Chains of Love?
Global Production, Developing Country Firms and the Diffusion of Labor Standards

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Abstract: We investigate the role of developing country-based firms in contemporary multinational production. Although such firms, many of which are themselves part of larger multinational entities, engage in significant employment and production, political economists know little about their behaviors or their preferences. Rather, scholarly attention has centered on multinationals based in developed countries and on firms that lead global supply chains. In drawing attention to a globally important and sizable but understudied subset of internationally-oriented producers, we investigate the conditions under which such firms are willing to expend resources to protect worker rights. We suggest that, when weighing the costs and benefits of investing in such improvements, foreign investors in developing countries will consider both the material benefits associated with gaining access to higher-standard production chains, as well as the likelihood that lead firms, consumers and activists will be able to observe their labor practices. In sectors characterized both by high markups when selling to developed country markets and by high visibility of labor practices, investors will be most inclined to attend to worker rights. By contrast, firms active in low-markup products with little visibility of working conditions, the propensity to upgrade standards will be limited. We test our expectations via a survey experiment, which queries foreign firms operating in Vietnam.

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The nature of global production is evolving, with much of the world’s output produced not in facilities directly owned by hierarchically-structured multinational corporations, but by firms of various sizes and ownership structures participating in arm’s length transactional relationships with lead global firms. Complicated firm ownership structures and complex supply chain relationships involve a range of firms, which vary in terms of size, location, and nationality of ownership.

Lead firms exercise varying degrees of control and influence over other participants in the global supply chain (Gereffi and Mayer 2010). Lead firms often subcontract with a range of firms, in distant and diverse locations, for the production and purchase of inputs. Subcontracting allows for diversification of production locations and reduces the risk related to any single subcontractor. Production processes may involve a series of subcontractor relationships; in some cases, lead firms may have limited information about the complete sourcing of their products. Subcontracting firms also have incentives to diversify; many larger subcontractors produce for a range of lead companies. Branded products from different multinationals may therefore be produced on different assembly lines in the same facility (e.g. Locke 2013).

Many firms that participate in global supply chains are based in low- and middle-income countries, and they supply raw materials, intermediate inputs or finished goods to foreign firms and consumers. Some of these firms may be foreign affiliates (which export back to their home market or to third countries), but their headquarters firm may itself be a contracting firm (rather than a lead firm). And many such headquarters firms are themselves based in developing nations. Moreover, while multinational corporations and their directly-owned affiliates employed an estimated 71 million individuals in 2014 – compared with 21 million in 1990 – a far greater number of individuals are employed in other firms that subcontract production for multinationals, provide natural resources, agricultural and manufactured component inputs for multinationals, or effect retail distribution and sales for multinationals (also see OECD et al 2014).

Still others, often at the base of the value chain, work in informal employment settings, but nonetheless produce inputs used in goods that ultimately are traded internationally. Although the exact size of this global value chain-related employment is difficult to estimate (Shepherd 2013, Shepherd and Stone 2013), we can be confident that it is far more substantial than direct multinational employment. In developing and emerging economies, these supply chain-related workers are concentrated in manufacturing industries.

Yet scholarship in international political economy has thus far paid little attention to firms in intermediate supply chain positions. Many such firms are foreign-owned, sometimes part of a large multinational corporate structure, and representing an inflow of foreign direct investment to their host economy. They produce intermediate goods or assemble final goods, many of which are then exported to a lead firm and sold in foreign markets. Such firms often have a significant number of employees; they play an important role in the development (and possible improvement) of local labor standards and practices. We therefore seek to understand how developing country firms at low and intermediate positions in global supply chains interact with, and are influenced by, their

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1 In this piece, we use “global supply chains,” “global value chains” and “global commodity chains” interchangeably. For a discussion of contemporary global value chains, see Dallas 2015 and Gereffi 2014.

2 For a discussion of the various ways in which lead firms engage in sourcing, see Bartley and Child 2014, Gereffi et al 2005, Gereffi 2014.
partners abroad. Specifically, we aim to identify the conditions under which supply chain relationships create incentives for the upgrading of labor standards, as well as the circumstances in which developing country firms have few incentives to invest resources in labor-related improvements.

We hypothesize that participation in global supply chains provides some firms with incentives to upgrade their labor-related practices. These incentives could stem from two distinct, albeit related, mechanisms. One mechanism involves the desire of developing country firms to participate in higher value-added activities, and to service foreign markets; this typically involves the use of more skilled production techniques and, therefore, a focus on hiring and retaining the best local workers. The second mechanism is driven by the demands of developed-country firms and their shareholders, who worry about reputational risk, and developed-country consumers, who may worry about ethical consumption, for goods that are produced in a “socially responsible” fashion. We expect that the standards-based mechanism will operate when lead firms are based in developed economies, especially those characterized by strong labor-related institutions and by consumer and lead firm preferences for worker rights throughout the supply chain. The standards path also requires some visibility to foreign observers of labor rights and working conditions. We also anticipate that the value-added mechanism will operate in sectors where the typical markup for product is high, so that developing country firms anticipate being able to capture greater value via supply chain participation.

Our empirical test of these expectations is based on a survey of foreign-invested, manufacturing-oriented firms operating in Vietnam. These 912 firms exemplify supply chain production, playing a variety of roles in their specific product markets, and engaging in differing transactional relationships with lead, partner and supplier firms. Approximately 31 percent of these firms are subsidiaries of a multinational firm, and a significant proportion of these affiliates (158 firms) export their main product to third countries. Many other foreign-owned firms in Vietnam, though, are not part of a broader multinational ownership structure; some of these firms export their product back to their country of origin (234 firms), while others (258 firms) export from Vietnam to third countries.

We assess, using a contingent valuation analysis, the willingness of such firms to invest in the upgrading of their labor practices as a means of increasing their chances for participation in an additional multinational supply chain. We find that firms are willing to expend a significant amount of resources in order to become further embedded in global production networks. We then consider, via a survey experiment, how the willingness of firms to upgrade their standards varies with the location of the lead firm. Our data reveal a significant difference in the willingness of foreign-invested enterprises in Vietnam to do so, depending on whether their potential lead firm partner is located in Europe or India. We attribute this difference to two different dynamics: the presumed difference in markups available to firms selling in European versus in Indian markets, and the ability of supply chain partners — who might, in the European context especially, be inclined to require higher standards from their suppliers — to observe labor-related practices. Our empirical results generally support this explanation.

1,584 foreign firms responded to the PCI survey. We limit our analysis to 1,413 operations in sectors that have export potential, including agriculture, aquacultures, manufacturing and some services. Of these firms, 912 responded to our experimental question. 50177 (35.466.43%) said the question was non-applicable, because they were targeting the Vietnamese market, even though they operate in exporting sectors. Our empirical analysis focuses on the 912 responding firms.
I. Theory: Supply Chain Relationships and Standards in the Developing World

Scholars and activists have long debated the consequences of global production for labor rights and working conditions, especially in low and middle income countries. While many have worried that cross-national competition to attract investment and to win market share will result in the competitive lowering of labor (and environmental) standards, the empirical evidence on this question is mixed. Multinational corporations, and their related foreign direct investment activity, are associated with greater protection of labor rights (Mosley 2011), as well as with a wage premium (Shepherd 2013). High standards allow multinational affiliates to recruit and retain the most skilled among long workers. Multinationals also frequently fall under activists’ “spotlight;” pressure from consumers and shareholders can therefore create additional incentives to act in “socially responsible” ways (Bartley 2007). And multinationals, interested in efficiency and standardization across their operations, bring their (better) home country practices to their foreign affiliates (Garcia-Johnson 2000). Although workers in low and middle income countries often may work long hours in unsafe conditions, or experience the denial of their rights to organize, bargain collectively and strike, directly owned multinational production may not be to blame.

At the same time, however, much of today’s internationally-oriented production does not occur within hierarchically-structured multinational firms based in the U.S., Europe or Japan. While our theories that relate global production to labor (and other) outcomes are based largely on the behaviors and incentives of large lead firms from developed, Western countries, such firms are only part of the story. Large developing nations like Brazil, India and China increasingly are the sources of foreign direct investment. Developing countries accounted for 28 percent of global direct investment outflows in 2015, and 39 percent in 2014. These countries often invest in other low- and middle-income locales, frequently in close proximity. Additionally, due to the growing use of indirect foreign ownership, transit investment through third countries, and investment round-tripping, many multinational firms are characterized by complex ownership chains. UNCTAD (2016) estimates that forty percent of multinational firms can claim more than one “home” country, rendering the application of international investment agreements and other regulatory standards more difficult. The complexity of ownership not only creates empirical challenges (e.g. Kerner 2014, Wellhausen 2015); it also suggests that the diffusion of standards and practices from home country headquarters to host country affiliates is unlikely to occur in a straightforward manner, if at all.

Perhaps most important, however, is that while multinational firms often are involved in global production, much productive activity occurs through arms-length, market-based relationships, rather than within a single firm. Lead firms may undertake some stages of the production process via directly-owned affiliates abroad, but they frequently outsource many activities. To take perhaps the most visible example, Nike Inc. reports that its apparel, equipment and footwear products are produced in 666 factories worldwide; these facilities are located in 44 countries, and they employ just over one million workers in total.\footnote{\url{http://manufacturingmap.nikeinc.com/} provides data on each Nike manufacturing facility. In terms of direct employment, Nike reports nearly 32,000 employees in the United States, as well as an additional 30,000 in other locations.}
Factories that subcontract for Nike typically produce for other global brands as well. The facilities vary in size; footwear factories typically are larger (and more capital intensive) than apparel contractors. For instance, Nike lists 170 contractor facilities in China, employing an average of 1,245 workers; 33 facilities in Thailand (average employment: 1,105 workers); and 42 facilities in Indonesia (with an average of 4,729 workers per factory). In Vietnam, which is location of our survey experiment and second only to China in the number of Nike contractor factories, Nike works with 81 facilities, employing an average of 4,817 workers, and ranging in labor force size from 68 to 23,888.

Some of these contracting firms are themselves large and multinational in ownership and production. The largest Nike contractor in Vietnam, Vietnam Chingluh Shoes Company, is a subsidiary of the Taiwan-based Chingluh Group, which operates 14 manufacturing facilities in China, Indonesia and Vietnam, contracting production for several global brands, including adidas, Nike, Reebok and Mizuno. Similarly, Hansae Vietnam, the largest Nike contract apparel facility in Vietnam, is based in South Korea. In Vietnam, its largest overseas operation, it employs over 20,000 workers in several facilities. Hansae sources fabric via its Shanghai office; employs assembly workers in Indonesia, Burma, Guatemala and Nicaragua, as well; and, since 2008, operates a design facility in New York. Meanwhile, Freetrend Vietnam Industries, another large Nike contract manufacturer (with approximately 20,000 workers in Vietnam), was founded in Vietnam in 1996. It began contracting with various global brands, including Nike, in 2004; Freetrend has since expanded its operations to include several locations in Vietnam, as well as factories in China and Indonesia.

These patterns are not unique to footwear and apparel. In the electronics sector, Foxconn, is the world’s largest contracting manufacturer, with clients including Apple, Blackberry Limited and Nokia. Foxconn has more than 1 million direct employees, and, as of 2011, it was the largest private employer in China. While Foxconn is based and operates several large factories in China, it also owns facilities in Brazil, Hungary, India, Mexico and Turkey, among others.

Still other subcontracting firms are smaller, with operations based in only one country. As in the case of Nike suppliers, some of these subcontractors are themselves foreign owned: a South Korean electronics firm may set up a foreign-invested operation in Vietnam, which then supplies a U.S.-based lead firm. In such instances, global production generates foreign direct investment as well as trade flows; but the foreign direct investments are made not by lead firms, but by firms elsewhere in the supply chain. And, given the complexity of much global production, many steps often exist between the production of an input and its final sale by a lead firm.

Therefore, understanding the consequences of global production (and its competitive dynamics) for labor requires a more deliberate consideration of firms that occupy intermediate positions in global supply chains. Economic sociologists have long considered the structure of global value (or commodity) chains, how these structures vary (e.g. consumer- versus producer-driven chains; see Gereffi 1994), and how such structures have evolved during the last two decades. More recently, Johns and Wellhausen (2016) argue that supply chain partnerships affect the relationship between multinational firms and host country governments: governments are less likely to breach contracts with foreign firms, they argue, when those firms have relationships with local suppliers. Domestic suppliers (and, to a lesser extent, domestic purchasers) typically are willing – collective action problems notwithstanding – to expend political capital in hopes of protecting their supply chain.
partners’ property rights. Manger (2012) suggests that the formation and features of North-South preferential trade agreements are largely a function of supply chain considerations: lead firms based in the North, which desire cheaper and more regular access to inputs produced in the South, lobby their governments to conclude trade agreements. And Jensen et al. (2015) attribute the decline of anti-dumping claims for trade protection, which typically increase with currency undervaluation, to the rise of supply chain relationships between U.S. and foreign firms.

These exceptions notwithstanding, scholars of comparative and international political economy have devoted little attention to the role of developing country firms in supply chain relationships. This stands in contrast to the large literature aimed at analyzing both the causes and the effects of foreign direct investment. The firms of interest in work on FDI are (or are assumed to be) large, diversified multinational investors, typically based in rich countries. These firms, while important to outcomes in host as well as home countries, represent only a slice of production activity in the contemporary global economy.

Supplier firms that are based in developing countries occupy a central role in affecting the rights and conditions of workers. Labor rights outcomes have a multiplicity of causes, both domestic and international. At the domestic level, worker rights will be better protected where governments are democratic and where left-leaning parties are or historically have held office. Internationally, worker rights appear better protected when foreign direct investment is greater, but less well protected when subcontracting activity plays a larger role (Mosley 2011). Indeed, winning and keeping production contracts requires the ability to produce a given quantity of a product/service by a given deadline, at a predetermined price. The demands of lead firms can change quickly over time, especially for mass consumer products with short life cycles – apparel and electronics, for instance (Locke 2013). As a result, particularly for items produced in a labor intensive fashion, cost and time pressures could generate violations of workers’ rights (Barrientos et al 2011, Ruwanpura and Wrigley 2011). Where employers can draw from a large pool of surplus labor, they may have even less reason to protect the core rights of their work force. Hence, we might expect that subcontracted (compared with directly owned) production is associated with greater violations of labor rights.

But the established empirical relationships between global investment and production, on the one hand, and labor outcomes, on the other, are based on country-level (rather than firm- or sector-level) data. While these are useful as a starting point, they hide much variation in labor rights outcomes. To this point, Greenhill et al. (2009) evaluate the effect of trade relationships on labor rights outcomes in developing countries. They suggest that standards can diffuse from destination markets to producer countries, via a variety of mechanisms. Therefore, the composition (in terms of export partners and the standards prevailing in export markets) of a developing country’s trade is a significant predictor of rights outcomes. While Greenhill et al. offer empirical evidence consistent with a trade-based diffusion of labor rights, they are agnostic on the specific causal mechanism by which improvements occur. Trade-based diffusion could be the result of consumer, shareholder

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5 Johns and Wellhausen, however, only consider domestic (host country), rather than foreign, supply chain relationships.
6 Note that studies using supplier factory audits, as in Locke (2013), Locke et al (2013), rely on data from such firms. In Locke’s analysis, however, it is lead firms (e.g. Hewlett-Packard, Nike) that are the central agents.
7 One implication of this “California effect” on labor rights is that trade with lower-standards countries – China and India, for instance – could be associated with a deterioration in labor standards, as consumers in those markets worry less about the conditions under which they products they buy are produced.
and/or importing firm pressure in export destinations; of human and labor rights conditionality that is part of many preferential trade agreements; or of the greater sophistication and higher value added of products sold in wealthy, high-standard (as compared with poorer, low-standard) destinations.

We agree that supply chain-based, trade-generating relationships can facilitate the diffusion of standards. That is, under some conditions, firms in developing countries may be inclined to improve the rights and conditions of their workers, as a means of facilitating new or expanded production in global supply chains. We identify – and test – two mechanisms by which this can occur. First, developing country firms typically want to gain access to supply chain activity. Downstream firms anticipate that purchasing from foreign suppliers can lower their overall input costs, while allowing them to use higher-quality components. And upstream firms expect that supplying firms active in the global market will create a greater demand and therefore higher markups for their outputs; supplying the global market also offers the opportunity to participate in higher value-added activities. Supply chain participation also can facilitate, under some conditions, the spillover of more advanced technologies and production techniques. As a result, supplier firms can capture a greater portion of the gains that accrue from economic liberalization. By this logic, all developing country firms should be keen to gain access to global supply chains, but their interest should be most pronounced in cases of production of high value-added goods for destination markets with high mark-ups.

Second, developing country firms may view improvements in labor-related standards as a precondition for access to global supply chains. If firms, shareholders and consumers in certain markets are concerned about socially-responsible production, then entering into relationships with firms based in or focused on those markets will require that supply chain partners meet certain standards – allowing employees the right to unionize, for instance, or providing assurances that overtime work is voluntary and compensated appropriately. This mechanism would be consistent with the rise of corporate social responsibility in the late 1990s, and reflecting a concern on the part of lead firms (especially those of high-end or branded products; Gereffi 2014) that reports of worker rights violations in their affiliates or subcontractors could harm their reputations, their share prices and their sales.8 Such firms have often worried that, even if host country governments had in place legal protections for labor rights, compliance with such laws also required efforts (and resources) at the firm level. Many firms therefore have created firm- or industry-level codes of conduct and certification schemes, and they report regularly on their social and environmental practices (Vogel 2009). Others take part in the UN-sponsored Global Compact, in which more than 8,000 firms, in 170 countries, now participate (Bartley 2007, Bernhagen and Mitchell 2010).

While many doubts regarding the efficacy of such programs exist (e.g. Berliner and Prakash 2015, Locke 2013), we nonetheless observe many lead firms devoting resources and attention not only to conditions in their directly-owned affiliates, but also to behaviors of their supply chain partners. Assuming that developing country firms are aware of the demands of developed country-based lead firms for improved standards, we expect them to improve their own practices – or, at least, to signal a willingness to do so – as a means of increasing their appeal as supply chain partners. Hence, we

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8 Note that this mechanism relies, in part, on consumer demand for ethical consumption. The existence of such demand is mixed (Hainmueller et al 2014); where it exists, it appears to vary across developed country markets (with European consumers more attentive to such issues than their American counterparts).
expect that the standards-based mechanism will operate when lead firms are based in developed economies, especially those characterized by strong labor-related institutions and consumer attentiveness to ethical consumption. Indeed, at the firm level, Görg et al’s (2016) study of 2000 foreign firms in 19 African nations reveals that corporate social responsibility considerations are more salient for firms that export their output to developed (versus developing) nations. Relatedly, Berliner and Prakash (2014) find that, among firms in Central Asia and Eastern Europe, those which export more of their output, as well as those that are foreign owned, are significantly more likely to adopt international certification schemes. Overall, then, we expect that developing country firms – both current and potential supply chain participants – will be more inclined to upgrade their labor-related practices and standards when they transact with developed country-based (versus developing country-based) firms. Such behavior could be driven by either of the two mechanisms above; indeed, existing work on the market-based diffusion of standards does not distinguish between these two mechanisms. In Section IV, we theorize about how one might distinguish, based on the value added/markup of the firm’s main product, as well as on the ability to observe working conditions, between the operation of these pathways.

II. Research Design and Estimation Strategy

In order to assess the extent to which firms are willing to invest in labor-related upgrades, and to evaluate our expectations about when this willingness will be most pronounced, we employ data from the 2015 Vietnam Provincial Competitiveness Index Survey of foreign-invested firms operating in Vietnam. The survey includes 1,584 foreign-invested entities, drawn from the 14 Vietnamese provinces with significant foreign direct investment activity. Vietnam’s General Statistical Office lists 12,571 eligible (tax-paying) foreign firms; the PCI samples from this set, using stratification to ensure that firm age, legal type and sector are accurately represented.9 The foreign firm survey had a response rate of 25%, which climbs to 51% when incorrect addresses are dropped. Responding firms represent over eight percent of the entire population of foreign-invested projects in Vietnam since 1988.

Over 87 percent of foreign invested enterprise (FIE) survey respondents indicate that they are wholly foreign-owned. Figure 1 provides details on the reported country of origin. Investors from South Korea, Taiwan, Japan, and mainland China account for 68 percent of the active businesses surveyed. If we include investors from neighboring countries in Southeast Asia, the figure surpasses 80 percent.10 The 2015 PCI-FDI sample also includes 80 investors from Europe, 71 from the United States, 14 from Australia, with still others from Russia, Eastern Europe, and Latin America. It is important to note that some U.S. investment is listed as originating in Hong Kong and Singapore for a variety of logistical and tax-based reasons; thus, U.S. investment is probably understated.

[Figure 1 About Here]

9 Given the relatively small size of the set of foreign-invested firms, in some provinces, nearly every foreign firm receives a survey.
As Figure 2 shows, Vietnam’s foreign-invested firms are concentrated (64 percent) in manufacturing, although no particular type of manufacturing dominates: the three biggest sectors after general manufacturing in 2015 continue to be fabricated metal products (8.7%), rubber and plastics (6.4%), and apparel (6.4%). Motor vehicles, chemical products, machinery, and computers and electronics follow with about 4% of the sample each.

[Figure 2 about Here]

Table 1 presents descriptive statistics for firms in our sample. In terms of employment, foreign-invested firms in Vietnam tend to be larger than private domestic firms, by a factor of three. But, by international standards, these firms are rather small: the average foreign-invested enterprise has 220 employees and 74 percent of FIEs have fewer than 300 employees. That said, 93 respondent firms employ more than 1,000 workers, which generates some dispersion in the data. The median foreign firm size is 125 employees. Foreign-invested firms also are small in terms of capital size. The average firm has about $2.2 million in investment capital. Again, a few large firms skew the sample. The median firm has a total capital investment of $125,000.

[Table 1 about Here]

Typically, foreign firms in Vietnam are export-oriented (55% engage in some form of export) and focused on low-margin activities such as final assembly. For instance, motorcycle and auto production in Vietnam is mostly done with kits, where all of the high value inputs are imported from elsewhere and Vietnamese workers simply put the vehicle together (Fujita 2012, Ngo 2015).

Garment production, Vietnam’s leading manufacturing sector. About 70 percent of Vietnam’s textile and apparel production is via “processing trade” using imported textiles and other inputs, predominantly from China (ITA 2016a). As such, respondent firms tend to be situated among the least rewarded participants in a product’s value chain. Most FIEs sell their product overseas, either to their home country or to a third country; other FIEs list other foreign-owned companies in Vietnam as the primary purchaser of their products.

While foreign firms in Vietnam often are involved in global supply chains, most of them are owned and managed independently of lead firms. In line with their small size, only 31% of our sample is part of larger MNCs. Further, the vast majority of Vietnamese foreign firms in exporting sectors (88%) entered as fully foreign owned operations. Fewer than 6% of firms entered as joint ventures. Further, the investment tends to be greenfield with only 7% entering by merging with or acquiring existing entities.

According to the PCI-FDI survey, labor–related factors are central considerations in these firms’ decisions to enter Vietnam. 96% of firms reported that “low labor costs” were positively influential in their decisions to invest in Vietnam; and 90% listed “high labor quality” as playing a positive role. The PCI asks firms to rank the importance of thirty factors in their decisions to invest in Vietnam. Low labor costs was the highest ranking factor, followed closely by “proximity to export markets” at 91%, and the availability of industrial zones at 90%. These numbers paint a picture of foreign investors entering Vietnam to capitalize on labor efficiencies in production for global export markets.
The foreign-firm PCI asks a series of approximately twenty labor-related questions, which take roughly 15 minutes for respondents to complete.\footnote{11} We test our theoretical expectation using an experiment embedded in 2015 PCI. 478 FIEs were assigned to the treatment group, while 434 were assigned to the control.\footnote{12} We ask respondents to imagine a scenario in which an international consultant has contacted the firm, as part of its efforts to connect large multinationals with suppliers in emerging markets. The question states that, to be placed on this consultant’s shortlist of three firms, as a potential supplier for a multinational client, the Vietnamese firm would need to adopt the multinational client firm’s Labor Code of Conduct for Suppliers. The code covers health and safety regulations, limitations on overtime hours, and greater worker representation. We describe the code as one that will increase operating costs, but also allow the possibility of future orders from the multinational. We then ask respondent firms to specify the maximum costs of adjustments – ranging from 0 to 15%, as a percentage of current operating costs – they would be willing to make to comply with the code. We set the adjustment cost options to be consistent with prevailing estimates of implementing internationally-recognized codes of conduct related to working conditions and labor rights (See box below).

**G13: Imagine the following scenario:** Your business has been contacted by an international consulting company, whose primary job is to connect large multinational companies to suppliers in emerging markets. The consulting company would like to shortlist your company, along with two other companies in your region, as potential suppliers of your product to a large \[European/Indian\] company that sells primarily to the \[European/Indian\] market. To be eligible to be included on the shortlist, the consulting company requires that your firm adopt the multinational’s Labor Code of Conduct for Suppliers. This Code of Conduct includes greater representation for workers, limits on overtime work, and regulations to protect the health and safety of workers. Adopting the Code of Conduct will allow you the possibility of future orders from this multinational and others like it, but it also will increase your operating costs. Please tell us the maximum amount of adjustments - in terms of their financial costs - that you would be willing to make in order be in compliance with the code of conduct and thereby eligible for the contract. To make this easier, we have listed the costs as a share of your current operating costs:

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Surveyed firms report being willing to spend, on average, 6 to 7 percent of operating costs on labor-related improvements, in order to be considered as one of three potential suppliers for a foreign-based firm. This strikes us a significant amount, indicating a willingness to adopt global standards as a means of gaining access to new supply chain relationships. One might imagine that this willingness could reflect, at least in part, a greater attention to labor-related issues in the context of the

\footnote{11} The PCI survey of domestic firms, which surveyed 8335 firms in 2015, also includes labor-related questions; that survey, however, did not include the survey experiment item described below.

\footnote{12} Again, there were a total of 1584 firms in the 2015 PCI-FDI sample, but we limit ourselves to the 912 firms that operate in exportable sectors (including goods, services, and labor) and that answered the experimental question.
Transpacific Partnership (TPP) and similar agreements. The experimental part of this research comes in how the multinational firm is described. In one version of the survey, it is a “large European company selling primarily to the European market” (version A). In the other version, it is a “large Indian company selling primarily to the Indian market” (version B).

The first empirical concern we need to confront is balance. Although the survey experiment was randomized, 501 firms in exportable sectors chose not to respond to the question by selecting non-applicable. A number of factors could contribute to this choice: 1) Despite operating in an exportable sector, the respondent firm views its primary sales target as domestic; 2) In comparison to other questions on the PCI survey, the prompt and contingent valuation associated with the experiment were more time consuming and quantitatively intensive; 3) Labor rights and collective bargaining remain sensitive issues in Vietnam, which may lead some firms to shy away from answering. For our purposes, the key worry is whether these motivations for skipping the survey may have been associated with the treatment, leading to differential rates of item non-response that may bias our analysis.

We check this in Table 1, where we present the results of a series of balance tests. The table indicates the mean and standard error for both the European and Indian treatments, followed by the difference between those two averages. The difference is followed by the p-value of a two-tailed t-test denoting statistical significance. The first test is comforting, as it illustrates that the difference in non-response between the two groups was about 1.8 percentage points (36.4% for India and 34.6% for Europe) and not significantly different from zero.

Further tests look at differences in key attributes of the firm that might be associated with views about labor rights and could possibly bias results if inadvertently associated with the treatment. These include the gender of the CEO; the firm’s length of time in Vietnam and its size; whether the firm is a subsidiary of a multinational corporation; its entry mode (greenfield versus merger and acquisition); firm performance; optimism about potential expansion; most common customers; most and common vendors of inputs and intermediate products. Two further indicators measure pre-treatment differences in labor rights including whether a union is currently allowed and the share of long-term workers with formal contracts. Finally, we look at the home country of the firm. Six firms (0.42% of our sample of exportable product-sector firms) are from India, while 96 (6.79%) of our sample are from Western Europe. Due to the small sample sizes and the lack of stratification by home country in the PCI survey might have led to non-balance, but we are fortunate to see that there are no differences across the treatment groups.

Four out of 27 confounders (roughly 15 percent) are statistically significant. This is exactly the share we would expect by chance when accepting a p-value of .1 or less. Firms in the Indian treatment group are slightly more likely to be 100% foreign owned, slightly less likely to sell to SOEs and the government, and somewhat more likely to buy intermediate goods from informal, household producers. The randomization in the survey therefore seems to have been well executed and, considering the potential dangers of controlling for non-balanced confounders in a survey experiment (Mutz and Pemantle 2015), we do not adjust our analysis to control for this non-balance.

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13 On average 86% of long-term workers have formal contracts, but the standard deviation is 26%. The range is substantial with some workers listing zero workers under contract and others listing 100%.
Our estimation strategy in Equation 1 is straightforward. Our dependent variable \( y \) is the share of operating costs, from the contingent valuation, that a firm is willing to expend on compliance with the potential buyer’s Code of Conduct. We regress that number on our treatment variable, which we code as 1 if the buyer was from India and 0 if the buyer was from Europe. The firms are indexed by \( i \) and \( r \) denotes the province where the firm is located.

The potential relationship between \( r \) and our residuals creates the main empirical hurdle that we need to resolve. The primary sampling unit for the PCI-FDI survey is the province, and firms are randomly sampled from a provincial list supplied by the national tax authority. Clearly, firms nested together in the same province cannot be treated as independent draws from the underlying distribution, violating the i.i.d assumption. Firms sharing a province are influenced by the same factor endowments, labor pool, infrastructure, and access to resources. If they are from the same country (Wellhausen 2015), they likely interact regularly in formal business associations or informal groupings. And they likely share similar interactions with the provincial leadership. As a result, we must assume that each firm from within a province provides less independent information than firms from different provinces. In such a setting, default standard errors can greatly overestimate the precision of the estimates. According to econometricians, the appropriate methodological response is to calculate cluster robust standard errors (CRSE) at the provincial level (Wooldridge 2003, Bertrand et al. 2004, and Angrist and Pischke 2009).

Such a recommendation, however, relies on the asymptotic assumption that the number of clusters trends toward infinity. As Cameron et al. (2008) have shown, using CRSE when the number of clusters is too small (about \( c < 50 \)) will lead to test statistics that over-reject the null hypothesis and confidence intervals that are too narrow. These problems are compounded when the number of observations within a cluster are small or when the observations across clusters are unbalanced (Cameron and Miller 2015, p. 341). There is no fixed rule of thumb for when the number of clusters is “too few,” but the PCI-FDI data appears to exhibit a number of symptoms of this problem. For practical purposes, the 2015 PCI-FDI survey was only conducted in the 14 Vietnamese provinces in which the number of foreign operations is sizable enough that reasonable inferences can be drawn.14 Even within this group, there are wide variations in the population size of foreign firms and, therefore, correspondingly large differences in the sample size within each province. The sample size by province ranges from 36 firms in Bac Giang province in Northern Vietnam to 322 firms in Ho Chi Minh City (HCMC). Most damningly, initial tests revealed the artificial precision provided by clustering at the province level. The coefficient on India remained stable, but clustered standard errors were significantly smaller than default standard errors.

Under these circumstances, Cameron et al. (2008) and Kline and Santos (2012) recommend recalculation of the standard errors using the “wild cluster bootstrap” procedure (Cameron and Miller 2015, p. 344).15 To perform the procedure, the analyst cluster bootstraps the OLS residual, essentially resampling clusters with replacement from the original sample, and then generates the

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14 Between 2010-2012, the PCI-FDI survey included all 64 provinces, but many firms only had a handful of firms leading to difficulties in accurately representing the provincial business environment, especially when some of the sampled firms chose not to respond.

15 The wild cluster bootstrap is clearly the most conservative approach. In Monte Carlo simulations, it rejects the null hypothesis 4.8% to 6.4% percent of the time. Meanwhile in the same scenarios the CRSE rejects the null 8.2% to 18.3% of the time, and the naïve OLS standard error rejects at a rate of 10.6% to 77.0%.
finite sample test statistic (the Wald statistic). We implement the recommendation using David Roodman’s 2016 *bootest* in STATA, which has the helpful benefit of extremely rapid calculation of the bootstrap. *Bootest* also allows us to plot the distribution of coefficients on the India treatment drawn from the 1,000 re-samplings and calculate the confidence interval following Cameron and Miller’s (2015, p. 244) computationally-intensive recommendation of repeated tests of the null hypothesis for each re-sampling.

### III. Empirical Results

Figure 3 displays the main results of our experiment. In the left panel, we plot the observed kernel density distribution of firm responses to the contingent valuation question. There is evidence of data heaping, with respondents selecting round numbers (0, 5, 10, 15) over intermediate digits. We address this problem, which could lead to stochastic measurement error, below (Heitjan and Rubin 1991, p. 2244). Nevertheless, we can see that respondents presented with the India treatment were far more likely to report a willingness to expend 5% of operating costs, while those presented with the European example were more likely to choose the 10% and 15% options. On average, firms with the European treatment opted to pay about 0.5 percentage points more in operating costs to become compliant with a hypothetical labor code of conduct. This treatment effect is substantively meaningful, representing about 8% of the average answer of 6.41.

Whether 0.5 percentage points is statistically significant is addressed in the right panel of Figure 3. Here, we implement the wild cluster standard errors procedure, plotting the coefficients for the India treatment on the x-axis. These represent the estimated difference in operating cost expenditures reported by firms receiving the India treatment versus those receiving the European treatment. The y-axis plots the share of the distribution for each p-value. Two horizontal lines run across the graph. The solid line at p=.05 represents the 95% confidence interval generated by the resampling procedure, while the dashed line at p=.10 represents the 90% confidence interval. The dashed vertical line depicts a coefficient of zero. The 95% confidence interval ranges from a negative 1.06 percentage difference in operating costs to a positive 0.036 percentage point difference, putting the interval narrowly to the right of zero. On the other hand, the India treatment is statistically significant at the 0.1 level using the wild cluster bootstrapped procedure. The results are consistent with our hypothesis that firms offered an opportunity to sell to the European market would be more inclined to accept costly adjustments in labor procedures. It also is consistent with recent private-public efforts to govern labor rights and working conditions: for instance, the garment brands and retailers that have signed the Bangladesh Accord on Building and Fire Safety are concentrated in continental Europe and in the United Kingdom. Participation among firms from North America and Asia is more limited.

[Figure 3 about Here]

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16 Results remain the same if we drop all firms that export to India or Europe, and if we drop all firms that are from India or Europe.

17 See [http://bangladeshaccord.org/signatories/](http://bangladeshaccord.org/signatories/). Note that a second initiative, the Alliance for Bangladesh Worker Safety, which has 28 corporate signatories at present, includes greater participation from North American firms, but has been criticized for not offering sufficient voice to workers, and for not employing independent inspectors.
The imprecision of our estimates, however, requires further exploration. One source of imprecision is the data heaping, indicating that respondents did not perform detailed analysis of the actual costs of adjustment. Rather, many simply selected the round number closest to the conjecture. In the estimation above, we treat each unit increase on the scale as equivalent. But heaping can lead to significant noise, generating imprecise estimates. Moreover, we assume a normal distribution for the hypothesis testing, which could lead to incorrect inferences. To address this concern, we group the answers to the operating costs procedure into four bins suggested by the peaks in the left panel of Figure 3 (1) costs=0; 2) 0<costs<=5; 5<costs<=10; costs>10). Using this re-scaled measure as our dependent variable, we re-run the estimation in Figure 4. Here, the India treatment leads to a 0.13-point shift on the four-point scale, which is statistically significant at the .05 level. Again, this finding is consistent with our hypothesis that firms given the European treatment will be willing to pay more in adjustment costs.

IV. Mechanisms

Our contingent valuation analysis and associated experimental design suggest both that foreign-owned firms in Vietnam are willing to make significant monetary investments in the upgrading of labor standards, and that the willingness to do so depends in part on the location of potential lead firms or supply chain partners. There are two possible causal explanations for the pattern we identify. The first is that supplier firms assume that European consumers and shareholders -- and, as a result, European lead firms -- are more attentive to corporate social responsibility-related issues than are their counterparts in other locations. This is consistent with previous research that identifies the trade-based diffusion of worker rights (Greenhill et al 2009), in which developing countries that transact more heavily with high-standard locations are more likely to make improvements to their labor legislation.

A second possible mechanism is that European consumers are richer than their Indian counterparts, and that the goods sold in the European market typically offer greater margins. As a result, the costs associated with improving labor rights will be more easily offset by the higher mark-ups on products sold in that market. Hence, firms might conclude, from a simple cost-benefit analysis, that it is worth investing in costly reforms now in return for the promise of greater profits in a new consumer market.

Adjudicating between these two mechanisms is difficult, because our treatment had only one arm: the European treatment could be proxying for either more demanding consumers, higher mark-ups, or both. To differentiate between the two mechanisms, we need to take advantage of firm heterogeneity. As Table 2 shows, firm responses to the treatment are hypothetically moderated by two factors.

Consumer, shareholder and lead firm concerns with labor rights operate only where labor conditions can be observed by third parties. Customers must be able to identify labor problems -- perhaps with

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18 We use a linear model, where calculation of the wild cluster standard errors is more straightforward and easier to estimate (Kline and Santos 2012).
the help of the spotlight provided by rights activists or by private-public initiatives such as the ILO’s Better Work Program – associated with the commodity they intend to purchase (Garcia-Johnson 2000). Visibility is a function of a number of attributes. Final products, assembled in a supply chain partner factory and sold to consumers, have greater visibility than intermediate products used in the middle of the value chain. This is particularly true of branded and luxury products (Gereffi 1994), but it is true even of goods such as apparel and footwear. The organization and targeting strategy of labor rights activists also matter. Activists have been more likely to target brand-name products with multinational name recognition, engaging in “naming and shaming” in hopes of changing multinational firms’ incentives to address labor-related issues (Bartley and Child 2014, Seidman 2007). Even though labor practice violations may exist in intermediate and commodity-like goods, there are too many producers and too little differentiation for consumer or shareholder pressure to have much influence. Thus, as we display in the vertical dimension of Table 2, we expect higher visibility items (row 2) to have experience a larger treatment effect than lower visibility items (row 1).

If the second mechanism generates the empirical pattern we observe, firms in Vietnam will focus on the relative difference in mark-ups between the two regions when deciding how much to invest in labor-related improvements. In some consumer-oriented industries, there is a significant difference in the median product sold to the European as opposed to the Indian market; products such as jewelry and watches are characterized by variation in product cost and quality. In these cases, we would expect firms to be willing to invest in costly reforms, because of the promise of higher returns in the European market. In other industries, characterized by primary products, intermediate goods, and consumer non-durables, there is very little difference between mark-ups in the two markets. Mark-ups should play little role in decision-making in these instances, because returns are driven more by volume of sales than margin; therefore, if the markup mechanism is at play, we should expect firms manufacturing non-differentiated products (between India and Europe) to be less willing to invest in labor-related improvements. Thus, in the horizontal dimension of Table 2, we predict that industries with higher mark-up differences (column 2) will experience a larger treatment effect than industries with smaller differences in mark-ups (column 1). Treatment effects should be largest in high visibility and high mark-up sectors.

[Table 2 about Here]

Fortunately, the PCI-FDI classifies the products and services of firms according to the four-digit industrial classifications (ISIC Rev 4) of the United Nations Statistical Division.¹⁹ Using these codes, we match sectors to their international mark-ups (De Loecker and Warzynski 2012), allowing us to identify sectors that might be affected by the second mechanism.

To test whether the visibility mechanism is playing a role, we look at two sectors – wearing appeal and plastic and rubber products -- that have similar representation in the PCI-FDI data, and that have very low differences in markups. The globalization of production, as well as the elimination of trade barriers (including the 2004 phase-out of the Multifibre Arrangement, in the case of apparel), has dramatically lowered markups in these sectors (Abraham et al. 2009).²⁰ The thin markups are especially salient for producers at lower and intermediate rungs in the supply chain, as the wide

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¹⁹ Available at <http://unstats.un.org/unsd/cr/registry/isic-4.asp>
²⁰ https://ww2.kqed.org/lowdown/2013/05/17/who-made-your-t-shirt-the-hidden-cost-of-cheap-fashion/
availability of potential suppliers allows lead firms to reduce the prices paid for inputs (Milberg and Winkler 2013).

The key difference between them, however, is that apparel production is quite visible. As it is a final product with the production location on the label, consumers have a good sense of where it was made (or, at least, where final assembly was completed) and ideas about the labor rights in the host country. By contrast, for plastic and rubber products – for which, for Vietnamese firms in our survey, the main product is “retail carrier bags” -- consumers have very little sense of the location of production. Some plastic products are used as intermediate inputs; even when they are exported from Vietnam final products, consumers know very little about them. When was the last time a consumer asked about the origin of the plastic bags at the supermarket checkout counter? There is, however, a great deal of global competition in the plastic bags sector, with U.S. firms routinely filing domestic trade complaints against exporting firms throughout southeast Asia. 21

The comparison allows us to hold constant mark-ups and study the effect of visibility, which is more difficult to measure accurately, on reform costs. This analysis is presented in Figure 5. It is important to note that while the survey experiment is randomized, the selection of sectors is not. Thus, omitted confounders that might be correlated with differences is mark-ups between these two sectors could bias our analysis.

In the top of the figure, we present bar graphs of the change in operating costs reported by the firms. As expected, for rubber and plastics, there is very little difference between firms receiving the India and European treatments. In fact, firms in the European treatment actually were willing to pay marginally less in this low-visibility industry (5.5% versus 6.6%). By contrast, in the sector with similarly low margins, but where customers and lead firms are more equipped to observe conditions and demand change, firms in the European treatment group were willing to make changes worth 8.4% of operating costs, versus 6% in the India treatment group. The bottom half of the graph again shows the significance test using the wild cluster bootstrap procedure. The extremely conservative test does not yield statistically significant results for either group. Nevertheless, the test of wearing apparel is negative and just shy of statistical significance, with the bulk of the beta distribution to the left of zero. By contrast, the plastic distribution is positive with the right tail straddling zero. A Wald test of the difference in the treatment effects between wearing apparel and plastic reveals that the two distributions are significantly different. The effect of the treatment is significantly stronger in wearing apparel. 22

In sum, the mechanism test reveals that firms are concerned about customer pressure, and even when the potential profits are small, are willing to make significant adjustments in labor policy to meet those demands.

[Figure 5 about Here]

21 See, for instance ITA 2016b.
22 To test this, we ran an interaction of India and a dummy for wearing apparel, limiting the analysis to only these two sectors. The coefficient on the interaction term revealed that the effect of the treatment was 3.49 percentage points more negative in wearing apparel. The Wald statistic for the difference was 4.23, which was significant at the .1 level.
V. Conclusion

Existing research on foreign direct investment, and on its consequences for outcomes in developing countries, has centered on multinationals based in developed countries and on firms that lead global supply chains. In this paper, we draw attention to a critically important but poorly understood subset of internationally-oriented producers - developing country-based FIEs that participate in (or that aspire to participate in) global and regional supply chains.

We investigate the conditions under which such firms are willing to expend resources to improve working conditions and labor rights. We argue that when weighing the costs and benefits of investing in such improvements, foreign-oriented firms in developing countries will consider both the material benefits associated with gaining access to higher-standard production chains, as well as the likelihood that lead firms, consumers and activists will be able to observe their labor practices. Using a survey experiment in Vietnam, we find compelling evidence that these FIEs are more likely to expend resources to improve labor costs if the overseas sales opportunity is in Western (European) markets, rather than equally sizable markets in the developing world. Specifically, we find a half a percentage point difference in the share of operating costs that such firm would devote to complying with a hypothetical labor-related code of conduct from an international buyer.

Testing the possible mechanisms for this result, we find evidence that both the availability of higher markups as well as the propensity of foreign buyers to observe labor conditions influences the willingness to invest in improvements. Above and beyond the benefits of selling to a wealthier consumer base, and to earning higher markups, the capacity of buyers (lead firms as well as consumers) to observe labor conditions makes a difference. By contrast, among firms active in low-markup products with little visibility of working conditions, propensity to upgrade standards is more limited.

Our analyses suggest several avenues for future research. First, we can draw further distinctions among foreign-invested firms, as a means of better identifying the mechanisms that affect the willingness to upgrade. We expect that the distinction between intermediate and final goods may be relevant: downstream purchasers of intermediate goods may put less pressure for upgrading on their supply chain partners. By contrast, purchasers of final goods – running shoes that have been assembled in Vietnam and will appear on the shelves of Western retail outlets, for instance – can be expected to make greater demands for labor-related improvements. Therefore, we plan to classify each PCI-FDI respondent’s main export product in terms of whether it is an intermediate or a final good, and check for variation across this dimension.

Second, we might consider whether firms’ willingness to upgrade varies within the set of wealthy Western markets, or within the set of large emerging market economies. Given the tendency, for instance, of European consumers as well as European lead firms to pay greater attention to ethical issues in supply chains, we might expect that an experimental design involving “the United States” rather than “Europe” as the location of the supply chain partner may elicit a different response. Responses to such items may be complicated by ongoing discussions of the TransPacific Partnership (TPP), but future survey data will vary the market named in the experimental treatment. Similarly, one might expect that firms could respond differently to the opportunity to export to China or Brazil, versus to India. Indeed, India distinguished itself from other emerging markets in 2014, when
it became the first country to mandate that its firms spend a certain amount on corporate social responsibility initiatives. Other emerging market countries have not followed suit, suggesting that – if respondent firms were aware of this legislation -- the developed/emerging distinction may be even greater if “China” or “Brazil” were used in the experimental treatment.

More broadly, our results suggest that greater attention to supply chain participants, especially those that are not lead firms – and that are not even necessarily large subcontractors – is warranted. In many developing countries, such firms account for a significant proportion of employment, and they are keen to find ways to gain access to supply chain relationships. While the popular “race to the bottom” narrative suggests that this access depends on cost- and standard-cutting, our results instead suggest that access may depend, in part, on the upgrading of standards. Of course, this is conditional on the demands and preferences of lead firms, which are themselves driven by consumer and regulatory pressures in export destinations.

Finally, in considering how firms in developing countries engage with global supply chains, and how this participation affects the transmission of standards and practices, we also should consider the role of government policy. As several observers recently have noted, private pressure and initiatives often are a complement to, and not a substitute for, the public protection of labor rights (Amengual and Chirot, forthcoming; Berliner et al 2015, Locke 2013). When local governments provide legal protections for the formation and operation of trade unions, for instance, workers are better able to exercise the options provided to them by various private sector initiatives. When, on the other hand, developing country governments block the availability of internationally-recognized worker rights or devote few material resources to enforcing labor standards, the incentives of firms to offer such rights diminish. And foreign governments also have a role to play, as their inclusion of rights in trade and investment agreements may further alter incentives for the transmission of standards (Kim 2012, Lechner 2016).

References


<table>
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<tr>
<th>Confounders</th>
<th>Europe Mean</th>
<th>SE</th>
<th>India Mean</th>
<th>SE</th>
<th>Difference</th>
<th>p-value</th>
<th>Observations</th>
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<td>0.346</td>
<td>0.018</td>
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<td>0.018</td>
<td>0.018</td>
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<td>0.013</td>
<td>0.926</td>
<td>0.013</td>
<td>0.005</td>
<td>0.777</td>
<td>836</td>
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<td>Years since registration (ln)</td>
<td>8.725</td>
<td>0.234</td>
<td>8.280</td>
<td>0.245</td>
<td>-0.445</td>
<td>0.189</td>
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<td>Capital size ($1000s USD)</td>
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<td>447.9</td>
<td>4.308</td>
<td>485.3</td>
<td>275.9</td>
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<td>0.016</td>
<td>0.043**</td>
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<td>0.013</td>
<td>0.071</td>
<td>0.013</td>
<td>-0.001</td>
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<td>0.023</td>
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<td>0.446</td>
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<td>Workers under contract (%)</td>
<td>87.512</td>
<td>1.204</td>
<td>86.323</td>
<td>1.250</td>
<td>-1.189</td>
<td>0.493</td>
<td>877</td>
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<td>Number of employees</td>
<td>208.763</td>
<td>16.164</td>
<td>231.967</td>
<td>17.013</td>
<td>23.204</td>
<td>0.323</td>
<td>900</td>
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<td>0.547</td>
<td>0.024</td>
<td>0.547</td>
<td>0.025</td>
<td>0.000</td>
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<td>0.024</td>
<td>0.363</td>
<td>0.025</td>
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<td>0.325</td>
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<td>0.017</td>
<td>0.619</td>
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<td>0.619</td>
<td>0.022</td>
<td>0.638</td>
<td>0.023</td>
<td>0.019</td>
<td>0.554</td>
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<td>Customer is SOE = 1</td>
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<td>0.016</td>
<td>0.118</td>
<td>0.017</td>
<td>-0.052**</td>
<td>0.026</td>
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<td>0.009</td>
<td>0.025</td>
<td>0.009</td>
<td>-0.021*</td>
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<td>Customer is foreign firm = 1</td>
<td>0.516</td>
<td>0.023</td>
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<td>0.710</td>
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<td>Export to third country = 1</td>
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<td>0.023</td>
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<td>Vendor is SOE = 1</td>
<td>0.136</td>
<td>0.015</td>
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<td>0.022</td>
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<td>Vendor is household = 1</td>
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<td>0.019</td>
<td>-0.051*</td>
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<td>Inputs from in house = 1</td>
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<td>0.641</td>
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<td>912</td>
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</table>

Row 1 includes all firms in exporting sectors. Thereafter balance tests are restricted to firms in exportable sectors that responded to the survey experiment.
Table 2: Predicted Effects of Mechanisms for Labor Rights Improvements

<table>
<thead>
<tr>
<th>Difference in Mark-Ups between India and Europe</th>
<th>Low</th>
<th>High</th>
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</thead>
<tbody>
<tr>
<td>Low Treatment Effect (i.e. Plastics, Commodities)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate Treatment Effect (i.e. Automobiles)</td>
<td></td>
<td></td>
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<tr>
<td>Moderate Treatment Effect (i.e. Apparel/Garments)</td>
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</tr>
<tr>
<td>Large Treatment Effect (i.e. Jewelry, Watches)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1: Number of Firms from Each Country in Sample

All Firms

- Japan: 376
- South Korea: 219
- Taiwan: 115
- China: 79
- Singapore: 71
- United States: 30
- Malaysia: 27
- United Kingdom: 26
- Germany: 15
- Australia: 14
- Thailand: 13
- Netherlands: 12
- Indonesia: 8
- Denmark: 8
- Brunei: 8
- Samoa: 6
- India: 6
- Switzerland: 5
- Belgium: 5
- Canada: 4
- United Arab Emirates: 3
- Norway: 3
- Hong Kong - China: 3
- Virgin Islands: 2
- Seychelles: 2
- Philippines: 2
- New Zealand: 2
- Mauritius: 2
- Italy: 2
- Israel: 2
- Cayman Islands: 2
- Sweden: 1
- Spain: 1
- Russia: 1
- Monaco: 1
- Ireland: 1
- Cyprus: 1
- Costa Rica: 1
- Austria: 1

Firms in Exporting Sectors

- Japan: 231
- South Korea: 192
- Taiwan: 127
- China: 45
- United States: 41
- Singapore: 19
- Malaysia: 19
- France: 19
- United Kingdom: 15
- Netherlands: 8
- Australia: 8
- Brunei: 8
- Thailand: 6
- Germany: 5
- Denmark: 5
- Belgium: 5
- India: 4
- United Arab Emirates: 3
- Switzerland: 3
- Samoa: 3
- Norway: 3
- Italy: 2
- Hong Kong - China: 2
- Virgin Islands: 1
- Spain: 1
- Seychelles: 1
- Russia: 1
- Philippines: 1
- New Zealand: 1
- Monaco: 1
- Mauritius: 1
- Israel: 1
- Cyprus: 1
- Costa Rica: 1
- Cayman Islands: 1
- Canada: 1
- Austria: 1

Second panel only includes firms in exporting sectors that responded to survey experiment.
Figure 2: Number of Firms in Each Exporting Sector

- Wholesale/Retail: 110
- M: Fabricated Metals: 85
- M: Other: 71
- M: Rubber/Plastics: 70
- Professional Services: 67
- M: Garments: 64
- Information/Communication: 62
- M: Chemicals: 41
- M: Motor Vehicles: 38
- M: Computers/Electronics: 36
- M: Machinery: 35
- M: Electronic Equip.: 34
- M: Furniture: 31
- M: Textiles: 27
- M: Leather: 26
- M: Paper Products: 24
- M: Basic Metals: 23
- M: Food Processing: 23
- Electricity/Gas/AC: 11
- M: Wood Products: 11
- Agriculture/Aquaculture: 11

Only includes firms responding to survey experiment; M: Denotes Manufacturing Sector.
Figure 3: Results of Survey Experiment

Observed Operating Costs

Difference in Operating Costs

Red marks in right panel denote 95% Confidence Intervals

n=912; India 434; Europe 478
Figure 4: Results of Survey Experiment

Observed Operating Costs

<table>
<thead>
<tr>
<th>Predicted Adjustment/Operating Costs (%)</th>
<th>Share of Observations (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>20</td>
</tr>
<tr>
<td>5-9</td>
<td>40</td>
</tr>
<tr>
<td>10-14</td>
<td>30</td>
</tr>
<tr>
<td>&gt;15</td>
<td>10</td>
</tr>
</tbody>
</table>

India

Europe

Difference in Operating Costs

Rejection p-value calculated w/ Wild Cluster Bootstrap SEs

Red marks in right panel denote 95% Confidence Intervals; n=912; India 434; Europe 478
Figure 5: Test of Mechanism

Wearing Apparel (n=64)

<table>
<thead>
<tr>
<th>Region</th>
<th>Average Change in Operation Costs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>8.4</td>
</tr>
<tr>
<td>India</td>
<td>6</td>
</tr>
</tbody>
</table>

Rubber and Plastic (n=70)

<table>
<thead>
<tr>
<th>Region</th>
<th>Average Change in Operation Costs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>5.5</td>
</tr>
<tr>
<td>India</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Operating Costs Difference (India Treatment - Europe Treatment)