

Labor Upgrading and Export Market Opportunities: Evidence from Vietnam

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Abstract: What motivates firms in developing countries to upgrade labor conditions? We explore the efficacy of two distinct mechanisms – the creation of economic agreements with labor-related conditionality; and the emergence of new market opportunities, which present incentives to recruit and retain more skilled workers. The former mechanism is embodied in many preferential trade agreements. The latter mechanism results from an exogenous shift in global markets, which likely affects some products and sectors, but not others. For instance, the US (as a major importer) imposing tariffs against many Chinese products. The rights conditionality mechanism typically operates at the broader country level, while the market opportunity channel is firm-specific. We leverage a unique opportunity to evaluate the relative importance of these mechanisms, in the context of foreign-owned enterprises in Vietnam. We find that the market opportunity channel has a much more pronounced effect on firm-level attitudes. But we note that this channel may not generate economy-wide (versus firm-specific) labor rights improvements.

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Multinational production and global supply chains could be a source of opportunity for workers and firms in developing countries. When multinational firms create overseas production facilities, often with an eye to participating in global supply chains (Johns and Wellhausen 2016), they tend to hire at the top of local labor markets, paying wage premiums to attract the most (relatively) skilled workers. When these firms can access new foreign markets, they often realize higher product markups and achieve greater economies of scale. Servicing foreign markets also motivates upgrading of production technologies, labor force skills, and social and environmental compliance. Workers find employment in foreign-invested facilities, as well as in factories producing for foreign buyers, attractive. For instance, studies have shown that many young women in Bangladesh prefer garment factory employment to remaining in their rural villages (Heath and Mobarak 2015).

But labor-related upgrading is not a foregone conclusion: disaggregated production also may generate “race to the bottom” pressures in wages, health, safety conditions, and workers’ capacity to unionize. Firms and governments in developing countries may reduce protections for workers in their quest to attract foreign direct investment (FDI), win subcontracting business, and improve current account balances. As technology and transportation innovations have allowed lead firms to organize their supply chains on a global scale, the competition for subcontracts and supply chain relationships has intensified (Silver 2003). Reducing labor-related expenditures is one means by which developing country firms can win this competition (e.g. Ahlquist and Mosley 2020, Berliner et al. 2015). Moreover, in many developing countries, (relatively abundant) workers have less political voice than (relatively scarce) capital owners. Therefore, the potential gains from global supply chain participation may accrue more to factory owners (as well as to foreign investors) than to workers.

In this paper, we theorize and provide an empirical test of one potential mechanism by which global markets can motivate labor-related upgrading among developing country firms. In

some cases, exogenous shifts result in new market opportunities for some producers. If, for example, competing producers of a good experience a rise in their production costs or tariff barriers, other firms producing that good are presented with an opening. By undertaking certain changes – acquiring newer technologies or hiring more skilled workers – these firms can access previously unavailable markets. Such firms typically are not under government pressure to alter their behavior; rather, firms decide that the potential gains in exports to new markets justify additional expenditures.

We focus on how shifts in U.S. trade policy toward China affect the willingness of foreign firms operating in Vietnam to engage in upgrading. When firms located in China experience a rise in the tariffs on their exports to the United States, producers (and potential producers) of similar goods in Vietnam confront a new opportunity: by upgrading their technological sophistication and the skill level of their workforce, they can service previously unavailable markets. This market opportunity mechanism operates predominantly at the firm level, rather than at the country level. Unless the exogenous shock to policy affects *all* goods, only firms producing affected goods or substitute products are incentivized to undertake changes that facilitate access to new markets in the immediate wake of the shock. The affected firms that do invest in upgrading can enjoy material benefits from expanded market opportunities. In the short to medium run, firms that are not presented with new export market opportunities will not gain materially from labor-related upgrading. Depending on the degree of labor market segmentation, these unaffected firms may have longer-term incentives to also improve workers' treatment, so that they can compete to hire the best workers. More immediately, however, firms producing non-affected products have weaker incentives to invest in workers.

The market opportunity mechanism therefore offers a direct link between firm behavior – improving working conditions as a means of attracting more skilled workers, for instance – and firm outcomes. In this way, the market opportunity mechanism for upgrading contrasts with another widely-used tool, in which developed country governments condition access to their markets upon

improved human and labor rights outcomes (Hafner-Burton 2009, Lechner 2016, Reiss and Sari 2018, Wang 2020). Empirically, it is hard to distinguish the effect of preferential trading agreements (PTAs) with labor-related conditions from the effects of market mechanism on improvements in worker rights. While various analyses question PTAs' effectiveness as a mechanism for labor rights improvements, these agreements also can be a source – albeit not typically an exogenous one – of market opportunity and of access to global supply chains. Recent research suggests that especially when lead firms are in wealthy democracies; when servicing those markets offers significantly higher markups than when servicing other markets; and when shareholders and rights activists draw attention to labor rights, firms are willing to make significant investments in labor-related improvements (Malesky and Mosley 2018). This willingness, however, could be due more to market opportunities – which vary at the firm level – than to trade agreement conditionality – which exists at the national and sectoral level.

In this paper, we take advantage of recent policy changes in U.S. trade policy, and their consequences for Vietnam. Together, they provide a unique opportunity to study the market opportunity mechanism more directly. Our data, based on three annual surveys of foreign-owned firms in Vietnam between 2016 and 2018, allow us to assess over time and cross-sectionally how firms respond to shifts in market opportunities, as well as to a survey experiment that primes firm managers to focus on global supply chain relationships. Our analyses suggest that firms respond significantly to changes in market opportunities, especially when they are primed to consider specific supply chain relationships. In 2018, foreign-owned firms in Vietnam producing goods affected by the Trump administration tariffs were willing to spend seven percentage points (as a share of operating costs) more on labor-related improvements when they were told that the lead firm of a potential supply chain partner was from the United States, rather than from China. For foreign-owned firms in Vietnam that produce goods outside the Trump tariff lines, however, the difference

in willingness to spend between firms offered US-led versus those offered Chinese-led supply chain access was effectively zero. Moreover, firms' interest in labor-related upgrading falls more in the areas of individual working conditions – improving wages and benefits, for instance – than in the realm of collective labor rights (facilitating the formation and operation of labor unions).

Furthermore, when we compare firms' average responses in 2018 – soon after the U.S. tariffs against Chinese exports – with average responses in 2016 and 2017, we find significant differences. Firms ultimately affected by the Trump tariffs were not significantly different than non-tariffed firms in their upgrading intentions in 2016 or 2017.¹ Additionally, both in 2016, when foreign-invested firms in Vietnam arguably expected the labor-related Chapter 19 of the Transpacific Trade Partnership (TPP) and the associated U.S.-Vietnam “Plan for Enhancement of Trade and Labour Relations” to eventually come into legal effect; and in 2017, after the US had withdrawn from TPP participation, we find little effect of potential supply chain relationships (the United States versus China) on firms' upgrading intentions.

Our empirical analyses therefore suggest that exogenous changes in market opportunity can be important drivers of labor-related upgrading. That said, governments and activists interested in rights improvements may have little ability to generate such exogenous shifts in international market opportunities. And the market opportunity mechanism likely brings improvements only to some firms and industries, at least in the short- to medium-term. Consequently, we suggest that, especially in domestic political systems that have traditionally excluded organized labor, these labor improvements will emphasize individual working conditions over collective labor rights.

¹ Our analyses were unaffected by the exemptions to these tariffs, granted in December 2018. See note 10 below.

I. Worker Rights and Global Supply Chains: Mechanisms for Upgrading

Global production networks can enhance developing country firms' incentives to improve workers' conditions and compensation. This is especially true when foreign markets with higher standards offer relatively high markups (Malesky and Mosley 2018). Upgrading also is more likely when – because of NGO activism – developed country consumers, firms, and shareholders are particularly attentive to labor-related issues in an industry (also see Bartley 2018, Bartley and Child 2017, James et al 2018, Seidman 2007). For instance, Distelhorst and Locke (2018) employ firm-level data to consider how retailers respond to developing country manufacturers' compliance with voluntary social standards. All else equal, they find, compliance with standards generates a four percent average annual increase in purchases; this effect is driven largely by the apparel sector.²

We therefore expect that changes in market opportunities can motivate some internationally-engaged firms in developing countries to improve labor conditions. Exogenous shocks, such as policies or events which raise competitors' costs, allow some firms to potentially increase production and sales. Taking advantage of these new opportunities to access foreign markets and global supply chains often requires labor force upgrading. Paying higher wages (which multinationals already do, on average, relative to domestic firms), limiting overtime, and providing a safe working environment render firms better able to hire the best workers. Yet, firms in developing countries often struggle to recruit and retain relatively skilled workers, as such workers remain in scarce supply. The market opportunity channel therefore treats labor-related upgrading as transactional: firms want to capture more value added via global markets, and they are willing to share some of this value added with workers, in the form of higher wages and better conditions.

² Amengual et al (2019)'s analysis of a major apparel and equipment retailer's purchasing decisions paints a less optimistic picture. While the retailer terminated suppliers with low rates of labor-related compliance, it did not increase its orders when factory-level labor conditions improved. They attribute this to the inflexibility of the retailer's portfolio of supplier firms.

The market opportunity mechanism sometimes overlaps, yet also contrasts, with another potential tool for labor-related upgrading, via PTAs. PTAs now frequently address *de jure* protections for workers, as well as *de facto* labor conditions (Hafner-Burton et al 2019, Lechner 2016, Raess et al 2018). Developed country governments may employ labor-related conditionality as a means of placating domestic interest groups (Hafner-Burton 2009).³ At the same time, developing country governments are willing to commit to labor rights improvements, because PTAs offer improvements in current account positions, increased tax revenues, and greater foreign direct investment (Lechner 2018, Manger 2012). Some developing country governments may even undertake labor rights improvements prior to negotiating trade deals with the US or European Union, in order to make themselves more attractive potential partners (Kim 2012). And some firms in developing countries stand to benefit as well from the export market and supply chain access created by these agreements (e.g. Baccini et al 2017, Manger 2012, Osgood et al 2017; also see Milner 1987)⁴

Thus, PTAs may be a source, albeit one endogenous to domestic politics in participating countries, of market opportunities. Developing country governments commit to labor rights improvements in return for improving firms' access to foreign markets (Alford and Philips 2018, Peterson et al 2016, Piore and Schrank 2008). The effectiveness of labor-related conditions in PTAs, however, is questionable: partner governments may be reluctant to enforce labor-related provisions (Hafner-Burton et al 2018, Kay 2011), and improvements in law may be far easier to achieve than improvements in practice (Greenhill et al 2009). Non-compliance with PTA conditions typically is

³ In their analysis of the labor-related actions under the U.S. GSP program, however, Hafner-Burton et al (2018) find only mixed evidence that import competition – versus violations of worker rights -- explains the withdrawal of trade privileges.

⁴ Governments also may have domestic motivations to engage in economic reform more broadly, but worry that they face opposition domestically. PTAs can serve as a means of locking in reforms at home and more credibly committing to changes abroad. See Baccini and Urpelainen 2014.

adjudicated at the country level, so that the link between individual firms' behavior and continued access to markets is tenuous. Firms may free ride on other firms' compliance, while benefits remain in place for all. Unless a given firm is very large or very much in activists' spotlight, a single firm's behavior is insufficient to ensure the arrival (or cause the removal) of trade agreement benefits. Moreover, some trade agreements often offer a phase-in or grace period, so that the returns to compliance in the present (or the penalties for non-compliance) may be slow to manifest. Furthermore, identifying a counterfactual for PTA-induced improvements is complicated by the effects of PTAs, via global supply chain and contracting relationships, upon the behavior of firms in non-member countries (Gulotty and Li 2020).

We therefore focus instead on market opportunities, and on how shifts in such opportunities might motivate upgrading. This focus is consistent with country-level analyses which find that trade and supply chains can be a mechanism for diffusing labor practices from higher-standard to lower-standard locations. Greenhill et al (2009) report that, among developing countries, respect for collective labor rights among one's export partners is associated, all else equal, with improvement in one's own labor rights. Other analyses suggest that this "California effect" holds for the trade-based diffusion of human rights generally (Cao et al 2013). More recently, Adolph et al (2018) consider the flipside of this effect: when African countries shift their exports toward Chinese markets, they experience a limited "Shanghai effect." Deterioration in labor rights is conditional on whether trade with China displaces trade with high-standards or low-standards countries (also see Peterson et al 2016). Our research design captures this contrast between the potential California (upgrading) and Shanghai (downgrading) effects – at the firm level. We prime respondents to assess whether the incentives to upgrade vary systematically as the result of exports to and supply chain relationships with lead firms based in the United States versus China.

Other analyses suggest that foreign direct investment also could be a mechanism for rights-related improvements, especially when multinational corporations avoid locating production in jurisdictions with questionable rights-related records. If developing country governments are keen to attract FDI, due to its potential positive effects on wages, employment and/or technological development, such a linkage might further incentivize upgrading (Barry et al 2013, Payton and Woo 2014; but also see Arel-Bundock 2017, Bodea and Fe 2018, Garriga 2016).

Yet, country-level studies of trade and investment as mechanisms for rights upgrading offer limited insights into how upgrading behavior might vary across and within sectors. Analyses of the apparel sector note that competition for supply chain participation can create downward pressure on labor standards, especially in low-wage countries such as Bangladesh (Anner 2019, Ahlquist and Mosley 2020). Tanaka (2019), however, observes the opposite effect in Myanmar. Apparel, moreover, is one industry among many. Although a few recent analyses have moved to the sectoral level, considering variation in upgrading propensity within countries (Blanton and Blanton 2009, Janz 2018, Lechner 2018), these analyses do not typically address heterogeneity among firms within the same sectors (Melitz et al 2004). Indeed, the exogenous shocks that shift market access opportunities typically fall unevenly across firms and sectors. Evaluating the market opportunity mechanism therefore requires a firm-level analysis, with attention to globally-engaged firms in developing countries. Although large multinational firms based in developed nations have attracted the bulk of attention thus far, it is internationally-oriented firms in developing countries that play a key role in determining wages, working conditions and the capacity of employees to act collectively (also see Amengual et al 2019, Distelhorst and Locke 2018, Malesky and Mosley 2018).

II. Market Opportunities and Labor-Related Upgrading in Vietnam

We examine how foreign-invested firms in Vietnam vary in their reported willingness to invest in labor-related upgrading; how upgrading propensity varies with differences in global supply chain opportunities; and how this willingness can shift in response to exogenous changes in market opportunities. We assess firms' upgrading propensity using a contingent valuation survey experiment, which primes global supply chain participation (and randomly varies the location of lead supply chain firms). Our central focus is the 2018 U.S. tariffs against a wide range of Chinese exports. These tariffs create an opportunity for foreign-owned Vietnamese firms producing similar goods, but not for other Vietnamese firms. As such, we contrast firms in the U.S. tariff lines with those producing other goods. We also employ similar firm survey data from the period before the tariffs (2016 and 2017) to establish the causal impact of shifts in market opportunity, as well as the validity of our assumption of parallel trends in our triple difference analysis. These over-time comparisons also reveal that market opportunities, as opposed to expectations of a PTA with labor-related conditions, are an important predictor of labor-related upgrading.

The case of Vietnam offers a unique laboratory for evaluating the effects of market opportunity shifts. The country is one of the world's most active participants in global value chains (GVCs), rating among the top countries worldwide in the GVC participation index (UNCTAD-Eora 2019). Between 50 and 60 percent of the valued added in Vietnam is generated through GVCs (Hollweg et al. 2017). Vietnam's global production relationships are driven primarily by foreign investors, many from Japan, Korea, and Taiwan, as well as Singapore and China. Foreign investment accounts for over half of Vietnam's total exports and eighty percent of its manufacturing exports. Hence, we expect firms in Vietnam, especially foreign-owned ones, to be responsive to exogenously-generated shifts in market opportunities.

Foreign-owned firms in Vietnam also typically view labor-related issues as salient. The Trans-Pacific Partnership (TPP), negotiated over several years and signed by Vietnam in February 2016,⁵ included a requirement that all members adopt and respect core labor rights, embodied in eight International Labour Organization (ILO) conventions.⁶ Chapter 19 of TPP also asked members to address issues beyond core labor rights, including a minimum wage and limits on working hours (Kolben 2017). In addition, the United States and Vietnam agreed to a bilateral Consistency Plan, which dealt further with labor rights in Vietnam. Taken together, the TPP process addressed not only changes to Vietnamese law, but also to many firms' practices (facilitating the operation of independent unions, but also paying a minimum wage, preventing excessive overtime, and providing a safe work environment).

On the eve of Vietnam's agreement to TPP, the 2015 PCI-FDI survey found that 78 percent of foreign-owned firms were at least somewhat aware of the TPP and 70 percent of those foreign firms felt positively about the labor-focused Chapter 19 (Malesky 2016; also see Tran et al 2017). To the extent that firms viewed the TPP's labor-related provisions as likely to be enforced, the agreement might have directly influenced firms' labor-related behavior. This would be particularly true of firms transacting with U.S.-based production networks. Conversely, advocates of labor-related PTA conditionality would predict that the withdrawal of the U.S. from TPP, announced by President Trump in January 2017, would render firms in Vietnam less inclined toward labor-related upgrading, as the labor-focused Consistency Plan was a side-agreement with the US that was not in the TPP's successor, the CP-TPP. Although our core empirical interest is the effect of market

⁵ The TPP never took effect; a revised agreement, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, incorporated most of the content of the TPP. It entered force, without the United States, on December 30, 2018.

⁶ Some prospective TPP members had not ratified all eight ILO conventions. Vietnam had yet to ratify the three conventions addressing freedom of association, collective bargaining, and forced labor.

opportunities—rather than of PTA conditionality – our survey experiment does allow us to differentiate our theory from these alternative expectations, by analyzing data from 2016 (when US participation in TPP was expected) and 2017 (after the US withdrawal from TPP), and by comparing firms primed with a US-focused treatment versus a China-focused prompt.

The core of our analysis, however, focuses on how an exogenously-generated shift in market opportunity affected firms’ willingness to invest in labor-related upgrading. On June 15, 2018, U.S. President Donald Trump exerted his authority under Section 301 of the 1974 Trade Act to issue across-the-board retaliatory 10 percent tariffs on a wide range of Chinese products (Morrison, 2019). Trump justified the tariff decision by arguing that China’s sizable trade surplus with the United States was largely the result of unfair trade practices and currency manipulation. The tariffs were set to escalate to 25 percent on January 1, 2019, although the escalation ultimately was delayed by several months.

The 2018 U.S. tariffs against Chinese products directly affected some, but not all, foreign-invested firms in Vietnam. They allow us to isolate the effects, at the firm level, of a shift in market opportunities on the willingness to invest in labor-related upgrading. While trade agreements with labor-related provisions promise to affect all export-focused firms in an economy, the Trump tariffs have immediate effects only on firms producing the same or very similar products. In Vietnam, these tariffs were greeted with marked enthusiasm, as some expected them to boost Vietnamese exports to the United States and further integrate of Vietnamese companies into global value chains (Pham and Yeo 2018, Shira 2019).

Many foreign-owned firms in Vietnam (especially Japanese, Korean, and Taiwanese firms) employed a “China plus one” strategy. These firms located most of their global value chains in China but, to address possible uncertainty associated with China, located some operations in Vietnam (Shira 2019, Symington 2018). For the most part, the Vietnamese affiliates were involved in

the less skill intensive portions of the supply chain, engaging in either final assembly or providing the least technologically intensive inputs (Lam 2019). U.S. tariffs against Chinese products, however, offered opportunities to shift this balance toward Vietnam, enabling industrial upgrading (Amiti et al. 2019).

Vietnam did indeed benefit from the tariffs: almost immediately, Japanese and Korean firms with operations in China began visiting Vietnam to consider investments there (Shira 2019). Some MNCs opened new factories and located higher value-added elements of their supply chains in Vietnam (Lam 2019). Data from the Foreign Investment Agency under the Ministry of Planning and Investment of Vietnam show that pledged and disbursed foreign direct investment (FDI) in Vietnam achieved ten-year highs in 2019. The amount of FDI that was licensed to enter the country grew 7.2 percent (to \$38 billion), including nearly 3,900 new projects. Of these approved FDI projects, new and existing investors disbursed \$20.4 billion USD, which also represents a 7 percent increase. The ratio of disbursed to approved and pledged investments stood at 54 percent, one of the highest proportions during Vietnam's reform era. Notably, foreign investment in science and technology surged sharply, ranking among the fastest growing sectors in the country's FDI attraction (VNA 2019).

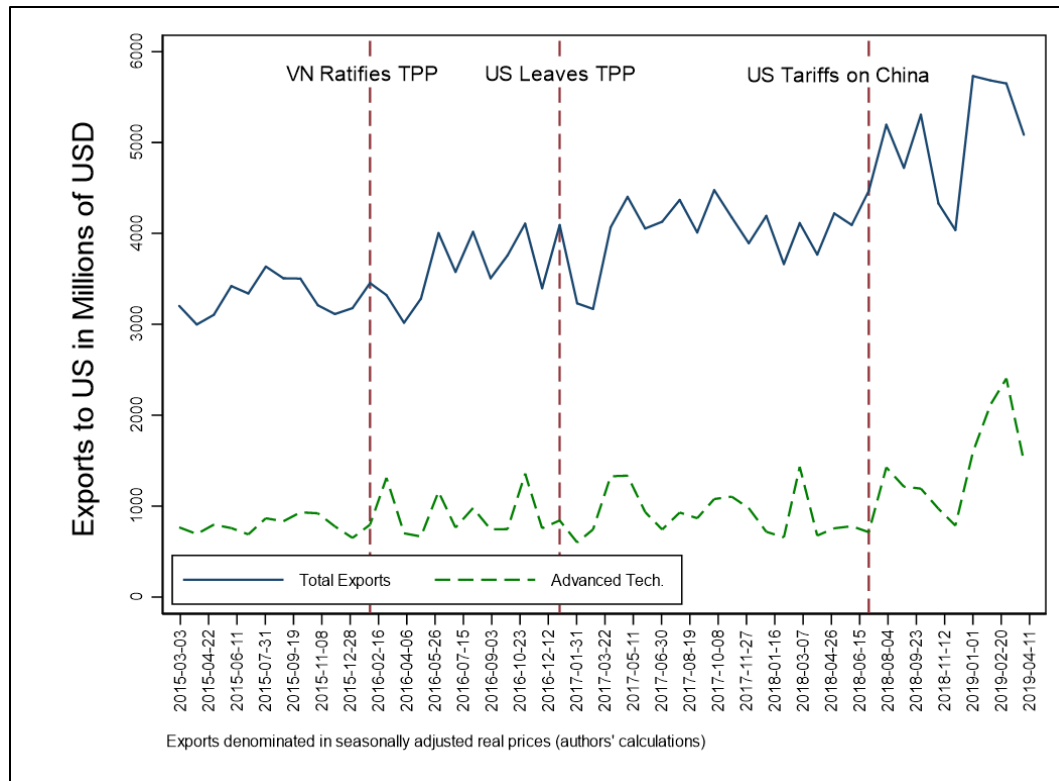
In the wake of the U.S. tariffs, Vietnam also significantly increased its exports to the United States. Figure 1 illustrates this pattern, reporting bilateral trade data from the U.S. Census Bureau. To ensure comparability over time, we report seasonally-adjusted data in real millions of US dollars (base year=2015). The three dashed vertical lines indicate key discontinuities in the Vietnam-US trade relationship: (1) Vietnam's entry into the TPP (February 4, 2016); (2) the US withdrawal from TPP (January 23, 2017); and (3) the announcement of US tariffs against many Chinese imports (June 15, 2018). Figure 1 illustrates a remarkable rise in exports to the United States after June 2018,

exemplifying the speed with which global value chains can adjust to global events. Total Vietnamese exports to the United States in April 2018 were \$3.8 billion. By April 2019, exports had risen \$5.1 billion, a remarkable 25% year-on-year change. In the category of advanced technology products (ATP) – targeted especially by the Trump tariffs – the rise in Vietnam’s exports is even more striking, from \$642 million in April 2018 (nearly 17 percent of Vietnamese exports to the US) to \$1.4 billion in April 2019, a 120% increase (and 27 percent of total exports to the US). Importantly for our analysis below, ATP products affected by the Trump tariffs account for nearly 60% of the post-tariff export increase. Eighty percent of Vietnam’s ATP exports are produced by information and communication technology firms, which tend to employ relatively skilled workers.

The U.S.-China trade war therefore offered new opportunities to some foreign-owned firms in Vietnam. Exploiting these opportunities requires significant effort, however. Most goods targeted with U.S. tariff increases were not produced at scale in Vietnam in 2018. To take advantage of new opportunities, firms might need new construction or investment; they might need to run additional shifts; and they almost certainly required factory alterations, new equipment, and higher-quality labor (Amiti et al. 2019). The latter requirement is key to our expectations regarding labor conditions: the **market opportunity mechanism** predicts that foreign-invested firms in Vietnam producing items covered by the Trump tariffs will report a greater willingness (relative to firms producing other items, and relative to 2016 and 2017) to invest in labor-related upgrading. In exchange for bearing these costs, these firms could expect greater success in export activity – directly tying firm-level actions to firm-level benefits. Were expenditures on labor the only, or the largest, new expense

involved, we might expect these firms to be willing to compensate workers roughly up to the value (10 percent ad valorem) of the US tariff.⁷

Figure 1: Vietnamese Exports to the United States, 2015-2019



Source: US Census Bureau <https://www.census.gov/foreign-trade/statistics/product/atp/2006/08/ctryatp/atp5520.html> Exports denominated in seasonally adjusted real prices (authors' calculations).

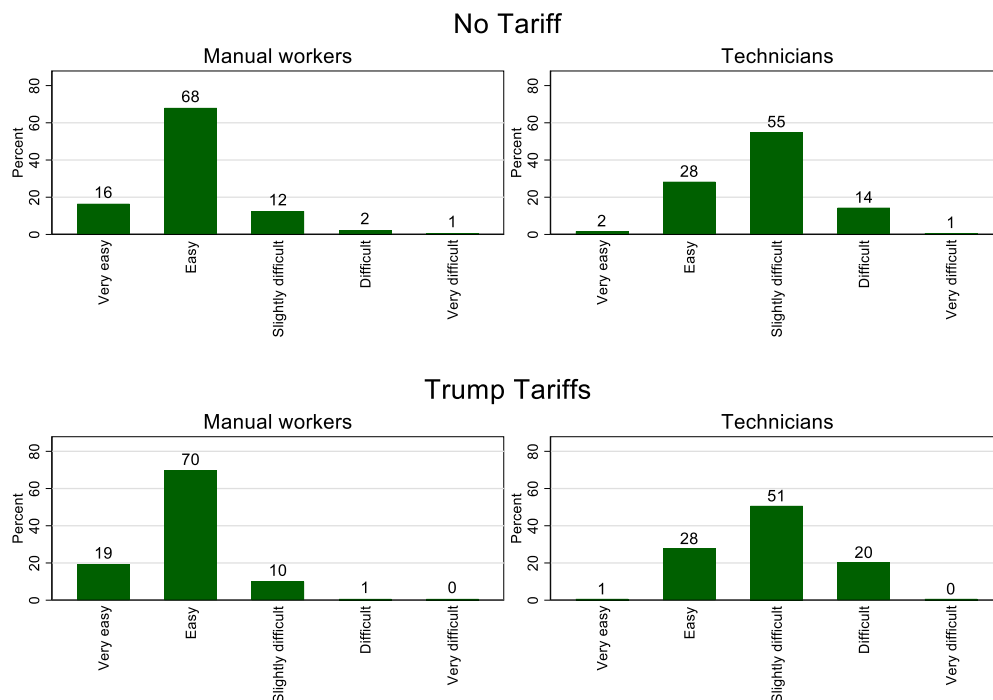
Data from Vietnam indicates that, indeed, recruiting skilled workers is a concern that predates the Trump tariffs and Vietnam's approval of the TPP. In the 2016 PCI-FDI survey, conducted in Summer 2016 and the basis for Figure 2, foreign-invested enterprises listed the

⁷ Interestingly, respondents to the 2018 survey are substantially more likely -- compared to the 2016 and 2017 PCI-FDI surveys -- to respond with "10 percent" (of operating costs) when reporting the amount they would spend on labor-related upgrading.

recruitment of high-quality labor as among their greatest concerns. While firms found it easy to recruit low-skilled manual workers, they reported significant challenges in recruiting workers with specialized skills; high-quality technicians; and managers and supervisors. This was especially true for companies producing goods later targeted by the Trump tariffs,⁸ as these were ATP and other high value-added products, and therefore more likely to employ more highly-trained employees.

Consequently, companies hoping to exploit the opportunity for additional sales to the U.S. market after the June 2018 tariffs needed to compete more aggressively for Vietnamese workers. In terms of

Figure 2: Difficulty in Recruiting Workers



Source: PCI Survey 2016 Question F1.1.7: “Please evaluate how easy or difficult it is to recruit workers in these specific areas?”

⁸ We discuss below how this variable is coded.

the specific form this labor-related upgrading takes, we expect workers, especially relatively scarce skilled workers, to be most interested in direct compensation, as well as social benefits.⁹ Given the institutional realities in Vietnam, workers may not have viewed the right to form unions as a central element of their conditions at work. Vietnam has a single trade union structure (only the state-led Vietnam General Confederation of Labor can operate); while VGCL is not necessarily anti-worker, it also does not encourage collective action. Strikes were legalized in 1994, but the requirements for a legal strike are quite onerous. Vietnamese workers do engage in hundreds of wildcat strikes each year, however (Kerkvliet 2019). With respect to overtime, the views of Vietnamese workers may be at odds with international standards: while the TPP included limits on overtime as part of Chapter 19, many Vietnamese workers express a preference for the continued ability to work overtime hours to improve their material conditions. While the 2016 and 2017 PCI-FDI surveys ask firm managers only about their general willingness to invest in upgrading, the 2018 survey also asks firms to specify the types of reforms in which they are most likely to engage (see below).

The operation of the market opportunity mechanism for labor-related upgrading may be enhanced by, but does not require, a demand for corporate social responsibility from developed country firms, shareholders and/or consumers (Bartley 2018, Locke 2013, Vogel 2009). Many multinational firms and industry associations have embraced voluntary private regulation, in part to avoid reputational risk related to labor and environmental conditions throughout their supply chains, and perhaps to avoid the creation of stronger public sector regulations (Evans 2019, Malhotra et al 2019). The perception or reality of a lead firm preference for higher labor standards – for “doing well by doing good” – could further incentivize developing country firms to upgrade (Greenhill et al

⁹ Indeed, more recent analyses note that the US-China trade war has accelerated the shift in global supply chain-oriented manufacturing employment from China to Vietnam, putting additional upward pressure on wages. See, for instance, First Alliance, *Vietnam Salary Guide 2020* (<https://www.fa.net.vn/salary-information-in-vietnam-2020>), p. 7.

2009, Malesky and Mosley 2018), especially when activists shine a spotlight on violations (Bartley and Child 2014, Peterson et al 2017). We expect that these additional incentives for upgrading may enhance the effect our experimental treatment: respondents should anticipate that dealing with U.S.-based supply chains will, on average, require greater attention to labor standards than will working within China-based supply chains.

The core market opportunity mechanism is more direct, however: developing country firms want to service foreign markets, particularly wealthy and large ones. But consumers and supply-chain intermediaries in such markets often demand high-quality products; producing these items efficiently requires a (relatively) skilled and productive labor force. Hence, new opportunities for market entry incline developing country export-oriented firms to engage in labor-related upgrading. Because the rewards from upgrading accrue directly and quickly to firms that make improvements, we expect that market opportunities can generate significant changes in developing country firms' willingness to upgrade.

In sum, we expect that foreign firms operating in Vietnam will report a greater willingness to engage in labor related upgrading in 2018 when they produce goods covered by the Trump tariffs. This willingness to upgrade will be further enhanced when such firms are primed to consider access to US-led (compared to Chinese-led) global supply chains. While China's market may present opportunities for foreign-invested firms in Vietnam, firms are unlikely to expect consumer, shareholder or government demands there for labor rights improvements; nor will they anticipate greater markups than are available in the United States (Malesky and Mosley 2018). Indeed, to the extent that a "Shanghai effect" (Adolph et al. 2018, Greenhill et al 2009) exists, we expect that firms may even be inclined to reduce labor standards. Moreover, because the market opportunity mechanism is more likely to affect firm behavior than the rights conditionality mechanism, we expect a greater willingness to upgrade in 2018, as compared with 2016 (when TPP was expected)

and 2017 (following US withdrawal from TPP). In 2016 and 2017, we do not expect that firms primed about transacting with a US-based multinational, compared with a Chinese-based multinational, will be significantly more inclined to make labor-related upgrades.

III. Research Design

Our research design exploits three forms of firm-level variation to test our theoretical expectations. First, repeated cross-sectional surveys allow us to compare respondent firms asked about their labor expenditure plans before (2016 and 2017) and after (2018) the announcement of the Trump administration's tariffs, which initiate the market opening for Vietnam-based establishments. Second, detailed data on firms' specific products and services alert us to whether firms are positioned to take advantage of the new opportunity created by the increased cost of Chinese exports. We expect that only firms competing in tariffed sectors will immediately reap the benefits of competing for high quality labor in Vietnam. Third, the survey experiment randomly assigns respondents to consider transactions with either a U.S.-based or Chinese-based global supply chain. This priming immediately brings to the respondent's mind specific markup opportunities, as well as potential corporate social responsibility incentives, generated by the U.S. market. Although these markups typically exist in wealthier markets (Malesky and Mosley 2018), the Trump tariffs heightens their effect for firms producing tariffed products. At the same time, we do not expect a shift in responses in 2018 for firms in non-tariffed industries receiving the U.S. treatment prime, nor for firms that are primed to consider the Chinese market. Testing this interactive hypothesis requires the triple-difference econometric specification we describe below.

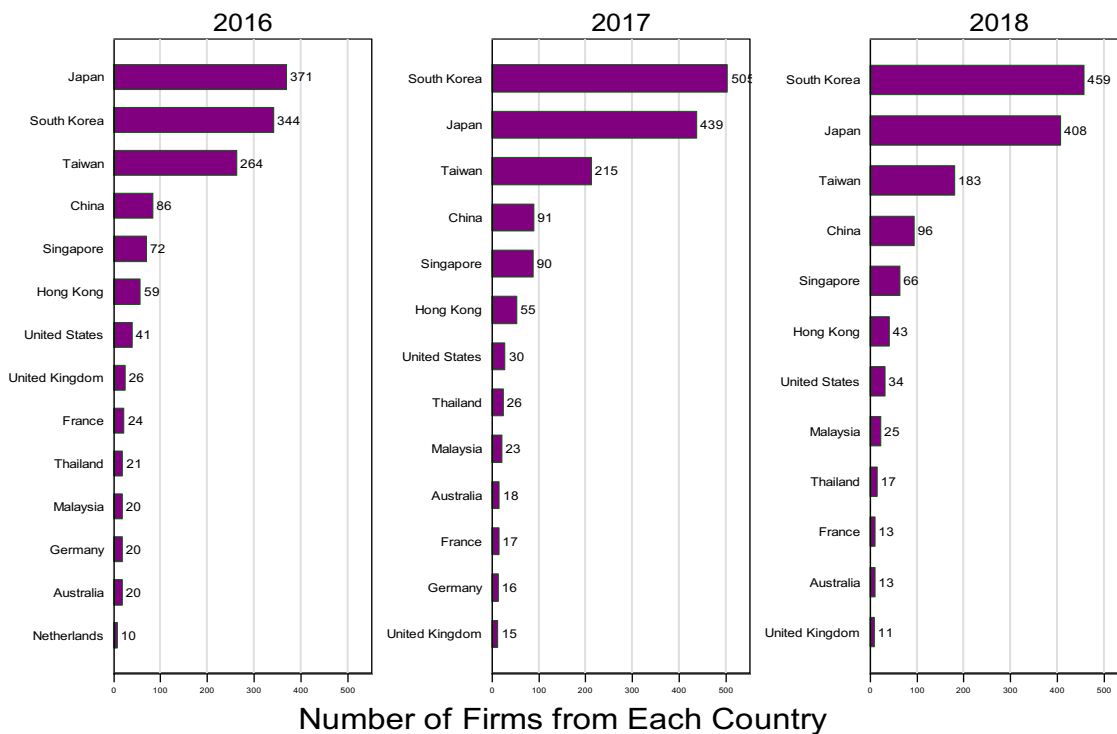
Data

Our data come from the annual PCI-FDI survey of foreign invested enterprises in Vietnam, for 2016, 2017 and 2018.¹⁰ The survey is administered in the twenty provinces and cities with the highest concentration of FDI, using stratified random sampling (based on size, age, and legal form) to select foreign-invested enterprises (FIEs). The unadjusted PCI-FDI response rate is 32 percent, with only limited variation by province; the response rate rises to 50 percent when adjusted for incorrect contact information. Of those individuals answering their firm's survey, seventy percent are the general manager or chief executive officer of the operation in Vietnam; the remainder of the surveys are completed by other top officers, including chief financial officers and line managers. The survey includes FIEs from 46 countries. As Figure 3 illustrates, the largest sources of FDI in Vietnam remain the economically advanced East Asian countries. After overtaking Japan as the country with the highest number of PCI-FDI respondents in 2017, South Korea continues to consolidate its position at the top with 459 firms in the 2018 sample. Japan follows with 408 firms. Next in line, by a considerable distance, are Taiwan and China with 183 and 96 FIEs respectively. These figures also match the data from the Ministry of Planning Investment (MPI) on FDI flows and licenses granted (MPI 2018). According to the PCI-FDI data, the typical Vietnamese FIE remains small and export-oriented. They are usually subcontractors to larger multinational producers, often through GVCs. The percentage of foreign-invested firms with equity of less than 5 billion VND – considered a small FIE -- increased steadily from 29.6 percent in 2015 to 37.7 percent in 2018. Figure 4 displays the share of PCI-FDI respondents by two-digit ISIC sectors in

¹⁰ See <https://www.pcivietnam.vn/en/pci-data> for data, questionnaires and methodological details. As the last wave of our firm survey data was finalized in August 2018, the responses of firms were unaffected by the Section 301 exemptions (covering 964 products across 21 industries) granted by the United States Trade Representative (USTR) on December 21, 2018. These exemptions were retroactively applied to July 6, 2018. PCI-FDI respondents were unaware of the possibility of the exemptions when they answered the survey (Brew et al. 2018).

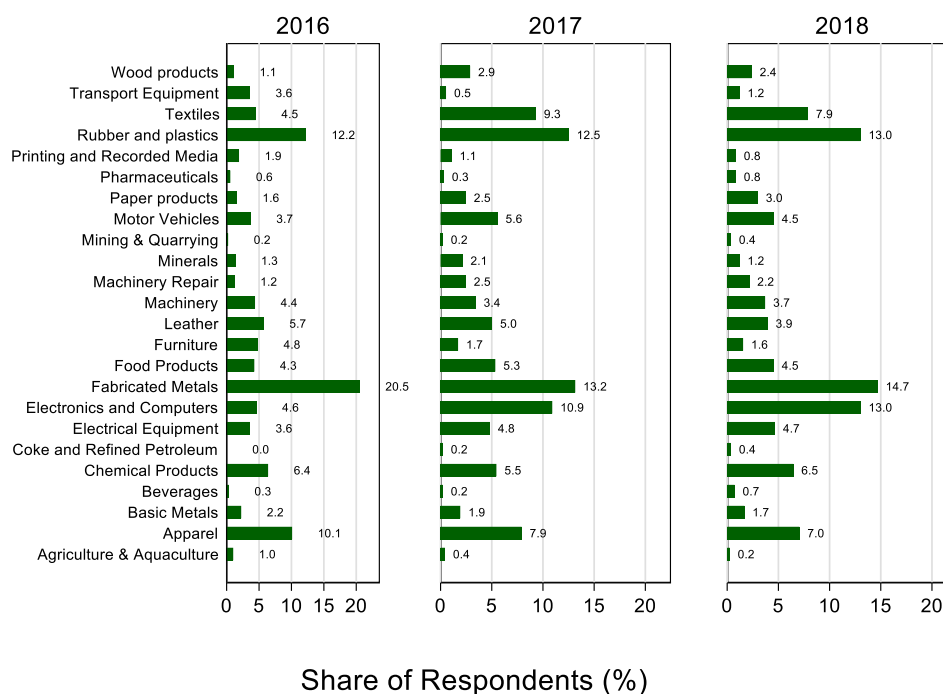
2016, 2017 and 2018. It indicates a steady increase over time toward higher value-added sectors. To give a sense of this shift, the two largest new investors in Vietnam by license size in 2018 were

Figure 3: PCI-FDI Respondents by Country of Origin



Kefico Vietnam, a Korean-owned firm which plans to invest \$120 million USD to produce motor vehicle parts, to be sold primarily to Hyundai; and Vina Cell Technology, which received a \$100 million license to produce solar batteries as part of GCL System Integration's (based in Shenzhen, China) supply chain (MPI 2018). More generally, production of electronics and computers grew from 4.8 percent of foreign activity in 2016 to nearly 13 percent in 2018; printing and recorded materials have increased from 2 percent to 13 percent. These newer sectors tend to employ fewer, but more highly skilled workers; as a result, the trend is toward fewer employees per operation, but also toward an increase in wages at foreign-owned factories. At the same time, activity has declined

Figure 4: PCI-FDI Respondents by Sector



in lower value-added sectors such as apparel (10.6 percent in 2016 to 7 percent in 2018) and rubber and plastics (12.8 percent to 8 percent). Again, as the PCI-FDI is a nationally representative survey, these changes mirror broader trends in licensed FDI by the Ministry of Planning and Investment (MPI 2018).

The PCI and the US Tariffs against China

To evaluate the effect of a shock to market opportunities on firms' labor-related upgrading intentions, we generate a measure of the products affected by the 2018 U.S. tariffs. The June 15, 2018 Section 301 retaliatory tariff announcement features two lists, which combine to cover 1,102 products and \$46.3 billion of imports from China in 2017 (USTR-2018-0026; USTR, 2018). These lists expand on the April 3, 2018 list published by the United States Trade Representative (USTR); the June lists dramatically increased the number of goods. The June list also included many intermediate inputs, rather than the final goods which dominated the original list. The June 2018

announcement proposed a 10 percent across the board tariff, which was scheduled to rise to 25 percent by the end of the year.¹¹ The tariffs took effect on July 6, 2018. Both the April 3 and June 15 announcements were made after the 2017 PCI-FDI was completed, and before the 2018 version was fielded in mid-July.

We matched the product codes from the Section 301 list to the codes in the PCI-FDI survey. Product codes in USTR-2018-0026 were listed at the eight-digit Harmonized Tariff Schedule (HTS) level, but the PCI-FDI follows Vietnam's statistical conventions, recording products using the four-digit ISIC system. Because the HTS codes are at a much finer level of disaggregation, it is impossible to know whether a PCI-FDI respondent manufactures a specific product (rather than a good in the broader product category) targeted by the Trump administration.

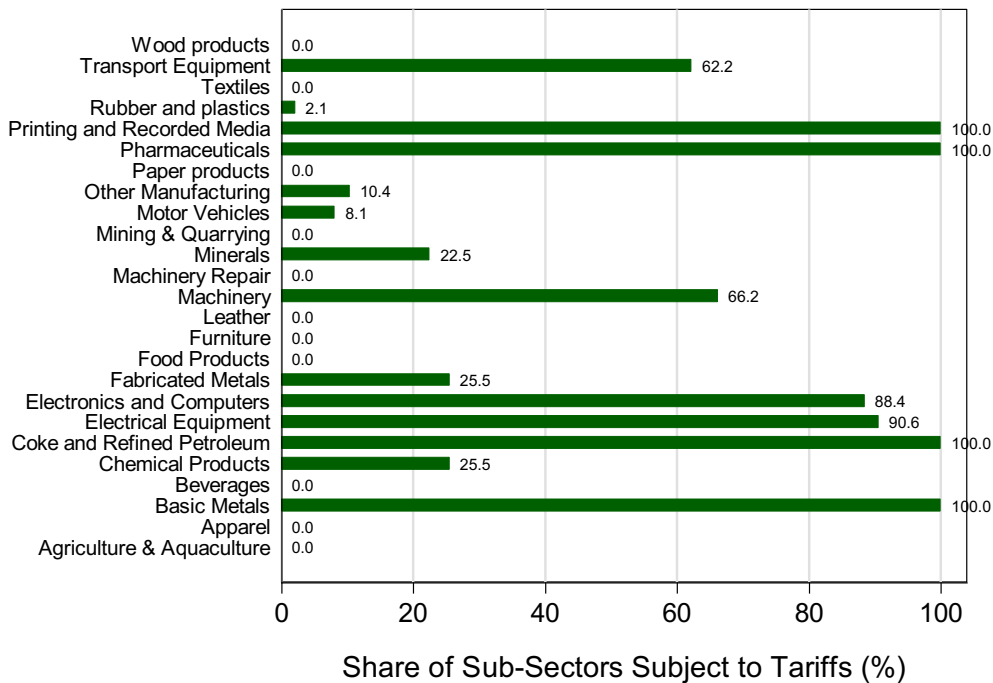
We therefore generate two different indicators of whether a PCI-FDI firm's primary product is covered by the 2018 U.S. tariffs. The first is based on the percentage of eight-digit products (HTS) in the firm's (four digit) ISIC category that were included in the June 2018 tariff list. For instance, the four-digit ISIC category 2011 comprises "manufacture of basic chemicals." The eight-digit HTS level includes 122 separate different types of chemicals. Of these, fifteen were included in the June 2018 U.S. tariff announcement. For a PCI-FDI firm in ISIC category 2011, therefore, this indicator is 12.3 percent (15/122), indicating the probability that a firm with the ISIC code 2011 was subject to U.S. tariffs. Our second indicator is dichotomous: it takes on a value of one (and places a firm in our "Tariff" category) if the firm's four-digit ISIC sector contained *at least one* HTS product scheduled for tariffs, and zero (the "No Tariff" category) if it did not. While this conservative approach does introduce measurement error, it errs in the direction of including non-tariffed firms

¹¹ The US government removed 297 products from the tariff lists in September 2018, but we keep them in our analysis, because this change occurred after the fielding of the PCI survey.
<https://ustr.gov/sites/default/files/301/2018-0026%20China%20FRN%207-10-2018_0.pdf>

among the “tariff group.” As such, it biases against finding a significant, positive effect of the tariffs on firms’ willingness to make labor-related improvements. In the analyses below, we use the second, dichotomous measure of tariff exposure; our results are robust to using the continuous measure, and to using a dichotomous measure with a higher cutoff.

Figure 5 provides a snapshot of the distribution of tariff lines across industrial sectors, displaying the share of products (at the more highly aggregated two-digit ISIC level) that are covered by U.S. tariffs against China. Note that, because some firms surveyed in the PCI provided only an extremely broad description of their sector (i.e. “manufacturing”), we were not able to match all firms to the appropriate ISIC code; for these firms (50 percent of firms surveyed over the three

Figure 5: Share of firms whose main product is covered by US tariffs, by two-digit ISIC sector



years),¹² the tariff measure is missing.¹³ Our data analysis below therefore includes all PCI-FDI firms (2,424 in total) for which we could calculate the tariff measure. It includes 1,147 firms receiving the “China” survey experiment treatment (in one of the three years), and 1,277 firms receiving the “US” experimental treatment (again, in 2016, 2017 or 2018). We discuss the experimental treatments in more detail below.

The *market opportunity mechanism* assumes that the imposition of U.S. tariffs against Chinese products changed the strategic environment for some Vietnamese FIEs. Firms subject to the new tariffs, many of which were pursuing a “China plus one” strategy, contemplated increasing their production in Vietnam. Section A of the 2018 PCI-FDI survey, which was administered before our survey experiment item, offers evidence that foreign firms were already considering these shifts in market opportunity. One item asked firms whether they intend to expand their business in Vietnam over the next two years. Since the PCI’s creation in 2005, answers to this question have proven to be a leading indicator of actual investment and growth in Vietnam.¹⁴ The second question asks what share of the investment listed on a firm’s license had been dispersed. Because many firms withhold implementing their investment completely until they feel more confident about the project, a high level of investment dispersion indicates that foreign investors are increasingly placing their bets on the Vietnamese economy.

¹² Two types of firms respond with broad descriptions of their main activity – those that are small and generalist (and relatively less sophisticated); and those that are larger operations with a range of specialties (and relatively more sophisticated). This diversity suggests that excluding from our analyses firms with very broad descriptions does not bias our results in one particular direction. Moreover, randomization ensured perfect balance between treatment groups (US versus China) in the propensity to offer a broad sectoral description, therefore allowing us to make meaningful comparisons across groups.

¹³ Some foreign-owned firms operate in the services or resource, rather than manufacturing, sector; these firms were not only not subject to tariffs, but also have a different labor relations environment. We include these firms in the initial analyses. As we show below, dropping them from the analyses does not affect our overall findings.

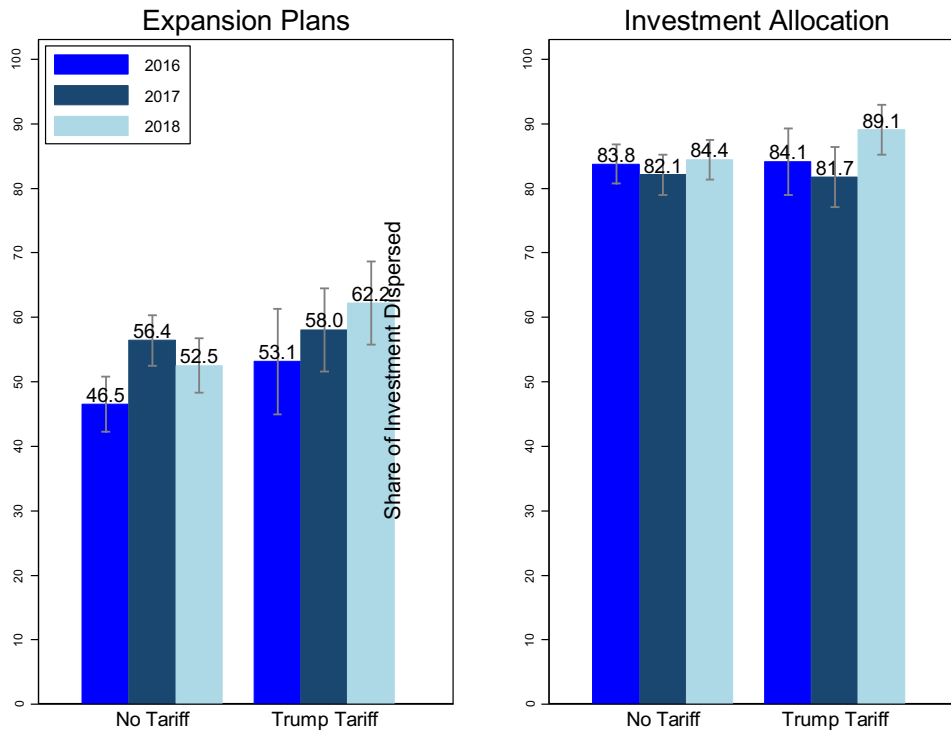
¹⁴ <http://eng.pcivietnam.org/business-confidence-increases-predict-higher-economic-growth/>

The confidence interval bar in Figure 6 depicts how firms' responses to these questions vary across sectors and over time. While the overlapping confidence intervals across categories suggest caution, two general trends are apparent. First, expansion intentions in 2018 are generally greater in sectors covered by the U.S. tariffs. Second, the gap in business confidence between non-tariffed and tariffed firms increases between 2016 and 2018. In 2018, firms producing goods subject to the Trump tariffs were 10 percent more likely to say they would expand their investment than those outside the tariff product lines (62.2 percent to 52.6 percent); they also had an approximately 5 percent higher investment dispersion rate (89.1 percent to 84.6 percent). By comparison, the gap between the groups in 2017 was only 1.5 percentage points for expansion, and 0.4 points for investment allocation. This suggests that FIEs in the sectors affected by the tariffs became more positive regarding operations in Vietnam after the tariffs were announced. While these data are based on self-reported firm answers given almost immediately after the imposition of the U.S. tariffs, they are strongly consistent with the data on exports to the United States (Figure 1), which extends into 2019. Importantly, however, these descriptive measures do not address the market opportunity mechanism directly: we do not where these firms intend to sell their increased production, and therefore cannot say for certain whether enhanced prospects in the U.S. market are behind the decisions. We address this issue via a survey experiment.

Survey Experiment

To test the effects of shifts in market opportunity on firms' willingness to upgrade, we draw on a survey experiment included in the PCI-FDI survey in 2016, 2017 and 2018. Our survey question (text below) asks respondents to imagine a scenario in which an international consultant contacts the firm as part of its efforts to connect large multinationals with suppliers in emerging markets. The question states that, for a Vietnamese firm to be shortlisted as a potential supplier, it

Figure 6: Foreign Investor Confidence over Time



Source: PCI Survey 2016-18 Question A13, “Which statement best characterizes your firm’s investment plans over the next 2 years?” We presented the share that answered (1) Considerably expand (2) Expand. PCI Survey 2016-18 Question A4: “What percentage of your licensed investment size have you implemented (disbursed) since your arrival? _____ %.

would need to adopt the multinational client firm’s Labor Code of Conduct for Suppliers. The code covers health and safety regulations, limits on overtime hours, and greater worker representation. These features are typical of industry-wide, multinational firm and supplier codes of conduct, which originated in the late 1990s and now are widespread in both developed and developing countries (Locke 2013). We describe the code as one that will increase operating costs, but also will enhance the possibility of future orders.

F.4a. Imagine the following scenario. A 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 **[Form A= US-based/Form B =China-based]** company that sells primarily to the **[Form A= US/Form B =China] market**. To be eligible to be included on the shortlist, the 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 (as a share of operating costs) that you would be willing to make in order to comply with the code of conduct and thereby eligible for the contract.

Share of Operating Costs: *(Please simply write the highest cost you would be willing to assume)*

_____ % ☐ 0%

F.4b. Which types of reforms would your firm be most likely to make?

- ☐ Increases in the average wage
- ☐ Limits on overtime
- ☐ Greater social benefits payments
- ☐ Greater safety and health protections
- ☐ Greater representation of workers in negotiations with management
- ☐ Other _____

F.4c. Which of your products or services do you believe the consulting company is most interested in? Please write it here _____

Following Malesky and Mosley (2018), this question employs a contingent valuation approach: we ask firms directly how much they would be willing to spend – as a percentage of current operating costs -- to comply with the code of conduct.¹⁵ It is important to note that codes of conduct tend to increase variable costs, requiring ongoing expenditures that vary with the level of output (i.e. limits on overtime, greater worker capacity to bargain over wages, safety equipment for

¹⁵ Contingent valuation is a method of estimating the value that a person places on a good. The approach asks respondents to directly report their willingness to pay (WTP) to obtain a specified good, or willingness to accept (WTA) to give up a good, rather than inferring willingness from observed behaviors. Prevailing estimates for firm's expenditures for implementing internationally-accepted labor codes of conduct often range between 5 and 15 percent of operating costs (see Malesky and Mosley 2018).

each worker). The specific reforms necessary to improve labor conditions may vary according to industry, production stage, manufacturing technology, and employment demographics. The contingent valuation method allows us to measure the propensity for labor-related upgrading in a way that is comparable across FIEs.

The experimental portion of the survey item concerns how the multinational firm is described. In one version (version A) of the survey, it is a “large US company selling primarily to the US market.” In the other (version B), it is a “large Chinese company selling primarily to the Chinese market.” For each of the three survey years, half of the firms were assigned randomly to receive “version A” of the question (n=1,277, over three years), while the other half received “version B” (n=1,147).¹⁶ The benefit of using a survey experiment is that firms receiving each prime are similar in terms of their descriptive features, such as age, size, sector, and country of origin. Thus, we are confident that differences between their answers are caused by the experimental priming information, and not the underlying characteristics of the firm. The 2018 survey then allows us to assess, for firms producing goods subject to the tariffs, the importance of the *market opportunity mechanism* for labor upgrading. Comparing the 2018 survey results to those from 2016 and 2017 further allows us to establish the validity of our parallel trends assumption, as well as to consider the substantive effect of expectations related to TPP and its labor-related requirements.

The 2018 PCI-FDI survey also includes a follow up question, asking firms to indicate which specific changes in working conditions they would be most likely to make. While we did not collect data for this item in 2016 and 2017, this question nonetheless offers another opportunity to distinguish the market opportunity mechanism from TPP-related commitments (and international

¹⁶ The full number of firms exposed to the question over three survey years is 2,155 for the USA treatment and 2,023 for the China treatment. However, as we explain below, we do not have sufficient information for some firms about the sector in which they are operating to know whether they were exposed to the Trump tariffs. We drop those firms from the analysis.

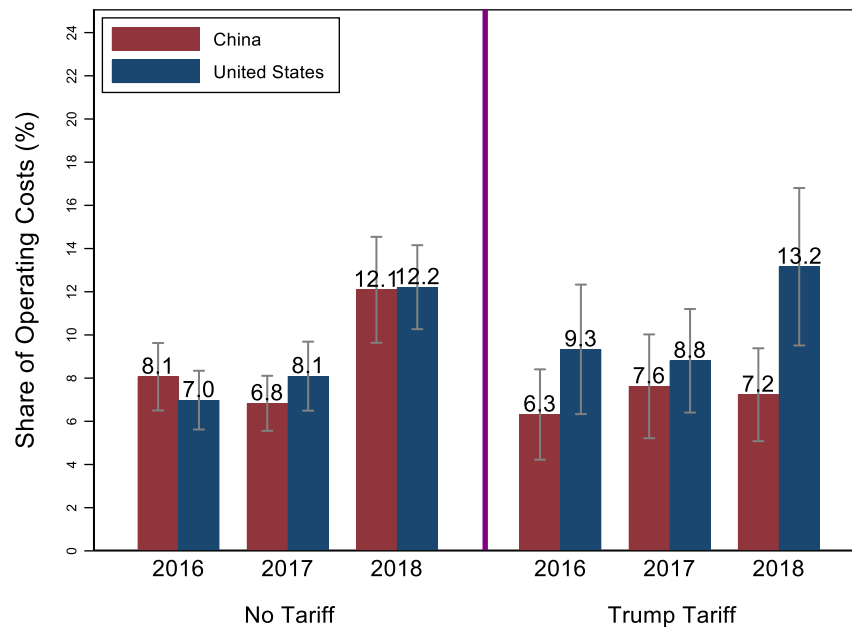
labor standards more generally). Firms responding to market opportunities should be inclined to focus on wages and social benefits, as these may most directly help to attract and retain workers. Firms affected by labor-related conditionality, by contrast, might focus more on core labor rights, such as the right to form unions and bargain collectively, as well as limits on overtime work. These measures are referenced in many preferential trade agreements, including TPP and CP-TPP (Lechner 2018, Wang 2020).

Figure 7 summarizes results for the main upgrading-related question for all 2,424 firms that were exposed to the experiment. We present them in the form of bar graphs, with range bars representing 95% confidence intervals. The figure is divided into 12 bars. First, we group FIEs according to survey wave (2016, 2017, 2018), displayed on the x-axis. Second, we organize firms according to whether they were exposed to the China (red) or United States (blue) treatment. Third, we group firms by whether they operate in a sector affected by the 2018 U.S. tariffs. Where the confidence intervals overlap, predicted labor upgrading costs are not significantly different between groups.

In 2016 and 2017, the overall average willingness to spend on labor-related upgrading was 7.6 percent of operating costs. In 2018, the mean willingness (across all firms) was 12.7 percent. This increase reflects both greater optimism about the Vietnamese economy and the general shifting of production toward higher value-added goods, leading to higher demand for skilled workers. It also is important to note that, in the 2016 and 2017 surveys, there is very little difference in firm responses to the U.S. and China treatments. On average, firms were willing to spend between 7.5. and 7.9 percent of operating costs on labor-related improvements. If TPP and the related US-Vietnam Consistency Plan had an influence on firms' expectations regarding incentives or pressures to upgrade, we would instead observe a marked difference between the treatment groups. That is, the "U.S." version of the question ought to have primed attention to the TPP agreement and its labor

conditions, resulting in a difference between treatment groups in 2016 upgrading incentives. Similarly, once the U.S. had withdrawn from participation in TPP, this difference (the 2017 upgrading intentions) ought to have been less evident.

Figure 7: Results of the Labor Upgrading Survey Experiment



In 2018, however, we observe a marked difference between the groups: firms receiving the *US* treatment report an average upgrading willingness to spend of 12.7 percent, compared to 9.7 percent for firms subject to the China treatment. More importantly, the change in willingness to spend is primarily concentrated in firms producing goods exposed to the Trump tariffs. For firms not exposed to the tariffs, the difference between treatment groups in willingness to spend is substantively small and not statistically insignificant (12.1 percent for the *US* treatment, versus 12.2 for the China treatment). However, for firms exposed to the tariffs, the difference is nearly 6 percentage points (13.2 percent for the *US* treatment versus 7.2 percent for the China treatment).

The increase in willingness to expend on upgrading is almost entirely concentrated in FIEs exposed to the Trump tariff lines. This suggests that the *market opportunity mechanism* exerts a powerful influence on firms' propensity to upgrade.

Moreover, firm responses to the 2019 version of the PCI-FDI further reveal differences between foreign-invested tariffed and non-tariffed firms. Firms subject to tariffs reported more newly-hired employees in their total workforce; they also planned to expand at a slightly higher rate than non-tariffed businesses. But these same firms were more frustrated, on average, with the extent to which "workers' skills meet needs." And these firms reported higher recruitment and training costs (as a share of overall operating costs). While many of these differences are not statistically significant in bivariate terms, they nonetheless offer further evidence that the tariffs created an opportunity for some firms, and that these firms responded with greater efforts to recruit and retain workers.

What is perhaps most interesting in this regard is the reported prevalence of labor unions at the firm level. In 2019, approximately 75 percent of foreign-invested firms subject to the Trump tariffs report a union presence, compared with 58 percent of non-tariffed foreign firms.¹⁷ One might imagine that, as part of an effort to retain difficult-to-recruit workers, and as a means of capitalizing on market opportunities, tariffed firms have become more willing to provide or accept worker representation. Certainly, as the new Vietnamese Labor Code, approved by the National Assembly in November 2019, comes into effect (January 2021), we can expect a greater overall prevalence of labor unions. The Labor Code provides employees with the right to set up their own representative

¹⁷ The PCI item (F4 in the foreign firm survey) regarding union presence uses a Vietnamese term meaning "union," but which also can be understood as "labor organization." Therefore, some managers may be reporting the presence of other types of worker organizations. We have no reason to believe, however, that the understanding of the question differs between tariffed and non-tariffed firms.

organizations – including trade unions – at the enterprise level. This provision puts Vietnam in compliance with commitments under not only the CP-TPP, but also the European Union-Vietnam Free Trade Agreement (EVFTA) as well as the ILO (which mandates that all members are bound by its core conventions, including Convention 87 on Freedom of Association).¹⁸ Initially, however, union presence is particularly evident in the subset of foreign-invested firms that have experienced expanded market opportunities as a result of the Trump administration tariffs against Chinese products.

IV. Regression Results

To analyze more systematically the effect of the tariffs, as well as the US versus China treatments, on upgrading intentions, we employ a triple difference estimation strategy. We first regress the share of operating costs firms are willing to spend on the multiplicative interaction of the experimental treatment (US=1, China=0), the year 2018 (2018=1, 2017=0), and tariff exposure (any eight-digit tariff in the firm's four-digit sector=1, no tariffs in the four-digit sector=0). Firms are indexed by i , and time by t . We cluster standard errors at the four-digit sector level, which is the level of the treatment and indexed by s . In the most fully-specified estimations, we also include two-digit sector fixed effects, allowing us to compare the effects of the treatment and tariff within the same broad industries, such as wood manufacturing or food processing.¹⁹

$$op\ cos\ t\ s_{is} = \beta_0 + \beta_1 US_i + \beta_2 2018_t + \beta_3 Tariff_s + \beta_4 US_i * 2018_t + \beta_5 US_i * Tariff_s + \beta_6 US_i * Tariff_s + \beta_7 US_i * 2018_t * Tariff_s + \delta_s + u_i$$

¹⁸ Vietnam ratified ILO Convention 98, on collective bargaining, in 2019. The government stated that it would prepare ratification documents for the remaining two unratified core conventions by 2020 for forced labor (Convention 105) and 2023 for freedom of association (Convention 87). https://www.ilo.org/hanoi/Informationresources/Publicinformation/newsitems/WCMS_710542/1ang--en/index.htm.

¹⁹ See Supplemental Appendix A for summary statistics of covariates used in analysis.

Table 1 presents our main results, allowing a comparison between the 2017 and 2018 survey responses. Model 1 presents the baseline effects of the *US* and *2018* component terms. Model 2 produces a simple differences-in-differences analysis of the effect of *US* treatment over time. Model 3 adds the component term for *Tariff* and presents the first triple difference estimation. The remaining estimating equations test the robustness of the findings from Model 3 to two major inferential threats – the heterogeneity between tariffed versus non-tariffed firms, and the sensitivity of our results to sub-groups of firms. Firms coded as operating in the Trump tariff lines may differ in important ways from unaffected firms. It could be that these differences rather than the tariffs themselves condition the *US* treatment. For instance, Supplemental Appendix A shows that foreign-invested firms affected by the Trump tariffs are significantly larger, younger, and more likely to be from Japan and Korea.²⁰

We address this threat in three ways. First, our triple difference approach addresses the time invariant heterogeneity by design, because we focus on the change over time (versus level) in responses to the question. Yet, because the PCI-FDI employs annually drawn cross-sections rather than panel data, it is possible that the composition of firms within the cross-sections changes in ways that could be correlated with the *US* treatment. Thus, our second strategy is to include two-digit sector fixed effects (Model 4). This compares fine-grained products within a broader category. For instance, within the two-digit category of *Manufacture of Machinery and Equipment*, “bearings, gears,

²⁰ While we acknowledge that treatment take-up may differ home country, we cannot test this heterogenous effect directly, as this would imply a four-way interaction. Such an analysis also requires a grouping of home countries by labor rights regimes, which is beyond the scope of our paper. Our statistical approach does rule out home country-based labor reform efforts as a source of confounding through the exploitation of the discontinuity over time and entropy balancing. Home country effects that preceded the 2018 Trump tariffs would not affect the results. Only those that occurred exactly in 2018, when we exploit discontinuity, would bias results. Our parallel trends test also shows that there were not pre-tariff trends in these countries that might bias results.

gearing and driving elements,” are subject to the tariffs, but “lifting and handling equipment” are not. This strategy allows us to hold constant the heterogeneity associated with changes in the composition of firms between two-digit categories, isolating the effect of tariffs among the four-digit industries in the broader category. In other words, broad changes in the composition of firms that manufacture machinery in Vietnam do not affect this analysis; the only inferential threat is changes to the composition of firms producing gears versus lifting equipment.

To deal with heterogeneity at the four-digit level, our third and final strategy is to employ weights generated by *entropy balancing* (ebalance), to ensure that firms coded as *any_trump* match firms not affected by the tariffs on covariates (Model 5). *Ebalance* is a non-parametric approach that reweights observations to statistically generate a region of common support where firms subject to the tariffs and those that are not are comparable on the structural covariates listed in Supplemental Appendix A (Hainmueller 2012). *Ebalance* is doubly robust with respect to linear outcome regression and logistic propensity score regression, and it is an appealing alternative to conventional matching estimators that rely on maximum likelihood assumptions (Zhao and Percival 2018). We also include country of origin in our balancing equation to further reduce any confounding caused by the respondent firm’s country of origin.

Furthermore, to address the sensitivity of our results to sub-groups of FIEs, we first (Model 6) drop all firms which either are headquartered in or already export to the United States and/or China, as these firms may be differently responsive to the locational treatment. Next, Model 7 tests whether the results are robust when limiting the analysis only to manufacturing firms, which were most directly targeted by the tariffs. Model 8 addresses a tricky methodological problem that arose from a minor change in the survey instrument between 2017 and 2018. In 2018, firms were asked to check a separate box if their planned change in operating costs was zero; in 2016 and 2017, the operating costs question was open-ended (with no zero option). The intention of this change was to

differentiate between firm managers who assumed that leaving a blank space would be construed as “zero,” and those who wanted to skip the question.²¹ Because this small change could drive some of our results, we drop all zero answers in Model 8.

Table 2 provides a test of the parallel trends assumption of the triple difference estimator by re-estimating all specifications from Table 1, but only for 2016 and 2017. We substitute 2017 for 2018 in the equation above. This test has both methodological and theoretical implications. Methodologically, it allows us to determine whether 2018 truly represented a sharp break in the effect of the US treatment. If we identify significant effects on the difference-in-difference and triple difference coefficients in Table 2, this would indicate that the 2018 findings are simply an artefact of long-term trends originating earlier in the time series. Theoretically, Table 2 also allows us to assess whether the withdrawal of the United States from the TPP had a negative effect on willingness to upgrade in 2017, as might be the case were trade agreement conditionality (and the bilateral US-Vietnam Consistency Plan) an important influence on labor-related upgrading.

We begin by considering the difference-in-difference result (Table 1, Model 2). The constant is 7.1, indicating that the average willingness to spend on operating costs was 7.1 percent in 2017 for firms receiving the China treatment. The US treatment had only a marginal and statistically insignificant effect of 1.13 in 2017, predicting an average willingness to spend of 8.26 percent. The excitement of 2018 was evident for all firms, as evidenced by the highly significant 3.4 coefficient on the 2018 component term. Thus, we calculate that willingness to spend for firms receiving the China treatment in 2018 was 10.5 percent. However, the *US*2018* interaction term is sizable (2.8) and significant ($p=.057$), leading to an implied willingness to spend of 14.5 percent. This estimate is significantly greater than firms receiving the Chinese treatment (by 3.95 percentage points), and for

²¹ Separate codes were provided for “Refuse to Answer” or “Non-Applicable,” so zero and skipping are the only two true options.

firms receiving the US treatment in 2017 (by 6.18 percentage points). The clear implication is that the business environment changed dramatically in 2018, leading firms to increase their willingness to spend on labor, particularly if they were given an opportunity to export to the United States. As such, it provides strong evidence for the market opportunity mechanism for upgrading.

To ensure that this result is not driven by a longer-running pro-United States trend among foreign invested enterprises in Vietnam, Table 2 (Model 2) provides the same analysis for firms exposed to the experiment in 2016 and 2017. In doing so, it assesses the parallel trends assumption for the differences-in-differences estimator. None of the coefficients are significantly different from zero, particularly the critical interaction term, which illustrates the differential effect of the *US* treatment over time. Willingness to spend in 2016 and 2017 does not vary significantly over time or by treatment condition. The four key predicted effects are China 2016 (7.3 percent); China 2017 (7.1 percent); US 2016 (7.6 percent); and US 2017 (8.3 percent). The *US* treatment is associated with a slightly higher willingness to spend, but that estimate is not statistically significant. This analysis suggests there is not differential trending by treatment group prior to the 2018 Trump tariffs. More substantively, we can infer that withdrawal of the United States from TPP had no immediate impact (2016 vs. 2017) on firms' willingness to make labor-related upgrades.

While the above analysis indicates a pronounced change between 2017 and 2018 among those in the *US* treatment group, it does not link the change in willingness to spend to the 2018 introduction of tariffs against Chinese products. To do this, we rely on triple difference estimations, reported in columns 3 through 8 of Tables 1 and 2. The coefficient estimates for the key terms in the triple interaction are significant across specifications. Importantly, addressing unobserved heterogeneity with *ebalance* (Model 5) increases the size of the triple difference from 6.15 to 13.92. That is, the structural differences among the tariffed firms biased against finding an effect of the

market opportunity mechanism. When we address this bias statistically, the size of the estimated treatment effect increases.

Focusing on the fully-specified Model 5, the central results are the large effect for *2018* (3.6), which indicates a general increase in willingness to spend over time. The sizable negative coefficient (-5.2) on the interaction of *2018 and Tariff* points to a decline in willingness to spend among firms that were exposed to the tariffs, but received the China treatment in 2018. This result, which is consistently negative and significant across specifications, suggests the possibility of a “Shanghai effect,” in which transacting with China might motivate a race toward the bottom in labor standards (Adolph et al 2018, Greenhill et al 2009). Finally, the offsetting triple interaction (13.9) indicates a much greater willingness to spend among firms that were exposed to the tariffs **and** received the *US* treatment in 2018. These results lend credence to the notion that firms view labor-related upgrading as a means of taking advantage of opportunities in the US market in the wake of tariffs against Chinese exports. At the same time, firms do not expect that transacting with China-based lead firms and supply chains will require investments in labor-related improvements.

Calculating the marginal effects of triple interactions can be complex, however, because it requires the consideration of eight separate terms. For readability, Table 3 presents the conditional average treatment effects (CATE) of the *US* prime (compared to the China prime) for the four different conditions in the analysis: (i) pre-2018, not in US tariff lines; (ii) 2018, not in US tariff lines; (iii) pre-2018, in US tariff lines; (iv) 2018, in US tariff lines. The table indicates the difference between foreign-invested firms exposed to the *US* treatment versus the China treatment for each of the different sets of conditions. These are presented in four panels, which represent Models 5 and 8 in Tables 1 and 2 respectively.

Most important, Table 3 reports a large and highly significant CATE for the *US* treatment among firms exposed to the Trump tariffs in 2018. Substantively, firms producing tariffed goods

Table 1: Regression Analysis of USA Treatment and 2018 Tariffs

<i>Dependent variable=Labor reforms/operating costs</i>	Baseline	Diff-in-Diff	Triple Diff	Sector FE	Ebalance	No US & China	Manufacturing	No Zeros
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
USA Treatment=1	2.081*** (0.699)	1.126 (0.920)	1.258 (1.548)	1.323 (1.621)	3.235 (3.137)	2.507 (3.419)	3.250 (3.150)	4.535 (3.459)
2018=1	4.845*** (0.712)	3.359*** (0.865)	5.257*** (1.552)	5.436*** (1.600)	3.605 (3.588)	3.803 (3.551)	3.566 (3.632)	3.857 (5.004)
USA*2018		2.823* (1.456)	-1.136 (2.450)	-1.459 (2.665)	-5.233 (3.659)	-4.682 (3.919)	-5.209 (3.656)	-7.216* (4.062)
Tariff=1			0.788 (1.469)	0.122 (2.078)	1.975 (5.641)	1.685 (5.549)	1.975 (5.640)	4.003 (5.490)
USA*Tariff			-0.074 (2.046)	0.325 (2.076)	-4.686 (6.990)	-3.855 (7.362)	-4.701 (6.996)	-5.716 (7.524)
2018*Tariff			-5.646** (2.180)	-5.817** (2.236)	-8.292* (4.627)	-8.414* (4.591)	-8.254* (4.663)	-11.088* (5.852)
USA*2018*Tariff			5.879* (3.123)	6.151* (3.118)	13.922** (6.161)	14.132** (6.671)	13.898** (6.162)	14.376* (8.114)
Two-Digit Sector FE	No	No	No	Yes	Yes	Yes	Yes	Yes
Ebalance	No	No	No	No	Yes	Yes	Yes	Yes
Drop US & Chinese firms	No	No	No	No	No	Yes	No	No
Limit to Manufacturing	No	No	No	No	No	No	Yes	No
Constant	6.657*** (0.521)	7.144*** (0.546)	6.833*** (0.895)	6.921*** (0.949)	10.430*** (2.679)	10.601*** (2.724)	10.489*** (2.685)	13.539*** (3.017)
Observations	2,402	2,402	1,311	1,311	559	533	555	426
Clusters	67	67	27	27	26	26	23	26
R-squared	0.024	0.026	0.018	0.035	0.084	0.092	0.082	0.119
RMSE	16.24	16.23	15.89	15.91	17.42	17.44	17.43	18.27

OLS with robust standard errors, clustered at the two-digit ISIC level in parentheses (** p<0.01, * p<0.05, * p<0.1).

Table 2: Test of Parallel Trends Assumption

<i>Dependent variable=Labor reforms/operating costs</i>	Baseline	Diff-in-Diff	Triple Diff	Sector FE	Ebalance	No US & China	Manufacturing	No Zeros
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
USA Treatment=1	0.773 (0.652)	0.410 (0.851)	-1.083 (1.380)	-0.946 (1.415)	-1.165 (1.479)	-2.349 (1.829)	-1.193 (1.485)	-2.297 (3.601)
2017=1	0.189 (0.531)	-0.177 (0.722)	-1.232 (1.017)	-1.026 (1.090)	0.342 (2.181)	-0.262 (2.101)	0.343 (2.182)	-0.670 (2.286)
USA*2017		0.715 (1.205)	2.341 (2.004)	2.198 (2.137)	4.452 (2.866)	4.881 (3.030)	4.501 (2.882)	6.159 (3.910)
Tariff=1			-1.750 (1.453)	-3.214* (1.621)	-4.536 (3.233)	-5.278 (3.365)	-4.535 (3.235)	-7.513 (4.798)
USA*Tariff			4.101 (2.571)	4.165 (2.598)	2.808 (4.656)	3.728 (4.817)	2.837 (4.664)	2.108 (5.824)
2017*Tariff			2.538 (2.478)	2.408 (2.810)	4.187 (6.705)	4.464 (6.786)	4.187 (6.711)	6.725 (5.388)
USA*2017*Tariff			-4.175 (3.830)	-3.861 (3.842)	-7.083 (10.223)	-7.187 (10.469)	-7.132 (10.240)	-6.836 (10.906)
Two-Digit Sector FE	No	No	No	Yes	Yes	Yes	Yes	Yes
Ebalance	No	No	No	No	Yes	Yes	Yes	Yes
Drop US & Chinese firms	No	No	No	No	No	Yes	No	No
Limit to Manufacturing	No	No	No	No	No	No	Yes	No
Constant	7.135*** (0.426)	7.322*** (0.483)	8.065*** (0.637)	8.257*** (0.834)	11.729*** (1.546)	12.570*** (1.583)	11.779*** (1.550)	17.701*** (3.062)
Observations	3,137	3,137	1,615	1,615	645	614	642	461
Clusters	71	71	27	27	22	22	20	21
R-squared	0.001	0.001	0.003	0.017	0.081	0.081	0.079	0.126
RMSE	15.91	15.91	15.56	15.57	17.09	17.16	17.10	18.08

OLS with robust standard errors, clustered at the two-digit ISIC level in parentheses (**p<0.01, **p<0.05, *p<0.1).

were willing to spend 7.4 percentage points more of their operating costs on labor improvements than those receiving the China treatment. Dropping responses of “zero” (lower panel) has only a small impact, reducing the CATE to 6.0 percent. By comparison, the CATE in 2017 is -1.0 percent and not significantly different from zero. These results confirm our main hypothesis that the Trump tariffs inspired firms in Vietnam to invest in labor improvements to take advantage of opportunities to service the US market and transact with US-based supply chains. The parallel trends assumption again appears valid. The CATE for tariffed products in 2017 is small and not statistically significant in either model.

A final means of gauging the determinants of firms’ willingness to upgrade is to consider the types of labor-related improvements firms are inclined to make. That is, when responding to our contingent valuation question, what types of reforms are most frequently on managers’ minds? The *market opportunity mechanism* implies that firms will be most inclined to spend on things that matter most immediately to workers. In Vietnam, given the long-standing absence of independent labor unions, this may well be wages and social benefits. If, on the other hand, firms were more concerned about labor rights conditions in trade agreements, they might instead offer better collective representation to workers, as well as health and safety protections and limits on overtime (all three of which are frequently referenced in international conventions and which are included in the TPP’s/CP-TPP’s Chapter 19). It is worth noting, however, that the market opportunity mechanism does not necessarily predict stark differences (compared to trade agreement conditionality) in the types of improvements made. If, for instance, firms assume that U.S. consumers worry about hazardous work conditions in distant factories – something made salient by labor rights activists (Bartley and Child 2014) -- then firms motivated by market opportunities also might want to improve worker health and safety. It also is worth noting that the domestic institutional context likely plays an important role in the types of improvements firms are willing to

make: in a different country, perhaps with a long history of collective labor representation or social democratic parties, for instance, firms might privilege collective over individual labor rights.

To begin to explore this issue, we included a follow-up question (F.4b) on the 2018 PCI-FDI survey: we asked respondents to identify on which labor-related reforms they would expend the reported resources. The options included (1) increased wages; (2) limits on overtime; (3) greater social benefits; (4) greater health and safety protections; and (5) enhanced worker representation. Respondents also had an option to suggest (6) “other” reforms (to be filled in). Respondents could choose as many of these reforms as they wanted.

Table 4 summarizes the responses to this item. Increasing wages and improving worker health and safety are most popular. In both cases, approximately 39 percent of firms indicate a willingness to make those improvements. By contrast, only 12 percent of firms reported a willingness to enhance worker representation (via an independent trade union, for instance). Limits on overtime work (29 percent) and social benefits (20 percent) fell in the middle. To what extent do firms vary, given the survey experiment treatment as well as exposure to the Trump tariffs, in their likelihood of reporting specific types labor reforms? Table 4 reports the predicted percentage of firms willing to make each type of upgrade, by category; it is based on the results from OLS regression analyses, using PCI-FDI data for 2018 (the only year in which the “type of reform” question was included). The analyses indicate, for instance, that for firms in the US treatment group, 40.5 percent of respondents in the Trump tariff lines are interested in improving wages. By contrast, only 36.8 percent of firms in the *US* treatment but not in tariff-line products are interested in improving wages – a 3.7-point difference. With respect to firms in the China treatment, 33.6 percent in tariffed products and 37.1 percent in non-tariffed products reported a willingness to improve wages, a -3.5-point difference. We also can compare the interest in improving wages for firms that produce goods subject to tariffs, but who receive the U.S. versus the China treatment. We do so by

Table 3: Conditional Average Treatment Effects by Time and Tariff

Effect of Trump Tariffs, 2017 v. 2018 (Table 1)							Test of Parallel Trends, 2016 v. 2017 (Table 2)						
Full Specification (Model 5, n=559)							Full Specification (Model 5, n=645)						
Year	Tariff	CATE	SE	p-value	95% CI		Year	Tariff	CATE	SE	p-value	95% CI	
2017	No	2.52	2.98	0.40	-3.60	8.65	2016	No	-1.16	1.48	0.44	-4.24	1.91
2018	No	-2.20	2.99	0.47	-8.36	3.95	2017	No	3.29	2.81	0.26	-2.55	9.12
2017	Yes	-1.42	5.73	0.81	-13.23	10.38	2016	Yes	1.64	4.46	0.72	-7.63	10.92
2018	Yes	7.40	1.70	0.00	3.91	10.90	2017	Yes	-0.99	5.89	0.87	-13.24	11.27
Dropping All Zeros and Non-Responses (Model 8, n= 426)							Dropping All Zeros and Non-Responses (Model 8, n=461)						
Year	Tariff	CATE	SE	p-value	95% CI		Year	Tariff	CATE	SE	p-value	95% CI	
2017	No	3.20	3.16	0.32	-3.31	9.71	2016	No	-2.30	3.60	0.53	-9.81	5.21
2018	No	-3.88	3.71	0.31	-11.53	3.77	2017	No	3.86	2.95	0.21	-2.29	10.02
2017	Yes	-1.20	6.82	0.86	-15.25	12.85	2016	Yes	-0.19	4.80	0.97	-10.20	9.82
2018	Yes	6.00	1.52	0.00	2.86	9.13	2017	Yes	-0.87	6.89	0.90	-15.23	13.50

The CATE shows the difference between operating costs for firms exposed to the US versus Chinese treatments (US-China)

calculating the difference-in-difference between these groups; these are shown in the fifth column of Table 4. For wages, this is 7.2, implying that the effect of the *US* treatment is about 7 percentage points higher for firms producing tariffed (vs. non-tariffed) goods. In other words, when the Trump tariffs present firms with an opportunity to export to the US, they are more likely to expend resources to enhance wages to attract a talented workforce. The sixth column shows the p-value for the difference-in-difference analysis.

While results in Table 4 imply some differences across treatment groups, none – other than the “other” category – is statistically significant at conventional levels. It therefore is unclear whether the presence of tariffs inspires specific labor-related improvements, in addition to a more general willingness to expend on workers. Given that we did not ask a similar question in 2016 or 2017, we also cannot track how firms’ interest in specific reforms changes over time.

Table 4. Which Type of Labor Improvements?

(Share of Firms Willing to Engage in Activity)

Type of Labor Reform	<u>USA</u>		<u>China</u>		<u>Diff-in-Diff</u>	
	<i>No Tariff</i>	<i>Tariff</i>	<i>No Tariff</i>	<i>Tariff</i>	β	p-value
	<i>n=318</i>	<i>n=116</i>	<i>n=263</i>	<i>n=110</i>		
Increases in average wage	36.8%	40.5%	37.1%	33.6%	7.2%	0.34
Limits on overtime	31.8%	37.9%	31.8%	31.8%	6.2%	0.40
Greater social benefits payments	18.2%	19.8%	18.9%	20.0%	0.5%	0.93
Greater safety and health protections.	39.9%	49.1%	36.4%	39.1%	6.5%	0.40
Greater representation of workers in negotiations with management	14.8%	18.1%	10.6%	13.6%	0.3%	0.96
Other	2.2%	0.9%	1.1%	4.5%	-4.7%	0.03

Note: OLS with robust standard errors clustered at the two-digit ISIC level.

V. Conclusions and Future Directions

How might global supply chain relationships affect the prospects for improvements in worker rights in developing countries? In this paper, we probe the effects of exogenous shifts in market opportunity that create incentives for some firms to upgrade. We differentiate this from an alternative potential pathway, centered on trade agreements with labor rights provisions. The effects of these two pathways often are difficult to separate empirically: both trade agreements and exogenous shocks can change the returns to labor-related upgrading. Most PTAs now include some rights-related elements; most lead firms based in developed economies give at least lip service to codes of conduct for subsidiaries as well as suppliers; and many developing country firms are keen to move up the value chain and export to higher-markup destinations.

Vietnam's indirect exposure to an exogenous shock allows us to isolate more effectively one potential upgrading pathway. Our survey experiment design facilitates further priming of this pathway, by focusing respondents' attention on access to the US market. Our results suggest that, by creating a shock in terms of the possibility of accessing new markets, the 2018 *US* tariffs incentivized labor-related upgrading in other developing countries. Such upgrading appears motivated entirely by material opportunities: foreign-invested firms in Vietnam saw an opening to sell additional product, or more sophisticated product, to the US market. But expanding their production and improving their product quality required access to somewhat scarce semi-skilled or skilled workers. Providing better wages, benefits and conditions to workers therefore promised to facilitate access to a new market. This is not to suggest that developed country governments with an interest in rights-related upgrading should initiate trade wars with major export producers; nor is it to suggest that the *US* tariffs against China were motivated by labor-related considerations.

It does suggest, however, that competitive opportunities – especially exporting to higher-value markets -- may be a powerful motivator; the Trump tariffs provided a sizable enough shock

that we observe a rapid response by developing country exporters. Of course, this process requires the existence of sufficiently skilled and trained workers: by improving the quality of available labor, Vietnam's government could take further advantage of the US-China trade war.

At the same time, we find little evidence that TPP induces an interest in labor-related upgrading, nor that the US exit from TPP in 2017 generates systematic changes in firms' upgrading intentions. This is not to rule out PTAs as a pathway to labor-related improvements. At the firm level, PTAs may create additional opportunities for firms in developing countries to participate in supply chains (Manger 2012) and, perhaps, to improve working conditions along the way (Malesky and Mosley 2018). Moreover, not all labor rights improvements can be affected solely at the firm level: creating independent unions and facilitating collective bargaining – which are associated as well with improvements in individual working conditions – requires the government to provide a legal framework, as a complement to the private sector (Berliner et al 2015, Locke 2013). And public sector labor inspectors may work not only to identify violations, but also to educate firm managers about how best to achieve improvements in practice (Piore and Schrank 2008). Hence, while the more effective path to improvements in foreign-invested developing country firms may be market opportunities and incentives, that path does not necessarily improve all types of worker rights, nor is it broadly available (only a few countries stand to benefit from the US tariffs against Chinese products, for instance). Consequently, broader-based improvements in worker rights in developing countries may still need to involve the use of rights-related conditionality, or the creation of additional incentives for national governments to embrace, rather than resist, the provision of labor rights.

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