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Limits to Buyer-Driven Governance for Sustainability in Global Production Networks

Rachel Alexander

Abstract:

Research using the conceptual frameworks of global value chains and global production networks to explore brands and retailers' outsourced production has often presented this process as buyer-led. Additionally, for manufactured products, the focus of studies using these approaches has often been on relationships between upper-tier suppliers and lead firms (brands and retailers). However, when considering challenges related to sustainable production, all businesses involved in production need to be included. This paper builds on recent work which has identified governance of outsourced production as being divisible into the three levels of micro (direct buyer-seller relationships), meso (flows across multiple buyer-seller relationships) and macro (covering all producers) (Ponte and Sturgeon 2014). Buyer governance at the micro and meso scales is explored to help better understand the role that lead buyers play in governance for sustainable production through their sourcing practices. Exploring the case of UK retailers sourcing cotton garments from India, divergent governance experiences were found across all stages of production. The findings show serious limitations for using micro and meso pathways to transmit requirements related to sustainable processes. This research suggests that brands and retailers seeking to play stronger roles in promoting sustainable production need to look beyond their commercial sourcing relationships.

Keywords:

Global Production Networks, Governance, Sustainability, Buyer-Driven, Garment Industry, Cotton, India

1. Introduction

Brands' and retailers' influence over outsourced production has been the topic of a large amount of research using the global commodity chain (GCC) (Gereffi, 1994), global value chain (GVC) (Gereffi, et al., 2005) and global production network (GPN) frameworks (Coe & Yeung, 2015; Henderson et al., 2002). Much of this research has considered brands and retailers as lead firms driving the actions of producers (eg. Gereffi, 1994 and Gereffi, et al., 2005). Global stakeholders, such as civil society groups and government agencies, often see lead firms in the same way and create pressures for these companies to be responsible for the sustainability of products they sell, including the environmental and social impacts of all production practices from raw material production to final product assembly (Jenkins, 2001; Bartley et al., 2015; Schrempf-Sterling & Palazzo, 2016). Production processes are often conceptualised as linear, vertical chains, however, the organisation of production typically involves geographically dispersed businesses contributing to the creation of diverse intermediary products through multiple coexisting pathways. In order to better understand the relationships involved, these producers can more accurately be considered to form an extended supplier network (ESN) with each business simultaneously connected to multiple buyers and suppliers in intersecting vertical pathways that connect raw materials to final products (Alexander, 2018). The role that brands and retailers play as lead buyers in governing the practices of producers contributing to such fragmented production processes is not well understood, particularly when considering lower-tier suppliers. Thus, this paper asks: *To what extent do relationships in vertical pathways connecting producers of intermediary inputs allow lead buyers to control production processes?*

Lead firms' sourcing decisions can shape production practices through multiple processes. A major component is design. What materials are incorporated? Another key choice is the first-tier supplier. Will production occur in poorly regulated territories? Furthermore, sourcing interactions can influence producers. Do buyers request particular processes to be used or create pressures to cut corners in ways that may create sustainability challenges? To a large extent, lead firms can control product qualities. They choose and approve the physical parameters. However, processes used in production are more difficult to control. Process requirements necessitate forms of trust or monitoring that are generally not necessary to evaluate product qualities. This paper focuses on how buyers can work through their commercial relationships to shape production processes.

While inter-firm governance has often been theorized by looking at relationships between lead firms and top-tier suppliers (Gereffi et al., 2005), this paper's exploration of

inter-firm governance at *all* stages of production identifies a more complex set of relationships. While Alexander (2019) identifies strategies that lead firms use to provide governance to lower-tiers suppliers, this paper concentrates on exploring the governance potential within vertical (commercial) relationships. Challenging the buyer-driven governance emphasis in literature on GVCs, this paper proposes a framework that highlights the limited potential for buyer-driven governance to travel vertically down through diverse connections found within one ESN. This perspective emphasizes the variable roles which can be played by buyers at different stages of production of the same product. The limited ability of lead firms to promote sustainable production practices through sourcing relationships is demonstrated through a case study of major UK retailers sourcing cotton garments from India. The framework presented indicates a need for reconsidering how to promote sustainable production within a global production model involving complex ESNs.

The article progresses as follows. The next section discusses how existing research has conceptualized buyer-driven governance. Section three proposes a conceptual framework for assessing the potential for commercial relationships to provide governance promoting sustainable production. Section four outlines the methodology. Section five applies the proposed framework to a case study network to demonstrate limits to vertical governance processes. Section six considers factors which make the identified challenges persistent and hard to address. Section seven draws out the lessons that can be taken from this research. Finally, section eight provides a conclusion.

2. Theories of Buyer-Driven Governance

A path-breaking proposition put forward by Gereffi (1994) is that globalized production systems developed in the late 20th century are governed by lead firms, which control access to major resources such as product design, new technologies, brand names and are the most profitable in an industry. These firms can be located upstream or downstream from manufacturing, with industries divided into those that are buyer-driven and those that are producer-driven. Buyer-driven industries (e.g. agriculture, apparel and toys) are seen as having retailers as lead firms and producer-driven industries are seen as having manufacturers as lead firms (e.g. cars). While this work brought valuable insight, it was shown not to be applicable in all cases (Gereffi et al., 2001; Henderson et al., 2002). It has since been argued that all production is moving towards the buyer-driven model (Gibbon et al., 2008).

Researchers have conceptualised how lead firms control outsourced production in multiple ways, which include chain governance, (Schmitz, 2006), inter-firm governance (Coe et al., 2008) and industrial governance (Gereffi & Mayer, 2006). Supply chain management literature refers to dominant firms as 'focal' companies. Seuring and Muller (2008, p. 1699) describe these companies as those who '(1) rule or govern the supply chain, (2) provide the direct contact to the customer, and (3) design the product or service offered.'

Multiple forms of buyer-driven governance were classified by Gereffi et al.'s (2005) prominent framework, which places market-based relationships and vertical integration at opposite ends of a spectrum of coordination, with three forms of network relationships (modular, relational and captive) existing in between. They identified three key determinants of governance patterns as complexity of transactions, codifiability of information, and capability of suppliers, each of which can be classified as 'high' (+) or 'low' (-). This typology produced eight possibilities of which five are actually found. Market governance (-complexity/+codifiability/+capability) is seen to be based on single transactions with low switching costs. Modular governance (+complexity/+codifiability/+capability) involves production based on buyers' design specifications. Relational governance (+complexity/-codifiability/+capability) involves mutual dependence with connections benefiting from spatial proximity and long-term relationships, often based on family or ethnic ties. Captive governance (+complexity/+codifiability/-capability) involves suppliers being highly dependent on buyers often incorporating high levels of monitoring and control. Hierarchal governance (+complexity/-codifiability/-capability) involves vertical integration. This theory draws from Williamson's (1975, 1983) concept of transaction cost economics and provides insight into individual bilateral relationships between firms.

As Bair (2008) has indicated, Gereffi et al.'s (2005) typology shifted Gereffi's (1994) buyer-driven proposal to have a stronger focus on the relationship between lead firms and first-tier suppliers. This typology has been described as micro governance (Ponte & Sturgeon, 2014). While the types of relationships in the typology can be used to consider connections between businesses at any link in a supplier network, such as between raw material producers and initial processors, this theory has generally been applied to how lead firms interact with first-tier suppliers. Additionally, while this model provides a way to look at inter-firm transactions, it has limitations related to understanding how other factors such as conventions (Ponte & Gibbon, 2005) and embeddedness (Hess, 2004) affect these relationships and does not consider the variety of relationships that may occur within a single supplier network (Ponte & Gibbon, 2005; Ponte & Sturgeon, 2014).

A key division in research exploring governance of fragmented production has been the topics of focus. Early research focused on economic issues. Labour issues later became prominent (e.g. Barrientos et al., 2011). More recently, environmental issues have begun to be incorporated (De Marchi et al., 2019). Notably, De Marchi et al. (2013) identified two forms of environmental governance in value chains as a standard-driven approach and a mentoring-driven approach. This perspective is a step towards developing a theory of governance for sustainability. However, the focus of most of this research remains on the relationship between lead buyers and top-tier suppliers.

Addressing a lack of exploration of lower-tier dynamics, Ponte and Sturgeon (2014) presented a framework that contrasted micro governance as found in the Gereffi et al. (2005) typology with governance of all production processes, which is seen as macro governance. They also introduced the term meso governance which is seen as the process through which governance flows across micro connections. Understanding meso governance requires looking at connections between multiple stages of production. Looking at multi-stage production processes, in addition to production being buyer or producer driven, researchers have also identified situations where governance was bi-polar (Fold, 2002) or multi-polar (Ponte & Sturgeon, 2014) with drivers potentially including actors beyond lead firms. Ponte and Sturgeon (2014) identify a need to develop a hybrid governance model to bring together learnings from past research on fragmented production.

To understand governance affecting all production processes, the structure of production processes needs to be considered. Research on outsourced production has variously used conceptions of linear chains versus dispersed networks. While the GVC concept, using a linear model, has helped to explore inter-firm relationships, the GPN concept's network model has drawn attention to the existence of diverse connections producers have with multiple actors and the importance of the broader contextual factors governing production processes. Alexander (2018) proposes a model that brings together the strengths of the GVC and GPN frameworks. In this model, production is seen as taking place in multiple intersecting vertical pathways connecting producers to form an ESN. This supplier network is embedded within a larger GPN that creates diverse governance pressures based on producers' network, territorial and societal locations. By explicitly considering production as a set of processes that connect raw materials to manufactured goods, the ESN framework can support explorations of sustainable production challenges.

Another important factor to consider is how governance is exerted. Focusing on the sites of production, governance can be seen as coming from vertical buyer-seller relationships as well as businesses' societal and territorial locations (Hess, 2004, Gereffi & Lee, 2016).

Building on Gibbon et al. (2008), Ponte and Sturgeon (2014) describe three approaches to governance across fragmented production. First, governance 'as driving' involves shaping which actors get included in networks and which parts of production are outsourced, often with a focus on which firms capture value across production processes. Second, governance 'as linking' involves dynamics within dyadic links, which is a focus of this study. Third, governance 'as normalizing' involves the development of norms or conventions. Exploring forms of power in fragmented production, Dallas et al. (2019) consider the dimensions of dyadic vs collective and direct vs diffuse and identify four ideal types of power in fragmented production. First, bargaining power involves direct dyadic relations and is the focus of much of the discussion in this paper. Second, institutional power involves collective actors acting directly to set rules and standards. Third, demonstrative power involves firms behaving in ways that others seek to emulate. Finally, constitutive power involves collective actors perpetuating norms.

The global value network (GVN) perspective (Helfen et al. 2018) provides another way to consider governance of inter-firm networks. This perspective, rooted in management literature, considers four network management roles: selecting, allocating, regulating, and evaluating. Using these roles, managers in lead firms can shape processes across an entire network.

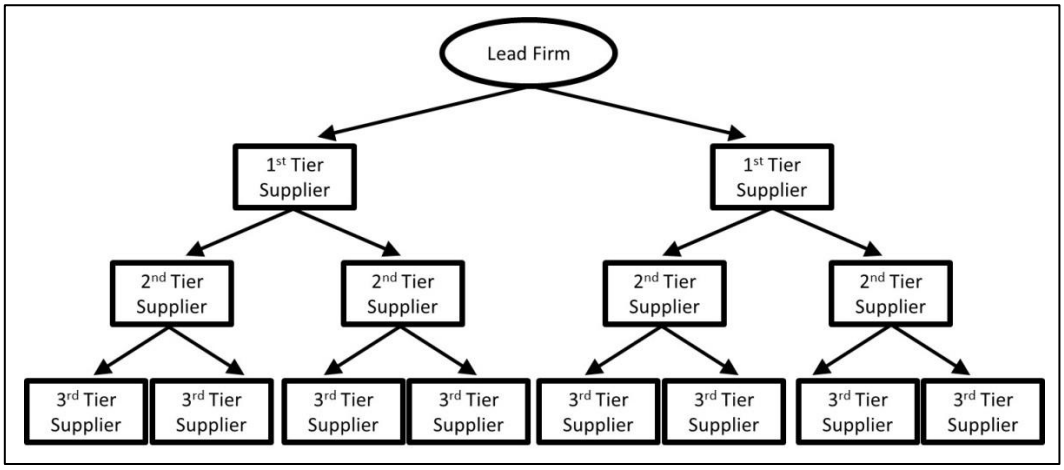
Understanding these diverse ways to conceive of buyer governance in fragmented production provides a basis for this papers' exploration of the potential for vertical buyer-driven pressure to address sustainability challenges in production processes. While overall, research on private governance in fragmented manufacturing has been narrow in its focus on relationships between lead buyers and first-tier suppliers, a few studies (e.g. Nadvi & Raj-Reichert, 2015; Alexander, 2019) have started to empirically explore governance in lower-tier production. Understanding sustainability challenges requires looking at all stages of production. This paper addresses a need for additional research to better interrogate processes of buyer-governance when looking at how sourcing relationships connect multiple producers responsible for subsequent stages of fragmented production.

3. Vertical Governance for Sustainability across ESNs

Responding to Ponte and Sturgeon's (2014) call to develop a hybrid governance model, this section develops a conceptual framework for understanding how lead buyers provide governance over fragmented outsourced production practices through relationships with suppliers. Governance through sourcing is conceptualised as flowing through the vertical pathways that make up ESNs (Alexander, 2018). In Figure 1, micro governance is depicted by

the individual arrows. Meso governance can be considered as involving governance flowing down through the micro links connecting lead buyers to lower-tier suppliers. This figure shows that one supplier network can have many distinct vertical pathways made up of even more distinct buyer-seller relationships. This network of suppliers is seen as sitting within a larger GPN, which is a crucial understanding when considering issues related to governance for sustainability. Limitations to governance for sustainability through sourcing relationships can be seen by considering the inherent features of micro governance relationships described below along with how these micro dynamics shape governance flows across vertical meso governance pathways.

Figure 1. Micro and Meso Governance



Source: Author's Construction

3.1 Micro Governance in an ESN

Most firms will act as both a buyer and a supplier within their network position.[1] Each dyadic relationship can be seen to have its own governance structure. Two key features in micro-governance relationships are the governance potential of the buyer and the agency of the supplier.

3.1.1 Governance Potential in Dyadic Relationships

While the Gereffi et al. (2005) framework introduced a way to classify power dynamics in transactions in outsourced production, these classifications cannot properly capture dynamics of inter-firm governance in complex supplier networks that include multiple relationships between diverse businesses acting as buyers and sellers. In such a context, a wider set of

[1] In this conceptualisation firms can include farmers or other raw material producers.

factors needs to be considered beyond complexity, codifiabilty and capability. This article proposes two key determinants of the potential for buyer governance in dyadic relationships as business characteristics and embedded locations (see Table 1). These determinants can be seen as causal mechanisms (Sayer, 2000) which shape buyer power in dyadic relations.

Business Characteristics. The characteristics of both the buyer and supplier play a big role in power dynamics in micro governance relationships. Relevant characteristics can include factors such as product specialty, size, management systems, ownership model and age.

A key distinction between businesses in an ESN is the type of product they produce. Capabilities, one of the factors from Gereffi et al.'s (2005) framework, as a function of the product a supplier business produces, can be considered as being included in this determinant. The nature of a business' product and production model can shape their behaviour, their requirements and their flexibility to change.

Business size is also a key factor. Past research which has considered the effects of organizational size has found that larger organizations have a number of common characteristics (Scott, 2014). These include being more prone to early adoption of innovation, more resource-rich, more internally differentiated, more visible to external publics, and when having differentiated personnel offices, more receptive to innovations related to employment matters. Businesses of all sizes can benefit from collaborating with other businesses to increase their power through business associations or other forms of collaboration (Braun-Munzinger, 2018; Dallas et al., 2019; Ashwin et al., forthcoming; Oka et al., 2019).

Institutions and Embeddedness. In this paper, institutions are seen as a set of rules that constrain businesses' behaviour. They are considered as operating at three levels created by formal regulations, norms and socio-cognitive frameworks[2] (Scott, 2014). Specifically, firms' experiences of institutional pressure are seen as being determined by how they are embedded within network, territorial and societal locations (Hess, 2004). While firms operate within a set of formal regulations, their behaviour can be shaped by norms, which may not align with formal regulations.

Pressures created through network, territorial and societal embeddedness can function through different channels. First, a firm's position within a specific set of buyer-seller links can be considered as creating pressures through network embeddedness. Each link represents a distinct relationship. Understanding the nature of these links helps to assess the potential for buyer power.

[2] This paper focuses on regulations and norms.

One way to classify buyer-seller relationships is by length. When longer-term relationships develop, these ties can shape decisions made by both parties. Granovetter (1985) discusses how businesses can prefer to work with other businesses with personal connections even when prices are higher. Powell (1990, p. 303) notes that over time 'it becomes more economically sensible to exercise voice rather than exit. Benefits and burdens come to be shared.'

Long-term relationships allow for the development of trust. Murphy (2006) highlights the importance of considering how trust building is a socio-spatial process with trusting relationships being conceived of as temporal-relational fields emerging from particular social, material and political settings maintained and transformed by the cognitions, symbolic exchanges and performances of agents involved. He sees trust-building as a communicatively driven process shaped by influences at the micro scale, involving subjective interpretation of expected behaviour; the meso scale, involving intersubjective experiences of the physical setting and the impressions given by actors in the relationship; and, the macro scale, involving the role of wider institutions, structural conditions, circumstances and hierarchies as well as the positionality of the firm or individual.

A second way to classify buyer-seller links is identifying the presence of intermediaries, which can play critical roles such as transportation, warehousing, sourcing and quality control. Recently, trade intermediaries have begun to perform more complex roles such as strategic coordination, design and supplier development (Zacharia et al., 2011; Bitran et al., 2006; Fung et al., 2007). Intermediaries have been described as 'maestros' (Bitran et al. 2006) and 'orchestrators' (Zacharia et al., 2011). In relationships that involve intermediaries all aspects of the power dynamics of buyer-seller governance could incorporate these triadic relationships. A major role that intermediaries play in facilitating governance for sustainable production processes is through monitoring. In this role, intermediaries can be responsible for creating trust.

A third way to classify buyer-seller relationships is through levels of dependency. Key factors include the proportion of each business' transactions represented by the relationship and the availability of alternate options as replacements. In a dyadic relationship the buyer or seller may be the more dependent firm.

Finally, a fourth type of relationship classification is the nature of a particular transaction, including the demands involved. The remaining two factors in Gereffi et al.'s (2005) framework, codifiability of information and complexity of transactions, relate to this issue. In some cases, a buyer chooses from existing options and in others the product is custom-made for each buyer. Additionally, producers in the network can buy manufacturing

related services, such as having an item dyed or painted by another company. Within each type of transaction, purchasing decisions can be made based on a variety of criteria, such as quality, time, price and sustainability related issues.

Buyers' requirements have been seen to be shaped by accepted norms (Scott, 2014) or conventions (Ponte & Gibbon, 2005; Ponte & Sturgeon, 2014). Various quality conventions can be used to define different forms of worth (Ponte & Sturgeon, 2014), such as 'market', measured by price; 'industrial', measured by objective technical measurement related to areas such as efficiency or functionality; 'domestic', measured by trust, repetition and history; 'civic', measured by social, labour, environmental and collective impact; 'inspirational', measured by spirit or personality; and, 'opinion', measured by opinion polls, social media coverage or expert judgement. Sellers may feel different pressures based on their buyers' demands. If a product is custom-made, the buyer may have greater opportunity to shape production processes.

Territorial embeddedness creates different types of constraints than network embeddedness. Key factors are laws and regulations. Global levels of regulation, particularly around sustainability issues, vary dramatically (Gereffi & Mayer, 2006). Local regulatory systems can also shape the impacts of international private governance (Bartley, 2010; Mezzadri, 2014; Alford, 2016). Within different regulatory systems, the market structure can constrain how a product is sold and the requirements producers must meet to sell their products. Another key feature of territorial embeddedness is infrastructure. For example, regions can have various options for transportation, waste disposal and energy sources. Such local features can shape where specific production activities take place and the processes that are used.

Finally, societal embeddedness involves pressures based on membership in social groups. For example, norms can exist for businesses connected to particular ethnic communities or religious groups. Business cultures across countries have been found to have notable differences (Hofstede, 2011), which can involve behaviours that persist when companies work internationally.

Table 1. Micro Governance in Dyadic Relationships

Determinants of Governance Potential	**Example Components**
Business Characteristics	• Size • Formality • Capabilities • Ownership model • Age • Management systems
Embeddedness	• Network embeddedness - Relationship duration - Role of intermediaries - Dependency - Nature of transaction (buyer requirements) • Territorial embeddedness - Legal regulations - Infrastructure • Societal embeddedness - Membership in an ethnic group - Membership to a religious group

Source: Author's Construction

Within network, territorial and societal locations, production processes can be considered as taking place within productive systems (Wilkinson, 2003, pp. 10-11), which develop

> where the forces of production combine in production. Their constituent parts are labour, the means of production, the social system in which production is organised, the structure of ownership and control over productive activity and the social, political and economic framework within which the processes of production operate.

Within such systems norms develop, which shape businesses' production practices and commercial relationships.

An example of a type of norm is the level of formality that is expected in a transaction. Is a deal based on a handshake or a formal contract? These norms can shape what is assumed in a transaction and what is made explicit within a negotiation. Accepted norms in transaction processes shape the behaviour of both buyers and sellers. Commons' (1931) idea of 'working rules' in transactions can shape what businesses ask each other. Commons (1931, p. 650) describes,

> the operation of working rules on individual action . . . are expressed by the auxiliary verbs of what the individual can, cannot, must, must not, may or may not do. He 'can' or 'cannot,' because collective action will or will not come to his aid. He 'must' or 'must not,' because collective action will compel him. He 'may,' because collective action will permit him and protect him. He 'may not,' because collective action will prevent him [*sic*].

However, these rules are not fixed and Commons describes them as continuously changing. Nevertheless, it is possible for a norm to persist even when the underlying motivation leading to its creation has ended (DiMaggio & Powell, 1991; David, 1985; Scott, 2014).

Types of communication typically used within relationships are also an important norm to consider. This includes factors such as format, levels of interaction and language used. For example, orders can involve high levels of interaction or just involve filling in a form.

3.1.2 Producer Agency and Limitations of Buyer Defined Production Processes

Even in relationships where buyers have the power to make strong demands on direct suppliers, suppliers do not blindly follow buyers' requirements. Suppliers choose how to respond to buyers' demands, particularly when considering production practices that may not be observed by buyers. Oliver (1991) identifies five general strategies available to organizations confronting pressures: 'acquiescence' (or conformity), succumbing to the pressure; 'compromise', making strategic changes; 'avoidance', ignoring the pressure; 'defiance', not only resistance but resistance done in a highly public way; and, 'manipulation', finding a way around the pressure. However, Scott (2014) points out that while looking at agency of organizations is important, one must also take into account that adhering to institutional pressures may not be a conscious choice particularly if following them is seen as a matter of appropriateness.

3.2 Meso Governance across an ESN

Meso governance involves pressure flowing vertically across multiple relationships leading down to lower-tier suppliers. In order to understand meso governance, the characteristics of the vertical pathways in which it flows must be considered. Paths with more links (highly fragmented production) can be considered as longer compared to pathways with fewer links (more integrated production), which can be considered as shorter pathways. One network can involve both long and short paths as buyers can have multiple suppliers with varying levels of vertical integration.

Two key mechanisms can prevent flows of meso governance reaching down to raw material production. The first is a slow dilution of buyer power moving through vertical pathways. This is caused by the limits to buyer governance in each dyadic connection being compounded as requirements are passed to lower-tier producers. To understand this dynamic, it must be considered that buyers wishing to control processes of lower-tier suppliers through vertical paths would have to encourage first-tier suppliers to put pressure on second-tier

suppliers and so on. This process would face challenges related to the level of influence buyers at each link would need to have as well as the resources that may be necessary for each firm to play a role in governance for sustainability. A key issue is that the dependency producers have on any one higher-tier buyer may be quite low. For example, if their direct buyer buys 20% of a lower-tier producer's output and that buyers' buyer buys 20% of the direct buyer's output in turn, the highest tier buyer is only buying 4% of the lowest tier producer's output.

The second mechanism is the existence of key cut-off points that can be considered as preventing vertical flows of buyer governance for processes. Networks can have points where buyers have almost no power. An example is when buyers order ready-made inputs from online platforms.

4. Methodology

In order to illustrate the validity of the proposed framework, this paper explores the garment sector, an industry that is a quintessential example of what past research has considered as buyer-led. Cotton garment production processes can be considered as involving five distinct steps which can be carried out by separate businesses. The first step is cotton farming. The second step, ginning, involves separating seeds and waste matter from the fluffy harvested fibres. The third stage involves spinning fibres into yarns. The fourth stage involves creating fabrics which is usually done by knitting or weaving. Finally, the fifth stage involves turning textiles into garments. Additionally, chemical treatments, which include dying and other processes affecting the qualities of the final garment, can be carried out across the final three stages.

The discussion draws from a case study of India-based production of cotton garments for major UK retailers. Specifically, the focus is the Indian portion of the ESN responsible for creating cotton garments for the top 20 UK garment sellers in 2012. This case was selected due to its global importance. In 2012, 58% of the value of clothing sales in the UK was made up by 20 major retailers (Mintel, 2013). Furthermore, all stages of cotton clothing production are important to India. Together, organized sector wearing apparel and textile production, engaged approximately 2.3 million people, accounting for 18% of people engaged in India's organized sector industrial units in 2012-13 (Central Statistics Office [CSO], 2015a). Considering the production of cotton, organized sector cotton ginning, cleaning and baling along with seed processing for propagation engaged over 100,000 people in 2011-12 (CSO, 2014).[3]

[3] A disaggregated number for persons engaged solely in cotton ginning, cleaning and baling was not available.

Additionally, unincorporated businesses involved in cotton garment production provide even higher levels of employment. Together, unincorporated businesses responsible for cotton ginning, cleaning and baling; manufacture of textiles; and manufacture of garments had an estimated 12.4 million workers in 2010-11 (National Sample Survey Office [NSSO], 2013).[4]

Cotton garments are a manufactured product that is mostly based on a single raw material. Understanding the challenges in this case provides insights into challenges that are compounded for products that involve multiple inputs and consequently much more complicated supplier networks. The findings from this case can be applicable to other cases through a process of analytic generalization (Yin, 2009).

The material in this paper is based on three periods of field work (United Kingdom 2012-2013, India 2013, United Kingdom 2016-2018). A major source of data was interviews. A total of 120 interviews were conducted with 138 respondents. These respondents represented ten of the UK's 2012 top 20 retailers and fifty-seven supplier firms contributing to the case study supplier network. The types of supplier businesses included trade intermediaries; manufacturers of garments, textiles and yarns; wet processing firms; ginning and pressing units; and, cotton farmers. The remaining respondents were knowledgeable informants including industry experts (academics and representatives of businesses involved in the industry, who do not meet the case study criteria) and representatives from NGOs, government agencies, business associations and businesses providing support services to firms in the case study network. Interviews were based on semi-structured guides. Twenty-six of the interviews were conducted in local languages (Gujarati, Hindi and Tamil) with the assistance of interpreters. Most (116) interviews were recorded. Detailed notes were taken when recording was not possible. English language transcriptions were made of all recordings and a bilingual third-party proof read all translated transcriptions to ensure accuracy. The field work also involved attending industry events and observations of production facilities. Additional sources of data include public databases and texts produced by lead buyers, members of their ESNs, a broad set of GPN governance actors and third parties.

Transcripts and additional textual data were systematically reviewed using Nvivo software. The analysis used progressive focussing (Sinkovics & Aldolfi, 2012). This entailed an ongoing process of comparing the empirical material collected to previous research on processes of buyer-driven governance as the analysis progressed. This qualitative analysis technique is designed to help empirical studies build on past research.

[4] These workers are mainly in textiles (5,862,524) and garments (6,535,563). A smaller number is record as being involved in ginning (13,372), however informal and hidden hiring arrangement may make the number a low estimate.

The analysis had two main parts. First, processes of micro governance were considered by exploring direct buyer-seller relationships. Identification of determinants of buyer power was carried out inductively by considering features found across the wide number of buyer-seller relationships that were observed. Specific relationships that were discussed by interviewees were reviewed and key features perceived to shape the interfirm governance processes they experienced were listed. While initially many features were considered, these were successively grouped into common themes until three categories remained (potential for buyer power based on business characteristics, potential for buyer power based on institutions and embeddedness, and supplier agency). Second, processes of meso governance were explored by focusing on flows that connect multiple buyer-seller relationships involved in subsequent stages of production.

5. Micro and Meso Governance in Indian Cotton Garment Production for UK Retailers in an ESN

While UK garment retailers are often considered governance actors controlling production, the case in this paper demonstrates limitations of their purchasing relationships' potential for driving governance for sustainability. High levels of variation were found in buyer-seller links across the network. This variation leads to many paths where lead buyer meso governance cannot flow.

5.1 Variation in Buyer Governance Structures in Direct Sourcing Relationships

Business characteristics and embeddedness varied greatly across the case study network. Consequently, some buyer-seller links have greater potential for buyer-led governance than others. The examples discussed below represent some of the diversity of direct buyer-seller vertical governance experiences found.

5.1.1 Differences in Business Characteristics

The lead buyers in this case are all large and mostly multinational retailers. They have high levels of resources and management structures that are used to coordinate complex international business transactions. All rely predominantly on outsourced production and publicly state their support for sustainable production and their use of supplier labour codes of conduct.

The producers in this case are diverse. Some specialize in individual stages of production and others are vertically integrated to incorporate various combinations of activities (see Figure 2). They include large-scale multinational corporations with sophisticated bureaucratic structures and small informal sector enterprises. Many rely on outsourcing some of their productive activities to subcontractors. None were found to have formal supplier codes of conduct. However, some have their own sustainability policies and departments focused on related issues. Two notable business types which are often large are composite mills (responsible for both yarn spinning and textile manufacturing) and yarn spinners. For example, the average number of workers at composite mills in India is over 1,000 (Office of the Textile Commissioner, 2015). Some of these large businesses also benefit from being part of strong business associations. For example, a yarn spinners association in southern India has made a strong push for the development of public policies which support the Indian spinning industry. Notable small and often informal businesses in the case study network include farmers, gins, informal sector weaving units and wet processors. For example, gins in the state of Maharashtra generally have less than 50 employees (Directorate of Industrial Safety and Health 2019). Most Indian garment manufactures are small businesses with the exception of a few larger firms (Apparel Export Promotion Council [AEPC], 2009). Those selling directly to large UK retailers are usually in the formal sector. However, their subcontractors can be in the informal sector (Phillips et al., 2011).

Considering the levels of formality in decision making, a contrast can be seen in the example of systems described as being used by two garment sourcing firms, which both worked with large UK buyers (I44-R54)[5]. One uses an electronic database to track factories' performance, which is used to shape future decisions. The other does not keep detailed records and relies on the opinions of the owner as to whether to work with a particular factory.

5.1.2 Institutions and Embeddedness

While businesses in the case study are in the same network, they experience different pressures depending on their specific network, territorial and societal locations. These positions lead to drastically different potentials for buyer power in dyadic relationships.

Network Embeddedness. First, considering relationship length, both short-term (one transaction) and long-term relationships were identified. However, across most interviews

[5] Interview codes indicate interview number 'I##' and respondent number 'R##'.

with producers, businesses relied on some level of continuity in their buying and selling relationships, even in cases where items being sold were standard products. While the research for this study did not involve a data collection method which enables broad generalizations to be made about relationship lengths, a number of patterns were indicated.

Connections between retailers and garment manufacturers often change from season to season. For example, a retailer in this case has publicly stated that only 54% of their suppliers have been used for three or more years (Arcadia Group, 2015). Short-term connections can limit the development of relationships which may be beneficial for promoting sustainable production practices. However, retailers are starting to consolidate their supplier bases and have longer-term relationships with suppliers (Schüßler et al., 2019, Amengual et el., 2019).

Both long and short relationships also exist in lower-tier relationships. For example, a representative from a textile manufacturer said, 'We have fixed almost 40% to 50% of suppliers. We prefer to have consistence in a source (I32-R41).' However, this leaves 50-60% of yarn not from longer-term relationships.

Furthermore, situations were found with long-term connections that are not conducive to relationship building. For example, when asked about how many farmers supplied his gin, a co-owner of a vertically integrated spinning and ginning mill said more than 50 come each day during the season (I76-R85). With India housing almost 8 million cotton farms and less than 10,000 gins (CSO, 2015b; NSSO, 2012; Agricultural Census Division, 2015) many gins are likely to be in similar situations.

Second, intermediaries were common across the network and found at all levels of production including for subcontractors providing services, such as beading. An emerging form of intermediary is the online platform. Intermediaries facilitated deals between buyers and producers and sometimes bought products to sell on. For intermediaries, developing longer term relationships with both parties can be helpful. A representative from a sourcing firm located in India described building trust over time.

> Communication is for a buying house . . . I think it's the most important thing . . . It's how well you can communicate with the buyer or with the factory … you should get used to the handwriting of [the buyer] and you will be fine. (I51-R60)

However, some intermediaries can have short term relationships. A representative from Sourcing Firm C, a small UK-based garment sourcing firm described having very weak connections to a changing group of garment suppliers across several countries (I44-R54).

Intermediaries ranged from being individuals to large businesses. For example, lone traders can purchase cotton from multiple farms. Another point in which small-scale

intermediaries play a key role is small sourcing firms connecting garment manufacturers to retailers (I44-R54; I51-R60). When this occurs, the manufacturers' main contact can be a small sourcing firm as opposed to a large multi-national retailer. On the other end of the spectrum, large global garment sourcing firms can rival the size of retailers and often, within their own right, are important buyers for factories (Azmeh et al. 2014). Also, global cotton trading firms can be large, multinational actors.

Third, levels of dependency also differed across buyer-seller relationships. High supplier dependency can be seen in the experience of a small family-run garment sourcing firm. A representative from the company described how they would alter normal policies to meet the needs of a key buyer (one of the retailers from this case) responsible for a large proportion of their sales (I51-R60). Similarly, as buyers, some businesses were found to be highly dependent on particular suppliers, working in situations where it would be difficult to switch to new suppliers. For example, textile and garment manufacturers in Tirupur are dependent on local wet processing service providers. After environmental regulations caused prices to rise, garment and textile manufacturers continued to use local services. The dependency in this relationship can be seen in comments provided by a representative of a Tirupur-based sourcing firm. Speaking about the option of using wet processors in other regions to save costs, he said,

> If you go to another area of India, you would have to go to the north. Mainly, Mumbai, Ludhiana and these guys are more used to work for the domestic market and not well savvy about the export requirements so their fabrics you can say 50-50 is your chance that the fabric will not be well dyed. (I4-R4)

In contrast, some businesses had many diverse buyers and suppliers and consequently were not too dependent on any one in particular. For example, Indian yarn spinners sell their production to many domestic and foreign buyers.

Fourth, sourcing requirements within transactions also varied. Buyers purchased both standard products and custom-made products. Also, some transactions involve physical products and others production related services. For example, a denim producer in Ahmedabad described hiring another company to do some of their weaving (I32-R41).

Five major types of sourcing requirements found in this case were quality, time, price, buyers' labour codes of conduct and buyers' chemical policies. The balance between each differs significantly across the network. Table 2 provides generalizations for each stage of production.

Table 2. Main Vertical Pressures at Each Stage of Production

Type of Producer	**Type of Buyers (based on business form)**	**Main Pressures from Buyers**				
		Quality	**Time**	**Prices**	**Code of Conduct**	**Chemical Policy**
Garment Manufacturing	Retailers and Sourcing Firms	Yes	Yes	Yes	Yes	
Textile Manufacturing	Retailer (or nominated by retailer)	Yes	Yes (for custom made orders)	Yes	Yes	
	Garment Manufacturer	Yes	Yes (for custom made orders)	Yes		
	Integrated w/ Garment Manufacturing	Yes	Yes (for custom made orders)	Yes	Yes	
Wet Processing	Garment Manufacturer	Yes	Yes			Yes
	Retailers and Sourcing Firms (for wet processing integrated with garment manufacturing	Yes	Yes	Yes	Yes	Yes
	Integrated with Yarn Spinning or Textile Manufacturing	(See yarn spinning or textile manufacturing pressures)				Yes
Yarn Spinning	Retailers and Sourcing Firms	Yes	Yes (for custom made orders)		Yes	
	Garment Manufacturers		Yes (for custom made orders)			
	Textile Manufacturers		Yes (for custom made orders)			
	Integrated with Textiles/Integrated with Textiles and Garments	(See garment manufacturing or textile manufacturing pressures)				
Cotton Ginning	Yarn Spinner	Yes				
	Integrated with Yarn Spinning	(See yarn spinning pressures)				
Cotton Farming	Cotton Gins	Yes				

Source: Author's Construction

Quality is the only requirement felt strongly across all tiers. Retailers define physical product parameters that travel down through all sourcing connections. However, two differences standout between upper and lower-tiers.

One issue is that sourcing related time and cost pressures exist for the stages of the ESN that involve custom production, which tends to be concentrated in the upper-tiers as most lower-tier inputs are standard products with less negotiable prices. These pressures, which can be driven by lead buyers, can promote the perpetuation of sustainability challenges.

A second issue concentrated in the upper-tiers is the inclusion of sustainability-focused standards in transactions, which include worker codes of conduct and chemical policies. Transactions at lower-tiers were not found to have such requirements unless the product was intended for a niche market, such as certified organic cotton. Lower-tier producers tended to sell products based purely on observable product qualities.

Territorial Embeddedness. While all producers in this case are India-based, it is a large country with much internal diversity. A notable factor is that producers are generally grouped within local productive systems. Across India, industrial stages of production often occur in clusters (Das, 2016). Clusters involve 'sectoral and spatial concentrations of firms (Schmitz & Nadvi, 1999, p.1503),' which have the potential for economies of scale, scope, agglomeration gains and joint action (Lund-Thomsen & Nadvi, 2010). Agricultural producers are often less physically concentrated as they are spread across larger rural areas. However, within the country, these can be divided into distinct territorial regions.

Businesses in different local productive systems have distinctive characteristics. One category of differences is variation in employment structures across India's states. For example, the proportion of direct employment of women in formal sector garment manufacturing is highest in Puducherry at 82% and lowest in Bihar with under 1% (CSO, 2015a). Also, the use of labour contractors to hire employees indirectly varies with, for example, formal sector spinning, weaving, finishing and other textile manufacturing firms in Uttarakhand hiring 47% of workers through contractors and compared to Jharkhand and Goa where no use of labour contractors was reported (CSO, 2015a). Sizes of firms also vary greatly across productive systems. This can be seen in the fact that the average spinning mill in Himanchal Pradesh has over 1000 employees, while the average spinning mill in Tamil Nadu has less than 125 (Office of the Textile Commissioner, 2015). Local differences in productive systems play a large role in shaping the nature of sustainability challenges.

Another feature of territorial embeddedness is market structure. Within India, cotton and yarn are traded based on published market prices (I95-R44; I60-R69). Market regulations

can also shape businesses' buying and selling options. In some cases, producers are required to sell to public marketing boards, such as cotton produced in Maharashtra before 2002[6] or to any licensed buyer, such as in Maharashtra from 2003. Or, in other cases, products can be sold in an open market. These formal regulations can determine the identity of buyers and shape the options available for buyers to govern their suppliers.

Societal Embeddedness. As with inter-territorial variation, India houses diverse social groups. Social and territorial embeddedness can be connected. For example, some regions are heavily reliant on workforces from particular social groups. In this case, the manager of a Gujarati gin described relying on young male workers from Rajasthan (I26-R29). While this study did not collect data on businesses' affiliations with societal groups, previous research has shown the importance of ethnic, religious and caste affiliations in India's cotton garment supplier networks (eg. De Neve & Carswell, 2014).

Emergence of Norms. Variation across firms and their embedded locations has created a network with diverse norms in different locations. These range from relationships involving explicit governance for sustainability to others that are based on implicit understandings that often perpetuate sustainability challenges.

An example of an area with high variation in norms is level of formality in transactions. Some transactions require formal contracts, such as those by retailers ordering garments. Other transactions are conducted based on verbal agreements, such as some forms of garment production subcontracting and farmers selling cotton to traders.

Different levels of formality can also be seen in buyers' assessment of products. Informal processes can be seen in a comment by a staff member from a state-run cotton market, where farmers or small-scale traders bring raw cotton to be bought by traders who sell to gins. He described how traders do not need any special equipment to assess the quality of cotton.

> He just looks at the cotton and he can say the length and all. . .No need to go to any laboratory, they will take cotton seed in their mouth and bite like this. . .If it sounds then its right and if it doesn't sound then it will be full of moisture. . . Then they will not give more money to the farmer, if it is dry then they will give more money (I28-R33).

This is contrasted to how yarn spinners buy cotton from gins based on the results of assessing the cotton fibres on a set of formal, quantifiable standards.

[6] From 1971 to 2002, cotton farmers in Maharashtra were required to sell all cotton to the government through the Monopoly Cotton Procurement Scheme (MCPS) (Mishra et al., 2006).

Pressures from buyers for their suppliers can take place through both formal and informal mechanisms. Informal pressures can involve information shared between businesses directly or general awareness of market preferences of buyers. Formal sourcing pressures are expressed through standards and order specification sheets. While formal process standards are frequently used by UK retailers, buyers at lower tiers of production do not generally require their suppliers to follow formal standard systems.

Another key element of norms is that they can limit whether a request is acceptable. For retailers buying from garment manufacturers, the idea of codes of conduct has become accepted and expected. However, for producers at lower-tiers, process requirements are generally not expected and may not be accepted. For example, a member of a retailer's compliance team mentioned wet processors being resistant to allowing retailers to conduct code of conduct inspections (I38-R47), while this is now an expected practice by garment manufacturers.

5.1.2 Producer Agency in Direct Sourcing Relationships

As discussed above, even in situations where buyers can be considered as having a lot of power, producers can choose how they react to this power. In this study as well as others which have looked at the effects of buyer-driven governance pressures (Raworth & Kidder, 2009; Soundararajan & Brown, 2014; Mezzadri, 2012; Barrientos & Smith, 2007), producers have been found to react to sustainability-focused sourcing requirements in ways which were not intended by those introducing the requirements.

In cases where producers in India have been certified as following process standards, they may restructure production practices to meet requirements while pushing unsustainable practices into forms that are not included in standards, such as hiring temporary employees to avoid regulations covering 'staff' (Mezzadri, 2012). This is an approach which involves Oliver's (1991) compromise option. Producers also use Oliver's (1991) manipulation option by continuing to use the same practices while finding ways to pass inspections. Examples of such practices include creating a second set of books or bribing inspectors (Raworth & Kidder, 2009). A common practice involving manipulation that can affect the efficacy of codes of conduct is unauthorized sub-contracting. While the case study retailers generally require their manufacturers to disclose all sub-contracting activities, the practice is not always followed. A representative from one of the case study retailers describes,

> We have always identified . . . factories outsourcing without letting us know about it. That's a challenge (I38-R47).

In cases where garment manufacturers use undisclosed subcontractors, production practices may not adhere to agreed-upon codes of conduct.

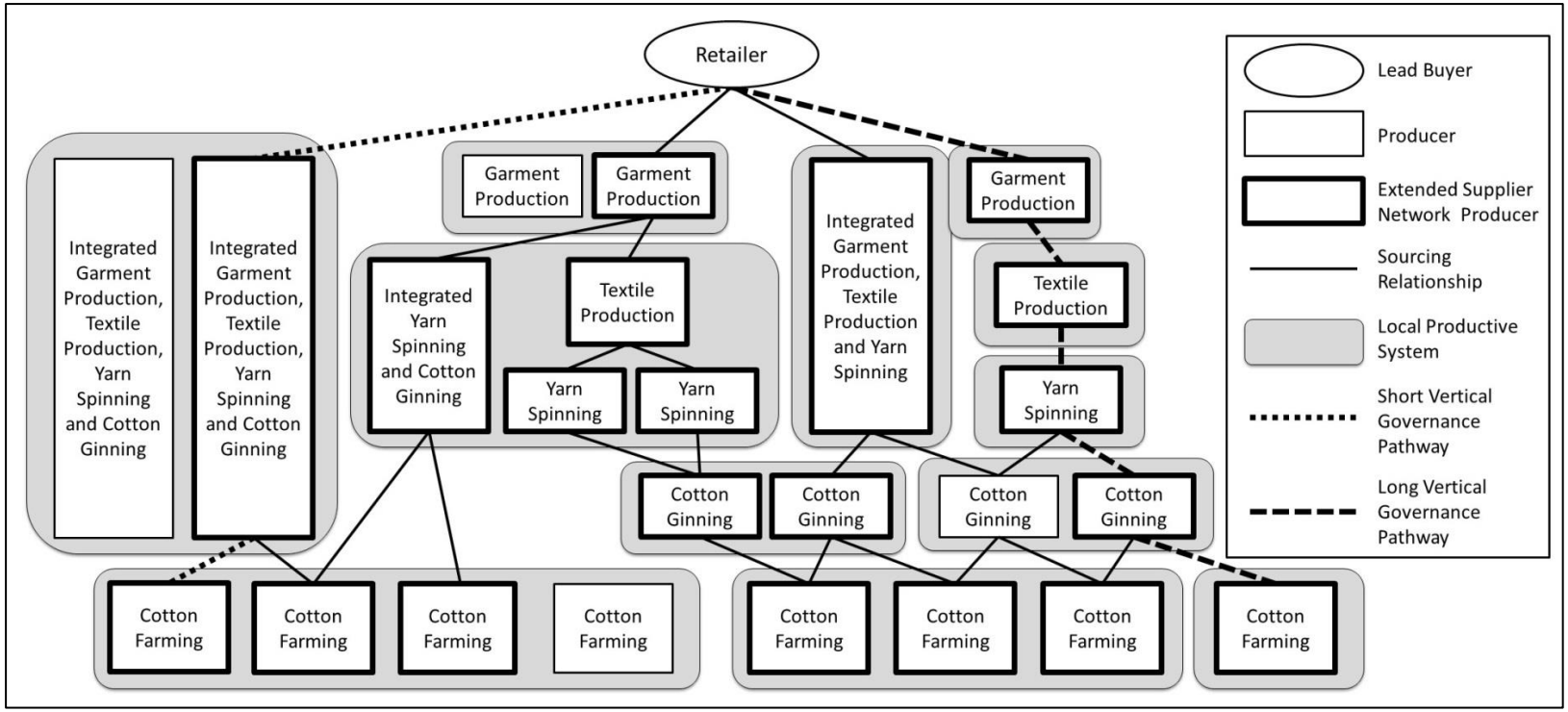
Alternately, Oliver's (1991) avoidance option is also available. Businesses can choose to work with buyers who do not have process requirements or have requirements that are compatible with existing practices. Intermediaries can also play active roles that involve reacting to buyers' sustainability-related requirements in ways that perpetuate problematic practices by avoiding process requirements. A representative from a garment sourcing firm described how they relied on a small base of garment factories and that orders from the UK would be sent to one of the four factories with certificates related to codes of conduct (I51-R60). Orders from countries that did not have such requirements would be sent to the factories that did not have such certifications.

5.2 Meso Governance in Indian Cotton Garment Production for UK Retailers

A barrier for processes of meso governance is the sheer size of the network of producers. For example, just at the first level, the case study retailers typically work with hundreds of garment producers. A simplified diagram of a portion of the case study network can be seen in Figure 2. The challenges involved in buyer governance of dyadic relationships affect the thousands of vertical pathways that connect businesses in this case. Given the great diversity of governance potential across dyadic links in this network and the variation among producers' responses to buyer pressure, retailers' governance pressures cannot easily flow down through vertical pathways. This challenge is most extreme for some of the very long fragmented pathways found in this case.

Furthermore, the case study retailers based in the UK and sitting at the top of complex supplier networks in India, not only have trouble promoting sustainability through purchasing relationships but also have limited knowledge of the identities of the producers involved. In turn, lower-tier producers have limited knowledge of lead buyers. The idea of mapping supply chains has been promoted through the concept of traceability, which involves being able to identify all stages of production. Traceability was found to be a serious challenge for cotton garment production.

Figure 2. Production in an Extended Supplier Network



Source: Author's Construction

5.2.1 Slow Diffusion and Key Cut-Off Points

As mentioned above, barriers to meso governance can come from slow diffusion or key cut-off points. Examples of both mechanisms can be identified but are not clearly distinguished within this case. Asked about the influence of her company on lower-tier suppliers a respondent from a retailer commented,

> Not very much actually because our leverage goes off a cliff. When there is money involved, and you are influencing a change, then it's easier to do. When you go to the next level, then it goes off a cliff; it's exponential. Instead of just a slight decrease of the influence, it's just not there. (I114-R127)

A few particularly common key cut-off points for buyer-led governance were identified. Examples are when small, informal fabric manufacturers source from large spinning mills and when small garment producers source textiles through agents that buy them from large composite mills. Limited dependency in buyer-seller relationships can also create key cut-off points. In this case many lower-tier suppliers are not very dependent on UK retailers as end buyers. For example, for yarn sellers with many globally diverse customers using their yarns for different types of products, not much pressure may be felt based on demands from a few UK garment retailers in contractual relationships with garment producers making products from textiles that may include their yarns. Retailers' lack of leverage when trying to make demands on businesses without direct contracts is expressed by a UK retailer's India-based code of conduct manager.

> Some of our manufacturers are vertically integrated and they have dye houses owned by them so it becomes a bit easier for us to go out and actually make sure that their standards are reasonable. However . . . there are some of the factories that outsource and maybe use some other dye houses or mills for procuring the raw materials. In that case, our approach is slightly different because we don't have that leverage actually. Because of the fact that a garment manufacturer who is working for [us] for example, let's say sources out of a particular mill and that business would be very miniscule for that mill and they will say we're not interested to have someone from [our] code of practice to come in and audit us . . . it's a challenge for all the retailers actually (I38-R47).

This challenge may be exacerbated by buyers particularly looking to India when they want small runs as the country's base of small garment producers have smaller minimum orders than many other major garment producing countries. These small garment manufacturers may not have leverage over their direct suppliers, let alone the network of suppliers below.

Overall, garment sector lead buyers have triggered notable changes to practices used by first-tier suppliers, which could be seen as the start of governance flowing down

through the network. One way that lead buyers have been able to impact first-tier suppliers is by driving the creation of in-house jobs specifically focused on ensuring compliance with retailers' policies. For garment manufacturers targeting markets with code of conduct requirements, this investment has been justified. However, investing in such intra-organizational change may not be seen as worthwhile for lower-tier producers who are less dependent on lead buyers with explicit process-related sustainability requirements. Furthermore, in many paths, lower-tier producers do not know the identity of lead buyers.

5.2.2 Traceability

Pressures related to traceability are directly tied to brands and retailers being seen as lead actors in governance for sustainability. The UN Global Compact (Norton et al. 2014) suggests four drivers for why lead firms having traceability programmes. These are defined as values and efficiencies, stakeholder pressure, regulation and global alignment. These drivers are seen as promoting 10 benefits, which are outlined in Table 3.

Table 3. Drivers and Benefits of Traceability Programmes

Driver	**Benefits**
Values and Efficiencies	• Reducing risk • Operational efficiencies and process consistency • Securing supply • Supplier selection and supplier relationships • Reputational benefits
Stakeholder Pressure	• Meeting stakeholder demands for more product information • Ensuring sustainability claims are true
Reputation	• Meeting legal requirements
Global Alignment	• Standardization of expectations, processes and systems • Ensuring security of natural resources

Source: (Norton et al. 2014)

Despite the strong drivers for retailers to develop traceability programmes, they have proven to be a difficult undertaking. The difficulties are expressed in a report by the UN Global Compact (Norton et al., 2014, p.18), which states,

> A few companies interviewed during the development of this guide disclosed that their attempts to establish company-specific traceability schemes were unsuccessful. The roadblocks were due to two key factors: the reluctance of suppliers to share information, and the fact that there was a particularly opaque section of the supply chain, such as when there are agents or distributors not prepared to share sources, or a large number of small producers that are difficult to track. Attempts by the organizations in question to pursue traceability alone did not offer a solution.

If businesses at any stage refuse to share the identity of their suppliers, which has often been seen as proprietary information needed to keep competitive advantage, traceability of that branch of the network is blocked.

In the case study network, representatives of retailers mentioned ongoing challenges with having knowledge about lower-tier producers. When asked about lower-tiers suppliers, a respondent from a retailer described current knowledge levels as low and described developing this knowledge as a goal for the future.

> We know where they all are, what people generally regard as the first-tier at least, so the place where something is actually made, when you go below that to where the fabric comes from or if there's any outsourced process, such as stuff goes to a laundry or a dye house, maybe not quite so clear on all of those. Work in progress. (I120-R129)

This quote exemplifies lack of knowledge at the top of the ESN. Buyers at each link often do not know much about the origin of their inputs(I44-R54; I45-R55).

An empirical example showing this difficulty is the way that a traceability scheme for Marks and Spencer's (M&S) cotton production was cancelled due to challenges with feasibility, even with a significant investment and public commitment towards realizing this objective. In 2011 M&S produced a press release outlining a commitment to develop a traceability programme for their clothing and home products. They hired a consultancy firm to help with this process. After about 18 months this programme was cancelled as they could not reach the required scale (Barrie, 2014). A respondent in this study cited similar challenges as those experienced by M&S when he commented,

> You've got to be incredibly careful when you make claims about where you know that it's come from. Tracking these days, because it's such an homogeneous market, such as the world trade in cotton mixes up all sorts of market places. By the time it gets to the mills themselves, to have the exact traceability is very difficult, because for instance where the issues in Turkmenistan etc. exist, they become very clever about disguising their product in the market place. So the bales aren't recognised, they don't put any identity on it, they just trade it off. (I109-R123)

In an interview with a trade magazine, Tim Wilson, the CEO of the consultancy firm hired by M&S, described the challenges in building new sets of relationships that would be needed to develop traceability as, 'technically difficult, commercially difficult and culturally difficult (as quoted in Barrie 2014).' In this case, a retailer, with the self-proclaimed goal 'to become the world's most sustainable major retailer by 2015 (M&S, 2010, p.3),' was not able to map the ESN of one of their many products.

Another indicator of challenges related to traceability is the lack of awareness of lower-tier producers of how their products will be used. Respondents of lower-tiers firms indicated variously that they had a rough idea through informal channels where their products would end up or that they did not know. For example, when the production manager at a dyeing unit was asked for names of the brands that his company dyes for, he responded, 'We just do the job work. They don't tell us all those details (I65-R74).' Informal knowledge was expressed by the response of a manager of textile manufacturer. When asked about the UK brands his textiles would be used for, he said, 'No, they don't tell us but we know that from our sources that who they are selling to. . . they are this brand Marks and Spencer (I50-R59)'.

Several major brands and retailers in this case have now published lists of their first-tier suppliers (Schüßler et al., 2019) and some are starting to list second-tier suppliers. However, creating accurate mapping of lower-tier suppliers is still a long way off as lead firms still struggle with even keeping track of which businesses have been involved in garment manufacturing due to unreported subcontracting. The increased use of technological solutions to share information globally has some potential. However, these options still face multiple challenges. For example, gins relying on small-scale farmers for their inputs mix production from multiple farmers into individual bales of cotton. Additionally, informal economic systems may not be compatible with using technological solutions effectively. Fundamentally, globally fragmented production including informal economic systems creates high levels of difficulty with tracing producers.

6. No Silver Bullet: Persistence of Vertical Governance Challenges

With the current structure of fragmented ESNs involving thousands of lower-tier links, successful meso governance processes, involving pressures from lead buyers flowing through many vertical paths, are unlikely to be feasible at a large-scale in the short-term. Two options could thus be considered to facilitate vertical flows of sustainability related demands. One is to expand the use of third-party sustainability standards across earlier stages of production. The second is reintegration of production processes.

6.1 Third-Party Standards

If seeking to promote sustainable production by working through commercial sourcing relationships, lead buyers can trust their first-tier suppliers to be responsible for earlier

stages or seek additional forms of monitoring. Monitoring of lower-tiers may be done by the retailers themselves, upper-tier suppliers, lower-tier supplier self-evaluation or third-parties (Alexander, 2019). Lead firm monitoring faces numerous challenges which include the high volume of lower-tier suppliers, resistance of lower-tiers in accepting inspectors from lead firms and difficulty in identifying lower-tier producers. Upper-tiers monitoring lower-tiers and supplier self-evaluation can be risky options as these actors have incentives to falsify claims. This leaves third-party monitoring and certification as the potential solution that seems most promising.

A key benefit of this approach is its potential to make it easier for lead buyers' demands to flow across fragmented paths. If products are sold with set of certificates, these can be seen as analogous to product qualities. For example, if a retailer wants a set of certifiable sustainability processes, this could be put in a purchase order. As lead firms expand the scope of their sustainability objectives, attempts at using third-party certification are expanding beyond niche product lines. For example, in 2014, M&S introduced a policy requiring wet processers to provide proof of third-party certification for environmental issues.

However, a third-party certification approach faces several significant challenges. One challenge is that while top UK garment retailers are large companies, they actually do not make up a very large proportion of the use of the intermediary products produced by lower-tier suppliers. Consequently, as discussed earlier, lower-tier producers may not be very dependent on these end buyers. In this context, it would be difficult to get lower-tier producers to participate in third-party monitoring schemes.

A second challenge is that lower-tier producers participating in certification schemes would have access to the options identified by Oliver (1991), meaning they could acquiescence, compromise, avoid, defy or manipulate. A particular concern is that lack of visibility creates opportunities for falsification. A representative of a UK retailer considering options for certifying second-tier suppliers commented,

> We know pretty much where all of our fabric comes from because we keep that on the system, but whether those sites are compliant to a social standard, we don't check that. Just on fabrics alone, we have a couple of thousand fabric suppliers. So you are suddenly in a completely different world. How would you manage that volume of units? And to what degree would you manage them? Would you do it by remote compliance – would you just say, 'We know who you are and we want to make sure that you meet our compliance' and once every two years somebody from the office will go over and make sure that you are meeting that compliance. (I114-R127)

Her implication is that such a remote compliance system would not be effective. Additionally, to address challenges reaching down to raw materials, certificates would be required for multiple inputs, which could be difficult to independently identify when brought together in one product, such as cotton from multiple farmers being ginned together.

A third challenge is cost. Lower-tier suppliers would have to make investments in getting certified. While sustainability-related certification travelling across all stages of production currently exists for speciality products, such as those identified as having organic components, monitoring currently involved in the creation of these specialty products is very high (I77-R86) and is reflected in product cost. To enact a system involving private monitoring of the millions of businesses involved in all stages of garment production, let alone production in all industries, would be a monumental undertaking.

6.2 Reintegration

An alternate potential solution for many of the challenges described in this paper is for firms to reintegrate production and therefore have control over all processes. This option is difficult because the economic motivations for firms to outsource are strong. Also, within the garment industry rapidly changing trends would be hard to produce with a stable production base with a fixed set of skills

Nevertheless, in this case there are some examples of sustainability issues being addressed through increased levels of vertical integration. In one instance, a large vertically integrated producer, with in-house garment, textile and yarn production, was found to be working with a retailer on a programme intended to support better cotton farming practices (I75-R84).

However, the trend in the garment industry has been for brands and retailers to devolve increasing levels of responsibilities to suppliers (Gereffi, 1999). In India this has particularly involved increased responsibility of garment manufactures to choose their own fabric inputs (AEPC 2009). Short of full integration, to enable lead firm governance for sustainability, one option could be for these decisions to be reintegrated. The retailer representative mentioned above who said her company knows identities of fabric manufacturers but does not regulate them, went on to mention a hypothetical future for addressing challenges in lower-tiers by saying,

> Or, do you say, 'Actually, all poplin is going to come from this source; all twill will come from this source; all denim will come from this source; all piqué

> jersey, single jersey, interlocked will come from here or there,' and you start nominating your supply route? (I114-R127)

This approach has some potential but faces a strong counter-pressure from the economic motivations that have been leading to increased outsourcing of coordination roles.

7. Potential for Buyer-Driven Governance for Sustainability

This paper applies Ponte and Sturgeon's (2014) proposed framework for considering micro and meso governance in fragmented production to analyse processes of buyer-driven governance for sustainability in commercial relationships. Buyer-driven governance along vertical pathways has been shown to be a challenging process. With current systems of production involving high levels of fragmentation across complex networks, the possibilities for buyer-driven governance shaping production processes are limited. This finding shows common conceptions of lead firm driven production may need to be reworked when considering sustainability challenges.

Three key issues come out of this study. First, some studies building on the idea of production having a driver have drawn attention to the diversity of governance across fragmented production by introducing the idea of bi-polar and multi-polar governance (Fold, 2002; Ponte & Sturgeon, 2014). The findings from the case study in this paper emphasise the importance of producers' embedded location as shaping production practices. While sitting in a large GPN, producers tended to only have direct connections to their immediate buyers and suppliers and used production practices that were common in their local regions. This study has empirically highlighted the lack of a single driver, a finding in line with previous research which has considered ESNs as complex adaptive systems characterised by being likely to maintain existing patterns, having actors that are responsive to stimuli but with unpredictable reactions (Choi et al, 2001; Alexander, 2018).

Second, the findings of this study point to a fundamental trade-off between the benefits created by fragmented production and lead buyers' ability to address sustainability challenges. Businesses lose control over processes when they outsource. However, technological developments have the potential to decrease outsourcing or reduce the loss of control it creates. These developments can have pros and cons when it comes to sustainability. For example, the use of robotics and 3D printing may create new opportunities for reintegration but would reduce opportunities for new businesses, particularly in developing countries, to participate in production processes (Edmonds et al.,

2019). A supportive development may be the increased use of physical testing and computer tracking for intermediary products, which is creating more records and potential for traceability than previous systems which relied on less standardized interactions. Furthermore, these changes in trading relationships may create increased potential for the introduction of new standards related to the use of sustainable processes in the future.

Third, this case demonstrates that currently, lead buyers have limited connections to most components of production. This base condition means that as lead firms respond to pressures to play an increased governance for sustainability role, these firms will be developing new connections to local productive systems. Already, lead firms facing such challenges in using commercial relationships to govern production practices are seeking new ways to interact with production processes (Alexander, 2019). As large brands and retailers attempt to alter domestic production systems, questions arise about the types of impacts this will have. How do lead firms' projects interact with complex local governance systems and challenges? Do these interventions actually improve conditions in production sites or merely minimise lead firms' risks? As a group of branded global lead firms seek to incorporate sustainability requirements into sourcing practices, might their efforts ultimately segment the production base for different markets, creating a niche group of sustainable suppliers alongside a set of suppliers who maintain established practices?

8. Conclusion

This paper has shown that vertical governance in an ESN takes different forms along multiple vertical pathways. These dynamics are illustrated by the case of cotton garment production in India. Looking at the role of lead buyers at the top of the network, these firms' product requirements are met for each intermediary input but process-related requirements face multiple challenges. Thus, when looking at sustainability issues connected to processes, complex supplier networks cannot be seen as buyer-driven.

A framework identifying key challenges for commercial relationships facilitating buyer-driven governance for sustainability has been provided. This framework identifies two problems at the micro level. The first is the variability of the potential for buyer power across distinct buyer-seller relationships. The second is that, even in cases where buyers are able to stimulate change, producers' reactions may not be in line with the buyers' intentions. At the meso level, the ability for governance to flow down vertical pathways connecting multiple stages of production is severely limited due to the compounding of barriers experienced in

each buyer-seller relationship in one pathway and the existence of key cut-off points. In addition to limited governance pressures traveling through vertical pathways, even mapping these pathways was found to be a significant challenge.

This study has demonstrated that sustainability challenges perpetuated through systems of fragmented production driven by economic objectives are difficult to change. The findings suggest several policy implications for lead buyers seeking to provide governance for sustainable production. As opposed to working directly with existing upper-tier suppliers, lead buyers may be better off through:

- seeking to source from producers that have higher levels of vertical integration;
- creating sustainability focused non-sourcing connections directly with lower-tier producers (Alexander, 2019);
- working in collaboration with other firms in similar positions to increase their leverage (Ashwin et al 2019; Oka et al. 2019);
- using other types of power (beyond bargaining power) to promote changes, such as through the promotion of improved norms (Dallas et al. 2019); or,
- engaging in political advocacy (Oka 2018).

As large global firms seek to play broader roles in governance for sustainably, developing a stronger understanding of the ways in which these firms can best promote positive changes is important. Much further research is needed. Some areas of exploration that could be particularly beneficial are looking at the structures of relationships in different industries, exploring the emerging roles of technological developments and looking at the impacts of ongoing and experimental governance approaches, particularly considering attempts that move beyond standard-setting for first-tier suppliers.

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Garment Supply Chain Governance Project

Changes in the Governance of Garment Global Production Networks:

Lead Firm, Supplier and Institutional Responses to the Rana Plaza Disaster

The aim of this interdisciplinary research project, which is funded by the VolkswagenStiftung as part of the "Europe and Global Challenges"-Program in cooperation with the Wellcome Trust and Riksbankens Jubileumsfond, is to understand the challenges of improving labour standards in global production networks by triangulating the perspectives of lead firms, suppliers and workers in the context of ongoing institutional innovations in the Bangladesh garment industry.

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