms and first tier suppliers. While these do tend to be important, the analysis can start at any node. The key element of GVC methods, however, is that research and analysis is not confined to a single node. Depending on the nature of the GVC, there may be more or fewer nodes than illustrated in Figure 2.

convention categories on the right in Figure 2. First, market linkages are fully enabled by market conventions in simple transactions where the association of product characteristics (including but not limited to quality) with price is straightforward. Second, modular linkages are typically enabled by industrial conventions and the *de facto* and *de jure* standards that underlie them. Third, spatially-embedded domestic conventions often demand relational linkages, and the long-term, trust-based inter-firm relationships that underpin them.

These associations are loose, however, and not deterministic, since different kinds of conventions can co-exist in each of the nodes. It should also be noted that lead firms can and do forge different linkages and apply different conventions with different suppliers seeking exchange at the same value chain node. They may also apply different quality conventions simultaneously with the same supplier when negotiating product portfolios or long term contracts. Our purpose at this micro level of analysis is to help researchers identify the most important linkage mechanisms and conventions operating at individual nodes of the value chain and examine what kind of relationships they have with each other.

Figure 2. Micro-level analysis of governance with two modules (linkages and conventions)

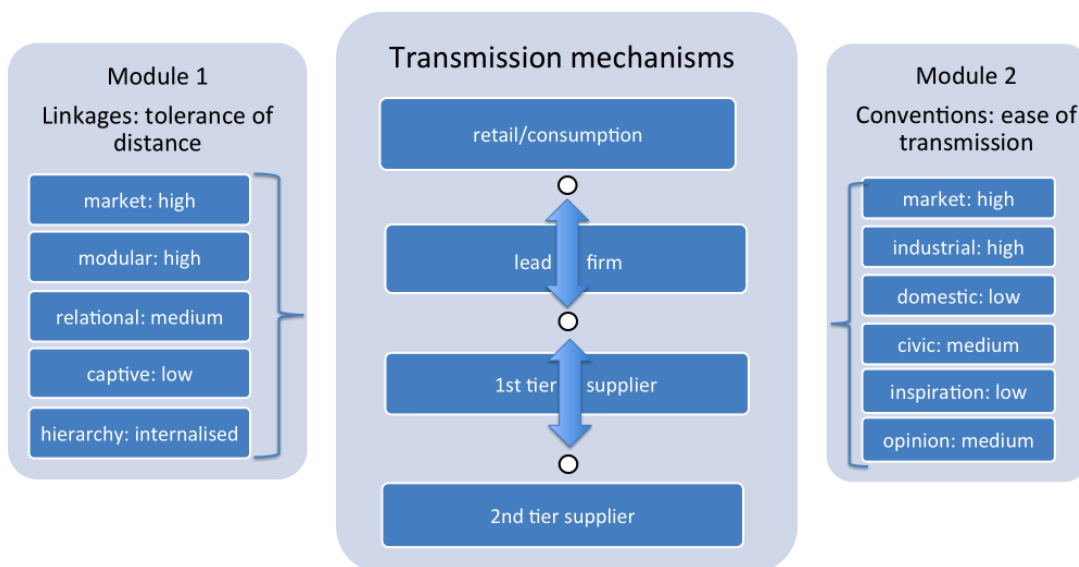


For the sake of clarity, we restricted ourselves to two modules in our current construction, but other modules could well be used together with, or instead of, these two. For example, an additional or alternative module could focus on the influence of regulation in shaping exchange dynamics at individual value chain nodes. Another one could examine embedded institutional factors and/or the nature of national and regional business systems. It is not our aim here to provide an exhaustive list or elaboration of possible modules, only to provide a framework for future theory building efforts related to governance of GVCs.

3.2. Meso-level

Not all nodes in a value chain have the same analytical importance. Again, micro-level explanation of the linkage mechanisms and conventions applied between ‘lead firms’ and ‘first-tier suppliers’ can go a long way in explaining the nature of overall governance of the chain. However, there is no automatic correlation between the type of linkage or convention observed at one node in the chain and overall chain governance. For this reason, meso-level transmission mechanisms need to be examined before tracing a macro-picture of overall value chain governance. To do this, researchers can explore how linkage mechanisms and/or conventions operating at one node of the chain ‘travel’ to other nodes along the chain, represented by the vertical arrows between nodes in the central part of Figure 3. While at the micro-level, analytical attention is on the linkages and conventions that operate at individual nodes, at the meso-level the focus is on comparison between nodes, with the goal of establishing what factors operate exclusively at the level of individual nodes, and what factors are transmitted between nodes in the chain.

Figure 3. Meso-level analysis of governance with two modules



The analytical categories used in the two modules in Figure 3 to explain transmission mechanisms arise from our previous analysis, included in Figure 1 (for the linkage mechanisms) and Table 1 (for conventions). Again, there are clear instances of relation between categories in the two modules. For example, the linkage mechanisms that tolerate distance (market and modular) are often tied to market and industrial quality conventions, while relational linkages based on exchange of proprietary, non-standard, tacit, uncodified information and knowledge are often tied to less portable quality conventions such as domestic or inspirational conventions. But these parallels need to be assessed empirically and cannot be assumed *ex-ante*.

In this particular framework, we select factors that shape transmission mechanisms from the two theoretical modules we have employed, but other transmission factors linked to regulation, or to local, national and regional institutional features, could have an imprint as well. What is

important to underline here is that the nature of exchange at one value chain node is not enough to explain overall chain governance, but can provide some important clues. Looking at transmission mechanisms is a way of linking the two dimensions (micro and macro) explicitly.

3.3. Macro-level

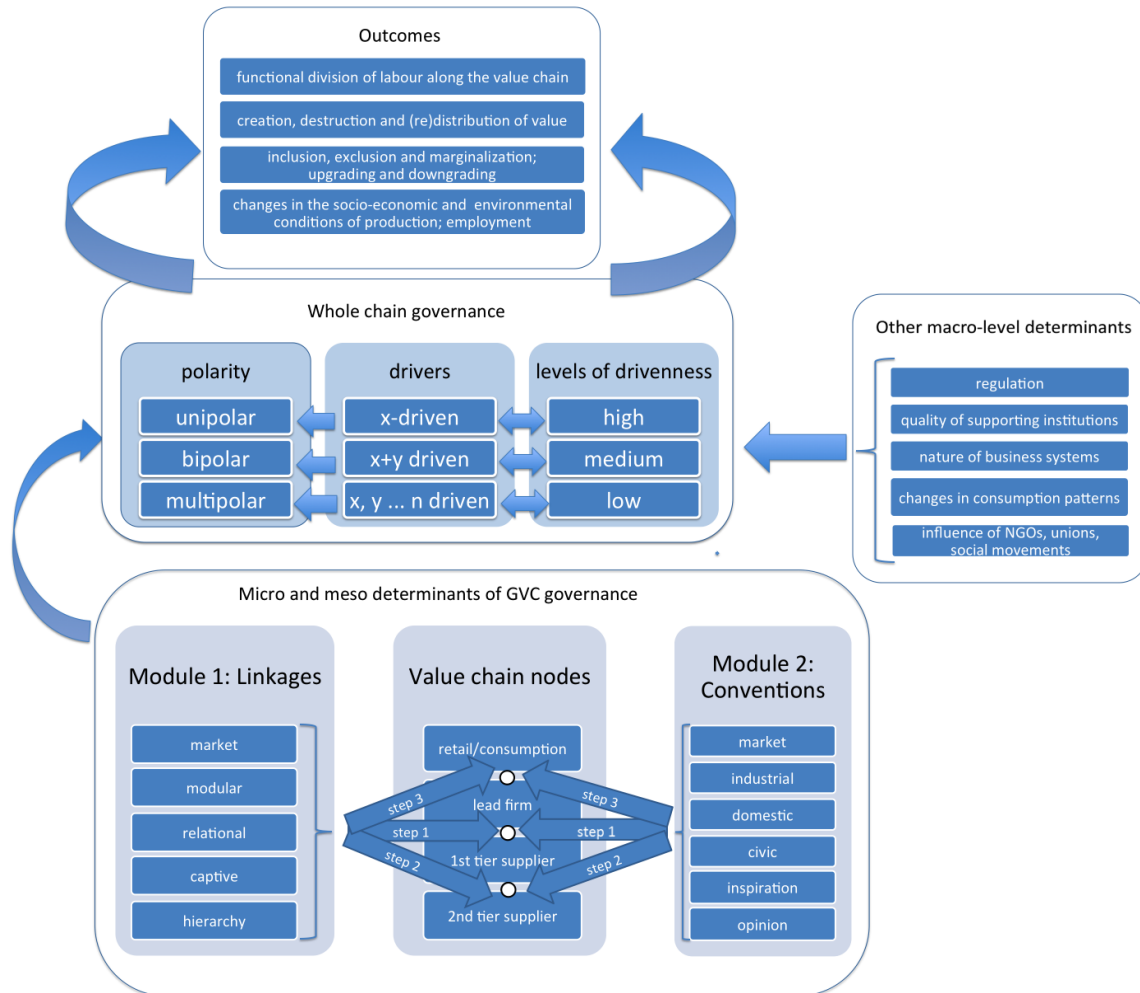
Our next step is to embed the micro- and meso-foundations illustrated so far into a macro-level framework of governance applicable to the whole chain – represented in stylized form in Figure 4. Here, the analysis of individual linkages and conventions at key nodes, and their inter-relationship, and the transmission mechanisms that allow them to travel up- and down-stream (illustrated in simplified form in the micro- and meso- box on the bottom of Figure 4) are brought together with other relevant macro-factors (see box on the right). The main purpose is to help build a ‘whole-chain’ framework for GVC governance to help explain observed outcomes in terms of: the functional division of labour; the creation, destruction, allocation and distribution of value; the processes of inclusion, exclusion and marginalization; upgrading and downgrading trajectories; and the effects of socio-economic and environmental conditions on production and on employment (see top box). Our approach clearly harks back to the original GCC approach of ‘governance as driving.’ However, we argue that a strong bottom up (micro- and meso-level) approach is a prerequisite for making sense of macro-level determinants. This combined approach is meant address one of the problems arising in the broad literature on economic governance, where the identification and characterization of governance is often over-simplified and has weak empirical bearing.

We will not discuss all of the macro-level factors governing GVCs in this article. We approach macro-level governance through the very specific and intentionally narrow analytical lenses of ‘polarity,’ in part because we feel that the source of power in GVCs is critically important, and in part because polarity is an area of GVC theory ripe for further development. Much of the existing GVC literature has focused on ‘unipolar’ value chains — be they buyer-driven, producer-driven (Gereffi, 1994), or international trader-driven (Gibbon, 2001) — where ‘lead firms’ play a dominant role in shaping the chain. Some scholars have explored the dynamics of governance in GVCs characterized as ‘bipolar’ or ‘twin-driven’, where two sets of actors in different functional positions both drive the chain, albeit in different ways (Fold 2002; Islam 2009). Research on the notebook PC and mobile phone handset industries by Kawakami (2011) and Imai and Shiu (2011) show the important roles ‘platform leaders’ can play. We expand this direction further to suggest examining governance across a unipolar to multipolar continuum.

‘Multipolar’ chains are different from ‘markets’ as they are strongly shaped by the explicit strategic actions of powerful actors (both inside and outside the chain), even if they exhibit multiple foci of power and various kinds of linkages. This has implications for how the micro- and meso- elements of GVC governance are embedded into the macro-level. In unipolar chains, for example, overall governance is more easily explained on the basis of the dominant linkage mechanisms and conventions that operate in the key node between lead firms and first-tier suppliers. In chains that are bipolar or multipolar, chain dynamics are more complex and the nature of linkage mechanisms and conventions in other nodes (and their transmission dynamics) have to be examined and compared (preferably over time) to develop a clear picture of overall chain governance. For example, Kawakami (2011) shows how the strategies of Intel, a powerful platform leader in the personal computer industry has shaped both linkage mechanisms at key

nodes in the chain, but also the distribution of power between lead firms (e.g., Dell) and first tier suppliers (e.g., the Taiwan-based contract design and manufacturing firm Quanta). Ponte (2013) shows how governance in the biofuel value chain went from unipolar (and government-driven) to multipolar in the second half of the 2000s – with the increased influence of some groups of actors (large agro-chemical and biotech firms, global agro-food traders and oil majors and fuel distributors) and of standard makers and environmental and social NGOs. As indicated in Figure 4 (middle box), we expect the level of drivenness to be higher for unipolar chains, where power is concentrated, than for multi-polar chains, where power is more dispersed.

Figure 4. Macro-level framework for the analysis of ‘whole chain’ governance



A focus on polarity, ranging from unipolar to multipolar governance, allows the construction of a plurality of drivers and of driving mechanisms that go beyond the well-established dichotomy between buyer- and producer-driven governance. This plurality entails that not only firms, but also other actors such as standard setting bodies, international NGOs, social movements, certification agencies, labour unions, and consumer associations can have a bearing on GVC governance. Allowance for a plurality of driving mechanisms enables not only an analysis of power relations between firms (see Sturgeon 2009), but also of how, at the macro-level, regulation, institutions and business cultures, for example, shape GVC governance. Given the

complexity of the possible combinations that may be at play at the macro-level, our framework in Figure 4 is necessarily simplified. What we want to highlight, however, is that the micro- and meso- mechanisms are embedded into a macro-level picture that takes a possible plurality of polarity forms as a point of departure.

4. Conclusion

Because the stakes are so high, we must take global integration seriously, and develop conceptual models that place novel and emergent features of the global economy in the foreground. In simpler times it made sense to focus on the roles of comparative advantage and the market- and capability-seeking activities of multinational corporations in motivating and structuring international trade and investment. While these concepts have proved to be extremely robust and are still valuable, they do not emphasize the fragmentation of GVCs or the fluid, real-time integration of capabilities in advanced economies with the rapidly rising capabilities in places that were all but outside of the capitalist global economy only two decades ago, such as China, India, Russia, and Vietnam. While the rise of GVCs do not render this earlier view of global competition completely anachronistic, it is safe to say that the picture has grown more complex and dynamic.

In an attempt to bring some order to this complexity, the GVC framework developed by Gereffi et al (2005) revisited the terrain between markets and hierarchies, expanding the network form into three distinct modes of inter-firm coordination: modular, relational, and captive. The framework identified the problem of asset specificity as an important, but not sole or unidirectional driver of firm-level decision-making, and indicated three important variables that dynamically shape the content and character of inter-firm linkages: complexity, codifiability, and supplier competence. The focus was not only on the organizational patterns and power dynamics that are generated by different variable combinations, but also on the geographic possibilities (e.g., clustering vs. dispersal of industries, rapid vs. gradual relocation of work) that are enabled by each linkage form. At the same time, other branches of GVC theorizing criticized the Gereffi et al (2005) framework on the basis that it operated at the level of individual transactions, value chain nodes, and bi-lateral relationships, not at the level of overall chain governance (see Lee, 2010 for a review). Other authors provided complementary ways of understanding governance by unpacking the normative, not just material, elements of GVCs – including quality conventions and broader expectations on corporate organization and strategy (Ponte and Gibbon, 2005).

At the same time, it is evident that powerful factors and actors external to the chain can shape governance through the impact of regulation, lobbying, civil society campaigns, and third-party standard making. Institutional actors, including states and multi-lateral institutions shape GVCs by providing a mechanism for signatories to enforce, or not enforce, regulations and a platform for negotiating the terms of international trade agreements. Consumers shape GVCs through the purchasing choices they make, as when they turn the products and services they buy to unintended purposes, and even more so, when their wishes are amplified by boycotts, class action litigation, or the programmatic efforts of NGOs. Workers can also influence governance, especially when they are represented by labor unions with the ability to call work stoppages at the level of the enterprise, industry, or broader economy. Key struggles and contestations take

place constantly along value chains and governance is indeed shaped by the specificities of place and path dependency.

The aim of this article is not to provide a simple menu of important topics for researchers. Rather, we have sought to sketch a few of the main features in a framework that can be useful as a starting point for making sense of the complexity and variation observed in GVC governance. It is a partial answer to Sturgeon's (2009) call for 'modular' theory building, where multiple theories can be improved individually, but can also be brought into play jointly to help explain variation in GVC governance. Each theoretical 'module' might have its own internal logic and realm of explanation, yet fall short when forces external to that logic impinge. Additive theorizing is one solution (system A is important, system B is also important, and so on), but if theoretical 'modules' have shared elements, progress can be made towards a theoretical ecosystem that illuminates not only how specific variables influence GVC governance in isolation, but also how key variables and coordination forms themselves co-evolve in larger systems, setting the stage for analysis of historical shifts and trajectories. In this way, the multiple streams of GVC governance theory can eventually be built into a broad, cohesive but flexible framework for understanding global industries and for responding to the risks and opportunities they pose. We have tried to take a few steps in this direction by embedding some of the micro-, meso-, and macro-foundations of GVC governance into a modular framework.

Scholars of global industries have now had several decades to present, publish, and debate their research results. A broad view of these findings reveals that the process of global integration is expressed differently in different industries and places. The precise patterns and effects of global integration depend in some part on the technical and business characteristics that prevail in specific industries, the relative power of firm and non-firm actors in the chain, and the social and institutional characteristics of the places where the tendrils of GVCs are rooted and projected. While field research on industry-specific GVCs remains as important as ever, the accumulation of case studies has created the conditions needed for the development of generic, industry-neutral analytical frameworks that seek to explain observed patterns and predict outcomes associated with them. More effort is shifting to the construction of classification schemes and conceptual models that can stand in for the mechanisms that work to create the variety observed in the field. Yet, we remain very close to the starting line. The field of GVC-related theory building is still quite young and open to revision, testing, and elaboration.

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