# Labor Upgrading, Trade Agreements 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 can be a source of opportunity for workers and firms in developing countries. When multinational firms enter foreign markets with directly-owned investments, they tend to hire at the top of local labor markets, paying wage premiums to attract the most (relatively) skilled workers. Treating workers well produces material benefits for firms, as they are better able to engage in higher value-added production activities. Servicing foreign markets may motivate upgrades to production technologies, labor force skills, and social and environmental compliance. From the point of view of workers, employment in foreign-invested facilities, or in factories producing for foreign buyers, often is preferable to other alternatives. 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 may also generate "race to the bottom" pressures in wages, health, safety conditions, and workers' capacity to unionize. Consequently, MNCs and governments in developing countries may reduce protections for workers in their quest to attract foreign direct investment (FDI), generate tax revenue, 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 among firms to attract subcontracts has only intensified (Silver 2003). Reducing labor-related expenditures is one means by which developing country firms can win subcontracting orders (e.g. 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 multinational production may accrue more to factory owners (as well as to foreign investors) than to workers.

To understand the relative prominence of these competing dynamics, we investigate the conditions under which firms in developing countries are most inclined to engage in labor-related upgrading. We consider specifically how different external instruments, based on labor-related

conditionality in trade agreements and on changes in opportunities to service foreign markets, affect prospects for labor-related upgrading. Our data, based on surveys of foreign-owned firms in Vietnam in 2016, 2017 and 2018, offer a unique opportunity to compare firm responses to these mechanism, which often overlap in practice are therefore are difficult to evaluate empirically.

The first mechanism relies on developing country governments' willingness to improve *de jure* protections for workers, as well as *de facto* labor conditions, in exchange for additional or continued access to export markets and other material benefits via preferential trade agreements (PTAs), unilateral trade preference programs or international organization memberships (Hafner-Burton et al 2018, Kelley 2004). This mechanism generally operates at the country level, via conditionality: a government improves its labor laws or its enforcement and inspection of labor standards (Piore and Schrank 2008), and all firms based in the country receive improved market access (via reduced trade barriers, usually). Non-compliance typically is adjudicated at the country level, as when importing governments threaten to remove benefits from exporting governments. Hence, the link between individual firms' behavior and continued access to markets may be quite tenuous: up to some level, firms may free ride on other firms' compliance, while benefits remain in place for all. Additionally, 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.

The second mechanism operates at the level of individual firms or sectors: exogenous shifts result in new market opportunities for some producers. If, for instance, 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. In these situations, firms are under no government pressure to alter their behavior; rather, firms may decide that the potential gains in exports to new markets justify new investments. In our specific setting of

Vietnam, 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 have a new opportunity: by upgrading their technological sophistication and the skill level of their workforce, they can access previously unavailable markets. It is worth noting that this mechanism operates mostly 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 to access new markets. The affected firms that do invest in upgrading can enjoy material benefits from expanded market opportunities; firms that are not presented with new export market opportunities will not gain materially from labor-related upgrading, hence they have much weaker incentive to invest in workers. This mechanism therefore offers a more direct link between firm behavior – improving working conditions as a means of attracting more skilled workers, for instance – and firm outcomes. It also assumes that export market opportunities provide, at least in some circumstances, sufficient motivation for labor-related upgrading.

From the point of view of broad-based rights improvements, however, this mechanism's effectiveness is limited. Governments and activists interested in rights improvements may have little ability to generate exogenous shifts in international market opportunities. And not all firms in a country are presented with new market opportunities. Hence, the market opportunity mechanism will bring improvements only to some firms and industries, and these improvements are likely to focus on individual working conditions rather on collective labor rights such as the ability to form and operate independent unions. By contrast, country-level linkage between trade privileges and rights (as in many PTAs) generate economy-wide reforms. Yet compliance with country-level linkages is difficult to achieve. Because the benefits of the market opportunity mechanism accrue directly to firms making upgrades and arrive in the short- to medium-term, we expect that it is more

likely to elicit significant changes in developing country firms' willingness to invest in labor-related upgrading.

These two mechanisms – one based on conditional market access, and the other rooted in market opportunity – often operate simultaneously. Reflecting pressure from rights activists as well as organized labor, developed countries increasingly include labor-related provisions in trade agreements (Hafner-Burton 2009, Lechner 2016, Reiss and Sari 2018). At the same, firms in developing countries frequently and increasingly participate in global supply chains (Johns and Wellhausen 2016). Especially when lead firms are in wealthy democracies; when servicing those markets offers significantly higher markups then 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), all in return for increases in firm-level market access. The overlap in the use of these incentives (conditional access vs. opportunity) typically renders it difficult to evaluate their independent effects, to adjudicate which is most likely to improve worker rights and labor conditions.

In this paper, we argue that recent policy changes in U.S. trade policy, and their consequences for Vietnam, offer a unique opportunity to study the effects of these mechanisms separately. In this paper, we explore how Vietnam-based foreign firms' willingness to invest in labor-related upgrading varies with their expectations about PTAs, as well as with competing countries' access to major export markets. Our surveys of foreign-owned firms in 2016, 2017 and 2018 allow us to assess firms' willingness to engage in labor-related upgrading in exchange for access to a multinational firm's supply chain. We compare firms' concerns with conditional market access when (2016) firms expect Chapter 19 of TPP and the associated U.S.-Vietnam "Plan for Enhancement of Trade and Labour Relations" to come into legal effect; when the US has withdrawn from TPP participation and the associated rights-related conditionality has faded (2017);

and during which the imposition of U.S. tariffs against a range of Chinese exports offers some Vietnamese firms the possibility of increased opportunity within US markets (2018).

Our empirical analyses suggest that firms are much more responsive to exogenous changes in market opportunities than to conditional market access arrangements. We find few systematic effects of the existence of, and U.S. withdrawal from, TPP and its labor-focused Consistency Plan. But U.S. tariffs against a range of Chinese exports, which offer some Vietnamese firms the opportunity to move up the value chain, are associated with significant differences in reported upgrading intentions. 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 a potential supply chain lead firm 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 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).

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

Under what conditions do developing country firms engage in labor-related upgrading? Recent work suggests that access to global production networks and foreign markets can provide a powerful incentive for improving workers' conditions and compensation. This is especially true when higher-standards, foreign markets offer higher markups: firm managers' report higher willingness to upgrade when a firm's products exhibit significant cross-market differences in markups (Malesky and Mosley 2018). Upgrading also is more likely when – because of worker rights

activism by NGOs – 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). In a similar vein, 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.[1]

This recent work, which focuses on market opportunities as the primary driver of labor-related improvements, exists in parallel with longer-standing analyses of how economic agreements, especially trade agreements, affect labor and human rights practices. While economic agreements overlap with market opportunities (for instance, PTAs facilitate the development of supply chain relationships; see Manger 2012), the mechanisms by which they might affect labor rights are different. Labor-related conditionality operates in a way that parallels membership conditionality more generally (e.g. Gray 2009, Kelley 2004). Labor-related conditionality typically links material benefits with respect for a certain set of human and/or labor rights (Peterson et al 2016). The agreement typically operates at the country level: a government promises to provide certain legal rights (such as the right to form labor unions and bargain collectively); to enforce legal rights in practice (by sufficiently staffing a labor inspectorate, for instance); and to work effectively to improve conditions throughout the economy (such as eliminating the worst forms of child labor). Developing country governments seek to enable their firms to access to foreign markets. Increased export opportunities offer not only the possibility of growth in comparatively-advantaged sectors, but also the promise of positive current account positions and increased tax revenues. Firms that

[1] 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.

expect to benefit from global production opportunities may lobby their governments to conclude trade agreements with important export market countries (e.g. Baccini et al 2017, Osgood et al 2017; also Milner 1987).[2] When governments fail to meet the conditions specified in an economic agreement, they typically lose access to some or all the agreement's benefits (as in the case of country-wide suspensions of the U.S. Generalized System of Preferences program).

Many governments indeed have used labor-related conditionality in their PTA negotiations and their unilateral trade preference programs (Raess et al 2018). The World Trade Organization (WTO) proscribed the use of labor-related conditions at the global level in 1998, but national governments have expanded their use in recent decades (Lechner 2016). For instance, the U.S. Trade Act of 1984 requires that all trade agreements include provisions – of some sort – for the protection of internationally-recognized worker rights. Similarly, the European Union has long linked civil and political rights with its PTAs (Hafner-Burton 2009); more recently, the EU has offered additional unilateral market access to developing countries that have ratified (and implemented without serious failures) twenty-seven conventions on human and labor rights, environmental protection and good governance (CRS 2019).

While labor-related conditionality may create incentives for governments to improve their labor-related laws and practices prior to trade negotiations (Kim 2012),[3] government commitments to enforce conditionality *ex post* may lack credibility. Hafner-Burton (2005) finds that only when PTAs with human rights clauses include enforcement provisions do rights improve. Similarly, developed country governments might insist on labor rights-related conditions as a means of quelling domestic opposition – often from labor unions -- to such agreements, but then fail to hold

[2] 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.

[3] Also see Spilker and Böhmelt (2013), who highlight the importance of the selection stage for PTAs with hard human rights conditions.

their trade partners accountable when violations occur (Hafner-Burton 2009). This criticism was frequently leveled against NAFTA (Kay 2011). It is worth noting that, over time, the United States Trade Representative (USTR) has become more inclined to focus on compliance with internationally-recognized labor rights (versus with existing domestic labor laws), and to specify mechanisms for addressing labor-related grievances. At the same time, labor-related conditions could be a vehicle for veiled protectionism, endorsed by import-competing sectors in developed countries to limit competition. Indeed, using a novel dataset of 474 PTAs concluded between 1990 and 2016, Lechner (2016) reports that the inclusion of labor conditions in trade agreements is more likely, all else equal, when wage differentials between agreement partners are greater, as well as when import competition is more pronounced.[4]

The conditionality-based mechanism tends to operate at the broad country level: access to a foreign market is granted to or removed from all exporting firms in the partner country. In most cases – unless the firm in question 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. Given that the benefits to compliance accrue to all internationally-oriented firms in an economy, many firms may be tempted to free ride on other firms' rights-related improvements, particularly their competitors. Moreover, the slow processes by which agreement conditions come into effect (often after a phase-in period) or agreement benefits are removed (often involving the filing and review of complaints as well as hearings) may reduce firms' sense of urgency to comply.

Despite their clear theoretical differences, it can be extremely difficult to empirically evaluate the effect of the labor-related conditionality mechanism separately from that of the market opportunity mechanism. The two frequently overlap in practice, given the rise of PTAs and the

[4] 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.

frequent use of rights-related conditionality, as well as the increasing participation of developing country firms in global production networks, often in higher value-added sectors. At the country level, trade appears to be a mechanism for diffusing labor rights practices: 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. This "California effect" pattern holds more strongly for legislation related to labor rights than it does to respect for rights in practice (Mosley 2011); other analyses suggest that the California effect also 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, do they experience a deterioration in labor rights? Their evidence, using data from 1985 to 2010 for 49 African countries, suggests a limited "Shanghai effect." Deterioration in labor rights is conditional on whether trade with China displaces trade with high-standards or low-standards countries. In a related vein, Peterson et al (2016) argue that human rights violations (including worker rights violations) reduce export volumes, but only when human rights organizations bring attention to those violations. Their analyses reveal that shaming – which informs consumers about labor conditions in producer countries – conditions the effects of rights on exports; and that this effect is statistically significant only when the trade partner has relatively high respect for human rights.

FDI also could diffuse human and labor rights, if 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 (Payton and Woo 2014). Consistent with such a process, Barry et al (2013) report that, NGOs' shaming campaigns against rights-violating governments result in reduced direct investment, all else equal.

Garriga (2016) finds, however, that multinational firms appear willing to ignore rights-related outcomes when the host government is party to many human rights treaties.[5]

These studies of trade and investment as mechanisms for rights diffusion employ country-level measures (either dyadic or monadic) of investment and trade, as well as of human and labor rights. These analyses offer limited insight into how worker rights – and firms' and governments' motivations to protect them -- might vary across individual actors within an economy. A few recent analyses move to the sectoral level, considering variation within economies. Blanton and Blanton (2009) suggest, for instance, that multinational firms' investment allocations are most responsive to human rights outcomes in sectors requiring high levels of skilled human capital. Similarly, Lechner (2018) finds that the inclusion of labor standards in PTAs encourages investment from US-based multinationals in high-skilled industries, but reduces their investment in low-skilled, labor-abundant sectors. Janz (2018) focuses on the opposite causal connection, positing that FDI is most likely to generate human rights improvements when it is concentrated in high-technology, high-skill industries.

Yet even sector-level analyses do not allow us to distinguish the effects of rights-related conditionality (which acts directly on governments and indirectly on firms) from those of the market opportunity channel (which operates directly on firms and indirectly on governments). Evaluating these mechanisms requires a focus on globally-engaged firms, especially those in developing countries specifically. But large multinationals based mostly in developed countries (so-called "superstar firms.") have thus far attracted disproportionate interest. While these firms certainly influence labor rights in developing countries via their investment and sourcing decisions, it is

[5] In a recent empirical analysis employing firm-level data, Arel-Bundock (2017) questions whether any of a wide range of political indicators – including human rights – significantly improves our capacity to explain variation in investment flows. Bodea and Fe (2018) suggest that bilateral investment treaties, which aim to encourage FDI, can render governments less willing to engage in policy reform, thereby locking in human rights conditions.

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 Distelhorst and Locke 2018, Malesky and Mosley 2018). As part of our empirical strategy, therefore, we focus on firm-level data from an internationally-engaged developing economy.

## II. Theory and Hypotheses: Conditionality vs. Market Access

We expect that changes in market opportunities are more likely than changes in rights-related conditionality, embodied in current or future trade agreements, to motivate internationally-engaged firms in developing countries to improve labor rights. While country-level linkages of labor rights with trade privileges offer the possibility of broad-based improvements in law as well as in practice, they often are difficult to enforce *ex post*. Developed country governments may hesitate to impose harms on importers and consumers, and *de jure* labor rights outcomes can be very difficult to monitor. Penalties for non-compliance often are slow to arrive and rewards for compliance are spread across an economy; firms may have little incentive to change their behavior in response to rights-related conditionality.

By contrast, the market access mechanism offers firm-specific opportunities: exogenous shocks – such as an increase in competitors' costs – allow some firms to increase their production and sales. Taking advantage of these opportunities may require improving labor rights: firms that hope to move to higher value-added activities will need to hire and retain relatively more skilled workers. Improving wages and working conditions is costly, but where these improvements result in a more skilled and productive workforce, firms achieve increased exports and sales. We expect that, because the rewards from this mechanism accrue directly to firms investing in upgrading and arrive relatively quickly, this mechanism is more likely to generate changes in developing country firms' willingness to upgrade. From the point of view of broad-based improvements in rights, however,

this mechanism has its drawbacks: incentives to upgrade may be driven by factors that are very much out of the hands of rights-focused activists and intergovernmental organizations. Moreover, these incentives are typically unevenly distributed: not all firms or sectors in a country are likely to be presented with expanded access opportunities. Hence, while this mechanism may improve conditions for some workers, these improvements may not diffuse throughout the economy.

Under most circumstances, labor-related conditionality and market opportunities co-exist: PTAs offer additional market access to a country's exporters. It typically is only a subset of a country's firms that can benefit from PTA-related access. At the same time, most PTAs impose rights-related requirements on the exporting economy. Therefore, if we observe changes in the willingness of firms to engage in upgrading, it is difficult to know whether they are motivated by the agreement itself, by the market opportunities it offers, or by both.

The case of Vietnam, however, offers a unique laboratory for distinguishing between these mechanisms. 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 Hong Kong and China. Foreign investment accounts for over half of Vietnam's total exports and eighty percent of its manufacturing exports. Hence, firms in Vietnam, especially foreign-owned ones, can be expected to be responsive to exogenously-generated shifts in market opportunities.

We also expect these firms to be aware of rights-related conditionality in trade agreements. The proposed Trans-Pacific Trade Partnership (TPP) included, like many recent PTAs, a requirement that all members adopt and respect core labor rights. These core rights, embodied in eight International Labour Organization (ILO) conventions, include the formation of labor unions

and the use of collective bargaining; the elimination of forced labor and child labor; and the prevention of employment discrimination.[6] Additionally, TPP marked the first time that the main text of a trade agreement directly asked member countries to enact labor standards beyond core labor rights (Kolben 2017). The TPP's labor-related chapter (Chapter 19) required member governments to set and respect a minimum wage, limit working hours, and provide basic health and safety protections to all workers. The agreement also committed members not to deviate from labor protections in export processing or special trade zones; and members agreed not to violate core labor rights as a means of attracting trade or investment. The Chapter 19 labor provisions were subject to the TPP's general dispute settlement procedures, and the members also had the option of using a labor dialogue to more quickly resolve labor-related issues.

At the same time, the TPP revealed potential shortcomings in rights conditionality as a means for upgrading (Tran et al. 2017). Many activists, as well as some members of the U.S. Congress, worried that the agreement did not specify how to achieve its labor-related provisions. They also noted that some conditions – such as having a minimum wage in place – were not specific enough, as the agreement did not prevent governments from setting the minimum at a very low level. More generally, once TPP's benefits were in place, further improvements in rights would be difficult to effect.

U.S. trade negotiators therefore insisted that Vietnam (as well as Brunei and Malaysia) also commit to addressing labor-related issues prior to TPP's entry into force. Vietnam's "Consistency Plan," agreed alongside the signing of the TPP, made Vietnam's membership in the TPP agreement conditional on US approval of a set of Vietnamese labor-related reforms. These included lifting the ban on independent unions and allowing independent unions to cross-affiliate into a broader

[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.

national federation. The US-Vietnam Plan also specified an enforcement mechanism distinct from the TPP: if Vietnam failed, for example, to comply with its promise to allow workers to unionize at the factory level (a commitment with a five-year grace period), the US would have the option to unilaterally suspend all tariff phase outs in the TPP that had not yet occurred (Martin 2016). While the enforcement provisions in the Consistency Plan were somewhat complicated (and perhaps unlikely to ever play out), they did not require the U.S. to utilize the main TPP dispute settlement mechanism to assess penalties.

Consequently, some Vietnamese politicians worried that the U.S. government was attempting to use the Consistency Plan – especially its requirement for independent unions -- to force broader political reform in Vietnam. Other politicians questioned the United States' reliability as a negotiating partner, especially in the context of its 2016 presidential campaign, in which both candidates took anti-TPP stances. The Vietnamese government ultimately agreed to the Plan on February 4, 2016, though, because it hoped to reap the material benefits of TPP. Business associations including the Vietnam Chamber of Commerce and Industry (VCCI) supported both TPP and the Consistency Plan. Vietnamese leaders hoped that TPP would facilitate a diversification in export partners, reducing Vietnam's dependence on China, as well as industrial upgrading.

Previous research indicates that foreign-invested firms in Vietnam were attuned to TPP and the Consistency Plan (Tran et al. 2017). These agreements required 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). According to the PCI-FDI survey in 2015, on the eve of Vietnam's entry, 78 percent of foreign investors 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, p. 100, 110). Importantly, both awareness and support were higher for firms from other TPP member countries; a survey

experiment confirmed that foreign firms felt more confident when told that the United States was likely to remain in the agreement (Malesky 2016).

The rights conditionality mechanism implies that managers of foreign firms viewed the Vietnamese government's commitments to TPP and the Consistency Plan as credible, and that they expected the U.S. government to enforce TPP's labor-related conditions.[7] These firms therefore would be willing to expend on labor-related improvements when transacting with U.S. lead firms and U.S.-based production networks. We test this expectation via a contingent valuation analysis, asking foreign-invested firms in Vietnam about the amount (as a percentage of operating costs) they are willing to expend on labor related upgrading, in return for being shortlisted to become part of a multinational's supply chain (we provide the detailed text below).[8] We randomly assigned surveyed foreign-owned firms across two versions of the contingent valuation question: in one version, the lead firm is based in China. In the other version, the lead firm is based in the United States. If the rights conditionality mechanism is effective, foreign-owned firms in Vietnam surveyed in mid-2016 should be willing to invest significantly in labor-related upgrading. More importantly firms receiving the "US" treatment should be particularly willing, given the TPP and the Consistency Plan, to expend on labor-related upgrading. By contrast, firms receiving the "China" treatment should report a lower willingness to expend on labor-related upgrading. While China's market may present opportunities for foreign-invested firms in Vietnam, firms are unlikely to assume the presence of labor-related conditionality. Indeed, to the extent that a "Shanghai effect" (Adolph et al. 2018, Greenhill et al 2009) exists, we expect the opposite.

[7] Tran et al (2017), however, argue that the rights upgrades contained in TPP and the Consistency Plan were contingent on the domestic legal enforceability of the provisions. They suggest that the bargaining power of the domestic, pro-labor coalition is a more important determinant of rights improvements than the influence of foreign actors.
[8] See Malesky and Mosley 2018 for a discussion of this methodological approach. They describe the lead multinational firm as headquartered either in Europe or India.

*The **rights conditionality mechanism** predicts that the withdrawal of the U.S. from TPP – announced by President Trump in January 2017 – would render foreign-invested firms in Vietnam that receive the US treatment (compared to those that receive the China treatment) less inclined toward labor-related upgrading than firms that received the US treatment the year before.* That is, if TPP and the Consistency Plan created incentives for improving worker rights, the collapse of a U.S.-led TPP removes such motivation. Moreover, given the shift in market opportunities effected by the US withdrawal from TPP, some firms might even focus their efforts on participation in Chinese-led production networks; to the extent that capturing Chinese-oriented production required improvements in worker skill and productivity, transacting with China after January 2017 might even incentivize labor-related upgrading.

The second mechanism for labor-related upgrading relies on firm- and product-level incentives, generated by shifts in market opportunities. While trade and investment agreements offer potential benefits to firms across sectors and products, exogenous shocks to market access usually fall unevenly across firms. Shifting to higher-valued added activities, capturing higher markups and participating in global production networks 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 access view therefore treats labor-related upgrading as transactional: firms want to capture more value added, and they are willing to share some of this value added with workers, in the form of higher wages and better conditions.

All else equal, foreign-invested developing country firms are generally keen to improve their access to markups via global supply chains. This is especially true when markup differentials (between destination markets) are large (Malesky and Mosley 2018). In this way, the market access

mechanism often overlaps with rights-based conditionality: both conditionality and market access can shift the relative barriers to exporting to foreign (in this case, US) destinations. The 2018 U.S. tariffs against a wide range of Chinese products, however, offer an opportunity to observe the effects of an event which affects some foreign-invested firms, but not others. As such, this event allows us to isolate the effects, at the firm level, of a shift in market opportunities.

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 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.

In Vietnam, the U.S. 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 (Huang 2018, Ng 2019, Shira 2018). Many foreign-owned firms in Vietnam (especially Japanese, Korean, and Taiwanese firms) employ a "China plus one" strategy. These firms locate most of their global value chains in China, but place some activity in Vietnam, to address possible uncertainty associated with China (Shira 2018, Symington 2018). For the most part, the Vietnamese operations participate 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, facilitating industrial upgrading by redirecting $136 billion of trade away from China (Amiti et al. 2019). Initial evidence indicates that Vietnam has indeed benefitted from the tariffs: since June 2018, Japanese and Korean investors with operations in China have visited Vietnam to consider opportunities there (Shira 2018). Some MNCs have opened new factories and located higher value-

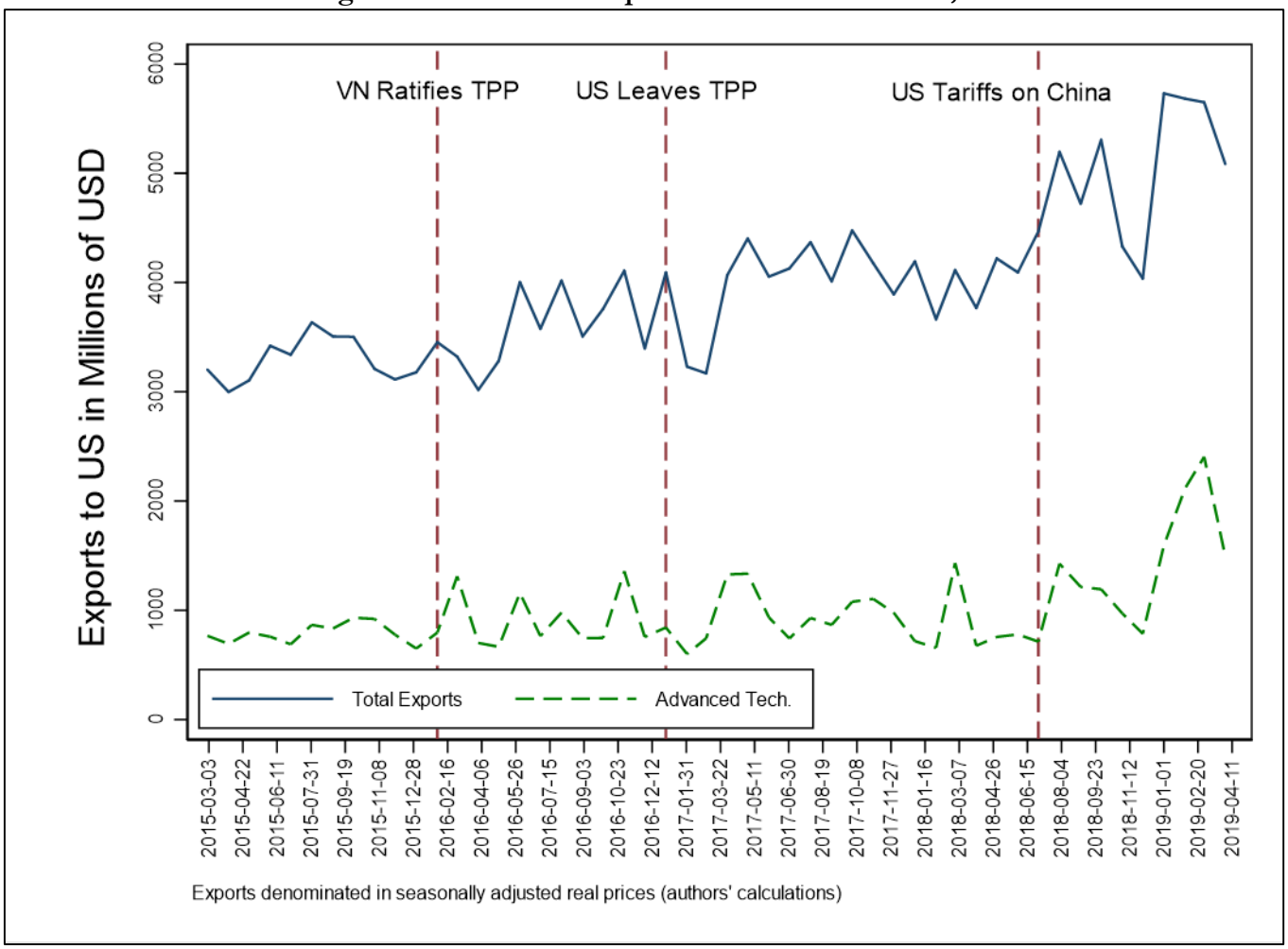
added elements of their supply chains in Vietnam (Lam 2019). Data from the Foreign Investment Agency under the Ministry of Planning and Investment of Vietnam show that foreign investors registered to invest US$8.47 billion into Vietnam in the first two months of 2019, 2.5 times more than the same period in 2018. Disbursement of FDI projects also rose by 9.8 per cent year-on-year to $2.58 billion, hitting a three-year record high. Notably, foreign investment in science and technology surged sharply, ranking among the fastest growing sectors in the country's FDI attraction (VNA 2019). More recent data report 3,883 new foreign-invested projects in 2019, compared with 3,046 new projects in 2018.

Vietnam also has significantly increased its exports to the United States, particularly in the category of advanced technology products (ATP) targeted by the Trump tariffs. In Vietnam, 80% of ATP exports are from information and communication technology industries. Figure 1 illustrates this pattern, reporting bilateral trade data from the U.S. Census Bureau. To ensure comparability over time, we report data in real millions of US dollars (base year=2015), seasonally adjusted to address changes in American consumer behavior. The three dashed vertical lines on the graph illustrate the key discontinuities in Vietnam-US trading arrangements, exploited in our empirical analysis: (1) the entry of the country 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 the announcement of the tariffs, exemplifying the speed with which global value chains can adjust to take advantage of global events. Total Vietnamese exports to the United States in April 2018, prior to the announcement of the tariffs, were $3.8 billion. By April 2019, exports had risen $5.1 billion, a remarkable 25% year-on-year change. However, the change in ATP exports is even more striking,

rising 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

**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).

our analysis below, ATP products affected by the Trump tariffs account for nearly 60% of the post-tariff increase in bilateral trade.

Figure 1 shows that U.S.-China trade war offers opportunities to some foreign firms in Vietnam. But taking advantage of these opportunities is not without costs. Even for those companies increasing production in their Vietnamese factories without new construction or investment, most goods targeted with U.S. tariff increases were not produced at scale in Vietnam in 2018. Production requires factory alterations, new equipment, and – key to our analysis -- higher-quality labor (Amiti et al. 2019).

In Figure 2, we use data from the PCI-FDI survey in 2016 to illustrate the demand for skilled workers before any of the discontinuities shown in Figure 1. This figure demonstrates that recruiting the high-quality labor necessary for industrial upgrading was among Vietnamese FIEs' greatest concerns in 2016, prior to Vietnam's ratification of the TPP. Firms found it easy to recruit low-skilled manual workers, but reported significant challenges in recruiting workers with specialized skills, high-quality technicians, managers, and supervisors. This was especially true in 2016 for companies in producing goods later targeted by the Trump tariffs,[9] as these were ATP and other high value-added products, and therefore more likely to employ high quality employees.

Consequently, companies hoping to exploit the opportunity for additional sales to the U.S. market after the June 2018 tariffs would need to compete more aggressively for Vietnamese workers, by increasing wages and social benefits.[10] 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

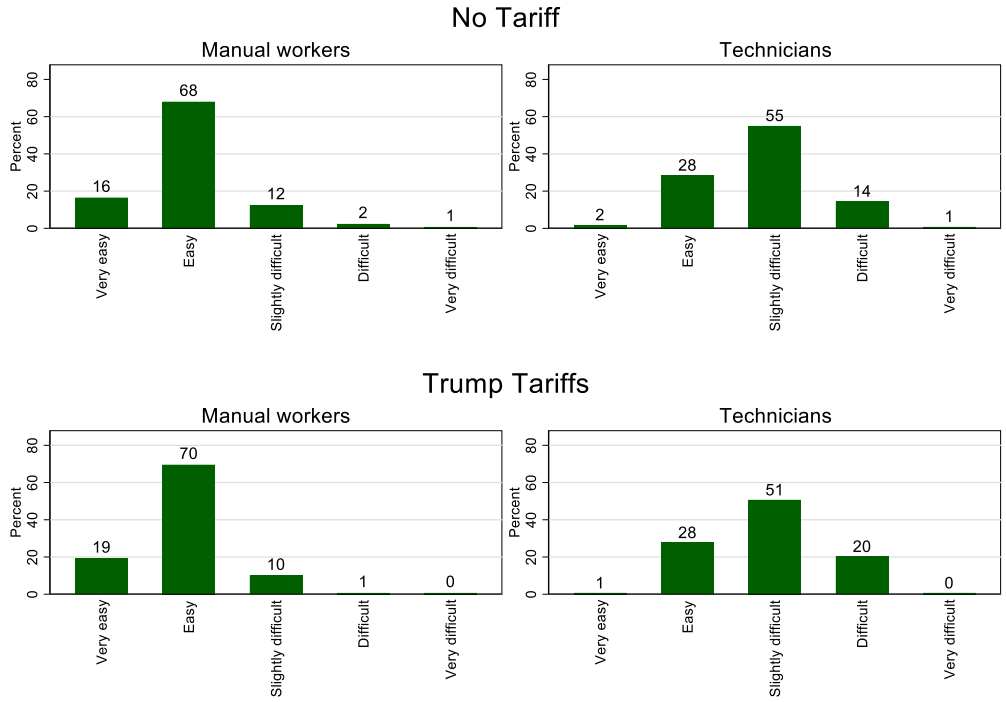
[9] We discuss below how this variable is coded.

[10] 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.

firms to be willing to compensate workers roughly up to the value (10 percent ad valorem) of the US tariff.[11]

*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) to invest in labor-related upgrading in 2018.* Consequently, we expect that the experimental treatment– referencing the

**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?"

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

possibility of participation in a global supply chain headquartered either in the U.S. or China – will affect willingness to upgrade for those firms both receiving the "US" version of the survey and producing goods covered by the Trump tariffs.

We note that the market opportunity mechanism 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 (Malhotra et al 2019). The perception or reality of a lead firm preference for higher labor standards – for "doing well by doing good" -- may further incentivize labor-related upgrading for developing country firms (Greenhill et al 2009, Malesky and Mosley 2018), especially when activists shine a spotlight on violations (Peterson et al 2017). Our market access mechanism is more direct, however: developing country firms want to service foreign markets, particularly wealthy and large ones. But consumers and intermediaries in such markets often demand high-quality products, and 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.

In terms of specific labor-related upgrades, we expect workers, especially relatively scarce skilled workers, to be most interested in direct compensation, as well as social benefits. Given the current institutional realities, workers in Vietnam may not view 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 workers' use of collective action. Vietnamese workers do engage in hundreds of wildcat strikes each year; strikes were legalized in 1994, but the requirements for a legal

strike are quite onerous. 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 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.

## III. Research Design

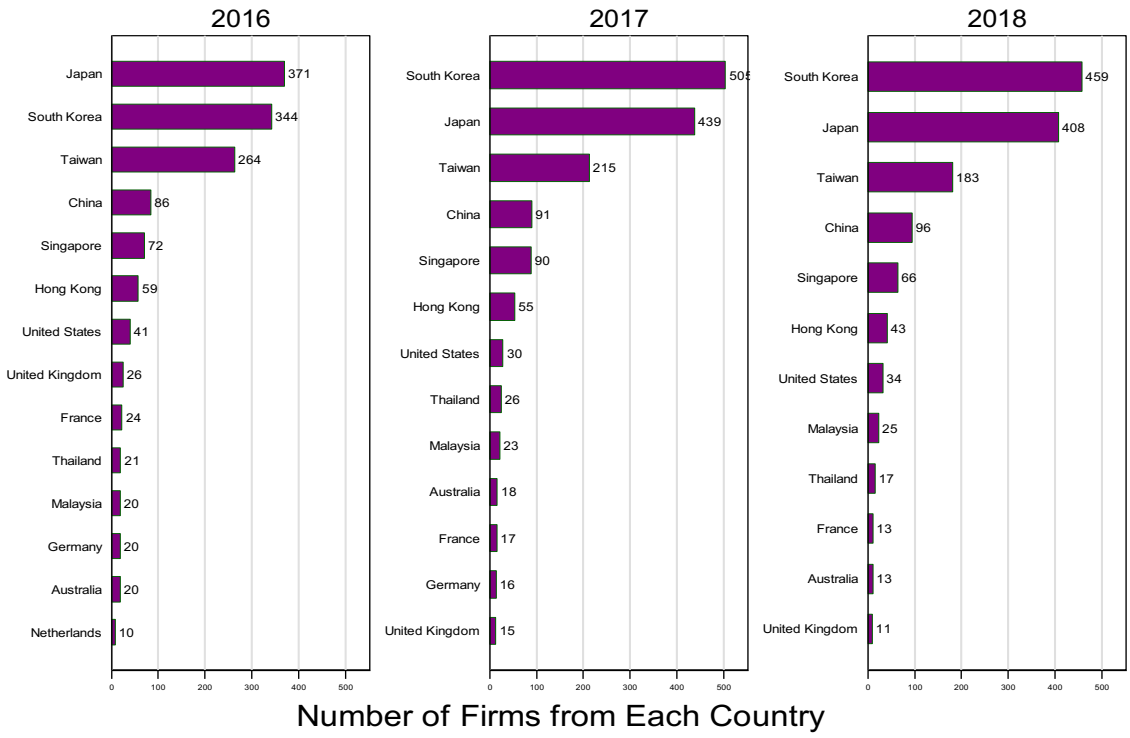
*Data*

We use data obtained from the annual PCI-FDI survey of foreign investors in Vietnam, for 2016, 2017 and 2018, to assess the market opportunity and rights conditionality mechanisms. The survey is administered in the 20 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.

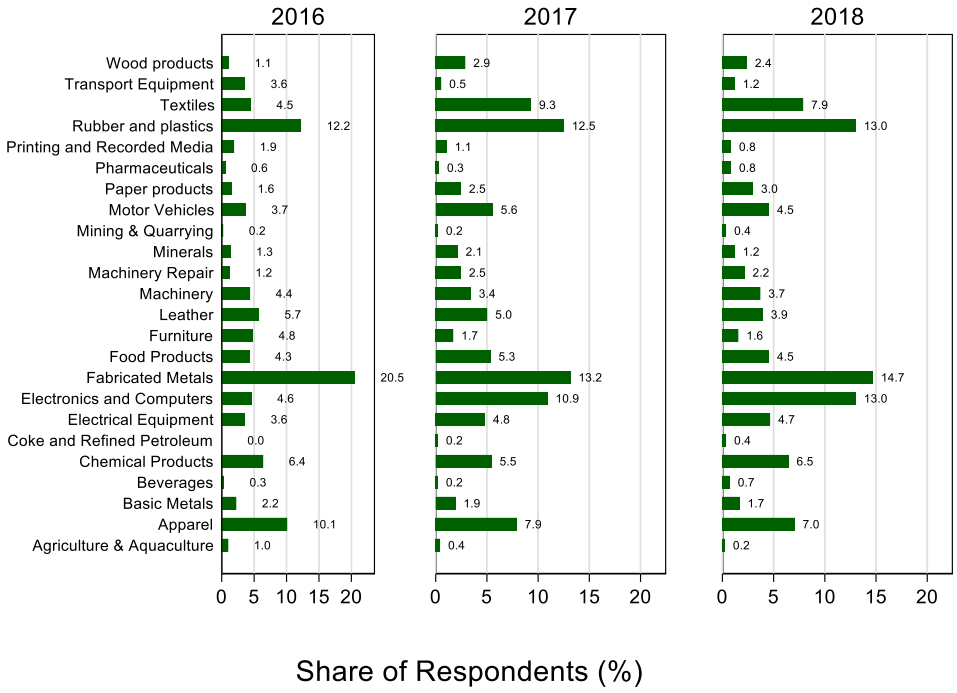
Next in line, by a considerable distance, are Taiwan and China with 183 and 96 FIEs respectively. These figures also match the data from the Ministry of Planning Investment (MPI) on FDI flows and licenses granted (MPI 2018).

**Figure 3: PCI-FDI Respondents by Country of Origin**




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 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

**Figure 4: PCI-FDI Respondents by Sector**




largest investors in Vietnam by license size in 2018 were 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 Shenzen, 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 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, 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.[12] 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.

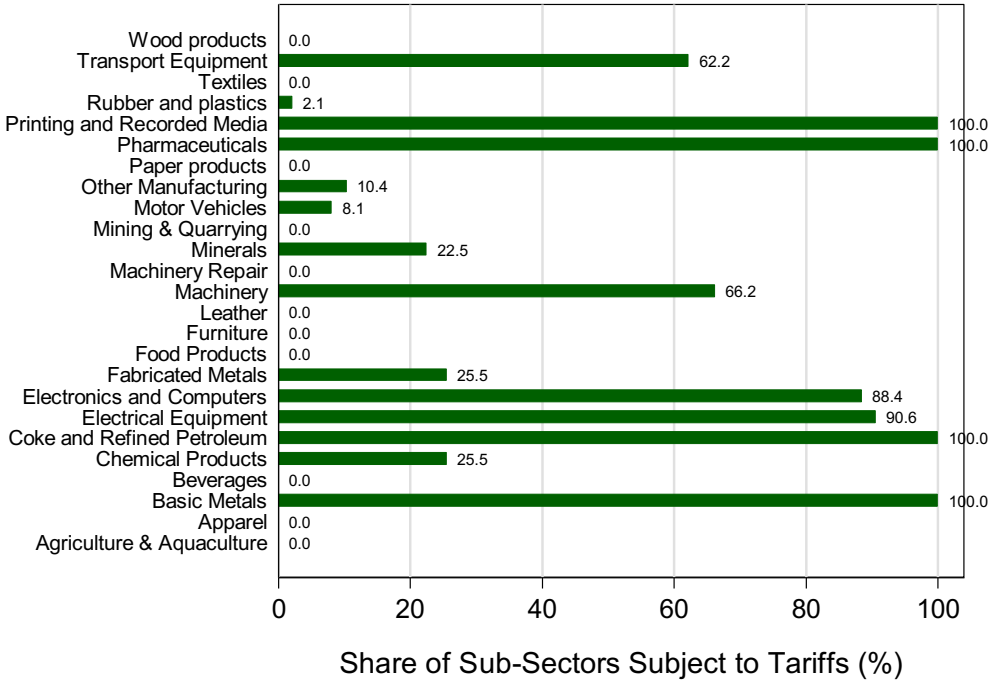
We matched the product codes from the Section 301 list to the codes in the PCI-FDI survey. Product codes in USTR-2018-0026 were listed at the eight-digit Harmonized Tariff Schedule (HTS) level, but the PCI-FDI follows Vietnam's statistical conventions, recording products using the four-digit ISIC system. 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.

[12] 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>

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 2108 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 among the "tariff group." As such, it biases against finding a significant, positive effect of the tariffs on firms' willingness to make labor conditions improvements. In the analyses below, we use the second, dichotomous measure of tariff exposure; our results are robust to using the continuous measure, or 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 these 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),[13] the tariff measure is missing.[14] 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" experiment treatment (again, in 2016, 2017 or 2018). We discuss the experimental treatments in more detail below.

[13] 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.

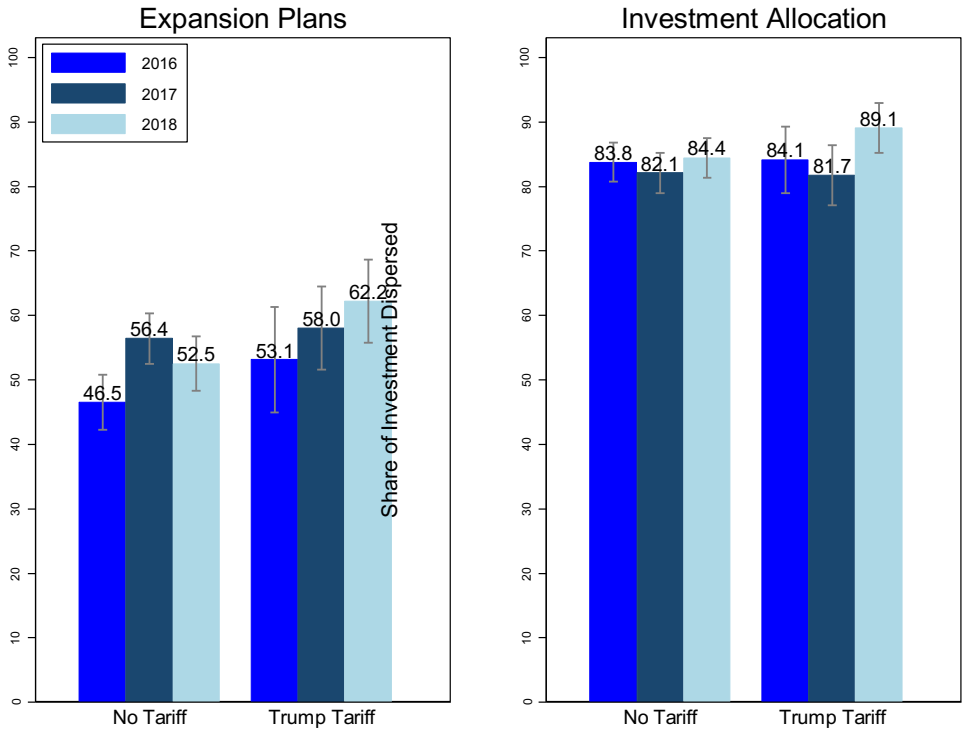
[14] Some foreign-owned firms operate in the services or resource, rather than manufacturing, sector; these firms were not only not subject to tariffs, but also have a different labor relations environment than manufacturing firms. We include these firms in the initial analyses. As we show below, dropping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

The ***market opportunity mechanism*** for upgrading 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 already pursuing a "China plus one" strategy, would contemplate 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 indeed responsive to shifts in market opportunity. One survey question asked firms whether they intend to expand their business in Vietnam over the next two years. Over the fourteen-year existence of the PCI survey, answers to this question have proven to be a leading indicator of actual investment and growth in Vietnam.[15] The second question asks what share of the investment listed on a firm's license has 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.

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 Trump Administration's tariffs. Second, the gap in business confidence between non-tariffed and tariffed goods increases between 2016 and 2018. In 2018, firms 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 only

[15] http://eng.pcivietnam.org/business-confidence-increases-predict-higher-economic-growth/

**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? _____%.

based on self-reported firm answers asked almost immediately after the imposition of the Trump tariffs, they are strongly consistent with the data reported in Figure 1, where data extends nearly a year beyond our data. Foreign firms did in fact increase their investment into Vietnam and exports to the United States, particularly in those areas affected by the Trump tariffs.

*Survey Experiment*

To test the effects of trade-related conditionality and 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 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. As such, it is 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 increase the possibility of future orders. 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 each worker).

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.[16] 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

[16] 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).

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_____

experimental part of this research is derived from how the multinational firm is described. In one version of the survey, it is a "large US company selling primarily to the US market" (version A). In the other, it is a "large Chinese company selling primarily to the Chinese market" (version B). For each of the three years, half of the firms were assigned to receive "version A" of the question (n=1,277, over three years), while the other half received "version B" (n=1,147).[17] 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 can be certain that differences

[17] 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. Those firms are dropped from the analysis.

between their answers are caused by the experimental priming information, and not the underlying characteristics of the firm.

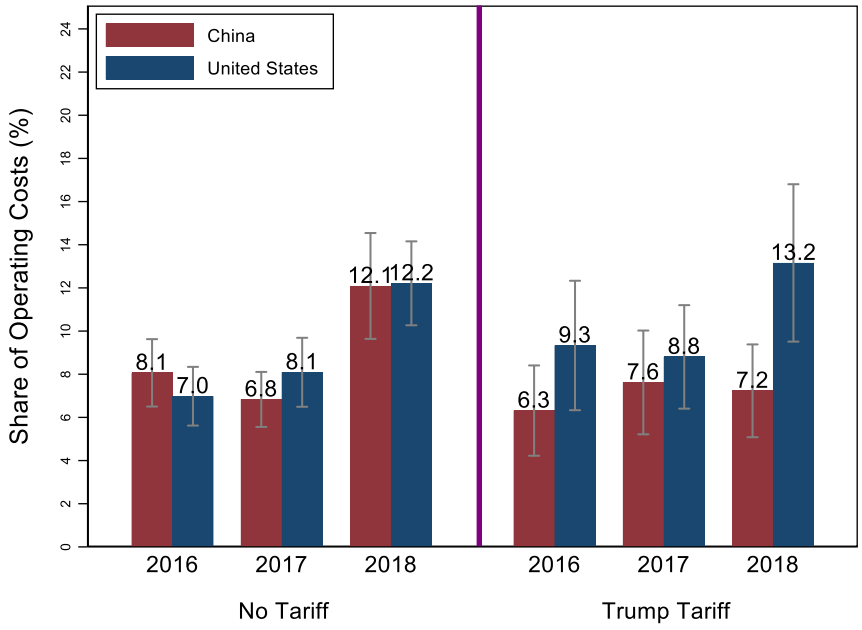
We included this question – focused on the US and China as alternative global supply chain partners – with the aim of capturing the impact of Vietnam's participation in the TPP (and its related Consistency Plan/Labor Covenant) on firms' willingness to upgrade. If the **rights conditionality mechanism** were effective, firms interacting with U.S.-based lead firms and supply chains should be especially willing to improve their labor standards to comply with Vietnam's TPP labor-related commitments in 2016. The US withdrew from the TPP on January 30, 2017, invalidating these commitments. 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. Therefore, studying the evolution of firms' responses to this survey item provides an excellent opportunity to compare firms' implicit views of the rights conditionality and market opportunity mechanisms.

In the 2018 PCI-FDI survey, we also added 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 test the general importance of TPP-related commitments (and international labor standards more generally) versus market opportunities as motivations for labor-related upgrading. 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.

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 year (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 tariffs. Where the confidence intervals overlap, predicted labor upgrading costs are not significantly different between groups; in another random sample of firms, the differences between groups might be greater.

***Figure 7: Results of the Labor Upgrading Survey Experiment***




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 greater 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 US and China treatments. On average, firms in both treatment groups were willing to spend between 7.5. and 7.9 percent of operating costs on labor-related improvements. Were the ***rights conditionality*** mechanism a strong influence on firms' expectations, we would instead observe a marked difference between the treatment groups in 2016 (when TPP was expected to occur), which should then be less evident in 2017 (after the U.S. withdrawal from TPP).

In 2018, however, we do 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 in 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, the difference between treatment groups in willingness to spend is 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). In other words, 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, firms' responses from the 2019 version of the PCI further reveal differences between foreign-invested tariffed and non-tariffed firms. Firms subject to tariffs had more newly-hired employees in their total workforce, and they reported plans 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. 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.[18] 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, a s the 2019 Labor Code, approved by the National Assembly in November, comes into effect (January 2021), we might expect a greater prevalence of labor unions overall. The Labor Code provides employees with the right to set up their own representative organizations – including trade unions – at the enterprise level. This provision puts Vietnam in compliance with commitments under not only the CPTPP, 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).[19] Thus far, 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.

[18] 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.

[19] 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/lang--en/index.htm.

**IV. Regression Results**

To analyze the effect of the tariffs more systematically, 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.[20]

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

Table 1 presents our main results, allowing a comparison between the 2017 and 2018 survey responses. Model 1 presents the baseline effects of the *USA* and *2018* component terms. Model 2 produces a simple differences-in-differences analysis of the effect of *USA* 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. First, 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 United States treatment. For instance, Supplemental Appendix A shows that foreign-invested firms affected by the Trump tariffs are significantly larger, younger, and

[20] See Supplemental Appendix A for summary statistics of covariates used in analysis.

more like to be from Japan and Korea. 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 (versus level) in responses to the question over time. 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 over time 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 allows us to compare fine-grained products within a broader category. For instance, within the two-digit category of *Manufacture of Machinery and Equipment*, "bearings, gears, 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).

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.

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 USA treatment had only a marginal and insignificant effect of 1.13 in 2017, generating an average willingness to spend of 8.26 percent. The

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

excitement of 2018 was evident for all firms, as we can see 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 interaction term is sizable (2.8) and significant (p=.057) as well, leading to an implied willingness to spend among firms receiving the US treatment in 2018 of 14.5 percent. This estimate is significantly greater than firms receiving the Chinese treatment in 2018 (by 3.95 percentage points) and firms receiving the USA 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 investors 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 USA 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 in 2016 (7.3 percent); China in 2017 (7.1 percent); USA in 2016 (7.6 percent); and USA in 2017 (8.3 percent). The USA treatment is associated with a slightly higher willingness to spend, but the estimate is not statistically significant. From this analysis, we can conclude 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 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 on willingness to spend on upgrading, it does not link the change 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 in the tariffed firms were biased against finding an effect of the market opportunity mechanism. Thus, 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, also suggests the presence of a "Shanghai effect" (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 USA treatment in 2018. These results lend credence to the notion that firms view labor-related upgrading as necessary to take advantage of opportunities in the US market in the wake of tariffs against Chinese exports (rather than the requirement of trade-related conditionality). 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. This is consistent with the notion that firms producing exports destined for China might internalize the weaker consumer and activist interest (relative to the US or Europe) in labor rights, or the generally weaker regulatory climate (Adolph, Quince & Prakash, 2017).

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 USA 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 USA treatment among firms exposed to the Trump tariffs in 2018. Substantively, firms producing tariffed goods 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. By comparison, the CATE in 2017 is -1.0 percent and not significantly different from zero. This result confirms 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. 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 working conditions is to consider the types of labor-related improvements firms are most 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.

The **rights conditionality mechanism**, on the other hand, might anticipate that firms would offer better collective representation to workers, as well as health and safety protections and

## Table 1: Regression Analysis of USA Treatment and 2018 Tariffs

| *Dependent variable=Labor reforms/operating costs* | **Baseline** (1) | **Diff-in-Diff** (2) | **Triple Diff** (3) | **Sector FE** (4) | **Ebalance** (5) | **No US & China** (6) | **Manufacturing** (7) | **No Zeros** (8) |
|---|---|---|---|---|---|---|---|---|
| USA Treatment=1 | 2.081*** | 1.126 | 1.258 | 1.323 | 3.235 | 2.507 | 3.250 | 4.535 |
| | (0.699) | (0.920) | (1.548) | (1.621) | (3.137) | (3.419) | (3.150) | (3.459) |
| 2018=1 | 4.845*** | 3.359*** | 5.257*** | 5.436*** | 3.605 | 3.803 | 3.566 | 3.857 |
| | (0.712) | (0.865) | (1.552) | (1.600) | (3.588) | (3.551) | (3.632) | (5.004) |
| USA*2018 | | 2.823* | -1.136 | -1.459 | -5.233 | -4.682 | -5.209 | -7.216* |
| | | (1.456) | (2.450) | (2.665) | (3.659) | (3.919) | (3.656) | (4.062) |
| Tariff=1 | | | 0.788 | 0.122 | 1.975 | 1.685 | 1.975 | 4.003 |
| | | | (1.469) | (2.078) | (5.641) | (5.549) | (5.640) | (5.490) |
| USA*Tariff | | | -0.074 | 0.325 | -4.686 | -3.855 | -4.701 | -5.716 |
| | | | (2.046) | (2.076) | (6.990) | (7.362) | (6.996) | (7.524) |
| 2018*Tariff | | | -5.646** | -5.817** | -8.292* | -8.414* | -8.254* | -11.088* |
| | | | (2.180) | (2.236) | (4.627) | (4.591) | (4.663) | (5.852) |
| USA*2018*Tariff | | | 5.879* | 6.151* | 13.922** | 14.132** | 13.898** | 14.376* |
| | | | (3.123) | (3.118) | (6.161) | (6.671) | (6.162) | (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*** | 7.144*** | 6.833*** | 6.921*** | 10.430*** | 10.601*** | 10.489*** | 13.539*** |
| | (0.521) | (0.546) | (0.895) | (0.949) | (2.679) | (2.724) | (2.685) | (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

| *Dependent variable=Labor reforms/operating costs* | **Baseline** (1) | **Diff-in-Diff** (2) | **Triple Diff** (3) | **Sector FE** (4) | **Ebalance** (5) | **No US & China** (6) | **Manufacturing** (7) | **No Zeros** (8) |
|---|---|---|---|---|---|---|---|---|
| USA Treatment=1 | 0.773 | 0.410 | -1.083 | -0.946 | -1.165 | -2.349 | -1.193 | -2.297 |
| | (0.652) | (0.851) | (1.380) | (1.415) | (1.479) | (1.829) | (1.485) | (3.601) |
| 2017=1 | 0.189 | -0.177 | -1.232 | -1.026 | 0.342 | -0.262 | 0.343 | -0.670 |
| | (0.531) | (0.722) | (1.017) | (1.090) | (2.181) | (2.101) | (2.182) | (2.286) |
| USA*2017 | | 0.715 | 2.341 | 2.198 | 4.452 | 4.881 | 4.501 | 6.159 |
| | | (1.205) | (2.004) | (2.137) | (2.866) | (3.030) | (2.882) | (3.910) |
| Tariff=1 | | | -1.750 | -3.214* | -4.536 | -5.278 | -4.535 | -7.513 |
| | | | (1.453) | (1.621) | (3.233) | (3.365) | (3.235) | (4.798) |
| USA*Tariff | | | 4.101 | 4.165 | 2.808 | 3.728 | 2.837 | 2.108 |
| | | | (2.571) | (2.598) | (4.656) | (4.817) | (4.664) | (5.824) |
| 2017*Tariff | | | 2.538 | 2.408 | 4.187 | 4.464 | 4.187 | 6.725 |
| | | | (2.478) | (2.810) | (6.705) | (6.786) | (6.711) | (5.388) |
| USA*2017*Tariff | | | -4.175 | -3.861 | -7.083 | -7.187 | -7.132 | -6.836 |
| | | | (3.830) | (3.842) | (10.223) | (10.469) | (10.240) | (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*** | 7.322*** | 8.065*** | 8.257*** | 11.729*** | 12.570*** | 11.779*** | 17.701*** |
| | (0.426) | (0.483) | (0.637) | (0.834) | (1.546) | (1.583) | (1.550) | (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).

limits on overtime (all three of which are frequently referenced in international conventions, and which were included in the TPP's Chapter 19). It is worth noting, however, that the two mechanisms do not necessarily predict striking differences in the types of improvements made: if, for instance, firms assume that U.S. consumers worry about the 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 be willing to make improvements to worker health and safety.

To begin to address 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 five possibilities: (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). Overtime limits (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 the presence of 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"

## Table 3: Conditional Average Treatment Effects by Time and Tariff

**Effect of Trump Tariffs, 2017 v. 2018 (Table 1)**

**Full Specification** *(Model 5, n=559)*

| Year | Tariff | CATE | SE | p-value | 95% CI | |
|---|---|---|---|---|---|---|
| 2017 | No | 2.52 | 2.98 | 0.40 | -3.60 | 8.65 |
| 2018 | No | -2.20 | 2.99 | 0.47 | -8.36 | 3.95 |
| 2017 | Yes | -1.42 | 5.73 | 0.81 | -13.23 | 10.38 |
| 2018 | Yes | 7.40 | 1.70 | 0.00 | 3.91 | 10.90 |

**Dropping All Zeros and Non-Responses** *(Model 8, n= 426)*

| Year | Tariff | CATE | SE | p-value | 95% CI | |
|---|---|---|---|---|---|---|
| 2017 | No | 3.20 | 3.16 | 0.32 | -3.31 | 9.71 |
| 2018 | No | -3.88 | 3.71 | 0.31 | -11.53 | 3.77 |
| 2017 | Yes | -1.20 | 6.82 | 0.86 | -15.25 | 12.85 |
| 2018 | Yes | 6.00 | 1.52 | 0.00 | 2.86 | 9.13 |

**Test of Parallel Trends, 2016 v. 2017 (Table 2)**

**Full Specification** *(Model 5, n=645)*

| Year | Tariff | CATE | SE | p-value | 95% CI | |
|---|---|---|---|---|---|---|
| 2016 | No | -1.16 | 1.48 | 0.44 | -4.24 | 1.91 |
| 2017 | No | 3.29 | 2.81 | 0.26 | -2.55 | 9.12 |
| 2016 | Yes | 1.64 | 4.46 | 0.72 | -7.63 | 10.92 |
| 2017 | Yes | -0.99 | 5.89 | 0.87 | -13.24 | 11.27 |

**Dropping All Zeros and Non-Responses** *(Model 8, n-461)*

| Year | Tariff | CATE | SE | p-value | 95% CI | |
|---|---|---|---|---|---|---|
| 2016 | No | -2.30 | 3.60 | 0.53 | -9.81 | 5.21 |
| 2017 | No | 3.86 | 2.95 | 0.21 | -2.29 | 10.02 |
| 2016 | Yes | -0.19 | 4.80 | 0.97 | -10.20 | 9.82 |
| 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 vesus Chinese treaments (US-China)

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 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 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 U.S., 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.

## Table 4. Which Type of Labor Improvements?

(Share of Firms Willing to Engage in Activity)

| **Type of Labor Reform** | **USA** | | **China** | | **Diff-in-Diff** | |
|---|---|---|---|---|---|---|
| | *No Tariff* | *Tariff* | *No Tariff* | *Tariff* | | |
| | *n=318* | *n=116* | *n=263* | *n=110* | β | p-value |
| 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.

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 certain labor-related improvements. Given that we did not ask a similar question in 2016 or 2017, we also cannot track how firms' interest in specific reforms changes with the presence or absence of TPP and its labor-related provisions.

## V. Conclusions and Future Directions

How might global supply chain relationships affect the prospects for improvements in worker rights in developing countries? We consider two pathways by which labor rights might improve, the first based on linking trade and investment benefits to improvements in rights, via international agreements, and the second related to shifts in market opportunities available to (some) firms. The effects of these mechanisms often are difficult to separate empirically: 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 high-markup destinations.

Our empirical analyses use Vietnam's recent experiences – as a party to the TPP, which included a specific additional bilateral commitment to labor-related improvements; and then as the most likely beneficiary of shifts in market opportunities in the wake of the 2018 U.S. tariffs against many Chinese exports – to consider these two distinct mechanisms. We find little evidence that TPP induces an interest in labor-related upgrading. At the same time, we find that, for firms producing goods affected by the tariffs against China, the offer of access to the U.S. market induces a significantly greater willingness (compared to the offer of access to the Chinese market) to expend on labor improvements.

Our results suggest that, by creating a shock in terms of the possibility of accessing new markets, the 2018 U.S. tariffs may have served to incentivize labor-related upgrading in other developing countries. Such upgrading is motivated entirely by material opportunities: foreign invested firms in Vietnam see an opening in terms of selling additional product, or more

sophisticated product, to the US market. But expanding their production and improving their product quality requires access to somewhat scarce semi-skilled or skilled workers. Providing better wages, benefits and conditions to workers therefore promises to allow 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 U.S. 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 more powerful motivator, and the Trump tariffs provided a sizable enough shock that we can observe the rapid response by developing country exporters to that motivation. 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.

From the point of view of worker rights, the downside of the market opportunities mechanism is that it directly operates only for a limited set of firms. Those firms poised to take advantage of a shock to market access – by virtue of their product and sector as well as by virtue of their relative sophistication – will improve labor conditions. But other employers may be much less inclined to do so. While it is possible that improvements in working conditions would diffuse throughout the economy (as non-exporting firms attempt to compete in labor markets with exporting firms, for instance; Greenhill et al 2009), this is a slow and contingent process. The benefit of rights-related conditionality is that trade agreements' labor provisions typically apply to all employers (even public sector ones) in an economy. The drawback, however, is the tenuous link between firm-level actions and the arrival (or removal) of firm-level benefits.

That said, PTAs do 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). It also is worth noting that not all labor rights improvements can be

effected 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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