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Global Value Chains in Developing Countries: A Relational Perspective from Coffee and Garments

Laura Boudreau, Julia Cajal-Grossi, and Rocco Macchiavello

On the morning of April 24, 2013, the garment factories of the Rana Plaza building in the Savar industrial area in Dhaka, Bangladesh, started their generators to make up for the recent power outages. Then the building collapsed, causing the death of 1,134 people and injuring 2,500 more. The building had compromised structural integrity: several floors had been added without a building permit. The Rana Plaza disaster—one of the deadliest industrial disasters in history—brought the working conditions in the garment sector in Bangladesh into the global spotlight. This and several other industrial disasters contrasted with phenomenal success along other measures: the Bangladesh garment sector, virtually nonexistent in the early 1980s, had averaged an annual growth rate in recent decades above 10 percent, accounted for 70–80 percent of Bangladesh’s exports, and employed nearly 4 million workers, mostly women, in a country in which women had traditionally not worked outside the home.

At about the same time, Nespresso was attempting to revitalize South Sudan’s export-oriented coffee industry in partnership with a nongovernmental organization called TechnoServe. The Republic of South Sudan emerged from decades of civil war as the world’s youngest country on July 9, 2011. The civil war had left a legacy of abysmal maternal mortality rates and illiteracy, almost no functioning

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infrastructure, and a ravaged economy. The country's natural resources—mostly oil—attracted attention and gave hope that these resources could be mobilized to revive the economy. However, South Sudan had a long coffee tradition before the civil war destroyed the country's production capacity. Nespresso and TechnoServe trained thousands of farmers and established wet mills to meet export-grade requirements. Nespresso, which purchased all of the country's exports, finally launched the Limited Edition Grand Cru Suluja ti South Sudan in the US and European markets in 2016.

These examples highlight the complex governance issues, as well as the potential both for benefits and for costs, that arise in the global value chains that now account for almost half of global trade (World Bank 2020). There is somewhat widespread consensus, among policymakers and academics alike, that global value chains taken as a whole have helped developing countries grow and lifted many out of poverty. But as these examples suggest, developing countries differ from more advanced economies in important ways—such as an often weaker institutional environment, poorer state capacity for enforcing regulations, and persistent political instability, among others. Their participation in global supply chains raises contentious issues. For example, many observers believe that the market power that large international buyers wield in many supply chains results in unfairly low prices paid to workers and producers and in undesirably poor working conditions and quality standards (Gresser and Tickell 2002; Locke 2013).

In this essay, we will focus on the coffee and garment supply chains, which are classic examples of buyer-driven (Gereffi et al. 2001) global value chains. In these chains, production takes place in developing countries, and buyers from higher-income countries influence standards and terms of trade, making the contentious issues mentioned just above particularly salient. We begin with an overview of these supply chains. Alongside buyers' market power, we then emphasize that these supply chains operate in contexts where complete contracts are not possible due to a range of issues from measuring quality to unexpected shocks. These contracting problems are often compounded by the distinctive institutional features of developing countries.

To address these contracting problems and improve market outcomes, a common approach among participants in the coffee and garment industry is to rely on long-term relationships between buyers and sellers. Thus, our discussion emphasizes a relational view of trade, as described by Antràs (2020) in his review of the conceptual aspects in the study of global value chain. At the export gate, we emphasize the importance of long-term supply relationships between exporters and foreign buyers related to issues like quality, financing terms, and reliability. Beyond the export gate, the importance of relationships manifests itself in the interlinked transactions between smallholder farmers, first-stage processors, exporters in the case of coffee (and other agricultural chains), and in the quality of industrial relations between exporters and workers in the apparel sector. Finally, we discuss how long-term supply relationships at the export gate can be leveraged to improve relationships in the domestic part of the chain and address sustainability challenges, including environmental ones. For producers in developing countries,

participation in long-term supply relationships can promote upgrading in product quality and management practices (for a review, see Verhoogen forthcoming) and—increasingly—in social and environmental standards.

This perspective on global value chains requires going beyond standard datasets about quantities and prices as recorded at national borders, which lack the detail necessary to understand how long-term supply relationships function. Instead, a relational perspective requires contextual and detailed knowledge. In this spirit, we focus on lessons we have learned over more than a decade working in partnership with a variety of stakeholders and several coauthors in the coffee and the garment chains in developing countries. When does monopsony power—like that held by Nespresso in South Sudan—depress prices paid to farmers and efficiency? When does it enable investments in otherwise prohibitively risky contexts? When does monopsony power of large garment buyers cause garment producers to take short-cuts that compromise on workers' safety and well-being? When does it promote fairer working conditions? Addressing these kinds of questions requires looking beyond measures of border trade, and instead understanding how long-term relationships will sometimes be able to address contractual frictions.

We argue that understanding market power and relationships—and how they relate to each other and at the different stages of the chain—is necessary to foster equitable and sustainable participation of developing countries in global value chains. Market power typically generates distortions relative to a first-best benchmark and inequitable distributional outcomes. The contracting problems highlighted above, however, suggest that first-best is not the relevant benchmark in most practical settings. In both garments and coffee, we show that proxies for market power and for relationships are positively correlated with each other both at the export gate and in the domestic portion of the chain. This suggests that the welfare consequences of market power cannot be assessed exclusively in terms of prices as, due to contracting problems, many other aspects of the transaction are important. Furthermore, a certain degree of market power might be needed to sustain beneficial long-term relationships. We need to know more about how to build and maintain well-functioning relationships that enable a more equitable participation in global value chains.

We make no pretense that the coffee and garment supply chains are representative of all supply chains. Indeed, as we shall explain, even these two supply chains are organized quite differently across developing countries. However, we do believe that the themes we explore using these two chains as laboratories—contracting problems, market structure, sustainability, and the importance of long-term supply relationships—are relevant in many other international trade contexts.

A Bird's-Eye View of Two Value Chains: Coffee and Garments

We begin with a succinct description of the coffee and garments global value chains, focusing on the export-oriented links of the chain in developing countries.

As these two sectors illustrate, the supply chain can look quite different across contexts.

Coffee

Coffee is produced in about 50 countries in the “coffee belt”—between 25° latitude North and South of the equator—and is the main source of livelihood for an estimated 25 million smallholders. Linking these producers to global value chains can potentially increase their incomes and alleviate poverty. Besides its intrinsic interest, the coffee chain is characterized by buyers’ market power over producers (Watkins and Fowler 2002), but also, as we shall see in a moment, by several contracting challenges.

The top panel of Figure 1 illustrates the coffee supply chain in developing countries. The coffee cherry is the fruit of the coffee tree. After harvest, the bean inside the cherries is separated from the pulp, dried (and called “parchment coffee” at this stage), and then hulled and sorted to obtain green coffee. Coffee-producing countries, and even regions, differ in the extent to which farmers are involved in pulping, washing, and drying. In some countries (like Colombia), these activities are mostly undertaken by farmers that sell “parchment coffee” to intermediaries who then take it to exporters. In other countries (like Costa Rica), farmers sell coffee cherries to mills (washing stations) and deliver it to exporters. Most green coffee from producing countries is exported to traders or directly to roasters, before reaching retailers.

The cost of roasted coffee accounts for only 5–10 percent of the final price for a cup of coffee paid by consumers in high-income countries. Rent for the premises, labor costs, and taxes account for the vast majority of the final retail price. In turn, only a small fraction (10–15 percent) of the price paid by the retailer to the roasters reaches the farmer, with the rest being absorbed by roasters’, traders’ and processors’ costs and margins along the chain (ICO 2020).

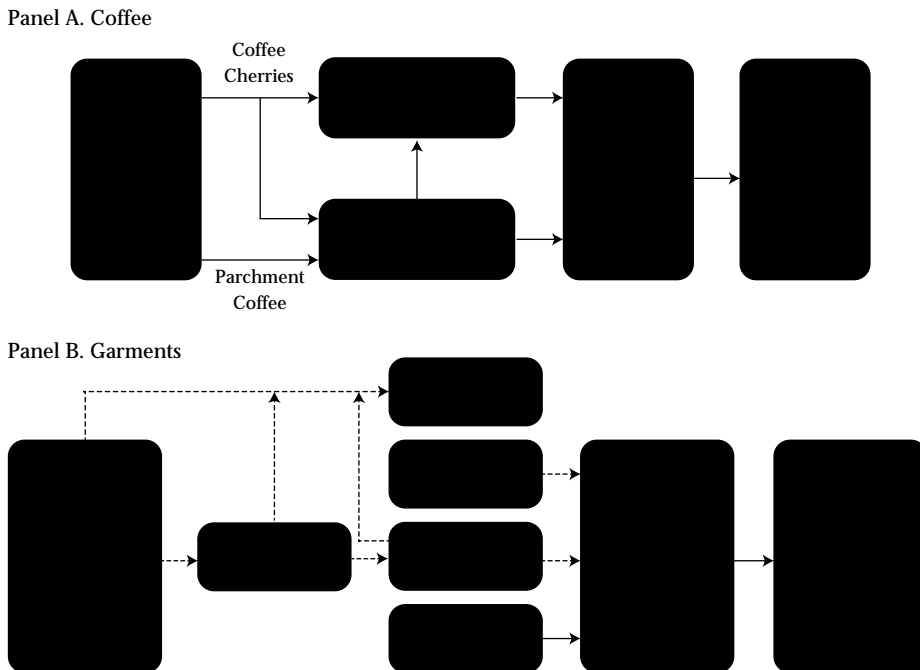
Garments

The garments sector makes intensive use of unskilled labor, in part because it has proven difficult to automate large parts of the production process. Thus, developing countries with abundant labor and relatively low wages have a comparative advantage, and the garment industry has in the past played a critical role in the early phases of export-oriented industrialization (Akamatsu 1962; Baldwin and Martin 1999), and most recently in East Asia (for example, Gereffi 1999). Rapidly falling trade barriers, like the phasing out of the international import quotas for apparel under the Multi-fiber Agreement in the 1990s and early 2000s, have induced a rapid expansion of garment production in developing countries. As wages in China’s coastal areas rise, a large share of the world’s garment production seems likely to relocate to poorer regions in South Asia and possibly Africa.

From a development perspective, two aspects of garment production are noteworthy. First, exported garments are typically produced in large manufacturing plants organized along production lines, which means that garments provide an

Figure 1

Organization of the Supply Chains of Coffee and Garments



Source: Authors' stylized representation of the supply chains of coffee (panel A) and garments (panel B).
Notes: The boxes depict different actors by their role in the supply chain. Boxes with gray shading are the focus of this article. Arrows reflect the flow of goods between actors, and those with solid lines are discussed in this article.

important training ground for modern management systems in developing countries (Bloom and Van Reenen 2010). Furthermore, it has been argued that women have a comparative advantage in sewing and stitching, the most labor-intensive steps in the production of garments. Garments have thus been an engine for women's emancipation.

The bottom panel of Figure 1 illustrates the export-oriented garment supply chain in developing countries. The production of garments is the last step in a process that starts in cotton fields, passes through textile companies that process yarn into cloth, and then brings together accessories and other inputs before workers cut, stitch, and package garments for exports. On the other side of the export gate, foreign buyers are typically brands, wholesalers, and retailers in high-income countries. Fabric is the main material input in the production of garments, accounting for 70–80 percent of the cost of a standard piece of garment as it leaves the factory gate. Labor, mostly employed in the sewing and stitching of garments, accounts for approximately 20 percent of the costs. Among the largest developing

countries exporting garments, China, India, and Pakistan are also large producers of cotton and fabric, while Vietnam and Bangladesh mostly rely on imports.

At the Export Gate

In this section, we discuss the nature of the exchange between exporters and buyers in the two chains. The quantity of the product is observable and reported in statistics. Customs data is commonly reported according to the Harmonized Commodity Description and Coding System (see the website of the International Trade Administration at <https://www.trade.gov/harmonized-system-hs-codes>) and typically referred to as HS. However, the quality of products is harder to observe at the border. Conversations with stakeholders in coffee and garments furthermore reveal the importance of the two-way provision of services, qualities, and “promises” about how parties expect to trade in the future. These aspects of the exchange are almost never recorded in administrative datasets.

What Quality Is Being Traded?

Customs data provides only so much information about the product that is traded. Coffee is covered in the HS heading 0901: coffee, whether or not roasted or decaffeinated; coffee husks and skins; coffee substitutes containing coffee in any proportion. Within the heading, there are only six HS codes at six digits of disaggregation (HS6). Among these, over 90 percent of exports from producing countries is in 090111 (coffee, not roasted, not decaffeinated). Garments include products made from knitted or crocheted fabrics (HS chapter 61) and clothing made from woven fabrics (HS chapter 62). These two chapters span approximately 300 six-digit product codes. For example, 610510 is men’s or boys’ shirts, knitted or crocheted, of cotton.

However, buyers and sellers typically reach a common understanding of detailed quality specifications that goes beyond the product codes. For example, green coffee after milling is graded and classified for export with the aim of producing lots that meet certain quality criteria. There is no universally accepted quality grading system—each producing country has developed its own classification—but classifications that have been widely accepted across the industry support price negotiations between parties. For example, contracts are typically explicit about the coffee grade (the size of the coffee beans), the maximum rate of defects, and certifications. In garments, delineating quality parameters often entails the exchange of samples and post-shipment checks. Parties agree on an allowance for a certain percentage of defective garments.

Our conversations with stakeholders in both industries suggest that quality is in general observable, in the sense that buyers can observe it after seeing it, but not contractible, in the sense that it would be difficult for a court to adjudicate a contractual dispute over quality in a cost-effective manner. Asymmetric information over quality plays a bigger role for complex products, or those that must satisfy

sanitary and phytosanitary (being free of crop disease) requirements. The performance of inspection authorities can then influence a country's collective reputation. For example, Bai, Gazze, and Wang (2021) provide a fascinating account of how a contamination scandal at certain producers affected all of Chinese dairy exports. An increasingly important dimension of quality relates to sustainability: consumers care not only about the final output, but also about how the product is manufactured or sourced. These dimensions of quality are harder to observe and pose more severe information and contracting problems. We return to these topics later in the paper.

How Is Trade Financed?

Financing terms are another key aspect rarely observable in standard datasets. On one side, an exporter can require the buyer to pay for goods before they are shipped. Alternatively, an exporter can extend trade credit to the importer, accepting payment after the goods have arrived at the destination. In the former case, the buyer incurs a risk of default if the exporter does not deliver; in the latter, the exporter bears the risk of nonpayment. Financial markets in developing countries are generally less developed, and firms are more likely to be credit-constrained (Banerjee and Munshi 2004; Banerjee and Duflo 2014). Moreover, international transactions involve longer delivery times (thus increasing working capital requirements) and parties located in different jurisdictions (increasing the costs of debt recovery). Antràs and Foley (2015) provides a comprehensive analysis of how exporters and importers navigate this tradeoff.

Financing the working capital required to produce for export is a first-order concern in both coffee and garments. The cost of coffee cherries sourced during harvest amounts to 70–80 percent of an exporter's seasonal revenues. Due to volatile weather and prices, lending to coffee exporters is risky, and banks tend to steer away from the sector, despite widespread state-sponsored support schemes available in many countries. Exporters thus commonly receive prefinancing from buyers. The buyer may advance funds necessary to finance 40–60 percent of the cost of cherries needed to deliver the agreed volume of coffee. In some cases, lenders accept the contract with the buyer as a form of collateral. In either case, the relationship with the foreign buyer is a source of collateral for the exporter. Blouin and Macchiavello (2019) analyze detailed data from one such scheme. They find that, even with such contractual arrangements in place, many coffee exporters are credit-constrained and process too little coffee, possibly depressing prices paid to farmers.

Many countries export garments through the cut-make-trim (or cut-make-package) system, in which the foreign buyer provides all the material inputs to the exporter, who finances the labor. Given that fabric and materials jointly account for more than 70 percent of the variable costs of production, this system drastically reduces working capital requirements. However, the system also limits the potential for the exporter of capturing a higher share of the value added by entering additional steps of production (like sourcing, logistics, and so on). Financial frictions thus impact the organization of production and the potential for upgrading (Manova and Yu 2016). Some observers have credited the success of the Bangladesh

garment industry to the system of “back-to-back” letters of credit enabled by the central bank. Under this credit facility, exporters import material from abroad using a letter of credit from the buyer as a guarantee. This has allowed Bangladeshi exporters to control more functions and capture a higher share of value addition.

Other Dimensions: Reliability, Flexible Supply, and Demand Assurance

Reliability of supply (the supplier’s ability to deliver orders with no delay and according to agreed-upon specifications) is the most recurrent aspect mentioned by buyers in conversations about suppliers’ performance. However, the reliability of a given supplier can be difficult to assess—which makes a supplier’s reputation for reliability a valuable asset. Standard datasets record the timing of the trade that took place, not its discrepancy from what parties had agreed upon. Reliability, let alone a reputation for it, is thus hard to observe in data normally available to researchers.

Macchiavello and Morjaria (2015) provides a vivid illustration of the importance of maintaining a reputation for reliability using the Kenya flower sector as a case study. Ethnic-based violence erupted in several parts of the country in early 2008 following the heavily contested presidential election. Due to workers’ shortages, many exporters could not harvest flowers in their greenhouses (Ksoll, Macchiavello, and Morjaria 2022). Although exporters exerted costly efforts in order to continue to reliably supply their long-term buyers, many were not able to honor agreements with all their customers and needed to choose which ones to prioritize. Because the behavior of an exporter potentially signals future reliability to customers, exporters tend to prioritize their most established customers. Up to a certain point, that is: the exporter has nothing “left to prove” to buyers where the relationship is already strong. In other words, reputation implies an inverted-U shape relationship between reliability during the shock and the exporter’s previous experience with the buyer—a prediction well-supported by the data.

Flexibility refers to the supplier’s ability to accelerate production, allocate additional capacity, or accommodate changes in design, all at short notice. Flexibility is especially important when demand is hard to predict. Buyers partially address their own need for flexibility and supply assurance by maintaining some production “closer” to where goods are sold, even if at a higher cost, or by using more expensive suppliers less regularly. For example, Gap maintains a relatively small number of suppliers in Mexico and Central America, and Inditex (the owner of Zara) does so in Spain, Portugal, and Morocco, despite higher labor costs compared to Asia.

Conversely, stable and predictable demand helps suppliers optimize capacity utilization. In coffee, much trade happens through forward contracts in which exporters commit to deliver, and buyers to accept, coffee at a later date. These contracts are often agreed upon before the beginning of the harvest season and provide stability to both parties. Macchiavello and Miquel-Florensa (2017) document that sales agreed very early or very late in the season fetch up to 5–10 percent lower prices due to these demand assurance and inventory risk concerns. If a supplier decided not to deliver the promised coffee, perhaps to take advantage of more profitable market conditions at delivery, there would be little that a buyer could do to be

compensated. In garments, buyers often book production capacity not just during seasonal peaks, but also during the less busy periods, enabling exporters to utilize capacity more efficiently. Again, if a buyer was to renege on that promise, perhaps because a cheaper supplier has been found, there would be little that an exporter could do to claim compensation.

For all of these reasons, the information recorded in standard datasets provides a limited characterization of what is traded at the export gate. Observed prices will reflect the value of unobservable attributes valued by the buyer and/or the seller. For example, higher prices might reflect incentives paid to sellers to be reliable, while lower prices may arise when buyers provide a guaranteed demand. Researchers, and policy-makers, should be cautious about attributing, say, heterogeneous markups or incomplete pass-through of higher costs to undesirable forms of market power. Emran et al. (2021) illustrate this point. Prompted by concerns over abuse of market power, the government of Bangladesh banned “order traders,” a certain type of intermediary in the edible oils market. However, because traders relax the credit constraints of wholesalers, the reform increased domestic prices and weakened the pass-through of imported crude prices.

The Prevalence and Value of Relationships

Many important aspects of trade exchanges are noncontractible and potentially subject to opportunistic behavior; indeed, some evidence from coffee markets suggests that half of observed defaults on forward contracts are caused by the exporter’s reneging on promised deliveries to take advantage of improved market conditions (Blouin and Macchiavello 2019).¹ Even when a contract is in place, it is meant to clarify what parties expect from each other, with both sides knowing and expecting that the contract will not be enforced in court. Baker, Gibbons, and Murphy (2002) refer to these arrangements as relational contracts; that is, “informal agreements sustained by the value of future relationships.” Under these circumstances, parties tend to stick with partners they trust. Long-term relationships based on trust have been documented in many settings, but weak institutions and limited contract enforcement might give them a particularly prominent role in developing and international markets (for a review, see Macchiavello 2022).

A significant share of international trade takes place in long-term relationships between buyers and sellers; indeed, the vast majority of US imports occur in pre-existing relationships (Monarch and Schmidt-Eisenlohr 2020; Monarch 2022). Using data from work in progress (Cajal-Grossi, Del Prete, and Macchiavello 2022; Del Prete et al. 2022), we construct a proxy for the prevalence of pre-existing relationships between exporters and foreign buyers in the global coffee and garment

¹In many commodity markets there is a trade-off between insuring against price swings and counterparty risk. Parties can insure against market price risk by agreeing to a fixed price in advance. This however comes at the risk of one of the two parties reneging on the deal if spot market prices change sufficiently. Alternatively, parties can agree on price-indexed contracts that track market spot prices, foregoing insurance. Blouin and Macchiavello (2019) show that the possibility of defaults leaves many exporters of coffee uninsured against price risk.

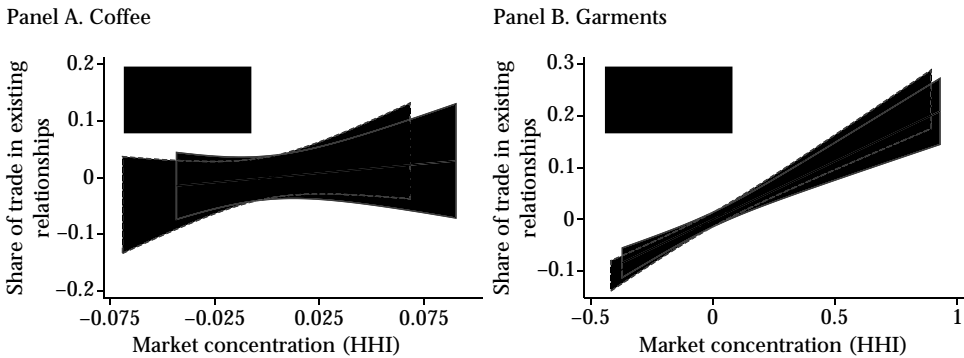
industries. In 2019, around 80 percent and 70 percent of trade in coffee and garments, respectively, took place between buyers and sellers that had traded the year before (see the online Appendix for details).²

The (future) value of the relationship deters parties from giving in to the temptation to behave opportunistically and deviate—yet this value is not directly observed. One approach to quantify the value of the relationship is to measure temptations to deviate. Macchiavello and Morjaria (2015) note that a relationship must be at least as valuable to the exporter as the extra revenues that the exporter could earn selling to a different available buyer at a higher price. They compute relationship values among Kenyan flower exporters using spot market prices at the Dutch auctions—a sales channel available to all—as a lower bound to the value of temptation. They find that the average long-term relationship with a foreign buyer in this market is worth about 30 percent of the exporter’s yearly profits. Blouin and Macchiavello (2019) follow a similar approach to quantify the value of relationships in the coffee sector and find even larger estimates. A different approach is to measure profit margins earned from different buyers. This is difficult to do, as it requires observing both the prices earned from, and the costs incurred to supply, specific buyers. Cajal-Grossi, Macchiavello, and Noguera (forthcoming) relax these data constraints and find estimates of the value of relationships in the Bangladesh garment sector commensurate with those in Blouin and Macchiavello (2019) and Macchiavello and Morjaria (2015). These examples suggest that relationships in global supply chains can be valuable. Indeed, these estimates imply that, due to contracting problems, valuable trading opportunities do not take place because parties do not have sufficient “relationship value” to provide adequate incentives.

How do market power and relationships interact? A perfectly competitive market, without abnormal profits or rents, cannot sustain relationships. Figure 2 offers some suggestive evidence consistent with this hypothesis. The data underlying these figures correspond to distinct markets, defined in this case as product-origin combinations, where the product is an HS6 code and the origin is a country exporting coffee or garments. The horizontal axis reports the Herfindahl-Hirschman indices based on market shares of sellers and buyers—a proxy for concentration. The vertical axis reports the share of all exports in 2019 that occurred between parties that were observed trading in 2018, and thus have a pre-existing relationship. The left panel considers the case of coffee. As noted above, most green coffee is traded within a single HS6 code. Each data point in the figure corresponds to one of the 14 countries for which we have data. Despite the few observations, we find a positive, and statistically significant, correlation between market concentration and

²Vertical integration can also remedy the contracting problems discussed above and, indeed, accounts for a significant share of global trade (Antràs 2003). Vertical integration is almost entirely absent in garments. Large European and American retailers—even those that used to be garment manufacturers in their origin countries, such as Levi’s and VF—own few factories abroad. In contrast, several international traders have integrated backward into exporting and processing stages of the coffee chain in sourcing countries (Del Prete et al. 2022).

Figure 2

Market Concentration and Relationships at the Export Gate

Source: Data are from Del Prete et al. (2022) and Cajal-Grossi, Del Prete, and Macchiavello (2022) respectively. See the online Appendix for further details.

Note: The figure shows the correlation between market concentration and the share of exports traded in relationships in coffee and garments. HHI stands for Herfindahl-Hirschman Index. Horizontal and vertical axes' variables are residualized against the size of the market, in terms of exported values. The linear fits over 14 observations in coffee and 1,113 observations in garments are presented alongside 95 percent confidence intervals.

the prevalence of relationships across coffee-sourcing origins that account for over 90 percent of global coffee trade.

The right panel considers the case of garments. Here, instead, we have data for seven origins that account for about one-third of developing countries' garments exports to the United States and Europe. We can however define markets more precisely, taking advantage of the numerous HS6 codes in garments. Again, the figure displays a positive and statistically significant correlation between market concentration and the prevalence of relationships.

Forming and Maintaining Relationships

Given that relationships are so widely used and appear to be valuable, natural questions arise: Where do these relationships come from? How are they sustained? And how do they influence market structure? While relationships can potentially bring benefits, they can also be used to sustain noncompetitive conduct like collusive arrangements (Bernasconi et al. 2023) or even to shut out potential entrants from markets.

Suitable partners for international trade are typically hard to find, and their discovery calls for costly efforts from both buyers and sellers (Eaton et al. 2022). Relational partners are not discovered by third-party reviews, exporters' directories, or attendance at industry meetings. Instead, in many cases, firms experiment with alternative trade partners until they settle on a relationship. The experimentation process can be uncertain, particularly in markets in which firms' operations are frequently disrupted by shocks. Studying garments in Bangladesh,

Cajal-Grossi (2022) finds that buyers experiment to learn about potential suppliers. Following the Rana Plaza disaster in Bangladesh, international buyers concerned with potentially negative reputation spillover became more selective and reluctant to experiment.

Maintaining relationships also requires specific organizational capabilities. Multiple functions, ranging from design to distribution to human resources, must be coordinated across the entire organization to source inputs relationally from suppliers (Milgrom and Roberts 1990). Firms, even within narrowly defined industries, end up adopting very different approaches to sourcing (Helper and Henderson 2014). At one extreme, “spot” buyers spread purchases among multiple arm’s-length suppliers, allocating short-term orders to the lowest bidders and bearing the costs of suppliers’ nonperformance. At the other extreme, “relational” buyers allocate orders to a few suppliers with whom they develop long-term relationships (Taylor and Wiggins 1997).

Studying the garment sector in Bangladesh, Cajal-Grossi, Macchiavello, and Noguera (forthcoming) proxy for these sourcing strategies by exploiting the intuition that relational buyers concentrate sourcing among a relatively small number of suppliers. They obtain a cross-sectional characterization of buyers’ sourcing strategies that maps closely to qualitative accounts in the industry. They find that a buyer’s approach to sourcing is correlated across origins and products: buyer-level fixed effects explain a much larger share of the variation in sourcing strategies than the interaction of product with origin and destination markets fixed effects. This suggests that buyers’ capabilities, rather than characteristics of the transactions (such as product complexity or the institutional quality of the sourcing country), are key determinants of sourcing practices.

Cajal-Grossi, Macchiavello, and Noguera (forthcoming) also show that a given exporter earns higher margins when supplying relational buyers as opposed to spot buyers. Using novel data that match quantities and prices of fabric and labor on sewing lines to specific export orders, they find that relational buyers pay higher prices for orders with similar product characteristics, including the quality, price and efficiency of the two inputs. In principle, relational buyers might thus be a vehicle for upgrading, enabling producers in developing countries to increase value addition through the provision of hard-to-contract upon attributes (such as reliability).

Beyond the Export Gate

Global supply chains reach down into the business relationships within domestic economies, as shown in Figure 1. We now turn to the domestic side of coffee and garment supply chains. Our emphasis is again on the importance of relationships: between smallholder coffee farmers and their domestic buyers and between garment factories and their workers. In both sectors, a relatively few large firms may command significant market power over farmers and workers. The market power of domestic processors and intermediaries in agricultural chains

is often credited for low prices paid to farmers (Zavala 2022). Similarly, in many developing-country settings there are few large manufacturing firms offering industrial jobs (Hsieh and Olken 2014). Echoing Figure 2 above, we show examples in both chains suggesting that monopsony power is *positively* correlated with the quality of relationships.

Monopsony Power and Interlinked Transactions in Agriculture

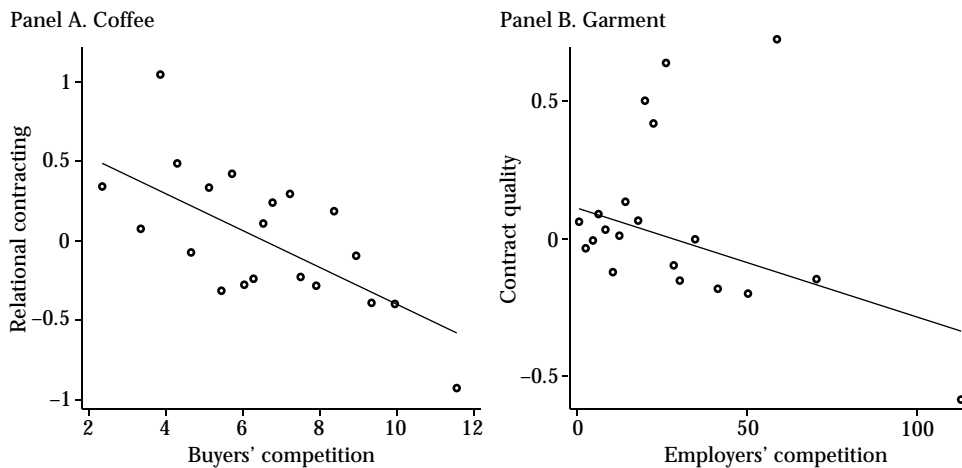
Farmers often face noncompetitive market structures downstream. For example, Bergquist and Dinerstein (2020) use an ingenious combination of experimental designs and structural modeling to study market conduct among agricultural traders in Kenya. Their estimates cannot reject collusive behavior—perhaps sustained by long-term relationships—among traders. In India, a law restricts farmers from selling their goods to intermediaries in their own state. Exploiting variation in competition induced by the law, Chatterjee (2023) shows that farmers are paid substantially lower prices when they face less competitive markets. In many cases—for example, tea, tobacco, sugar, and palm oil—smallholders’ produce must be processed by firms that, due to fixed investments and high transport costs in rural areas, accrue substantial monopsonistic power over farmers. Rubens (2023) studies a policy reform that consolidated cigarette manufacturers in the Chinese tobacco industry; he finds that the reform increased manufacturers’ market power over the farmers that sell tobacco leaf, distorting input markets, without generating significant gains in productivity.

Market power can also hinder quality upgrading. Using internal records from a large Colombian exporter, De Roux et al. (2022) document higher margins for the exporter on higher-quality coffee: while higher-quality coffee commands a significant price premium at the export gate, none of the price premium is passed on to domestic producers. An analysis of the pass-through of weather and exchange rate shocks to input and output prices reveals that the higher margin earned by the exporter on higher-quality coffee beans arises due to the exporter enjoying relatively higher market power in the upstream market for such beans relative to standard quality ones.

How do market power and relationships interact? Smallholder farmers in developing countries are likely to face imperfect domestic markets for inputs (Duflo, Kremer, Robinson 2008; Ashraf, Giné, and Karlan 2009; Duflo, Kremer, and Robinson 2011; Bold et al. 2017), credit (Karlan et al. 2014), insurance (Cai, Janvry, and Sadoulet 2015; Casaburi and Willis 2018), saving (Casaburi and Macchiavello 2019), and land (Acampora, Casaburi, and Willis 2022). In the presence of these market imperfections, farmers may enter “interlinked transactions” (Bardhan 1991) with their buyers, in which the sale of the produce is bundled with the provision of inputs and services. The underlying contracts are typically not enforceable in court, and so the interlinked transactions rely on long-term relationships.

For example, Macchiavello and Morjaria (2021) study the impact of competition between coffee-washing stations in the Rwanda coffee chain on the use of

Figure 3
Competition and Relationships in the Domestic Stage of the Supply Chain



Source: The data used in panel A are from Macchiavello and Morjaria (2021). Panel B's data are from Cajal-Grossi and Kreindler (2023).

Notes: Panel A shows the correlation between spatial competition and relational contracting between mills and farmers in the Rwanda coffee chain. The variables in both axes are residualized against a set of geographic controls. Panel B shows the correlation between spatial competition and relational contracting between garment factories and workers in the Bangladeshi garment chain. The relational contracting index is residualized against plant size (as measured by its own exports on the year of assessment). See online Appendix A for further details.

relational contracts. In this context, efficiency requires mills and smallholder farmers to exchange a bundle of services (inputs, credit, second payments, and others) before, during, and after the harvest season. The left-hand panel of Figure 3 uses coffee mills as the unit of observation. On the horizontal axis, the number of mills located within ten kilometers of a given mill offers a measure of the competition between buyers. The vertical axis shows an index of relational contracting between the mills and surrounding farmers. The index is calculated by combining information obtained from detailed surveys of both mills and random samples of farmers in the surrounding areas. The survey precisely measures the bundle of services that farmers and mills exchange before, during, and after the harvest season. Overall, competition in sourcing between mills is negatively correlated with the adoption of these relational practices, which is consistent with our earlier observation that rents are necessary to sustain valuable relationships. Macchiavello and Morjaria (2021) take advantage of an engineering model for the optimal placement of mills to create an instrumental variable for the level of competition and find that mills that face more competition use fewer relational contracts with farmers and exhibit worse performance. An additional competing

mill also reduces the aggregate quantity of coffee supplied to mills by farmers and likely makes farmers worse off.³

In sum, there is the beginning of a consistent body of evidence suggesting that market power can lead to worse outcomes for farmers. But given that farmers also operate in a context with market imperfections, building and maintaining relationships between farmers and downstream players that have market power is crucial. We need to know more about how this is done. These buyers might need specific capabilities to develop such relationships in populations often characterized by a large number of smallholder farmers with low levels of education and general trust.

For example, farmer-owned cooperatives might take farmers' interests more into account and facilitate good relationships. On the other hand, cooperatives are fragile governance forms, due to redistributive pressures (Kremer 1997) and to capture (Banerjee et al. 2001). Despite their importance, we know relatively little about the functioning of cooperatives. Montero (2022) exploits a land reform in El Salvador that induced a discontinuous change in the probability of forming cooperatives. Relative to outside ownership (via haciendas), he finds that cooperatives perform relatively better in staple crops (such as maize and beans), whose output is not contractible (because farmers can easily hide output or consume it directly), than in cash crops (such as sugarcane and coffee), whose output can be more easily monitored—and thus redistributive pressures are more distortionary.

More broadly, a relational perspective emphasizes the difference between simply changing prices paid to farmers, which is relatively easy to do, as opposed to changing the equilibrium of the relationship with farmers, which is much harder. For example, Casaburi and Macchiavello (2015) document challenges in building clarity around the relational contract in a large dairy cooperative in Kenya. Abouaziza et al. (2023) find suggestive evidence that an intervention aimed at improving clarity around relational contracts in the Rwanda coffee chains increases loyalty, but only among the largest (and, arguably, more sophisticated) farmers.

Monopsony Power and Industrial Relations in Garments

The incorporation of developing countries into global value chains has increased productivity in manufacturing, and created better-paying jobs in these countries (World Bank 2020). In garments, these jobs have had broader societal benefits, especially for women, including delaying marriage and childbearing (Heath and Mobarak 2015), increasing female empowerment (Molina and Tanaka 2023), and improving health outcomes among children born to female workers (Atkin 2009). The effect of participation in global value chains on human capital accumulation is

³In the years following the survey upon which Macchiavello and Morjaria (2021) base their analysis, the industry kept witnessing the significant entry of new coffee mills and a further deterioration of relational contracts between mills and farmers. Many mills in the industry were acquired by downstream exporters. In follow-up work, Macchiavello and Morjaria (2022) show that this consolidation did not reduce prices earned by farmers but, when led by foreign-owned companies, led to improvements in the mill's efficiency and capacity utilization—possibly due to better management practices in building and managing relationships with farmers.

more ambiguous: the availability of these jobs can lead to reduced or to increased human capital formation depending on whether such jobs are low- or high-skill relative to alternatives (Heath and Mobarak 2015; Atkin 2016; Blanchard and Olney 2017; Li 2018). That said, while this conclusion is not well documented, it is plausible that participation in global value chains could support increased human capital formation in the longer-term.

Despite these potential benefits, especially in the garments sector, such jobs often entail very long work hours under difficult conditions. In a thought-provoking study, Blattman and Dercon (2018) randomized applicants to an industrial job offer in five large firms in Ethiopia. While the offer doubled initial exposure to industrial jobs, most workers quit within months. In fact, exposure to industrial job increased health problems. The high turnover rate potentially suggests that a set of complementary changes must occur for workers to benefit from this type of jobs. Indeed, the apparel sector is prone to conflict between firms and their workers, industrial disputes and labor unrest are frequent, and a high worker turnover is common. All this costs dearly to firms in terms of productivity. For example, in a rare case study of a Bangladeshi sweater factory that laid off 25 percent of its workforce following an episode of unrest, Akerlof et al. (2020) found a persistent productivity reduction (and income losses) among surviving workers, possibly due to a deliberate shading of performance to punish the factory's management.

Why do stronger and more stable relationships not emerge between firms and workers in the garment industry? One view is that poor industrial relations follow from firms' optimal responses to local conditions in the presence of an abundant supply of low-skill, homogeneous labor (Robinson 1962; Krugman 1997). An alternative view is that firms are operating inside the efficient production frontier and that building better relationships with workers might provide a win-win. As employment contracts are notoriously incomplete (Simon 1951), workers and employers must rely on relational contracts to sustain cooperation and improve performance (Baker, Gibbons, and Murphy 2002).

However, as already noted in our discussion about farmers, relational contracts are hard to build. This is so even within large, well-managed firms in industrialized countries (Gibbons and Henderson 2012). The parties need to develop trust and a clear understanding of each other's implicit commitments. The task is arguably harder for firms in developing countries, many of which have low productivity (Hsieh and Klenow 2009) and thus less margin of maneuver for building relational capabilities (Powell 2019). In turn, many key managerial practices rely on relational contracts between employers and employees. This may help explain why firms in developing countries adopt fewer management practices, as measured by the World Management Survey (Bloom et al. 2014), potentially further stifling productivity growth (Bloom et al. 2013). Globally, apparel firms lag behind other manufacturing firms in their adoption of management practices (authors' calculations using the World Management Survey data).

This line of thought suggests that supporting firms in developing countries to build better relationships with workers might be a win-win: boosting firm

performance while upgrading workers' job quality. In this vein, there is a small but growing research agenda on improving industrial relations in the garment sector. Adhvaryu, Kala, and Nyshadham (2023) experimentally test the returns to investing in workers' soft skills—leadership, communication, teamwork, and collaboration—in the context of a large, Indian firm. They find productivity gains of 13.5 percent among trained workers, positive spillovers to peers consistent with increased cooperation, and a 256 percent net return of the program to the firm eight months after completion.

Improving information flows between workers and managers and increasing workers' voice inside the firm can also support better industrial relations. On the former, Boudreau et al. (2023) investigate secure survey methods designed to monitor harassment in organizations. Under standard direct-reporting systems, workers will hesitate to report harassment for fear of retaliation. They conduct a survey experiment with workers employed by a large Bangladeshi firm. They find that providing plausible deniability of such reports through "hard garbling," or randomly flipping some "no" responses to "yes," has large effects on reporting of harassment. Adhvaryu, Molina, and Nyshadham (2022) examine the value of giving voice to workers in a large Indian apparel firm. After what proved to be a disappointing minimum wage hike, they invited randomly selected workers to provide feedback on their job conditions, supervisor's performance, and job satisfaction. Enabling voice in this manner reduced turnover and absenteeism, showing that workers inherently value voice at work.

In the above discussion of Adhvaryu, Kala, and Nyshadham (2023) finding benefits from teaching soft skills, the alert reader may have noticed that there was no mention of workers' wages—which in fact did not increase despite the substantial productivity gains to the employer from the intervention. This finding is consistent with employers in developing countries having labor market power (for discussion, see Amodio and de Roux 2021). Besides the small numbers of large employers, high search frictions (Abebe, Caria, and Ortiz-Ospina 2021), limited information about employers' quality (Boudreau, Heath, and McCormick forthcoming), and limited workers' mobility (Méndez and Van Patten 2022) all contribute to employers' labor market power. From a policy perspective, quantifying the relative importance of these forces appears crucial. Studying the Bangladesh garment sector, Cajal-Grossi and Kreindler (2023) use high-frequency surveys and a spatial model of workers' job location decisions, to show large welfare losses from distance-driven information frictions.

Gender norms can exacerbate the negative consequences of employers' monopsony power on female workers and thus limit the garment sector's potential to foster women's empowerment. Sharma (2023) argues that the impact of employers' monopsony power varies across gender and that this can account for a sizeable share of the gender wage gap in the textile and apparel industry in Brazil. Similarly, Menzel and Woodruff (2021) find that a significant share of the gender pay gap in Bangladeshi factories is due to women's lower external mobility and internal promotion rates. On the latter, although women account for over 90 percent

of the workers in the sewing section of large garment factories in Bangladesh, they account for only 5 percent of the line supervisors and lower-level managers (Macchiavello et al. 2020). A randomized controlled trial that encouraged factories to promote more women to line supervisory roles reveals that inaccurate beliefs—possibly inherited from the early days of the industry in which women had not yet entered the labor force—are partly responsible for the underpromotion of women in the industry.

Again, we can ask how market power and “relational contracts” interact. Leveraging data from Cajal-Grossi and Kreindler (2023), the right-hand panel of Figure 3 (presented earlier) looks at employer competition and employer–employee relationships in 290 garment plants in urban Bangladesh. The horizontal axis measures the extent of employer competition for workers, based on the number of active exporters within one kilometer of the plant. The vertical axis shows an index of the quality of the relational contract between the plant and its workers. The index encompasses a large number of nonpecuniary job attributes that are valuable to workers but that plants may renege upon, such as the advance notice for overtime, conflict resolution mechanisms, and the compliance with dismissal protocols, all obtained from audits conducted by the Better Work program of the International Labour Organization (see details in the online Appendix). As in the case of the coffee supply chain, there is a negative correlation between employers’ competition for workers and the quality of relational contracting between workers and employers.⁴

Relationships and Sustainable Supply-Chains

Based on case studies in coffee and garments, we focus on how a relational approach at the export gate can improve the quality of relationships in the domestic portion of the chain—for example, paying higher prices to farmers in coffee and ensuring safer working conditions in garments. We believe that these insights are likely to be relevant for other industries as well as to broader issues, including environmental conservation and preventing sourcing that fuels armed conflict. Insofar as the state has limited capacity to regulate and monitor social and environmental standards in developing countries, the role of buyers may be especially important. Although the evidence on this topic is still emerging, we believe it offers a particularly valuable direction for future research.

Concurrent with the rise of global value chains, numerous nonprofit organizations have established certification programs to deal with sustainability challenges.

⁴ Along similar lines, Méndez and Van Patten (2022) provides a fascinating study of the long-term impact of a large land concession held by the United Fruit Company—a large monopsonist in Costa Rica—from 1899 to 1984. Using a geographic regression discontinuity design, they document how the United Fruit Company had a positive, persistent effect on living standards due to its investment in local amenities for the workforce. They also show that where workers were more mobile, the local investment effort United Fruit Company was higher.

Table 1
Selected Initiatives in Coffee and Garments

<i>Initiative</i>	<i>Type</i>	<i>Sectoral and Geographic Scope</i>	<i>Targets</i>
<i>Panel A. Coffee in Colombia</i>			
Fair Trade https://www.fairtrade.net/ Start: 1997 Status: (Active)	Fairtrade International: Multi-stakeholder non-profit association FLOCERT: Private limited certification company	Agriculture (25 countries)	Better prices, working conditions, terms of trade, local sustainability
Rainforest Alliance https://www.rainforest-alliance.org/ Start: 1987 Status: (Active)	International nonprofit	Business, Agriculture, Forests (70 countries)	Climate, human rights, livelihoods, forests
The Common Code for the Coffee Community (4C) https://www.4c-services.org/ Start: 2003 Status: (Active)	Multi-stakeholder initiative (producers, industry, civil society organizations)	Coffee (20 countries)	Economic, social, and environmental sustainability
Nespresso AAA Sustainable Quality™ Program https://www.sustainability.nespresso.com/aaa-sustainable-quality-program Start: 1997 Status: (Active)	Program run by private corporation	Coffee (18 countries)	Quality, productivity, social and environmental sustainability
<i>Panel B. Garments in Bangladesh</i>			
Accord on Fire and Building Safety in Bangladesh https://bangladeshaccord.org Start: 2013 Status: (Active from outside the country)	Multi-stakeholder initiative (brands, retailers, labor unions)	Apparel, tertiary sectors (Bangladesh)	Health and safety
Alliance for Bangladesh Worker Safety http://bangladeshworkersafety.org/ Start: 2013 Status: (Not active)	Multi-firm initiative	Apparel, tertiary sectors (Bangladesh)	Health and safety
Nirapon https://www.nirapon.org/ Start: 2019 Status: (Active from outside the country)	Multi-firm initiative	Apparel, tertiary sectors (Bangladesh)	Health and safety
Action on Living Wages (ACT) https://actonlivingwages.com/ Start: 2017 Status: (Active)	Multi-stakeholder initiative (brands, retailers, labor unions)	Apparel, textile, footwear (4 countries)	Wages, freedom of association, purchasing practices
Better Work https://betterwork.org/ Start: 2014 Status: (Active)	Public-private partnership (ILO-IFC, brands, plants)	Apparel, tertiary sectors (10 countries)	Social compliance (all)
Fair Labor Association https://www.fairlabor.org/ Start: 1999 Status: (Active)	Multi-stakeholder initiative (brands, retailers, universities, suppliers, civil society organizations)	Manufacturing, agriculture (nonspecific)	Labor standards (all)

Source: All information comes from the publicly available, official webpages of the initiatives (included beneath the Initiative's name, in column 1).

Note: The table presents the authors' systematization of a number characteristics of selected multi-stakeholder initiatives addressing different sustainability dimensions in the coffee (panel A) and garments (panel B) supply chains.

Table 1 provides information on selected initiatives applicable to the coffee and garments value chains. Fairtrade International, the first example in panel A, launched its Fairtrade Certification Mark in 2002 (for a review in this journal, see Dragusanu, Giovannucci, and Nunn's article in the Summer 2014 issue). The Fairtrade system has two key aspects: a price premium paid to a farmer organizer or producer; and for a few products, including coffee, a minimum price guaranteed when products are sold as Fairtrade. In both cases, the ensuing price premium must be spent for "social projects" in the community. The second example, the Rainforest Alliance, is an international nongovernmental organization focused on forest preservation and the livelihoods of farmers and forest communities. It certifies agricultural and forestry products, as well as tourism businesses, based on environmental, social, and livelihood-based criteria.

Despite the growth of these certification schemes, there is relatively little rigorous evidence about their effects. In coffee, Dragusanu, Montero, and Nunn (2022) find gains for producers and farmholders in Costa Rica, but not for unskilled workers. Other studies are less optimistic. For example, De Janvry, McIntosh, and Sadoulet (2015) show that farmers pay to have all their produce certified, but only a share of their produce is sold as such, and so price premia over the entire production are limited. In reviewing the literature, Oya, Schaefer, and Skalidou (2018) argue that the evidence is mixed and the impact likely context-specific, and that better evaluation designs are needed to understand the impact of these schemes.

Turning to buyers, many have developed their own labor and environmental standards for upstream suppliers, using methods including codes of conduct for suppliers, buyer-driven certification programs, and industry initiatives, among others. But as already discussed, aspects such as social and environmental compliance are notoriously hard to monitor for the buyer—and thus difficult to include in formal contracts enforceable in courts in a cost-effective manner. In practice, this means that buyers adopting relational sourcing strategies at the export gate may be better placed to enforce social and environmental standards in their supply chains and/or to succeed in achieving upgrading in these areas when they attempt to enforce it. While more evidence is needed to confirm this hypothesis, the examples of the AAA Sustainable Quality Program in coffee and the example of the retailer Gap in garments point in that direction.

The flagship buyer-driven program in the coffee industry is the Nespresso AAA Sustainable Quality Program. The firm, a multinational buyer, combines contractual arrangements at the export gate with training and agricultural extension services to farmers, to ensure that it can reliably purchase large volumes of high-quality coffee from farmers. Notably, the contract with the exporter specifies the price (premium) that must be paid to the upstream farmers. This arrangement, a form of vertical restraint, counterbalances the monopsonistic power of the exporter, which, as shown in De Roux et al. (2022), would tend to set price premia for high-quality beans too low. Looking at this program in Colombia's coffee industry, Macchiavello and Miquel-Florensa (2019) find that it leads to significant investment and quality

upgrading in the chain. The program increased the total surplus by about 30 percent, with at least half of the gains going to farmers. The vertical restraint aspect of the program plays a crucial role in fostering quality upgrading.

In many export-oriented agricultural supply chains, long-run sustainability considerations as well as regulatory and activist threats have made buyers particularly concerned with the environmental impact of their supply chain operations.⁵ For example, Henderson and Nellemann (2011) describe Unilever's pivot toward environmentally sustainable sourcing, its motivations, and the implementation challenges it faced. Palm oil and cocoa—among others—are important drivers of deforestation in Africa and South Asia (Balboni et al. forthcoming). Ensuring the environmental sustainability of supply chains poses even harder challenges than issues of higher prices or pay. Unlike with low prices and poor working conditions—for which one could imagine that the farmer, or the worker, has the incentive to report violations of an agreement—the structure of incentives is less obvious in cases where the worker or community benefits, at least in the short-term, from environmental degradation, or in which they may simply lack information about whether or how agreed-upon rules are being violated. Coordinated trade policy has been proposed as a method to curb deforestation, but there are doubts about monitoring and enforcement of such rules (Dominguez-Iino 2021; Hsiao 2022).⁶

On the labor side, some evidence suggests that exporting can lead to better working conditions; for example, see Tanaka (2020) for an analysis in the Myanmar garment sector. Buyers' approaches to improving working conditions vary, but they often include minimum labor standards coupled with monitoring by means of compliance audits, developing remediation plans for violations, and monitoring of remediation. For example, Amengual and Distelhorst (2019) conduct a case study of Gap, a multinational apparel retailer that primarily sources from suppliers in developing countries and that maintains its own supplier code of conduct for labor and environmental issues, which is enforced by its supplier responsibility department. The authors study a change in Gap's policies that more strongly conditioned its trade with suppliers on their labor audit performance. Prior to the change, there was no effect of a failing audit grade on suppliers' future compliance, while afterward, a failing grade led suppliers to improve compliance by 0.8 standard deviations. In the relational contract, providing incentives to suppliers to adopt better labor standards requires conditioning trade on cooperation with these standards.

Even when such initiatives have the intended positive effect on workers in the buyer's supply chain, their overall impact is more nuanced. Alfaro-Urena et al. (2022) develop a general equilibrium model to study the incidence of foreign buyers'

⁵In practice, many brands have found that the willingness of consumers to pay for environmentally sustainable products to be quite low, except in specific cases—such as the garment brand Patagonia—that have successfully targeted niche markets.

⁶In coffee, quality upgrading and environmental sustainability go hand-in-hand. The Nespresso AAA Sustainable Quality Program was developed in partnership, and shares environmental standards, with Rainforest Alliance. Macchiavello and Miquel-Florensa (2019) point to other research documenting the environmental benefits of practices similar to those in the program.

responsible sourcing policies and show that the welfare implications are a priori ambiguous, due to the interaction of a terms-of-trade effect and input market distortions. They estimate the model in the context of Costa Rica and find that responsible sourcing significantly increased the welfare of the 21 percent of low-wage workers employed at exposed suppliers, but at the cost of real income losses of -2.2 percent to the remaining 79 percent of low-wage workers. Alfaro-Urena et al. (2022) make a valuable step forward, but evidence on the industry- and economy-level impacts of buyer sustainability interventions remains very thin, and more evidence is certainly needed in this area.

Increasingly, social and environmental standards in global value chains are being set and monitored by multi-buyer and multi-stakeholder initiatives. In the multi-buyers approach, there is an agreement to commit to common standards along their supply chains. In the case of multi-stakeholder initiatives, nongovernment organizations, labor unions, or other nonprofit-oriented organizations participate in setting standards and monitoring their implementation. Both models have certain advantages over single-buyer approaches; for example, they improve administrative efficiency by harmonizing standards, curbing free-riding problems, and enabling monitoring of participating buyers by civil society (in the case of multi-stakeholder initiatives). They may also be subject to certain drawbacks, such as concerns about lowest-common-denominator standards and facilitating coordination over pricing. Examples of multi-stakeholder initiatives that cover parts of the garments global value chain include the Fair Labor Association and the International Labor Organization's Better Work Program; see panel B of Table 1 for more information.

Two prominent examples in the garments chain that also appear in Table 1 are the Accord and the Alliance occupational safety and health initiatives in Bangladesh, which were established in response to the Rana Plaza collapse in 2013 (mentioned in the introduction). At its peak, the Accord included over 200 primarily European apparel buyers and labor unions. The Alliance was an initiative of 29 primarily North American apparel buyers. Together, these initiatives covered most of Bangladesh's apparel sector. Between the collapse and July 2016, the International Labor Organization (2017) reported that 3,780 factories were inspected for safety; of these, 59 percent were audited (and subsequently monitored on their remediation) by the Accord or the Alliance, which were estimated to cover 75 percent of the sector in terms of its direct employment. An important feature of both initiatives was that they provided incentives for suppliers to adopt stronger occupational safety and health standards through buyers' unilateral termination of sourcing relationships with suppliers that failed to cooperate.

In addition to building safety, the buyer initiatives enforced a local mandate for occupational safety and health committees that was passed in the aftermath of the collapse. Boudreau (2021) randomized the roll-out of the Alliance's enforcement intervention for the mandate across 84 supplier factories. She documents that the Alliance's intervention increased suppliers' compliance with the mandate. Exploiting experimental variation in the strength of occupational safety and

health committees, she shows that they improved workers' health and safety. These improvements did not come at a cost to workers in terms of wages or employment, nor to factories in terms of labor productivity; indeed, the estimated effects on labor productivity are positive. The results are consistent with implementation of occupational safety and health committees not being very costly either for employers or with employers exercising labor market power. Interestingly, the effects are stronger for factories that had better management practices at baseline, which is consistent with the earlier argument that low capabilities may constrain firms in developing countries from building stronger relationships with workers.

Action on Living Wages is an agreement between 19 multinational buyers and a global union that aims to ensure living wages (that is, the minimum income required for workers to meet their basic needs) in the textile and apparel value chains. The agreement aims to achieve this goal through collective bargaining at the industry level, freedom of association, and responsible sourcing practices. One distinguishing feature of this initiative is its focus on buyers' purchasing practices that affect workers' wages and working conditions. Participating buyers commit to work toward itemizing labor costs in their purchase orders with suppliers in a way that adheres to the initiative's costing protocols. This type of arrangement thus echoes the relational vertical restraint implemented by the AAA Nespresso Program studied in Macchiavello and Miquel-Florensa (2019).

An important concern with the provision of enforcement capacity by nongovernmental actors is that it may crowd out provision by the state, which may be counterproductive to the development of state capacity in the longer term. In the context of the occupational safety and health initiatives in Bangladesh, there was coordination between the buyer initiatives and the International Labour Organization, with the latter supporting the government to build its capacity by focusing on the share of the sector that fell outside the purview of the buyer initiatives. While this type of coordination seems desirable, its effectiveness remains an open question. A related concern is that nongovernmental enforcement initiatives may even threaten the sovereignty of the states in which they operate. In Bangladesh, the Accord's authority to operate was eventually challenged in court by a domestic firm that had one of its factories unilaterally terminated from supplying to Accord members; in a protracted court battle, the Accord fought to operate in Bangladesh. Ultimately, Bangladesh's High Court ruled that the Accord had to vacate the country, although it continues to operate from abroad. This example illustrates the types of political economy concerns that can arise when powerful downstream buyers participate in enforcing labor standards in developing countries.

Conclusion

We have explored the economics of two prominent value chains: coffee and garments. We discussed several aspects of exchange between exporters and buyers in these value chains that are not accounted for in standard international trade

datasets, which describe quantities and prices of goods as they cross national borders; consequently, these sources provide incomplete accounts of the functioning of global value chains, both at the import and export gates, as well as in the domestic parts of the chain. Leveraging contextual knowledge and originally collected data is needed to overcome these limitations.

We have emphasized the realities of incomplete contracts and imperfect markets. Well-functioning relationships may be able to increase both efficiency and equity for the participation of developing countries in global value chains. But these relationships are hard to establish and sustain. Relationships also alter how markets function: to understand market power along supply chains, frameworks should adequately account for the underlying contractual frictions that relationships address. We strongly suspect that these themes are relevant to many other areas of international trade beyond the two industries of focus in this paper.

We have also argued that relational approaches at the export gate can be leveraged to improve the efficiency and equity of supply chains in domestic markets and potentially contribute to addressing a variety of urgent sustainability challenges. In both coffee and apparel, large foreign buyers that source relationally at the export gate have shown some ability to improve prices to farmers, and workers' conditions among suppliers. Policymakers in destination countries are showing a growing interest in initiatives that aim at regulating environmental and social standards in supply chains, including certain provisions of the Wall Street Reform and Consumer Protection Act of 2010 (often known as the Dodd-Frank act) on conflict minerals in the United States, the German Supply Chain Act, and the European Union Directive. These initiatives highlight the importance of grounding the design of policies aimed at promoting sustainable sourcing practices in a deeper, evidence-driven understanding of the impact of, constraints to, and form of participation in global value chains in developing countries. At present, however, we have very limited rigorous evidence about the impact of sustainability standards driven by buyers and nongovernmental organizations; beyond directly impacted suppliers, workers, and farmers, more evidence is needed on their industry and economy-wide effects and on their longer-run implications for developing countries.

In addition, a much deeper understanding of why buyers opt for different strategies, and how fixed these decisions are, can inform policy in other ways. There seems to be a lot of money left on the table in the form of unrealized gains from trade due to contracting problems. From the perspective of developing countries, attracting foreign buyers that will invest in relationships along their supply chains may be a promising direction for trade and development policy. More broadly, a relational approach might also foster the resilience of supply chains. In garments, relational buyers are less diversified across sourcing origins (Cajal-Grossi, Del Prete, and Macchiavello 2022); a relational approach might thus be a substitute strategy for diversification to foster supply chain resilience.

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