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Fragmented Labor Regime: FDI, Labor Regulation, and Workers' Protests in China

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Abstract

How does the influx of foreign direct investment (FDI) affect labor protests in China? Building on the framework of fragmented authoritarianism, I argue that the regional competition to attract foreign investment causes labor protests in China due to its deregulatory effects on labor regulation. Each actor, including the central and local governments, foreign investors, and workers, has different cost–benefit considerations, which provide an explanation for the link between foreign investment and labor protests. By theorizing each actor's preferences, this article explains how FDI induces labor deregulation and workers' protests in China. Analyzing China's prefecture-level city data from 2012 to 2018, I find that the influx of FDI is positively associated with labor protests. The result remains robust to alternative model specifications and instrumental variable estimation. I also provide empirical evidence for the deregulatory effect of FDI on labor standards with an analysis at the firm level using the World Bank Enterprise Survey. These findings deepen our understanding of how FDI shapes labor regulation and induces workers' protests in the context of China.

Introduction

Do foreign investors influence the policy-making process in China? Foreign investors seek to create a business-friendly environment by shaping policies including labor regulations. One noteworthy example is the drafting process of the 2008 Labor Contract Law. While the central government attempted to raise labor standards in response to growing discontent by workers (Wang et al., 2009), foreign business associations such as the American Chamber of Commerce and the US–China Business Council publicly opposed the regulations, suggesting that "improvements designed to protect workers from arbitrary firings would significantly raise labor costs" (Chou, 2018, 224). The government did not strengthen the regulations on dismissal of employees in the final version of the law.

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The 2008 Labor Contract Law in China exemplifies the influence of foreign investors exerting an impact on domestic policies of host countries. As illustrated in the case of labor regulation in China, foreign investors play a role in the policy making process of host countries actively bargaining with government officials. The expansive impact of foreign investors on domestic policies and practices encompasses decentralization (Malesky, 2008), fiscal and regulatory policies (Desbordes and Vauday, 2007), economic reform (Malesky, 2009), and corruption (Zhu, 2017; Malesky, Gueorguiev, and Jensen, 2015). Among these diverse realms of domestic policies, this study sheds light on how foreign investors exert downward pressures on the overall level of labor regulation. Despite the far-reaching impact of foreign investors on domestic policies, a wide variation exists as to what extent foreign investors can achieve desired outcomes depending on domestic politics and economy. Jensen et al. (2012), for example, suggest that the number of veto players and competition in the political system diminishes the effectiveness of foreign investors' lobbying.

In understanding these conditions, the framework of fragmented authoritarianism offers a useful insight which defines China's policy-making process as "a fragmented bureaucratic structure of authority, decision making in which consensus building is central, and a policy process that is protracted, disjointed, and incremental" (Lieberthal and Oksenberg, 1988, 22). The framework effectively captures the policy making process of China, while it has also been increasingly exposed to more diverse interests of bureaucratic organizations and private actors (Mertha, 2009, 996). In particular, this study draws attention to the interaction between local officials and foreign investors in the process of implementing labor regulation. The coalition of local bureaucracies and foreign capital can strengthen the vested interests diverged from the central government's policy initiatives (Chen, 2017). Although the central government enhances legal labor standards for the regime's legitimacy, local officials put more emphasis on attracting foreign investment (Friedman and Lee, 2010, 513). In the regional competition for capital, the local governments enforce labor regulation to varying degrees based on exposure to the voices of foreign-owned enterprises.

The divergent interests between central and local governments lead to the fragmented labor regime maintaining a wide gap between *de jure* labor law and *de facto* implementation of labor regulation (Gallagher, 2014). FDI inflows increasingly intensify the gap between labor law and actual enforcement with foreign investors demanding more labor deregulation. Moreover, the consequence of foreign pressures is not restricted to foreign-owned enterprises and industries where foreign investment is concentrated. As local governments ratchet down the general level of labor standards, the bargaining results in the spillover effect of labor deregulation which also benefits domestic enterprises in diverse sectors as well as foreign investors

How, then, does the disparity between labor law and actual enforcement lead to the collective actions of workers?¹ If workers are able to voice their grievances through institutionalized routes, they are less likely to rely on direct behavior such as protests or strikes (Robertson and Teitelbaum, 2011). However, the CCP has been reluctant to institutionalize the industrial conflict as it heightens the possibility of social empowerment and causes threats to the regime (Gallagher, 2014). For

example, workers in China are not allowed to establish independent unions in work-places. China allows only one state-run union, the All China Federation of Trade Unions (ACFTU), which monopolizes the space for labor representation but plays a limited role in representing workers' interests (Lee 2007; Friedman and Lee 2010; Fu 2017a).

Facing the lack of institutionalized channels, workers are more likely to participate in a direct behavior to address their grievances. In mobilizing for collective actions, workers frame their voice referring to the legal commitment of the central government (Su and He 2010). As their actions are based on the rightful demands mandated by the central government, repressing their actions incurs higher costs for local governments. Hence, workers become more emboldened in their collective actions. This paper theorizes a series of causal chains articulating how the influx of FDI leads to labor protests in the process of bargaining with foreign investors.

This study implements two empirical tests to provide evidence for the main argument and the mechanism. The main analysis systematically examines the relationship between FDI and labor protests controlling for divergent city-level factors including local labor market and social insurance policies. The findings demonstrate that FDI leads to a higher incidence of labor protests within China. These results also remain robust to instrumental variable estimation using the ratio of foreign marriages to total marriages divided by the shortest distance to one of neighboring economies, which include Tokyo, Singapore, Seoul, Taipei, and Hong Kong. I also test the robustness of the findings employing correlated random effects models, a robust population-averaged negative binomial model, and autocovariate spatial regression. The results remain essentially similar and suggest that the main findings are not driven by specific model specifications.

Moreover, as the main analysis tests whether FDI causes more labor protests, it requires a further analysis to explore the mechanism through which FDI causes labor protests. This study draws on the World Bank enterprise survey data in China which examines firms' perception of the labor regulation. The analysis controls for a wide range of firm-level and city-level factors associated with firms' perception of the business environment. The results show that firms are more likely to experience relaxed labor regulation when they operate in cities with higher inflows of FDI.

This study contributes to the debate on the effects of FDI on workers by illuminating how domestic conditions moderate FDI's impact on workers. It is important to understand how domestic institutions and practices interact with external factors because labor standards do not exist in a "social vacuum" (Blanton and Blanton 2012, 288). This study delves into how the influx of FDI has influenced workers' rights in its interaction with China's institutions and practices. It suggests that the race-to-the-bottom competition occurs not only among different countries but within countries characterized by the decentralized system.

This study also shows the broad implications of how FDI affects the domestic economy and politics in authoritarian regimes. The sub-national analysis of China adds micro-level evidence that repressing labor rights backfires with a surge in labor unrest, destabilizing industrial relations in authoritarian regimes. Moreover, this study enriches the theoretical debate by accounting for workers' protests from the perspective of the fragmented authoritarianism interacting with foreign investors.

The following section situates this study within the previous literature exploring the link between globalization and domestic policies.

Workers in the globalized economy

The globalized economy exerts significant influence on a wide set of domestic policies, including financial policies (Mosley 2003), welfare policies (Rudra 2002), environmental practice (Prakash and Potoski 2007), and human rights (Blanton and Blanton 2006; Kim and Trumbore 2010). Studies have also shown that the flow of global capital shapes labor standards through various pathways such as IMF and World Bank programs (Blanton, Blanton, and Peksen 2015b), financial crises (Blanton, Blanton, and Peksen 2015a), and trading relationships (Greenhill, Mosley, and Prakash 2009; Malesky and Mosley 2018).

The most significant pathway through which the globalized economy impacts labor standards is multinational production. Countries participate in the interconnected network of production which shapes domestic labor standards. In the process, each type of multinational production yields varying consequences for labor standards. For example, Mosley (2011, 12) suggests that foreign direct investment is more likely to enhance labor rights while higher levels of trade and subcontracting undermine labor rights in developing countries. The implication is that multinational corporations (MNCs) are more likely to improve labor rights when they produce through directly owned factories—which are captured by foreign direct investment compared to subcontracting and trade, which aim to minimize labor costs.

Other studies also note that MNCs can bring improved labor standards to developing countries (Moran 2002; Greenhill, Mosley, and Prakash 2009; Malesky and Mosley 2018). For example, the OECD (2002) notes FDI can function as a channel to enhance working conditions and bring international labor standards to developing countries. NGOs' attention toward MNC activity and the reputational costs of labor abuses encourage MNCs to pay more attention to labor standards. The activity of MNCs can be more likely to be associated with higher wages and improved working conditions (Flanagan 2006). In addition, MNCs pay more attention to other investment options rather than lower labor costs. For example, studies suggest that firms also consider political and social stability (Kucera 2002), the quality of labor (Moran 2002), social standards (Distelhorst and Locke 2018), and market access (Malesky and Mosley 2021). In this case, FDI is more likely to be driven toward countries providing these conditions than by than cheaper labor costs.

In contrast, another group of scholars suggests that FDI is negatively associated with labor standards. The key linkage is that the race-to-the-bottom competition in labor standards occurs among governments to attract foreign investment. The underlying assumption for this downward competition is that foreign investment is more likely to head toward destinations with more lax labor standards. Thus, countries pursuing economic development through investment are pressured to undermine labor standards. Moreover, even if undercutting labor standards does not attract FDI in reality, the sheer belief of political leaders that lowering labor standards draws foreign capital can cause a race to the bottom (Davies and Vadlamannati 2013). Such belief spurs the competitive undercutting of labor standards regardless of actual flows.

Therefore, FDI inflows are more likely to be negatively associated with labor standards.

Empirical evidence on the relationship between FDI and labor standards is mixed. The first strand of literature reports that there is no significant association between labor standards and FDI (OECD 1996; Kucera 2002; Neumayer and De Soysa 2006). These studies indicate that labor standards are not a major factor when MNCs investment assessment. Other studies suggest that FDI is positively associated with labor standards (Busse, 2003; Mosley and Uno 2007; Mosley 2011). In particular, Mosley and Uno (2007) and Mosley (2011) focus on the improvement of collective labor rights which are positively associated with other labor standards and working conditions.

Several studies, on the other hand, present the negative relationship between FDI and labor standard (Görg 2005; Gross and Ryan 2008; Dewit, Görg, and Montagna 2009; Olney 2013). These studies emphasize the impact of FDI heightening flexibility in labor market regulation including employment protection and dismissal regulation. Given that "labor flexibility does come at the cost of undermining core labor rights" (Blanton, Blanton, and Peksen 2015b, 332), the findings indicate that more flexible labor regulations induced by FDI bolster the downward pressures of foreign investors. Apart from the dichotomous diagnosis of the effects, several studies underscore that FDI generates varying effects in host countries depending on industrial characteristics and types of FDIs (Mosley 2011; Blanton and Blanton 2012; Biglaiser and Lee 2019).

This study engages with the theoretical and empirical discussion of previous literature. This study first theorizes how domestic factors of host countries moderate the impact of FDI to a varying degree. The outcome of economic globalization depends on the role of domestic politics and economic conditions (Mosley 2011; Distelhorst et al. 2015). Political institution also alleviates the effects of FDI as regimes opt for different policies in institutionalizing industrial conflicts (Robertson and Teitelbaum 2011). More specifically, Distelhorst et al. (2015) suggests that factories in China are less likely to observe regulation compared with the ones in countries with stronger civil society and regulation. In the similar vein, this paper explores how economic globalization leads to differing consequences across or within countries depending on domestic conditions.

Moreover, this study examines labor law and workers' protests through subnational analysis which controls cross-national differences. National-level data obscures the geographical variation in the enforcement of labor law. Thus, subnational analysis enables a more accurate description of policy implementation (Snyder 2001, 99). Sub-national analysis also rules out the possibility that unobserved differences among countries confound empirical results. The detailed investigation of China will capture the impact of FDI on *de facto* labor standards more accurately.

FDI and labor protests in China

China began to accept foreign capital following the period of major economic reform in the late 1970s. The crux of the reform was "increasing the role of market forces while reducing government planning in the economy and inserting China more fully in the global economy" (Gilley 2019, 125). As the comprehensive reform took hold, the influx of foreign direct investment (FDI) rapidly accelerated, bolstering economic growth. FDI increased competitive pressure, providing a laboratory for the implementation of reforms and enabling the ideological reformulation of socialism (Gallagher 2011, 15). FDI enabled the regime to reform the foreign and private sectors, gradually diminishing the relative size of the state sector while maintaining political control. As FDI skyrocketed, its significance in local economies increased considerably. The economic liberalization "sparked regional competition for inflows of both foreign and domestic capital, which further enhanced the bargaining power of capital" (Gallagher 2011, 26).

This regional competition has put considerable pressure on local governments to make regulatory concessions to foreign investors. Studies have demonstrated that local governments have provided expansive incentives to foreign investors by deregulating policy in realms such as taxation (Liu and Martinez-Vazquez 2014), environment (Zhang and Fu 2008), and minimum wages (Li, Kanbur, and Lin 2019). The downward regulatory race also undercut labor standards in China while enhancing the bargaining power of foreign investors. Migrant workers have increasingly been exposed to informal employment and declining working conditions (Kuruvilla, Lee, and Gallagher 2011, 6). The expansion of labor subcontracting has also posed challenges for workers, including lower wages and fewer social benefits compared to regular employees (Gallagher 2014).

Following the relaxation of labor regulations, worker discontent intensified and led to industrial conflicts. Labor issues were the most frequent cause of large-scale social protests from 2003 to 2010 (Tong and Lei 2013, 58). The growing dissatisfaction among workers aroused the concerns of the Chinese Communist Party (CCP), which proposed the "Labor Contract Law" in 2008 in order to maintain social stability (Wang et al. 2009). The central government intended to ensure that social insurance comprehensively protected the rights and interests of workers based on the labor contract system. The legislation created a space for workers to speak up for their rights in labor disputes (Gallagher and Dong, 2011, 59). Labor protests continued to increase, peaking in 2015 with 2,775 protests across China.²

This paper provides an explanation for labor protests following the enactment of the 2008 Labor Contract Law based on the "fragmented authoritarianism" framework, exploring how the coalition of local bureaucracies and foreign capital induces labor protests in China. The framework characterizes China's policy-making process as a disjointed one in which multiple bureaucratic organizations and private actors pursue their own interests (Lieberthal and Oksenberg 1988; Mertha 2009; Fu 2017b). In the case of the labor regime, the central government's mandate is exposed to the interests of local agencies and private actors. While the central government proposed the labor law, local governments can avoid implementing it in the context of the regional competition to attract foreign investment. Each actor, including the central and local governments, foreign investors, and workers, has different cost–benefit considerations, which provide an explanation for the link between foreign investment and labor protests. By examining each actor's preferences, we can understand how FDI induces labor deregulation and worker protests in China.

First, the key difference between the central and local governments is that the central government protects the regime's legitimacy by enhancing *de jure* labor standards.³ For example, in a series of "Warm Spring Action" (chū nnuă n xíngdòng) policies, the central government proclaimed that all local governments should comply with their policy and establish a labor contract system for migrants.⁴ Improving *de jure* standards can promote governments' legitimacy by providing a clear sign that the political system actively protects people's rights. Previous studies have frequently noted that governments enhance civil rights to protect their legitimacy (e.g. Hafner-Burton and Tsutsui 2005; Cole 2013). Governments can increase their legitimacy by announcing a commitment to improve *de jure* standards even if these standards are not effectively enforced (Peksen and Blanton, 2017). The central government of China has also adopted this strategy by announcing its commitment to the labor law, potentially leading workers to believe that the central government has done its work.

The enactment of the labor law signals the legitimacy of the central government, which can shift blame for labor law violations to local governments and firms. Thus, the possible costs arising from the lack of enforcement are not significant for the central government, which already did its part by introducing the labor law. Instead, local governments and firms can be held accountable for their failure to comply with the central government's mandate. Given these costs and benefits, promising to improve *de jure* labor rights is a strategic choice for the central government, which protects its legitimacy regardless of whether the law will actually be enforced by local governments.

Local governments, on the other hand, diverge from the central government in their consideration of the costs and benefits of enforcing the law. For local governments, implementing the labor law means having to endure both the economic costs of enforcement and the political costs of revising previous practices (Cai 2010, 5). The additional costs cause more burdens for local governments, which diminish the incentives in enforcing the labor law. Moreover, local governments have a greater incentive to attract capital investment to promote regional development (Friedman and Lee 2010). The rate of economic growth has been a significant factor in the CCP's evaluation of local officials (e.g. Li and Zhou 2005; Landry, Lü, and Duan 2018), despite the diversification of the evaluation criteria. For example, sample cadre evaluation from Guangzhou City weighs economic development as 30 while weighing social development as 22 (Wang 2015, 25). The higher weights explicitly suggest that economic development is a more important criterion in evaluations. The incentive structure induces local governments to provide more regulatory concessions to foreign investors.

Undercutting labor standards does not always guarantee greater inflow of FDI, however, because a diverse set of factors including taxes and environmental regulations affect where investment goes. Despite the uncertainty whether FDI can attract more investment, local governments' belief that lowering labor standards draws foreign capital can cause a race to the bottom. As Davies and Vadlamannati (2013) suggests, the sheer belief of political leaders that lowering labor standards draws foreign capital can cause the race to the bottom. These beliefs induce local governments to lower labor standards even though a wide range of factors affect FDI decisions. In

the end, selective enforcement creates regional variation in the implementation of labor laws (Lee 2016, 321).⁶

Furthermore, pressure from foreign investors can expedite deregulatory shifts. Foreign investors impact local governments via various channels, such as by offering information and expertise, lobbying or coercing local officials, and weakening vested interests by providing alternative sources of revenue and employment (Jensen et al. 2012, 116). As foreign investors intervene in the policy-making process, the inflow of FDI can broadly influence local institutions as well as regional economies (Malesky 2008; Long, Yang, and Zhang 2015). Moreover, as China's local governments compete to attract capital, foreign investors have been able to demand more preferential policies in exchange for relocating investment. Foreign investors' exit option strengthens their bargaining power vis-à-vis local governments.

There are many illustrative cases that depict how foreign investors influence domestic regulation within China. For example, during the 2007 elections for the American Chamber of Commerce (AmCham) in Shanghai, multinational corporations influenced Chinese regulations through multiple channels, including discussion with decision-makers, the mobilization of regulatory experts, and collaborative work with other business groups and domestic actors (Jensen et al. 2012, 117). In Guangdong Province, foreign investors similarly pushed for a more favorable business environment, and in 2018, the Department of Commerce of Guangdong Province announced preferential measures for foreign investment. The AmCham continued to push for more preferential policies to further reduce labor costs, especially for low-value manufacturers. These cases elucidate how foreign investors can influence local governments' policies in China.

Moreover, these pressures from foreign investors yield a "spillover effect" that diminishes overall labor standards across industries. For several reasons, local governments apply weakened labor standards to domestic enterprises and various sectors as well as to foreign-owned enterprises and FDI-concentrated industries. First, this protects the price competitiveness of domestic industries. Second, by doing so they avoid triggering a political backlash that would occur if the local governments only allowed foreign investors to benefit from labor deregulation. Third, implementing divergent standards within the same jurisdiction could cause administrative confusion, amplifying the costs of implementing the labor regulation. For these reasons, foreign investment causes diminutions in labor standards across industries in a jurisdiction. ¹⁰

The lax enforcement by local governments exposes workers to labor violations, especially low-skilled workers who lack bargaining power vis-à-vis firms and local governments. Many low-skilled workers are informal workers deprived of legal contracts and basic social benefits (Lee 2016, 320). Their weak bargaining power renders these workers more vulnerable to labor rights violations. Compared with high-skilled workers who have more bargaining power in the workplace, lower-skilled workers strive to achieve their rights by protesting against wage arrears and low payment in labor-intensive industries such as the garment, shoe, and clothing manufacturing sectors (China Labor Bulletin, 2014).

So, how and why do workers react to labor violations through protests? If workers have access to institutionalized routes to voice their grievances, they are less likely to resort to protests (Robertson and Teitelbaum 2011). However, the CCP has been

reluctant to institutionalize labor conflicts, which could empower labor groups and pose a threat to the regime (Gallagher 2014). Workers in China are not allowed to establish independent unions in workplaces. China allows only one state-run union, the All China Federation of Trade Unions (ACFTU), which monopolizes the space for labor representation but plays a limited role in representing workers' interests (Lee 2007; Friedman and Lee 2010; Fu 2017a).

Deprived of institutionalized channels, workers have resorted to protests to resolve their grievances. As Su and He (2010) suggests, "the aggrieved workers are often left with little choice but to turn to the street to protest." Protestors have demanded that local governments enforce the labor law based on the "ready-made rationales" of the central government (O'Brien and Li 2006, 9). Full or even partial implementation of the labor law by local governments and firms could address workers' demands, such as proper wage payment and decent working conditions.

Moreover, since workers' demands are rightfully based on the central government mandate, they can expect that such protests will be less likely to trigger repression by their local governments. If the local governments employ repressive measures in response to these protests, they might appear unable to manage local unrest—which stems from local governments' in compliance with the labor law—in the eyes of the central government. Therefore, if workers focus on the gap between the labor law and its enforcement, the possible benefits of protests exceed the expected costs of repression. This consideration enables workers to participate in protests to resolve their grievances. Based on the argument, I expect an increase in FDI to produce an increase in labor protests.

Data and empirical strategy

The main dependent variable is regional variation in labor protests in China between 2012 and 2018. This paper draws its data from the labor protest dataset compiled by the Hong Kong-based NGO China Labor Bulletin (CLB). The organization has been tracking the collective actions of workers (including strikes and protests) using social media and Chinese newspaper reports. The CLB dataset is a comprehensive dataset on labor protests in China which includes information about the location (province and city), date, industry, number of participants, enterprise type, and government reactions for each protest. CLB updates the dataset on a daily basis and includes its information sources and images of posts, which alleviate possible bias arising from state censorship.

Figure 1 presents the geographical distribution of labor protests in China. Labor protests have arisen most frequently in southeastern coastal areas—the Pearl River Delta Metropolitan Region, which includes Shenzhen, Dongguan, and Guangzhou in Guangdong Province. Following the cities in Guangdong Province, Beijing and Shanghai have the next most frequent incidence of labor protests. Protests have also taken place in inland industrialized cities, including Chengdu, Chongqing, and Zhengzhou. The wide geographical distribution shows that labor protests have occurred in most major cities in China.

Figure 2 presents labor protests in China by ownership of enterprises (left) and by industry (right). Most labor protests have been concentrated in domestic private

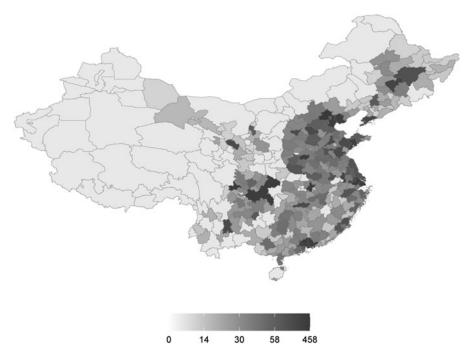


Figure 1: Geographical distribution of labor protests in China, 2012–2018

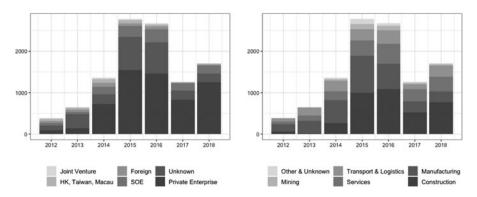


Figure 2: Labor protests by ownership (left) and industry (right)

enterprises, while other protests have occurred in state-owned enterprises (SOE); Hong Kong-, Taiwan-, or Macau-owned (HTM) enterprises; foreign-owned enterprises; and joint ventures in order of frequency. The high proportion of protests in domestic private enterprises reflects China's labor market composition, given that a significant number of Chinese workers work in domestic enterprises. The proportion still suggests a complicated picture with a "spillover" effect from foreign investment that diminishes enforcement of labor regulations overall. As foreign investment

causes the diminution of labor standards city-wide, labor protests take place not only in foreign-owned enterprises but also in domestic enterprises.

The industrial composition of the labor protests depicted in Figure 2 also suggests that labor protests take place both in sectors with less FDI and those sectors with more. A substantial proportion of the labor protests take place in the manufacturing industry, where foreign investment is concentrated. In the period between 2012 and 2018, 28 percent of labor protests took place in the manufacturing industry. Labor protests are not restricted to the manufacturing industry, however. Workers have participated in labor protests across many industries, including construction, services, transport logistics, and mining, in order of frequency. As the theoretical argument suggests, the city-wide diminution of labor standards causes worker protests across diverse industries as presented in Figure 2. The mechanism analysis in Table 2 and Table 3 provides more systematic evidence that FDI causes a spillover effect that weakens labor standards across industries.

The main independent variable is the stock of utilized foreign capital as a percentage of cities' gross regional product (GRP), drawn from the China City Statistical Yearbook. Figure 3 presents the geographical distribution of the average FDI to GRP percentage within China. The coastal cities, including Tianjin and Dalian, have a higher percentage of FDI. Some of the industrialized cities located in the inland area also have a relatively high percentage of FDI. The percentage of FDI to GRP measures foreign investors' bargaining power in each city. Local governments

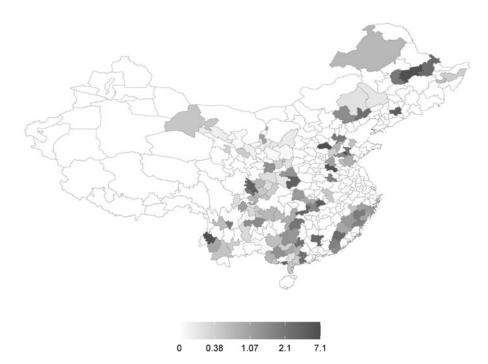


Figure 3: Geographical distribution of average FDI-to-GRP percentage in China, 2011-2017

are more prone to the pressures of foreign investors when foreign capital makes up a larger proportion of the regional economy. I also employed a one-year lagged measure of FDI proportion, as pressure from foreign investors first leads to labor deregulation and then to worker actions.

In the empirical analysis, I include a wide range of covariates based on the data from the China City Statistical Yearbook. First, I consider regional variation in social policy coverage. China has been expanding its social policies following the central government's introduction of the Social Insurance Law in 2011, but local governments have implemented social policies to varying degrees (Huang 2015; Huang and Kim 2020). Some governments provide comprehensive social insurance policies based on residency while other governments restrict social insurance benefits to workers with formal employment (Yang 2020). If local governments provide more comprehensive social compensation, they can moderate the grievances of workers and alleviate labor unrest. The coverage rate of social insurance is measured by the number of participants in pension and unemployment programs as a share of the total population of each city.¹²

I also consider the employment composition of the local economy. Since China engages in multinational production primarily through the manufacturing industry, employment in the manufacturing industry measures the participation rate in the global value chain. More intense price competition in trade and subcontracting is more likely to lead to labor abuses in each city (Mosley 2011, 23). Moreover, since workers in industrialized cities are more likely to organize protests, the employment proportion captures workers' organizational capacity. I additionally control for GRP growth rate to capture the business cycle in each city. Other socio-demographic factors include total population and GRP per capita. The main analysis employs a negative binomial regression model considering the overdispersion of counts (Hilbe 2011, 221). The overdispersion test indicates that the variance in the counts of protests is significantly larger than the mean, thus a negative binomial regression is more appropriate than a Poisson regression. The model also includes city fixed effects and year fixed effects. Including fixed effects controls for city-specific and year-specific factors related to foreign investment and labor protests. The fully specified model is as follows:

Labor Protests_{i,t} =
$$\theta * FDI/GRP_{i,t-1} + X_i, t - 1 + \lambda_i + \gamma_i + \mu_i$$
 (1)

Equation (1) presents a negative binomial regression model for the main analysis where $X_{i,t-1}$ includes controlled covariates indexed for city i and year t-1. λ_i and γ_i captures city-fixed effects and year-fixed effects respectively. μ_i is the error term. The model uses the one-year lagged values of covariates to alleviate concerns about the post-treatment bias.

Results

Table 1 presents the results of the main analysis. Model 1 analyzes the bivariate relationship between FDI proportion and labor protests. Model 2 includes regional variation in the social insurance policy. Model 3 additionally controls for the composition of the economy. Model 4 additionally controls the economic growth and other socio-demographic factors.

Table 1. FDI and labor protests in China's prefecture-level cities, 2012-2018

	(1)	(2)	(3)	(4)
FDI/GRP (lag)	3.005*	2.821*	2.741*	3.534**
	(1.624)	(1.638)	(1.642)	(1.455)
Unemployment Insurance Ratio (lag)		-1.065***	-1.014***	-0.869***
		(0.186)	(0.182)	(0.161)
Pension Ratio (lag)		-0.628***	-0.575***	-0.507**
		(0.230)	(0.217)	(0.217)
Employment (In, lag)			-0.146	-0.102
			(0.095)	(0.096)
Employment in Manufacturing Industry (lag)			3.205*	2.754
			(1.885)	(1.928)
Employment in Other Secondary Industry (lag)			3.432*	2.976
			(1.861)	(1.902)
Employment in Tertiary Industry (lag)			3.261*	2.759
			(1.924)	(1.958)
GRP Growth (lag)				-0.029***
				(0.007)
Population (ln, lag)				-0.990*
				(0.532)
GRP per Capita (ln, lag)				0.114
				(0.080)
City FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	2026	2019	1994	1983
-				

Note: The main analysis employs a negative binomial regression model. Employment in the primary industry is a baseline for the composition of the economy.

The findings in Table 1 show that an increase in the FDI proportion leads to labor protests in China. Model 1 first suggests a bivariate relationship in which a higher FDI proportion causes more labor protests in China. Labor protests are more likely to take place in the year following inflow of FDI. In Models 2 and 3, the impact of the FDI proportion remains significant when social insurance policies and the composition of the local economy are controlled. The effect of the FDI proportion becomes more robust and statistically significant in Model 4 that additionally controls economic growth and socio-demographic variables to the analysis.

^{*}p < 0.10, **p < 0.05, ***p < 0.01

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In understanding the results, the reverse causality is less likely in the main findings of Table 1 which suggest that FDI causes labor protest. ¹³ The reversed arrow of the argument is that labor protests are positively associated with FDI. However, given foreign investors prefer socially stable destinations, labor protests in Chinese cities are more likely to reduce FDI inflows. Therefore, the reversed argument cannot explain the positive relationship between FDI and labor protests support. It is more likely that the positive association supports the argument that FDI causes more labor protests in China.

There are also other notable findings in Table 1. The significant effects of the unemployment insurance ratio and the pension ratio are noteworthy in the first place. Increased coverage of unemployment insurance and pension policies significantly diminishes the incidence of labor protests. As the main analysis controls for GRP growth, which is significantly associated with the number of unemployed, the unemployment insurance rate captures the comprehensiveness of unemployment insurance. An increase in the ratio denotes that a higher proportion of unemployed workers have access to social insurance policies. Regional variation in pension programs yields similar effects, as cities with a higher pension ratio experience fewer labor protests. These results suggest that more comprehensive social insurance programs alleviate workers' grievances, diminishing the incidence of labor protests.

A higher GRP growth rate is significantly correlated with less frequent labor protests. This finding shows that worker discontent during an economic downturn could incite more collective action. The result is contrary to the bargaining power thesis, which suggests that a higher growth rate increases the bargaining power of workers and thus their ability to mobilize collective action. The result supports the opposite picture, that workers are more likely to engage in collective action when they are faced with economic hardship.

Additional tests

I conduct additional tests in this section to make sure that the main results are not driven by model specifications and the endogeneity problem. I first test whether the results remain robust to alternative model specifications. I present empirical evidence employing correlated random effects (CRE) models in Table A3. Moreover, I implement a robust population-averaged negative binomial model to alleviate concerns about serial correlation in Table A4. To address concerns with spatial autocorrelation, I further conduct empirical analysis by controlling labor protests in the same province and employing autocovariate spatial regression in Table A5 and Table A6. The results remain essentially similar and suggest that the main findings are not driven by model specifications.

Moreover, there are concerns with the endogeneity problem because foreign investors can select into locations with weak labor regulation. While addressing the concerns is a challenging task in the absence of the randomized treatments, an instrumental variable approach additionally provides empirical evidence that address the concerns with the endogeneity problem. I employ an instrumental variable using the ratio of foreign marriages to total marriages divided by the shortest distance to one of neighboring economies which include Tokyo, Singapore, Seoul, Taipei,

Hong Kong drawing on Jiang, Liang, and Pan (2022). While Jiang, Liang, and Pan (2022) employ the ratio of foreign marriages over shortest distance to nearest ports, I alternatively use cities' shortest distance to nearby economies from which most inward FDI originates instead of distance to nearest ports. The instrumental variable is specified as follows:

$$Z_{i,t-5} = \frac{Foreign\ Marriage_{j,t-5}}{Shortest\ Distance\ to\ Neighboring\ Economies_i}$$

where $Foreign\ Marriage_{j,t-5}$ measures the time-varying ratio of foreign-related marriages (5-year lag) at the province-level and $Shortest\ Distance\ to\ Neighboring\ Economies_i$ captures the time-invariant city-level distance to neighboring economies. Thus, the instrumental variable measures the time-varying values at the city level which predicts the inflows of FDI in China. I estimate the first-stage regression model as follows:

$$FDI/GRP_{i,t-1} = \theta * Z_{i,t-5} + X_{i,t} - 1 + \lambda_i + \gamma_t + \mu_i$$
(3)

where $Z_{i,t-5}$ is the instrumental variable and $X_{i,t-1}$ includes controlled covariates indexed for city i and year t-1. λ_i and γ_t captures city-fixed effects and year-fixed effects respectively. μ_i is the error term.

The ratio of foreign marriage is positively associated with FDI inflows because marriage provides reliable social networks to investors. Family ties are especially more important when investors face weak institutions (Burkart, Panunzi, and Shleifer 2003; Bunkanwanicha, Fan, and Wiwattanakantang 2013). In the context of China where investors also face institutions strongly intervened by the authority, He, Xue, and Zhu (2017) explain how the ratio of foreign marriages can function as an instrument for FDI. Having local networks through marriages enables investors to acquire information about the regulation and legal requirements. It can alleviate investors' information asymmetry in weak institutions fostering more investment. Family ties also contribute to effective monitoring through more frequent interactions with locals. Moreover, family ties can strengthen mutually beneficial cooperation between investors and locals which can lead to transactions with other local partners. The instrumental variable is lagged by 5 years because building and strengthening social ties is a gradual process over several years.

I also incorporate the shortest distance to neighboring economies as the denominator of the instrumental variable building upon previous studies that employ the spatial instrument for inward FDI in China (Zhu 2017; Zheng, Kahn, and Liu 2010; Jiang, Liang, and Pan 2022). If a city is located closer to one of the neighboring economies, it is more likely to receive foreign investment because it diminishes transaction and transportation costs. I calculate the shortest distance from Chinese cities to one of the neighboring economies instead of considering distances to all neighboring economies. The reason is that FDI from neighboring economies is regionally clustered—for example, foreign investment from Japan and Korea is concentrated in north and northeastern China, while firms from Taiwan and Hong Kong tend to be mainly in southeastern coastal cities (Zhu, 2017). Therefore, the short distance

to one of the neighboring economic centers can effectively predict an inflow of foreign investment.

The instrument variable predicts the FDI/GRP ratio avoiding the weak instrumental variable problem. Table A11 presents the 1st-stage results that the instrumental variable is significantly associated with the FDI/GRP ratio. The Donald-Cragg Wald F statistic test shows that critical values of all models exceed the 10 percent threshold. These results show that the instrumental variable effectively predicts the FDI/GRP ratio.

A valid instrumental variable should also satisfy the exclusion restriction. That is, the instrumental variable should affect labor protests only through the channel of FDI. The instrumental variable of this paper uses the five-year lag and province-level ratio of foreign marriage which are less likely to be associated with protests at the city level. Despite the empirical estimation, there are still two possible concerns about the exclusion restriction. The first potential challenge concerns the possibility that foreign marriages can draw media attention from other countries that can embolden workers to protest. The second potential challenge regards the possibility that foreign marriage can diffuse different norms about politics. I address these concerns as best as possible in the Appendix (see A-10 through A-13).

Table A13 suggests the second-stage results from the two-stage least squares (2SLS) models. The empirical models follow the same logic in Table 1 in deciding the city-level covariates. The findings support the main argument of this paper suggesting that the FDI ratio significantly increases the frequency of labor protests across the models. These results alleviate the endogeneity concerns and provide additional evidence that the influx of FDI leads to more labor protests in China.

Mechanism: FDI and labor deregulation

This section provides empirical evidence for the mechanism of the main argument—the deregulatory effect of FDI. The analysis in Table 1 supports the main argument, that FDI induces more labor protests. However, the analysis does not show that inflow of FDI ratchets down the enforcement of labor regulations. The mechanism analysis in this section examines the impact of FDI on labor regulations to clarify through which channels FDI causes workers' collective action.

Measuring the enforcement of labor regulations requires close investigation of how *de jure* labor regulations are implemented in reality. This study examines the implementation of labor laws using the World Bank Enterprise Survey in China, conducted from December 2011 to February 2013. Regional stratification covers 25 cities and municipalities. A total of 2,700 private enterprises participated in the survey (2,367 domestic firms, 61 foreign-owned enterprises, and 272 jointly owned enterprises). The survey data provide a rich ground from which to evaluate firms' perceptions about the enforcement of regulations. By controlling a wide range of city-level and firm-level variables, the analysis elucidates how labor regulations are enforced in practice across different cities depending on FDI inflow. I estimate the model as follows:

Labor regulation_{i,t} =
$$\alpha + \beta * FDI/GRP_{i,t-1} + \lambda_{i,t-1} + \gamma_{i,t} + \varepsilon$$
 (4)

Labor regulationi,t is the enforcement of labor regulations measured using the question, "To what degree are labor regulations an obstacle to the current operations

of this establishment?" The answers range from "not an obstacle" to "a very severe obstacle." If local governments strongly enforce labor regulations, firms are more likely to perceive those regulations as an obstacle. Thus, a higher proportion of companies answering that labor regulations are an obstacle implies that enforcement of labor regulations is stronger. In particular, as city-level and firm-level factors associated with labor costs are controlled, the perception of labor regulations more closely reflects the actual implementation of the regulations.

FDI/GRP is the stock of utilized foreign capital as a percentage of each city's GRP. $\lambda_{i,t-1}$ denotes city-level control variables. I control for unemployment insurance ratio, pension ratio, total employment, industrial composition, GRP growth, population, and GRP per capita. The city-level variables draw on the data from the China City Statistical Yearbook.

 $\gamma_{i,t}$ denotes firm-level control variables drawn from the World Bank Enterprise Survey, including number of employees, ratio of labor costs to sales, ownership ratio, export ratio, and industry. The firm-level control variables first consider firm size and the ratio of labor costs to total sales. Labor costs include wages, salaries, bonuses, and social security payments. Ownership type reflects the percentage of domestic, foreign, and state ownership. I also include the ratio of indirect exports (sold domestically to third parties for export) and direct exports as a percentage of total sales. Firms engaged in exporting industries are more susceptible to cost competition, which increases their sensitivity to labor costs stemming from the enforcement of labor standards. Industry fixed effects additionally control for industry-specific factors related to firms' perceptions of labor regulations.

Table 2 shows the analysis of the firm-level survey using an OLS regression model with robust standard errors clustered at the city level.¹⁷ Model 1 only includes the city-level control variables drawn from the China City Statistical Yearbook. Model 2 additionally controls for firm-level variables, including the total number of employees, labor costs as a percentage of total sales, company ownership, export ratio, and industry fixed effects. The negative relationship between the FDI/GRP variable and labor regulation remains strong across the models. The findings demonstrate that firms are less likely to perceive labor regulation as an obstacle in cities with a higher proportion of FDI. When firm-level variables associated with labor costs are controlled, firms' perceptions of labor regulations measure how labor regulation is enforced in practice. Thus, the negative coefficient of FDI/GRP implies that inflow of FDI is associated with lax enforcement of labor regulations.

Table 2 also presents how the spillover effect in labor deregulation takes place among firms of different ownership types. Models 3 through 5 test the relationship between FDI and labor regulation by restricting the sample to wholly foreign-owned enterprises, domestic enterprises, and jointly owned enterprises respectively. The negative relationship between FDI/GRP and labor regulation is statistically significant across the models.

The results in Models 3 through 5 are noteworthy in two respects. One is that the magnitude of the FDI effect is stronger among foreign-owned and joint enterprises than among domestic ones. Foreign ownership enables firms to enjoy greater deregulation, since foreign investors bargain with local governments regarding the enforcement of labor regulations. However, domestic firms also benefit from the relaxation of

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Table 2. Spillover effects by industry and export-ratio

VARIABLES	(1) City-level	(2) Firm- & City-level	(3) Foreign-owned	(4) Domestic	(5) Joint
FDI/GRP (lag)	-0.049**	-0.049**	-0.133***	-0.042*	-0.083***
	(0.022)	(0.021)	(0.032)	(0.024)	(0.017)
Firm Employment (ln)		0.011	0.065	0.007	0.001
		(0.012)	(0.082)	(0.013)	(0.021)
Labor Costs/ Total Sales		-0.054	0.853	-0.121	0.497*
		(0.134)	(1.125)	(0.127)	(0.254)
Indirect Exports Ratio		0.001	-0.003	0.001	-0.000
		(0.001)	(0.003)	(0.001)	(0.002)
Exports Ratio		-0.001	-0.001	-0.001	0.001
		(0.001)	(0.002)	(0.001)	(0.002)
Foreign Ownership Ratio		0.001			0.000
		(0.001)			(0.002)
State Ownership Ratio		-0.001			-0.003*
		(0.001)			(0.001)
Constant	4.081	3.648	5.221	3.560	-1.857
	(5.689)	(5.771)	(8.223)	(6.007)	(6.355)
Observations	2,752	2,752	64	2,428	260
R-squared	0.112	0.127	0.774	0.126	0.399
Industry FE	YES	Yes	Yes	Yes	Yes

Note: Robust standard errors clustered at city-level

regulations demanded by foreign investors. As local governments reduce the general level of labor regulation in each jurisdiction, domestic firms also experience weaker labor regulation. The results support the spillover effect of FDI, in which lax enforcement benefits enterprises of every ownership type.

In a similar vein, Table 3 demonstrates how FDI produces a spillover effect in labor deregulation that benefits firms operating in different industries and with different export shares. Models 1 through 3 restrict the sample to manufacturing, labor-intensive industries, and service sectors, respectively. Model 1 shows that

^{*}p < 0.10, ** p < 0.05, *** p < 0.01. Additional results are presented in Table A8

Table 3. Spillover effects by industry and export-ratio

VARIABLES	(1) Manufacturing	(2) Labor-Intensive	(3) Retail	(4) Exporting	(5) Domestic
FDI/GRP (lag)	-0.056** (0.021)	-0.051* (0.025)	-0.048* (0.026)	-0.071*** (0.014)	-0.042* (0.023)
Firm Employment (ln)	0.006	0.009	0.013	0.008	0.006
	(0.014)	(0.022)	(0.060)	(0.015)	(0.012)
Labor Costs/Total Sales	-0.010	-0.107	-0.068	0.152	-0.038
	(0.139)	(0.145)	(0.354)	(0.179)	(0.137)
Indirect Exports Ratio	0.000	-0.000	0.006	-0.000	0.006***
	(0.001)	(0.001)	(0.008)	(0.001)	(0.002)
Exports Ratio	-0.000	-0.002*	-0.001	-0.001*	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Foreign Ownership Ratio	0.001	0.001	0.001	-0.000	0.001
	(0.001)	(0.001)	(0.004)	(0.001)	(0.001)
State Ownership Ratio	-0.003***	-0.005***	0.005*	-0.000	-0.001
	(0.001)	(0.001)	(0.002)	(0.003)	(0.001)
Constant	5.042	4.191	11.462	3.450	4.170
	(5.078)	(5.425)	(10.868)	(3.398)	(6.022)
Observations	1,748	472	163	668	2,472
R-squared	0.152	0.192	0.302	0.182	0.138
Industry FE	Yes	Yes	Yes	Yes	Yes
Firm-level Controls	Yes	Yes	Yes	Yes	Yes

Note: Robust standard errors clustered at city-level $^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Complete results for Table 3 are presented in Table A10

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manufacturing firms are more likely to perceive the relaxation of labor regulation in cities with greater FDI inflow. These results remain robust in Model 2, which restricts the sample to labor-intensive industries including the textile, garment, and electronics industries.¹⁹

These firms are more exposed to foreign investment, and thus tend to make stronger demands for deregulation. However, these policies are not exclusively applied to the manufacturing industry where FDI is concentrated. As Model 3 shows, firms in retail sectors also enjoy weaker enforcement of labor regulations. This result implies that the general regulatory environment with regard to labor laws becomes weaker in cities with greater FDI inflow.

Models 4 and 5 in Table 3 consider whether the export ratio moderates the effect of FDI on labor standards. Model 4 restricts the sample to export firms, excluding those firms with only national sales. Model 5 includes firms with national sales accounting for more than 50 percent of total sales. The effect of FDI on labor deregulation is more robust and significant in Model 4. The result implies that firms that rely on exports are more likely to experience weakened labor standards, as foreign investment is more concentrated in these sectors. The significant effect of FDI in Model 5, however, shows that firms operating primarily in the domestic market also benefit from loosened regulations as local governments relax their average level of enforcement. These results demonstrate that FDI induces a spillover effect that affects firms with different export ratios.

Conclusion

This study theorizes how foreign investors exert influence under the fragmented authoritarian system in China, creating a disparity between labor laws and their implementation. The central government enacts labor laws to protect the legitimacy of the regime, but local governments do not fully enforce the law as they engage in the regional competition to attract foreign investment. Workers, especially migrants and informal workers, are exposed to labor violations including wage arrears and low payment. Lacking institutionalized routes, workers mobilize in protest to address their grievances resulting from the gap between the labor laws and their actual implementation. The empirical results support the main argument, that FDI increases labor protests in China's cities. Using the World Bank Enterprise Survey, I also find empirical evidence for the deregulatory effect of FDI.

These findings deepen our understanding of how economic globalization shapes domestic policies and induces worker protests. In the literature on economic globalization's impact on workers, the interaction between domestic and international factors has been relatively less examined. Addressing this gap, this study examines the case of China, unraveling how domestic factors interact with foreign investment, leading to a fragmented labor regime and worker protests. Close examination of each actor, including the central and local governments, foreign investors, and workers, elucidates the mechanism through which economic globalization impacts domestic policies and worker protests. This approach not only provides micro-level evidence, but also clarifies the mechanism linking foreign investment, domestic regulation, and labor protests.

In addition, the impact of social insurance policies merits more attention in understanding the implications of this study. Unemployment insurance and pensions significantly reduce the incidence of labor protests, as presented in Table 1. Previous studies have provided valuable insight as to how social policies are implemented within China (Huang 2015; Huang and Kim 2020; Yang 2020), but it is less evident how such policies affect political opinion and behavior within China. As the CCP has expanded the scope of China's social security policies, understanding the effects of such policies will shed light on how the party deals with domestic discontent.

This study also has implications relating to China's regime. While industrial conflicts are the quantity of interest in this study, the cause of these conflicts is the bargaining between local governments and foreign investors, illustrating that "labor-capital conflict almost invariably metastasizes into a confrontation between workers and the state" (Gallagher 2014, 83). The regime's response to workers' collective action can affect domestic support for the regime's legitimacy in the future.

In a broader sense, this study shows how economic openness can affect the domestic politics of authoritarian regimes. Some authoritarian regimes have been pursuing economic growth by drawing foreign capital inspired by China's development model. China is also promoting its development model by establishing close ties with developing countries. If authoritarian governments open their economies without institutionalizing protections for workers' rights, domestic backlashes from workers could occur as they have in China. Domestic discontent might also spill over to other issues including taxes, the environment, and land use when there is a race to the bottom among local governments to draw foreign capital. Thus, the case of labor protests in China speaks to the larger body of literature exploring the impact of economic openness on authoritarian regimes.

Supplementary Material. The supplementary material for this article can be found at https://doi.org/10.1017/jea.2022.31.

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Conflicts of Interest. The author declares none.

Notes

- 1. The collective actions of workers encompass various disruption strategies including protests, strikes, and sit-ins. Most of the collective actions by the Chinese workers involve a strategy of protests occasionally combined with the other collective actions. This article will primarily focus on protests, but the term "labor protests" will be used in a broader definition to encompass other collective actions.
- 2. CLB Strikes Map, China Labor Bulletin, https://maps.clb.org.hk/.
- 3. Legitimacy is about the "worthiness of the political system to be recognized," and the central government emphasizes legitimacy more because "the central government is more responsible for the operation of the political system or it largely represents the regime" (Cai 2010, 5).
- 4. Ministry of Human Resources and Social Security of the People's Republic of China, www.mohrss.gov.cn/SYrlzyhshbzb/laodongguanxi_/zcwj/laodongguanxixiediao/202002/t20200210_359087.html
- 5. Economic development also has more clearly measurable criteria that include GDP growth rate and fiscal revenues. Although the evaluation form is limited to the case of one city, it illustrates how economic criteria functions as clear standards in evaluating local officials.

- 6. Local officials should also manage social stability which affects their career promotion (Chen, Pan, and Xu 2016). Labor protests, however, are not necessarily perceived to threaten social stability unless these actions involve many participants or target the CCP. Most labor protests take place in a way that several workers in a factor or firm protest against wage arrears or working conditions. These small-scale and non-political protests do not pose a serious threat to social stability. Moreover, local officials have been expanding social insurance policies—rather than strengthening labor regulations that are perceived to deter foreign investment—to manage some labor protests that do undermine social stability. In this way, local officials attempt to attract foreign investment by relaxing labor regulation while managing social stability through social insurance policies.
- 7. I further discuss the theoretical argument in the Appendix (A-14 to A-15).
- **8.** "Policies and Measures of Guangdong Province on Further Expanding Opening-up and Actively Attracting Foreign Direct Investment (Revised Edition)", http://com.gd.gov.cn//en/Policies/content/post_719147.html.
- **9.** "Investing in Guangdong Easier for Foreign Firms after New Incentives Announced," AmCham Shanghai, www.amcham-shanghai.org/en/article/investing-guangdong-easier-foreign-firms-after-new-incentives-annouced.
- 10. I provide empirical evidence for the spillover effect in Table 2 and Table 3.
- 11. CLB Strikes Map, China Labor Bulletin, https://maps.clb.org.hk.
- 12. The population data in China only captures local residents registered in the city. Thus, if the number of social insurance beneficiaries is far greater than the registered population, it denotes that the city has an employment-based social insurance policy involving many migrants. For example, in major coastal cities, the number of beneficiaries of social insurance programs is far greater than the number of registered residents. This index will measure whether social insurance policies are residency-based or employment-based (Yang 2020).
- 13. I additionally employ an instrumental approach to further address concerns about endogeneity.
- 14. The result remains robust employing an unemployment rate instead of a growth rate.
- 15. See Stock and Yogo (2002) and Sovey and Green (2011) for more detailed discussion of weak instruments.
- 16. The survey enhances its random sampling using three levels of stratification based on industry, establishment size, and region. Industry stratification encompasses 11 manufacturing industries and seven service industries. Size stratification is based on three firm sizes—small (5 to 19 employees), medium (20 to 99 employees), and large (more than 99 employees). For further information, see https://microdata.worldbank.org/index.php/catalog/1559.
- 17. Complete results are presented at Table A9. Additional results are presented at Table A8.
- 18. The complete results are presented in Table A10.
- 19. I classify the electronics industry in China as labor-intensive because enterprises in China's electronics industry usually are in charge of the assembly process in the global value chain, which requires a large input of labor.

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