State-owned Enterprises and Labor Unrest: Evidence from China

Jiaxing You
Xiamen University

Bohui Zhang
The Chinese University of Hong Kong, Shenzhen

Haikun Zhu*
Erasmus University Rotterdam

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Abstract

Using an extensive panel of Chinese firms from the Annual Tax Survey and relying on labor unrest as shock to local social stability, we show that state-owned enterprises (SOEs) react to nearby labor unrest by creating additional employment at the expense of firm performance. Each SOE exposed to unrest hires 3% more employees, which is a sizeable aggregated effect. This effect is larger when labor unrest occurs in the same industry as the exposed SOEs, when local governments have sound fiscal budgets, and when governing mayors have stronger promotion incentives. SOEs obtain more fiscal benefits when they absorb additional labor. In contrast, non-SOEs do not react to labor unrest, and their performance is unaffected. Similar effects are detected when we use the population of Chinese listed firms. This paper provides evidence that SOEs internalize the goal of maintaining social stability and contribute to the growth of the non-state sector.

JEL codes: P16; L20; G18; D22; J23

Keywords: state ownership; social stability; political economy

*: You: School of Management, Xiamen University, jxyou@xmu.edu.cn; Zhang: School of Management and Economics, The Chinese University of Hong Kong (Shenzhen), bohuizhang@cuhk.edu.cn; Zhu (corresponding author): Erasmus School of Economics, Erasmus University Rotterdam, h.zhu@ese.eur.nl. We thank Fabio Braggion, David Schindler, Gérard Roland, Shuai Chen, Haoyu Gao (Discussant), Bo Li, Yiming Qian, Kunru Zou, and participants at the Workshop on "Economic Governance and Legitimacy" and CICF 2022 for their many helpful comments and suggestions.

I. Introduction

The literature on the economic merits of state and non-state ownership provides abundant evidence that state-owned enterprises (SOEs) are less efficient than their privately owned counterparts.[1] The differences in efficiency have been attributed to agency problems caused by politicians' rent-seeking at the expense of minority shareholders (Shleifer and Vishny (1994, 1998); Shleifer (1998)). Successive waves of privatization since the 1980s have led to a marked reduction in state ownership. Yet SOEs continue to be among the largest corporations in the world and account for a substantial share of the economy in many countries.[2] Furthermore, recent years have witnessed a resurgence in state ownership, especially in emerging markets (Hsu, Liang, and Matos (2020); Musacchio and Lazzarini (2014); Musacchio, Lazzarini, and Aguilera (2015)).

How does state ownership compensate for its economic inefficiency for government shareholders? Hart and Zingales (2017) imply that SOEs have embedded incentives to address governments' non-economic goals and that governments are willing to trade short-term profits to achieve these goals. Their model shows that, given the presence of shareholders who care about social issues, the function of firms is to maximize shareholder welfare by internalizing non-economic goals rather than just wealth.

In this paper, we focus on state owners' political goal of maintaining social stability. In general, governments care about stability because of its vital importance in safeguarding economic growth and strengthening political institutions (Alesina and Perotti (1996); Blattman and Miguel (2010); Brodeur (2018)). Governments can assign SOEs with the dual tasks of ensuring economic production as well as providing for social stability (Bai et al. (2000); Bai, Lu, and Tao (2006)).

[1] See, for example, Megginson, Nash, and Randenborgh (1994); Shleifer and Vishny (1998); Shleifer (1998); La Porta and Lopez-de-Silanes (1999); Dewenter and Malatesta (2001); Khwaja and Mian (2005); and Lin, Liu, Ni, and Zhang (2019).

[2] In Organization for Economic Co-operation and Development (OECD) countries, SOEs employ more than 6 million workers and have a combined value of close to $2 trillion (Alok and Ayyagari (2020); Christiansen (2011)).

Managers of SOEs receive a weaker profit incentive such that they can take actions to promote social stability. Promoting stability contributes to preserving a desirable environment for the non-state sector, from which growth typically comes (e.g., Megginson, Nash, and van Randenborgh (1994); Shleifer and Vishny (1998); Shleifer (1998); La Porta and Lopez-de-Silanes (1999); Dewenter and Malatesta (2001)). In this case, state owners' motivation to use SOEs to generate stability as a public good differs from the documented political cycles in government-influenced firms, in which firms increase employment and investment to support incumbent governments around elections in exchange for benefits (e.g., Faccio and Hsu (2017); Alok and Ayyagari (2020); Li, Lin, and Xu (2020)).

To maintain stability, governments closely monitor unemployment because it is a key predictor of instability in the form of crime and political turbulence (Farrington et al. (1986); Clarke and Dutt (1991); Ransome (1995); Raphael and Winter-Ebmer (2001); Burdett, Lagos, and Wright (2003); Öster and Agell (2007); Fougère, Kramarz, and Pouget (2009); Azeng and Yogo (2013)). Although SOEs tend to hoard more employees in equilibrium and avoid laying off workers (Bai, Lu, and Tao (2006); Chen, Jiang, Ljungqvist, Lu, and Zhou (2017)), little is known about how they dynamically respond to threats to stability such as labor unrest from the non-state sector and subsequently alter their employment decisions. In fact, it is ex ante not clear whether the conjecture on SOEs' social function is true, as governments have ample tools other than SOEs to use to intervene and maintain social order.[3] Taking China as a testing ground, we provide direct

[3] Authorities can accommodate and/or repress unrest. Major forms of state accommodation include democratization (e.g., Acemoglu and Robinson (2000a)), which enables citizens to express their needs within the political system, and the provision of direct benefits, which can range from selective incentives, wages, bribes, or fiscal redistribution to welfare systems (Davenport (2007b)). In terms of state repression, the most cited channels include political and economic sanctions, harassment, surveillance/spying, arrest, torture, and mass killing in the extreme (Davenport (2007a)). In addition, legal procedures used to resolve conflicts and disputes are primarily negotiation, mediation, arbitration, and litigation. Compared to the channels listed here, the government's use of SOEs to address social unrest is an indirect one. However, as Davenport (2007a) mentions, the government's use of alternative channels to address conflicts is not examined extensively, and it is important to investigate this because alternative channels could help maintain political order.

evidence that Chinese SOEs react to labor unrest in the proximity by increasing hiring and gauge the effects. SOEs' intervention may be economically costly, but it insulates non-state sectors from the adverse spillover effects of social instability. It is important to note that we do not claim that SOEs absorb all the workers laid off by nearby non-SOEs; rather, we emphasize their taking care of the most underprivileged group as a means of resolving a threat to the social order. Our study reveals an important form of interaction between SOEs and non-SOEs and helps explain the allocation of resources when governments balance growth and stability. It further points to a new channel through which state capital generates a sociopolitical impact.

However, documenting this role of SOEs is empirically challenging. First, omitted variables can be important. It is difficult to isolate the motivations behind SOEs' employment decisions from unobserved changing economic conditions and pin them down to stability concerns. Exogenous variation in regional social unrest is therefore needed. Second, in many economies, a significant share of labor is retained in small- and medium-size enterprises and non-listed firms.[4] To provide a relatively complete picture, we need an extensive sample of firms in the entire economy.[5]

We try to overcome these challenges in the Chinese setting. To address the endogeneity concerns of omitted variables, we use labor unrest caused by layoffs in the non-state sector as shock that raises SOEs' concerns about social stability. We obtain data on episodes of labor unrest in all 31 mainland provinces of China between 2011 and 2019 reported by the China Labour Bulletin (CLB). We are able to observe detailed characteristics of these unrest episodes, such as

[4] For example, after surveying firms in more than 100 economies, Ayyagari, Demirgüç-Kunt, and Maksimovic (2011) show that small- and medium-size firms (<99 employees) employ half of all employees. In developing countries, small firms are responsible for the largest share of job creation. In the United States, listed firms hire one third of employees in non-farm sectors (Davis, Haltiwanger, Jarmin, and Miranda (2007)). In China, employees in listed firms accounted for 9% of all employees between 2011 and 2016 (data source: China Stock Market & Accounting Research).

[5] Another empirical issue could be that causality can run both ways: SOEs' pro-stability policies may invite labor unrest because of the benefits expected by the labor side. However, this potential reverse causality does not prevent us from documenting that SOEs react to labor unrest regardless of the reason.

their locations (coordinates), causes, industries, and so on. Although some of these unrest episodes might be expected, their exact timing and location are difficult to anticipate, and it is this variation that we use for identification. Next, we obtain comprehensive data on both non-listed and listed firms in China. We rely on the Annual Tax Survey (ATS), administered by the Ministry of Finance and the State Administration of Taxation of China since 2004. The survey covers more than 550,000 firms, predominantly non-listed, during our sample period. We have detailed data on firms' financial reporting, locations, and labor conditions. Throughout the study, we use firms in the ATS dataset as the main empirical input for their relevance to the labor market. We retrieve similar data on the population of Chinese listed firms from the China Stock Market & Accounting Research (CSMAR) database for robustness tests.[6]

Our tests exploit the cross-sectional variation in SOEs' exposure to labor unrest in the proximity to identify the effect of increased concerns about social unrest on employment policies. In particular, we calculate the distance between firms and unrest episodes by comparing their coordinates. We are therefore able to pinpoint a set of highly exposed SOEs. We first define proximity as a radius of the 25th percentile value (11 km) in the sample distribution of distance between firms and episodes of labor unrest. We alternatively define it following administrative standard as the city district area. The exposure measures allow us to control for granular interaction fixed effects that absorb unobserved local and industry-specific time-varying factors that affect both firm policies and unrest events. In addition, the detailed information on unrest episodes helps us single out cases due to layoffs in the non-state sector to reveal the priority of SOEs and the interdependence between the state and non-state sectors.

Our baseline results reveal several findings. First, nearby labor unrest does not lead to significant changes in labor decisions in non-SOEs. Second, on the contrary, SOEs react to the labor unrest by increasing the level and growth of employees while maintaining the wage per employee at the same level. Results in the preferred specification show that, compared to non-

[6] We describe the data sources in detail in Section III.A.

SOEs exposed to the same unrest, SOEs in close proximity to the unrest increase their number of employees by 3% more and their employee growth by 1.5% more in the year the labor unrest occurs. The magnitude of our estimates is sizeable in the aggregate: The increase translates to seven extra employees in a single SOE in the year of exposure. With on average 2,825 SOEs reacting to labor unrest each year, the state sector in our sample generates 20,000 extra employees per year. These findings are consistent with the notion that SOEs, as providers of social stability, react to layoff unrest by increasing employment. Meanwhile, non-SOEs do not have any incentives to internalize concerns about social stability, and their performance is unaffected by potential adverse spillover effects of the unrest. Further tests show that by producing social stability as a public good, SOEs demonstrate lower economic efficiency compared to non-SOEs: SOEs have a lower investment ratio and output added value. The government seems to support SOEs by increasing their tax remittance.

Several additional findings corroborate our results. First, coefficient plots over time show no pre-trend in SOEs' labor policies before episodes of labor unrest take place. Second, because of higher labor substitutability, SOEs hire significantly more employees when the nearby layoff unrest originates in the same industry. Third, SOEs in cities governed by younger mayors show stronger effects due to higher political career incentives. Fourth, the effects are attenuated when cities have a high fiscal deficit (i.e., a lack of financial support). Fifth, the effects are stronger when local cities have weaker growth in the non-state economy and when the unrest appears to be more severe. Sixth, we find that SOEs do not react to unrest due to anything other than layoffs or wage disputes and that SOEs do not respond to unrest in other SOEs. Seventh, we find similar results when we take the entire set of listed firms as our sample and relate their employment decisions to exposure to labor unrest in cities they operate in. It is interesting that we find that listed firms speed up the recruitment of less educated and unskilled employees. Finally, further tests show that the occurrence of unrest episodes does not correlate with pre-existing macroeconomic conditions in

the city, and throughout our empirical analysis we control for industry-year and city (district)-year pair fixed effects to absorb unobserved industrial, local economic, and political trends.

Our paper makes several contributions to the field. First, a large body of literature has compared and tried to explain the difference in economic performance between SOEs and non-SOEs. On the one hand, the literature shows that SOEs underperform compared to non-SOEs, which researchers attribute to agency problems due to politicians' rent-seeking at the expense of minority shareholders (e.g., Megginson, Nash, and Randenborgh (1994); Shleifer and Vishny (1998); Shleifer (1998); La Porta and Lopez-de-Silanes (1999); Dewenter and Malatesta (2001); Khwaja and Mian (2005); and Lin, Liu, Ni, and Zhang (2019)). On the other hand, emerging literature documents the bright side of state ownership and improved performance in SOEs under certain conditions (Gupta (2005); Pargendler, Musacchio, and Lazzarini (2013); Borisova, Fotak, Holland, and Megginson (2015); Boubakri and Saffar (2019); Cong, Gao, Ponticelli, and Yang (2019)). However, when discussing the cause of their relative performance, the literature is largely mute on the potential interdependence between SOEs and non-SOEs. We point out that SOEs react to disruptive layoffs in non-SOEs. Their actions are driven by the government owners' concerns about social stability. This allows non-SOEs to operate smoothly and potentially explains the relative underperformance of SOEs and their continuing relevance.

Second, this paper contributes to recent discussion (Bénabou and Tirole (2010); Tirole (2001); Kitzmueller and Shimshack (2012); Magill, Quinzii, and Rochet (2015); Hart and Zingales (2017)) on whether firms aim to maximize shareholder or stakeholder value. Empirical literature documents the roles of state ownership in firms' pursuit of noneconomic goals (e.g., Deng, Kang, and Low (2013); Gu, Tang, and Wu (2016); Chen et al. (2017); Hsu, Liang, and Matos (2020)). Our findings add to the literature by identifying a specific goal of SOEs, which is to address labor unrest when the formal system lacks the capacity to do so. Although state owners care about unrest in general, we show that SOEs only react to a subset of unrest that could substantially disrupt social cohesion and economic growth.

Third, our study helps explain a different mechanism through which state capitalism functions to support government goals. In regions with election-based politics, political cycles exist in the investment and hiring decisions of both SOEs and politically connected firms (e.g., Bertrand et al. (2018); Alok and Ayyagari (2020); Faccio and Hsu (2017); Li, Lin, and Xu (2020)). These firms increase investments and hire more employees during elections to benefit voters and give political advantages to incumbent politicians for potential benefits. We show that, in contrast, in authoritarian regions, SOEs as sociopolitical tools cater to the populace and react to labor unrest by absorbing its adverse spillover effects on the economy. We quantify the scope of this reaction and explore heterogeneous effects differentiating the nature of episodes of labor unrest, politicians' incentives, and firms' listing status.

The remainder of this paper proceeds as follows. Section II describes the institutional setting. Section III introduces the data and methodology. Section IV presents and interprets the results. Section V addresses robustness tests. Section VI concludes the paper.

II. Institutional background

A. Unemployment and social stability

For the past 40 years, China has been the world's largest transitional economy. It has achieved average growth of more than 9% annually and improved the standard of living for its citizens (Qian (2020)). However, this achievement has come at a price. Economic transition typically calls for improvements in production efficiency and industry upgrades. Inefficient SOEs went through a period of privatization in the mid-1990s that lasted until the mid-2000s. Excessive employees hoarded in SOEs were laid off during this period. Until 2005, the unemployment rate grew substantially (Giles, Park, and Zhang (2005); Shi and Sato (2006); Feng, Hu, and Moffitt (2017)). In both the state and non-state sectors, rapidly changing industries require new skills in human capital and it prevents the labor market from clearing during the transition. The impacts of these

changes fell most heavily on unskilled and less educated individuals (Feng, Hu, and Moffitt (2017)). Consequently, inequality has increased (Piketty, Yang, and Zucman (2019)).

Although layoffs in the state sectors in the 1990s created social issues during the waves of privatization, in the post-restructuring era (post-2005) labor unrest originating from the non-state sector has soared.[7] In our sample period of 2011 to 2018, almost 90% of labor unrest recorded by the CLB occurred in the non-state sector. The increasing unrest is costly for the government and the economy. According to data on city expenditures, spending on domestic security reached RMB 400 billion (roughly USD 62 billion) in 2007 and increased to RMB 700 billion in 2010 and almost RMB 1 trillion in 2016.[8]

Unemployment correlates strongly with social unrest. As the unemployment rate increased from 3.7% between 1988 and 1995 to 9.5% between 2002 and 2009, the number of protests increased from 8,700 in 1993 to 60,000 in 2003 and more than 120,000 by 2008 (Tanner (2014)).[9] As one manifestation of social instability, the occurrence of labor unrest has followed a similar trend. As shown in Figure 1, the CLB reports 184 episodes of labor unrest in 2011, with the number growing to 1,705 in 2018 and peaking at 2,700 in both 2015 and 2016.

An independent social security system could take care of the unemployed and absorb adverse spillover effects. However, building such a formal institution is a formidable challenge faced by all transition economies (Xu (2011)). The Chinese government emphasized the importance of a well-functioning social security system and drafted a plan for building one in the Eighth Five-Year Plan back in 1990. However, it has proven to be a long process.[10] For example, Vodopivec and

[7] "A Decade of Change: The Workers' Movement in China 2000-2010," March 2012, CLB.

[8] Data source: National Bureau of Statistics of China.

[9] The unemployment rate is estimated by Feng, Hu, and Moffitt (2017). Official data on unemployment in China show a 2% to 4% unemployment rate for the same period. The official data are based on registered unemployment and are thus widely regarded in the literature as an underestimation (e.g., Rawski (2001)).

[10] According to Bai, Li, Tao, and Wang (2000), "Toward the end of the decade, an AWSJ article commented that 'Beijing has yet to roll out a nationwide pension system, leaving many workers laid off without adequate medical and housing benefits' (AWSJ, Aug. 6, 1998, p. 5).… In a front-page editorial, the People's Daily said, 'The speedy

Tong (2008) point out that the benefits of China's unemployment insurance remain low. In many areas of the country, enforcement of collecting contributions and determining benefits eligibility has been weak. The vast majority of hidden workers in informal sectors and rural areas are excluded from the system. More recent studies confirm that issues such as high contributions, low protection, and poor coverage still exist (Wu and Zhang (2012); Zheng (2016)).

The Chinese government fully realizes the importance of social stability in the pursuit of economic development. The concept of the harmonious society was introduced in 2004 by the 16th Central Committee of the Communist Party of China, and the office of the central leading group for maintaining stability (中央维护稳定工作领导小组办公室) was established 1 year later. Since then, maintaining stability has become a central goal of the Chinese government (Geis, John, and Holt (2009)). The emergence of the concept of the harmonious society suggests an accommodating attitude toward handling social unrest. Building a harmonious society entails resolving social conflicts and nipping them in the bud. Vulnerable groups should be supported and guaranteed that they will benefit from social and economic development.[11]

B. The role of SOEs

Chinese SOEs have long operated as providers of social welfare and shock absorbers in the economy.[12] The central government's preference for stability ultimately translates into an agenda for SOEs through local politicians' incentives and the ownership nature of SOEs. On the one hand, local politicians are directed to focus on economic growth and reform in a tournament-like regional competition (Xu (2011)). An important task of local governments is to create a supportive

liquidation of state enterprises has generated more layoffs than the government re-employment programs can handle.… In some areas, this has led to serious social problems' (AWSJ, Aug. 6, 1998, p. 5)."

[11] J. Wang, "Build a harmonious society: Keep resolving social conflicts" (构建和谐社会：不断化解社会矛盾的过程), *People*, October 12, 2006; S. Feng, "Building a harmonious society requires solving problems among vulnerable groups" (构建和谐社会必须解决弱势群体问题), *People*, July 21, 2005.

[12] Y. Zheng, "Shocks and absorbers," *The Economist*, January 16, 2016. Also, in December 2019, the State Council issued "Opinions on further improving employment stability."

environment in which the non-state sector can grow (Bai, Song, and Hsieh (2019)). On the other hand, local governments are tasked with maintaining social order. Given the insufficient capacity of the formal social security system, local politicians must use alternative policy tools to do this. SOEs have become the natural candidates, given their traditional roles as welfare providers. Moreover, by virtue of their ownership structure, managers of SOEs are often appointed by the state. The state controlling shareholder can set incentives and monitor managers of SOEs (Jiang and Kim (2020)). Besides pay, managers of SOEs can be incentivized with political rewards when they meet state objectives (Ke, Rui, and Yu (2012); Cao, Lemmon, Pan, Qian, and Tian (2019)). In sum, Chinese SOEs function under the incentive of producing social stability as a public good, and non-SOEs do not.

III. Data and methodology

A. Data

We base our analysis on three sets of data. First, we obtain a record of labor unrest episodes in China between 2011 and 2019 collected manually by the CLB.[13] The CLB survey covers all 31 provinces of mainland China and contains detailed information on labor unrest. We are able to observe basic characteristics of each episode, such its cause, its timing, the number of protestors, protestors' action, and the firms involved (including their names, when available; their industries; and whether they are owned by the state).[14] In addition, the survey also reports the geographic coordinates of locations where unrest episodes breakout.

[13] The CLB (https://clb.org.hk/zh-hans) was founded in 1994 in Hong Kong. This nongovernmental organization supports and actively engages workers' rights in the People's Republic of China. It collects data on labor unrest through (1) onsite investigation by journalists, (2) tracking of news both in traditional media (e.g., newspapers and journals) as well as on social media (e.g., online forums, Sina Weibo, Tencent WeChat), and (3) reports from informed citizens.

[14] The causes of labor unrest are grouped into five categories: layoffs, overtime labor, plant relocation/closure, compensation disputes, and other. Actions taken by protestors are classified into six categories: strikes, sit-ins, marches, blocking of public transportation, suicidal threats, and other. For a small subset of unrest episodes, we further observe the responses of relevant governmental entities and the outcomes of cases.

It is important to point out that the CLB does not have a complete record of labor incidents, and its definition of labor unrest may differ from others'. To verify the reliability of the data, Campante, Chor, and Li (2022) provide supporting evidence showing that the CLB episodes follow a similar trend to those recorded in the China Labor Statistical Yearbooks compiled by the Ministry of Human Resources and Social Security.[15] In addition, we relate the occurrence of CLB labor unrest to the Weibo Social Moods index constructed by Chen et al. (2015). Using textual analysis based on daily Weibo posts, the Weibo Social Moods index quantifies social sentiment. If labor unrest is material, it should adversely affect local sentiment. In Figure 2, we show that in aggregate the change in monthly labor incidents correlates negatively (positively) with the change in the happiness (sadness) index 61% (70%) of the time.[16] Although the correlations claim no causality, they indicate that the trend in CLB unrest aligns reasonably well with social sentiment.

Second, we use a dataset of firm information retrieved from the ATS, an annual survey administered by the Ministry of Finance and the State Administration of Taxation of China since 2004. Each year, firms under coverage of the survey are required to report a large amount of information about financial statements, employment, ownership status, and tax positions.[17] The

[15] Unrest episodes recorded in the China Labor Statistical Yearbooks are aggregated at the country and year level without details. We therefore do not use them for our analysis.

[16] Weibo is a Chinese social media platform similar to Twitter. To construct the Weibo Social Moods index, Chen et al. (2015) scrape a random number of posts daily. In total, the data set contains around 1 billion posts from August 2009 to November 2014. Each post can be traced to the city from which it originated by tracking the user's IP address. The content of the posts is then compared to keywords indicating six emotions: happiness, anger, sadness, disgust, fear, and surprise. Each emotion has a list of keywords identified by the authors. When a post matches one of the keywords, it scores 1 point for the corresponding emotion. We scale the daily scores by the number of scraped posts for the corresponding day. The scaled indices are aggregated to the month level by taking the average. We choose to report the results for labor unrest and happiness and sadness to avoid ambiguous predictions. In 50%, 41%, 52%, and 46% out of the 46 monthly periods, the change in the number of labor incidents moves in the same direction as the change in the anger, disgust, fear, and surprise indices. For 85% of the whole period, it moves in the same direction as at least one of the negative emotions.

[17] The annual survey is conducted by local tax departments, usually starting around June and lasting for 3 months. The tax departments ensure the quality of the survey data in three ways: (1) before the survey, the tax departments provide targeted training and guidance to tax investigators and accountants so they can master the content to be filled in on

survey also discloses the addresses of firms such that we can obtain the coordinates of their locations to the street level. It is important to note that, the survey covers a large sample of both listed and non-listed firms in China, which provides a comprehensive view of the impact of labor unrest. To match the time horizon of the CLB labor unrest survey, we include in our analysis surveys from 2011 to 2016, the last year for which ATS data are available. In total, the sample covers more than 1.75 million firm-year observations involving 569,954 unique firms. Of these firms, 56,750 are SOEs. We refer to this sample hereafter as "the ATS sample."

Third, we conduct our analysis using the entire sample of Chinese listed firms. The data is from the CSMAR database, which provides comprehensive information on stock prices, financial statements, corporate governance, and ownership structure. Similar to the ATS data, the CSMAR data include the locations of listed firms and their subsidiaries. The sample period for listed firms is from 2011 to 2018, and more than 20,000 firm-year observations are included. We refer to this sample hereafter as "the CSMAR sample."

Our key explanatory variable is the firm's exposure to nearby labor unrest. Following our conjecture, we focus only on labor unrest due to layoffs in non-SOEs to identify SOEs' reaction to increasing concerns about social stability originating from the non-state sector. For firms in the ATS sample, we construct two different measures of exposure. First, we link each firm to each unrest episode in the same city and calculate the distance between them using combinations of their location coordinates. The distribution of distance is reported in Panel D of Table 1. The

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the questionnaire and reduce human errors; (2) in the process of filling out the questionnaire, the survey system automatically checks numbers according to multiple relationships among indicators; and (3) after taxpayers submit the questionnaire, tax investigators at municipal, district, and other levels perform multistage manual auditing to check and complete missing information and ensure the quality of data collection. Giannetti et al. (2020) point out that compared to the China Industrial Enterprises Database of the National Bureau of Statistics, the Tax Survey Database has higher quality data collection (because of stricter data auditing) and more extensive data collection (because the China Industrial Enterprises Database limits samples to industrial firms whose sales are at least 5 million yuan, whereas the Annual Tax Survey Database does not have such a limit). The data set is also used in Chen, Liu, Suárez Serrato, and Xu (2021).

average distance between a firm and an unrest episode is 46 km, with substantial variation: The minimum is 1.4 km, and the 25th percentile is 11 km. We define a firm as exposed to the impact of labor unrest if any unrest episode due to layoffs in non-SOEs occurs within a radius of the 25th percentile distance (11 km).[18] The physical distance captures the extent to which the firm is affected by an unrest episode.[19] A closer distance indicates greater exposure. Second, we alternatively generate a measure based on administrative jurisdiction and define a firm as treated if any unrest occurs in the city district where the firm is located. In China, the territoriality principle is fundamental in guiding the distribution and implementation of administrative power: Issues in a jurisdiction are managed and resolved by the authority of that jurisdiction. The local authority is therefore the first responder when labor incidents occur, and those who have been laid off are likely to be placed in other firms in the same jurisdiction. For firms in the CSMAR sample, we adapt this measure and define a firm as treated if the firm and its subsidiaries are exposed to unrest episodes above the median in the cities where they are located. Listed firms are large and operate in multiple locations through subsidiaries.[20] This measure aims to capture the overall exposure of a listed firm to labor unrest. Our main dependent variables are three firm-level labor policies: number of employees, employment growth, and wage per employee.

Table 1 reports summary statistics for the episodes of labor unrest in the CLB survey. As shown in Column (1) of Panel A, there are a total of 12,082 episodes in China between 2011 and 2019. The number increases over time and peaks in 2015 with 2,774 cases. The majority of the unrest, amounting to 10,668 incidents (Column (3)) and accounting for 88.3% of the total, originates from non-SOEs. Of the events, 1,275 (Column (5)) are due to layoffs. The number

[18] The coordinate-based calculation yields 1.5% of observations with a distance of more than 400 km. In these cases, it is unlikely that the unrest episodes and the firms are in the same city. We treat these data points as noisy observations, and they do not affect our definitions of proximity.

[19] The rationale behind distance-based exposure is consistent with previous studies using similar measures. For instance, Akresh, Caruso, and Thirumurthy (2014) examine the impact of conflict on health consequences using information on household distance from conflict sites.

[20] In our sample, at least 80% of the Chinese listed firms have at least one subsidiary.

increases over time and peaks in 2016 with 363 episodes. We also report statistics for unrest episodes at the city district level (Panel B) and city level (Panel C). On average, each city district experiences 0.78 unrest episodes per year, and each city experiences 4.1 cases. When we focus on unrest episodes due to layoffs in non-SOEs, the number drops to 0.08 at the city district level and 0.4 at the city level. Panel D reports the distribution of distance, measured in kilometers, between each firm in the ATS sample and each episode of labor unrest. We further provide the distribution of industries involved in each case of labor unrest by year. Panel A of Figure 1 shows that the manufacturing (gray) and construction (gold) industries experience the most labor incidents out of all the industries. However, the manufacturing industry dominates when we focus only on unrest triggered by layoffs in the non-state sector in Panel B of Figure 1.[21] Figure B.1 in the appendix illustrates the distribution of the unrest episodes across China. The labor incidents spread out geographically, though the density of events is higher in manufacturing hubs.

In Table 2, we report summary statistics for relevant variables at the firm level (Panels A and B) and city level (Panel C). Panel A shows summary statistics for firms in the ATS sample between 2011 and 2016. Around 11% of our firm-year observations are associated with state ownership. The average firm has 235 employees and pays an annual wage of RMB 55,000 per employee. It experiences 0.54 (0.28) unrest episodes due to layoffs in the non-state sector within a radius of 11 km (the city district). Panel B shows summary statistics for listed firms in the CSMAR dataset between 2011 and 2018. We find that 36% of firm-year observations are associated with state ownership. The average firm in this sample is larger, with firm assets of RMB 18 billion compared to RMB 640 million in the ATS sample. The average firm in the CSMAR sample also has more employees (5,171 vs. 235) and pays a higher average wage per employee. Summary statistics for macroeconomic conditions at the city-year level are reported in Panel C, including city GDP, city

[21] Industry classifications are defined internally by the CLB survey and include eight different industries: (1) communications, (2) manufacturing, (3) construction, (4) education, (5) service, (6) mining, (7) retail, and (8) other.

population, aggregate city wage, GDP per capita, and wage per capita. The data is also obtained from CSMAR and is available until 2016.

B. Empirical methodology

We exploit the cross-sectional variation in SOEs' exposure to labor unrest in the proximity to identify the effect of increased concerns about social unrest on employment policies. We use the following regression to estimate the effects:

$$Employment_{ft} = \alpha + \beta_1 Unrest_{ft} + \beta_2 SOE_{ft} + \delta\left(Unrest_{ft} \times SOE_{ft}\right) + \mu' x_{ft} + \varepsilon_{ft}, \quad (1)$$

where each observation corresponds to firm f in year t. $Employment_{ft}$ represents different firm labor policies: the log-number of employees, the change in the log-number of employees, and the log-wage per employee. $Unrest_{ft}$ is the measure of firm exposure to unrest. It equals 1 if the firm experiences any labor unrest due to layoffs in non-SOEs within a certain proximity and 0 otherwise. SOE_{ft} is an indicator variable that equals 1 if the firm is state owned and 0 otherwise. The key feature of this regression model is that it includes the interaction term $Unrest_{ft} \times SOE_{ft}$ to capture the difference in the effects of labor unrest between SOEs and non-SOEs. The vector of control variables x includes firm assets, return on assets, and leverage ratio. We also include firm fixed effects, year fixed effects, and industry-year and city (district)-year pair fixed effects to capture time-invariant firm characteristics and unobserved industrial, local and political trends that can affect both firm employment policies and breakouts of labor unrest. Standard errors are all clustered at the city district level. While the occurrence of labor unrest is hardly random, we argue that the rigorous sets of interaction fixed effects help alleviate this issue, and we provide supporting evidence for this in Table B.1. Overall, our empirical strategy resembles that in Bertrand and Mullainathan (2003) in that it allows multiple events. Firms are treated by unrest episodes at different points in time, and untreated firms at the particular time act as the control group. Our coefficient of interest δ essentially captures different reactions to labor unrest treatment between SOEs and non-SOEs in the same location and year.

The recent econometrics literature raises the concern of potential biases in multiple-period difference-in-differences (DiD) estimates (e.g., Sun and Abraham (2020); Callaway and Sant'Anna (2021); Baker, Larcker, and Wang (2022)). We discuss this methodological concern and report the results of corresponding robustness tests in Section V.C.

Throughout the study, we use the ATS sample as the main testing ground to take advantage of its wide coverage of firms as well as its more precise measures of firm exposure to labor unrest. We use the CSMAR sample for additional analyses reported in Section V.D.

IV. Results

A. Baseline estimates

We start by estimating equation (1) using our ATS sample. The results are reported in Table 3. The dependent variable $Employment_{ft}$ is the log-number of employees in Panel A, the change in the log-number of employees in Panel B, and the log-wage per employee in Panel C. In Columns (1)–(3), we use the distance-based measure of firms' exposure to $Unrest_{ft}$. In Columns (4)–(6), we use the city district–based measure. Throughout all specifications, the coefficients of the interaction term $Unrest_{ft} \times SOE_{ft}$ are positive and significant in Panels A and B but insignificant in Panel C. This set of outcomes suggests that when exposed to labor unrest, SOEs increase both the number and growth rate of employees more than non-SOEs do under the same condition but keep the wage per employee unchanged. This is consistent with our conjecture that SOEs incorporate concerns about social stability into their operational objectives and try to resolve labor unrest in the non-state sector by boosting hiring. The economic magnitude of our estimates is not trivial. Take the coefficient in Column (1) of Panel A as an example: The number of employees grows 3% more relative to in non-SOEs in the year when layoff unrest occurs nearby. The coefficient translates into seven extra employees per SOE. Given that on average 2,825 SOEs are

exposed to labor unrest each year, about 20,000 (2,825 × 7) more positions are created annually in the state-owned economy in aggregate.[22]

It is important to notice that the coefficients of $Unrest_{ft}$ alone remain statistically insignificant and small in size through all specifications. This indicates that non-SOEs do not react significantly to nearby labor unrest, and our effects are driven solely by SOEs.[23] This finding is economically sensible in two respects. First, non-SOEs prioritize economic goals and do not have a strong incentive to incorporate social objectives. Second, knowing that SOEs maintain stability, non-SOEs do not need to pursue this social agenda. This confirms the notion that SOEs have the goal of creating a stable business environment for non-SOEs.

Our tests include industry-year, city-year, or city district–year pair fixed effects to control for time-varying confounding trends at the industry, city, or city district levels. Our results are therefore less likely to be driven by unobserved local economic or political factors.[24]

Overall, the baseline results support our conjecture that Chinese SOEs react to unrest due to layoffs in the local non-state sector by increasing hiring.

B. Cross-sectional variation

In this section, we further explore the cross-sectional impact of unrest on SOEs. First, we study how the overlap between SOEs' industry and the industry in which the unrest originates alters the effects. It is widely discussed in the economics literature that industry-specific skills increase the

[22] We do not have the population sample of Chinese firms. If we assume the same-size economic effect, the aggregated magnitude is an underestimation of the true effect.

[23] One potential expectation could be that we should observe a significant decrease in the number of employees among non-SOEs because the unrest is triggered by layoffs in the non-state sector. However, to create a threat to regional social stability, one does not need systematic layoffs, and our sample does not include the population of Chinese firms.

[24] To provide further evidence that firm- and city-level economic covariates are not likely to predict episodes of labor unrest, we estimate a linear probability model by regressing $Unrest_{ft+1}$ on a set of economic covariates at t. The results are reported in Table B.1. We find that in both the firm-level and city-level analyses, economic covariates rarely significantly predict future labor unrest.

cost of labor mobility.[25] This finding indicates that labor skills are more substitutable among firms in the same industry. It would therefore be less costly for SOEs to accommodate surplus labor with matching skills. In addition, for reasons having to do with competition, firms in the same industry within a close distance are likely to offer similar compensation and treatment to employees to retain human capital (Bizjak, Lemmon, and Naveen (2008)). Thus, we expect stronger effects when the industries of the SOE and the unrest overlap. To test this prediction, we split the sample into two subsamples based on whether the firm experiences at least one episode of labor unrest in the same industry. We produce estimates for both subsamples following the same specification as in Table 3 and then test whether the differences between coefficients of the interaction term are significant. Table 4 reports the results. Coefficients of the interaction term $Unrest_{ft} \times SOE_{ft}$ are all positive and mostly significant in Panels A and B. In most cases, we find that the coefficients in the sample of firms exposed to unrest in the same industry are significantly larger than those in the other sample. This indicates that SOEs further increase hiring when exposed to layoff unrest from the non-state sector in the same industry. Being in the same industry indeed facilitates this mechanism. We do not find significant coefficients or differences between coefficients for wage per employee (Panel C).

Second, we test whether local politicians' career incentives affect the extent to which SOEs in their jurisdiction address labor unrest. As mentioned before, maintaining social stability is an important responsibility of local officials and a key performance factor impacting the likelihood of their promotion (Qian and Weingast (1997); Fewsmith and Xiang (2014)). In the Chinese political system, opportunities for promotion are disproportionately allocated to younger qualified officials. Older officials, especially those nearing retirement, are typically excluded from consideration (Ru and Zou (2020)). One can thus expect younger politicians to be more incentivized to settle labor unrest quickly. We test this expectation by splitting the sample into two subsamples based on whether the mayor of the city where the firm is located is younger or older

[25] For example, see Shaw (1987), Kambourov and Manovskii (2009), and Donangelo (2014).

than the sample median age. Results in Table 5 confirm our expectation: In Panels A and B, although all coefficients of the interaction term $Unrest_{ft} \times SOE_{ft}$ are positive, the coefficients for the sample with younger mayors are significantly larger than those for the sample with older mayors. SOEs in cities with younger mayors drive our effects. Again, we do not find significant differences in wage per employee in Panel C.[26]

Third, we examine cross-sectional effects moderated by fiscal resource constraints. Fiscal subsidies are often used by the Chinese government to achieve its sociopolitical objectives, and Chinese SOEs are typically believed to be major recipients of them (e.g., Qin (2004)). We expect that weak local fiscal conditions could undermine SOEs' functioning to produce social stability. To test this expectation, we split the sample into two subsamples based on whether the city where the firm is located has an average fiscal deficit in the top 25% of the sample distribution. Deficit is defined as the difference between fiscal expenditures and fiscal income per capita. Using the same testing procedure, we report in Table 6 regression results showing that SOEs located in cities with weaker fiscal conditions react less to labor unrest. These results point to a potential mechanism through which SOEs' reaction to labor unrest can be economically viable. We further test this mechanism at the firm level in Section IV.C.

Fourth, a fragile local economy can be sensitive to disruptive labor unrest. One can expect that SOEs allocate more capacity to maintain social stability when stability is under threat and when local economic growth is weaker. To test this conjecture, we compute the average sales growth of all non-SOEs in each city and split our sample into two subsamples based on whether the city has above- or below-median sales growth. Results in Table 7 show that SOEs located in cities with lower non-SOE sales growth create more employee positions than those in cities with

[26] In results not reported here, we test whether mayors' tenure affects their reaction to labor unrest, but we do not find a significant difference. In addition, like incumbent politicians, SOE managers may be considered politically incentivized to adhere to a prosocial agenda if they later become politicians (Cao et al. (2019)). We do not explicitly test this channel because we do not have data on characteristics of managers of the non-listed firms.

higher growth. Notice that our results should not be driven mechanically by the selection of cities with stronger SOEs and weaker non-SOEs because the effects show up only when unrest occurs.

Finally, we test whether the severity of labor incidents affects the degree to which SOEs react. It is ex ante difficult to predict these effects for two reasons. First, when episodes become abnormally severe, governments may react through channels other than SOEs. Second, we lack theoretical or policy guidance on how to determine the severity of unrest. Taking the available information, we define severe events in the CLB sample as those involving violence, death, or arrest. A firm is exposed when it experiences at least one severe episode in a given year. We report the results in Table B.3. The results are weaker, but they indicate that SOEs react more when exposed to severe episodes of labor unrest.

C. Firm performance and a potential economic mechanism

So far, our results suggest that SOEs alter their employment decisions in reaction to nearby labor unrest. Yet what is the impact of maintaining social stability on firms' performance? To answer this question, we follow the specifications in Table 3 and investigate firm performance using 1) the ratio of PP&E investment to firm revenue and 2) the log-output added value.[27] Panels A and B of Table 8 present the estimation results. We find that the coefficients of the interaction term $Unrest_{ft} \times SOE_{ft}$ are negative and significant in most cases. Results in Panel A indicate that SOEs exposed to labor unrest tend to reduce their investment more than non-SOEs in the same situation. There are two potential explanations for this outcome. First, labor and investment can be substitutable. Increasing the size of the labor force may reduce a firm's demand for equipment. Second, the extra employees hired add to SOEs' financial constraints, as our baseline results show that SOEs maintain the same pay on average. Hoarding employees may force SOEs to reduce their

[27] This variable measures the added value of final products or services provided by the enterprise in the current year, which reflects the added scale and level of production and operation activities. It is evaluated and reported by independent accounting firms according to the guidelines set forth by the National Bureau of Statistics.

investment, because employees hired over concerns about social stability might not provide the most suitable human capital required by the SOEs. Although the first case may not result in inefficiency, the second one could. Results in Panel B show that the inefficiency story is more relevant because firm output declines. These results indicate that SOEs suffer from a loss of productivity when fulfilling their social responsibility.

If addressing labor unrest is economically costly, how can it be viable and sustainable for SOEs? The literature on government subsidies and political reciprocity points out that the Chinese government attempts to use subsidies to accomplish its social objectives, such as more equitable distributions of consumption or income or lower unemployment (Lim, Wang, and Zeng (2018)). When SOEs carry out the political goals of the government, government owners could use its administrative resources to compensate for SOEs' losses. We do not aim to provide evidence for all possible channels because of data availability issues, but we do document one important fiscal channel: The government could reduce and/or exempt corporate income tax (Cui (2015)). To test this potential mechanism, we re-estimate equation (1) using the ratio of tax remittance to firm total income as the dependent variable. We report the results in Table 8, Panel C. We find that the coefficients of the interaction term $Unrest_{ft} \times SOE_{ft}$ are positive and significant, which indicates that SOEs enjoy greater tax exemption relative to non-SOEs in the year when labor unrest occurs nearby.

Overall, these results show that SOEs incur a loss of efficiency when they actively react to labor unrest to maintain stability. One way government owners try to compensate for this loss is through the fiscal channel.[28]

[28] Our study focuses on the role of SOEs in maintaining social stability and investigates in particular the channel of job creation. However, this is far from the only channel SOEs can exploit for this purpose. SOEs can also extend deals to non-SOEs or build a new plant. We choose to focus on job creation for three reasons. First, creating employment opportunities is visible and directly related to layoffs. Second, we do not have data on interfirm deals. Third, it takes time for a new plant to be realized and to resolve the immediate social issue. In addition, governments can use other tools to maintain social cohesion. These are outside the scope of our discussion.

V. Additional tests

A. Labor unrest originating from the state-owned sector

So far, we have only focused on labor unrest that occurs in non-SOEs to identify SOEs' reaction to increasing concerns about social stability originating from the non-state sector. It is unclear whether or how SOEs react to labor unrest due to layoffs in other SOEs in the area. On the one hand, SOEs have the responsibility of maintaining social stability, and labor unrest can undermine this. On the other hand, SOEs hoard excessive labor (e.g., La Porta and López-de-Silanes (1999)). Layoffs may not occur unless they are deemed necessary and less disruptive. We empirically test this using equation (1) but alternatively constructing the $Unrest_{ft}$ as exposed to unrest episodes in the state sector. Table 9 reports the regression results. We find that the coefficients of our variable of interest (i.e., the interaction term $Unrest_{ft} \times SOE_{ft}$) are not statistically significant and small in size. This finding supports the idea that layoffs happen in SOEs only after much consideration and coordination. They also trigger less unrest: In the CLB sample, only 13% of episodes occur in SOEs.[29]

B. Unrest due to other factors

We also study the reaction of SOEs to unrest due to factors other than layoffs and wage disputes. The model specification follows equation (1), but the $Unrest_{ft}$ exposure measures are modified accordingly. Results in Table 10 show that the coefficients of the interaction term $Other\ Unrest_{ft} \times SOE_{ft}$ are not statistically significant and small in size. These results lend support to our conjecture that SOEs only react to material threats to social stability.

C. Addressing potential bias in multiple-period DiD estimates

[29] Layoffs in Chinese SOEs can be implemented in a nontraditional way. In a common practice called *Nei Tui* (内退), staff are encouraged to retire sometimes 10–15 years before their mandatory retirement age. If an offer to retire is accepted, the employee often receives an extra allowance in addition to social security and pension benefits.

Recent literature in econometrics has pointed out a potential issue with staggered DiD estimation. Bias arises when one uses previously treated firms as the control group for later treated firms (e.g., Sun and Abhrham (2020); Callaway and Sant'Anna (2021); Baker, Larcker, and Wang (2022)). When different units receive treatments at different points in time, estimating the causal effect involves comparing several sets of treated and control groups. In particular, units that are treated earlier can serve as the control group for later treated units. The staggered DiD estimate is essentially a weighted average of effects obtained from these sets of treated and control groups. The literature shows that when earlier treated units serve as the control group for later treated units, one might obtain a negative weight and biased estimates for this comparison. It can affect the size or even change the sign of the true causal effect. The impact of this bias is exacerbated when the proportion of never treated firms in the sample is small (e.g., Callaway and Sant'Anna (2021)).

This bias is alleviated in our sample because more than 64% of firms are never treated.[30] Nevertheless, we repeat our analysis in Table 3 following the approach proposed by Callaway and Sant'Anna (2021) (CS approach) and estimate more granular average treatment effects of treated firms (ATT). The CS approach decomposes treated firms into groups by their treatment years and presents granular DiD estimates that can be aggregated, avoiding using biased weights.

Table B.2 reports our estimates. Following the framework of the CS approach, we estimate the effects for SOEs and non-SOEs separately using the same set of control variables and fixed effects as in Column (3) of Table 3.[31] We obtain results that confirm the ones in Table 3. We find that SOEs increase their hiring after experiencing nearby labor unrest but non-SOEs do not. We also report ATT estimates for each event period in Figure 3, which helps demonstrate trends and the evolution of treatment effects.

[30] Based on the 11 km radius indicator, 64% of firms in our sample are never treated. Based on the city district indicator, 68% of firms are never treated.

[31] The introduction of the "csdid" Stata command can be found at https://www.stata.com/meeting/us21/slides/US21_SantAnna.pdf.

D. Listed firms: The CSMAR sample

To complete our study and provide further corroborating results, we repeat our main tests using the population of Chinese listed firms between 2011 and 2018. We use the following regression to estimate the effects of labor unrest on listed SOEs' employment and performance:

$$Outcome_{ft} = \alpha + \beta_1 High\ unrest\ exposure_{ft} + \beta_2 SOE_{ft} +$$

$$\delta\left(High\ unrest\ exposure_{ft} \times SOE_{ft}\right) + \mu' x_{ft} + \varepsilon_{ft}, \quad (2)$$

where each observation corresponds to a given firm f in a given year t. We use the same three variables to measure listed firms' employment: the log-number of employees, the change in the log-number of employees, and the log-wage per . In addition, data disclosed by the listed firms allow us to look into the change in the quality of the employee composition. It is important to show that when hiring over social stability concerns, SOEs' employment becomes less efficient. We use employee education and position (whether they are hired for specialized skills) as proxies for labor efficiency. Performance is measured by the ratio of capital expenditures to firm assets and Tobin's Q. We adopt these two performance measures because capital expenditures is a comprehensive measure of firm investment, and Tobin's Q captures value implications. For the listed firms sample, we also construct a new explanatory variable, $High\ unrest\ exposure_{ft}$. This is an indicator variable that equals 1 if the listed firm and its subsidiaries are exposed to above-median episodes of labor unrest due to layoffs in non-SOEs in the cities they operate in and 0 otherwise. We adopt this exposure measure for two reasons. First, listed firms are typically large and operate in multiple locations via their subsidiaries. They are exposed to labor unrest not only near their headquarters but in all places where they operate. Second, consolidated financial statements report information on employment and financial performance for the entire firm, including subsidiaries. In equation (2), we further include the vector of control variables x_{ft}: firm assets, age, return on equity, leverage ratio, and cash-to-assets ratio.

Table 11 presents the regression results for employment. We find that the coefficients of the interaction term $High\ unrest\ exposure_{ft} \times SOE_{ft}$ are positive and significant in Columns (1) and (2), in which the dependent variable is the log-number of employees in the firm. This is consistent with the findings in Table 3. We also confirm the results for the change in the of employment size in Columns (3) and (4). However, unlike in Table 3, the coefficients in Columns (5) and (6) imply that listed SOEs seem to reduce the wage per employee. Regarding the quality of the labor composition, Columns (7)–(10) show that growth in the proportions of highly educated employees (bachelor's degree or higher) and specialized employees decreases. This confirms that SOEs hire inefficiently during periods of labor unrest. In terms of performance, results in Columns (1) and (2) of Table B.4 show that when exposed to unrest, SOEs increase capital expenditures, possibly to generate new operations to accommodate the surplus labor force. However, this damages shareholder value (Columns (3) and (4)). With some subtle differences, the results for listed firms reveal the same political agenda in which SOEs increase employment and boost operations to accommodate surplus labor while incurring a loss in value.

Finally, theory suggests that incentives for addressing social unrest can differ at different levels of government. For example, Bai, Lu, and Tao (2006) argue that the central government has a stronger incentive to maintain stability and compromise economic performance than local governments because local governments capture only a fraction of the external benefits of social stability. In addition, the strong incentive to create economic growth makes local governors more reluctant to compromise. However, empirically speaking, this is not entirely clear. First, various frictions may prevent the central government from intervening easily. Second, maintaining stability is also an important agenda of local politicians. We test this by comparing differences in reactions to labor incidents between SOEs owned by the central government and non-SOEs as well as SOEs owned by the local government and the same set of non-SOEs. Then we test whether the coefficients are different. Results in Table B.5 show no significant differences.

VI. Discussion and conclusion

Governments are keenly aware of the potential of social unrest to upset economic trends and even political equilibrium (Acemoglu and Robinson (2006); Acemoglu, Hassan, and Tahoun (2018)). They use a range of instruments to mitigate threats that might gain sufficient momentum to fundamentally change the status quo. Governments can respond by quelling protests by force using state-sanctioned violence. However, more subtle responses are also available, such as addressing grievances by transferring resources to disaffected parties.

Using episodes of labor unrest from the non-state sector as plausible shocks to SOEs, we document that SOEs serve as political tools governments use to maintain social stability. They increase employment in reaction to layoffs and incur the costs of poorer performance and a loss in value. This finding is consistent with multitask theory in the Chinese context (Bai, Lu, and Tao, 2006), in which managers of SOEs receive a weaker profit incentive such that they can take actions to promote social stability. In this way, SOEs help insulate the non-state sector from potential disruption. Our study reveals yet another important political goal of SOEs.

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Table 1 Summary statistics: Labor unrest

This table reports summary statistics for episodes of labor unrest retrieved by the China Labour Bulletin over the period 2011–2019. Panel A reports the distribution by year of all recorded unrest episodes (Columns (1) and (2)), events that occur in non-SOEs (Columns (3) and (4)), and events due to layoffs in non-SOEs (Columns (5) and (6). Panel B reports summary statistics for the classification of unrest episodes by city district and year. Panel C reports the same by city and year. Panel D reports the distance in kilometers between each firm location and each unrest episode in the same city.

Panel A: Unrest episodes by year

	Total unrest episodes		Episodes in non-SOEs		Layoff episodes in non-SOEs	
	(1)	(2)	(3)	(4)	(5)	(6)
Year	Nr. episodes	%	Nr. episodes	%	Nr. episodes	%
2011	184	1.52	154	1.44	17	1.33
2012	382	3.16	321	3.01	45	3.53
2013	645	5.34	595	5.58	59	4.63
2014	1,358	11.24	1,181	11.07	107	8.39
2015	2,774	22.96	2,510	23.53	219	17.18
2016	2,664	22.05	2,349	22.02	363	28.47
2017	1,258	10.41	1,080	10.12	135	10.59
2018	1,705	14.11	1,505	14.11	192	15.06
2019	1,112	9.2	973	9.12	138	10.82
Total	12,082	100	10,668	100	1,275	100

Panel B: Unrest episodes by city district and year

	mean	**sd**	**min**	**p25**	**p50**	**p75**	**max**	**N**
Nr. total unrest episodes	0.78	2	0	0	0	1	55	14,760
Nr. episodes in non-SOEs	0.69	1.8	0	0	0	1	52	14,760
Nr. layoff episodes in non-SOEs	0.08	0.43	0	0	0	0	14	14,760

Panel C: Unrest episodes by city and year

	mean	**sd**	**min**	**p25**	**p50**	**p75**	**max**	**N**
Nr. total unrest episodes	4.1	7.9	0	0	2	5	110	2,925
Nr. episodes in non-SOEs	3.6	7.2	0	0	1	4	105	2,925
Nr. layoff episodes in non-SOEs	0.4	1.6	0	0	0	0	31	2,925

Panel D: Firm (ATS sample): Unrest distance

	mean	**sd**	**min**	**p25**	**p50**	**p75**	**max**	**N**
Distance (1 = 1 km)	46	165	1.4	11	21	36	911	50,407,402

Table 2 Summary statistics: Firms and city macroeconomic conditions

This table reports summary statistics for the sample. The sample in Panel A consists of firms retrieved from the ATS database for the period 2011–2016. The sample in Panel B consists of listed firms retrieved from the CSMAR database for the period 2011–2018. Panel C reports city macroeconomic conditions between 2011 and 2016. All variables are defined in detail in Appendix A.

Panel A: Firms: ATS sample

	mean	sd	min	p25	p50	p75	max	N
SOE (Y/N)	0.11	.31	0	0	0	0	1	1,756,381
Employee	235	467	2	26	81	224	3,209	1,748,342
Wage (1 = 1,000 RMB)	12,948	30,658	0	813	3,181	10,319	217,551	1,707,102
Wage per employee (1 = 1,000 RMB)	55	59	0	25	39	62	379	1,706,605
PP&E-to-assets ratio (%)	19	22	0	1.4	9.9	29	90	1,741,099
PP&E-to-revenue ratio (%)	54	158	0	1.6	10	36	1,223	1,739,583
Output added value	37,647	110,884	–11,170	0	3,488	22,297	806,068	1,215,554
Output added value to revenue ratio (%)	15	22	–9.1	0	6	22	100	1,215,165
Tax remittance to total income ratio (%)	1.2	3.4	0	0	0	0	12	1,734,837
Firm assets	640,501	2,123,182	1,520	24,536	77,407	283,926	16,331,053	1,748,918
Revenue	299,270	764,640	168	23,097	68,781	212,991	5,608,767	1,748,517
PP&E	66,121	220,201	0	889	6,401	30,729	1,695,950	1,742,135
ROA (%)	2.3	12	–49	–0.77	0.92	4.7	61	1,747,370
Leverage (%)	66	36	0	41	69	89	202	1,747,365
Cash-to-assets ratio (%)	14	18	0	1.8	6.6	18	87	1,737,096
Unrest in non-SOEs (radius: 11 km, Y/N)	0.18	0.38	0	0	0	0	1	1,756,381
Unrest in non-SOEs (district, Y/N)	0.13	0.34	0	0	0	0	1	1,726,727
Nr. unrest episodes in non-SOEs (11 km)	0.54	1.9	0	0	0	0	25	1,756,381
Nr. unrest episodes in non-SOEs (district)	0.28	1	0	0	0	0	10	1,756,381

Panel B: Firms: CSMAR sample

	mean	sd	min	p25	p50	p75	max	N
SOE (Y/N)	0.36	0.48	0	0	0	1	1	22,983
Employee	5,171	11,032	59	839	1,863	4,456	79,702	22,971
Wage (1 = 1 million)	888	5,044	0	77	172	435	142,950	22,980
Wage per employee	116,026	80,422	29,021	68,609	93,476	133,595	524,694	22,970
Capital expenditures to assets ratio (%)	4.9	4.8	0.017	1.4	3.5	6.9	23	22,960
Tobinq	2.1	1.4	0.89	1.2	1.6	2.3	9.7	21,979
Firm assets (1 = 1 million)	18,048	66,572	266	1,470	3,246	8,426	565,849	22,981
ROE (%)	6.2	14	–72	2.8	7	12	38	21,311
Leverage (%)	43	22	4.9	25	42	60	95	22,981
Revenue growth (%)	46	134	–78	–3	14	45	1,013	22,074
Cash-to-assets ratio (%)	17	14	0.29	7	13	22	66	22,835
High unrest exposure to unrest in non-SOEs	0.49	0.5	0	0	0	1	1	22,983

Panel C: City macroeconomic conditions

City GDP (1 = billion RMB)	224	296	6.6	78	127	242	2,818	1,734
City total wage (1 = million RMB)	29,058	62,422	1,744	8,204	13,644	24,407	900,050	1,731
City population (1 = 1,000)	4,443	3,159	195	2,393	3,766	5,870	33,920	1,734
City number of employees (1 = 1,000)	519	720	30	185	318	522	7,290	1,731
City GDP per capita (1 = 1,000 RMB)	52	49	1.5	24	37	58	506	1,734
City wage per capita	47,898	21,434	17,208	38,416	45,657	54,396	524,058	1,730
Number of SOEs	85	187	0	26	44	72	2,909	2,182

Table 3 SOE employment around labor unrest
This table reports estimates of

$$Employment_{ft} = \alpha + \beta_1 Unrest_{ft} + \beta_2 SOE_{ft} + \delta\left(Unrest_{ft} \times SOE_{ft}\right) + \mu' x_{ft} + \varepsilon_{ft}.$$

Each observation corresponds to a given firm f in a given year t. The dependent variable $Employment$ is the log-number of employees in Panel A, the change in the log-number of employees in Panel B, and the log-wage per capita in Panel C. $Unrest$ is an indicator variable that equals 1 if the firm experiences any labor unrest due to layoffs in non-SOEs within a certain radius and 0 otherwise. The radius is 11 km in Columns (1)–(3) as the value of the 25th percentile in the distribution of distances between firms and unrest episodes. It is alternatively defined as the area of the administrative city district in Columns (4)–(6). SOE is an indicator variable that equals 1 if the firm is state owned and 0 otherwise. The vector of control variables x includes firm assets, return on assets, and leverage ratio. All specifications include firm, year, and firm industry-year pair fixed effects. Columns (2) and (5) additionally include city-year pair fixed effects. Columns (3) and (6) include city district–year pair fixed effects. Standard errors (reported in parentheses) are clustered at the city district level. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Radius (11 km)			**City district**		
	Panel A: Ln(Nr. employees)					
	(1)	(2)	(3)	(4)	(5)	(6)
SOE (Y/N) × Unrest (Y/N)	0.029***	0.020***	0.017***	0.039**	0.034***	0.022**
	(0.010)	(0.008)	(0.007)	(0.016)	(0.012)	(0.010)
Unrest (Y/N)	–0.000	–0.009	0.000	0.013	0.009	
	(0.009)	(0.009)	(0.005)	(0.019)	(0.011)	
SOE (Y/N)	0.026***	0.023***	0.023***	0.027***	0.023***	0.024***
	(0.008)	(0.008)	(0.006)	(0.008)	(0.008)	(0.007)
R^2	0.92	0.92	0.93	0.92	0.92	0.93
N	1,660,742	1,659,406	1,634,601	1,660,742	1,659,406	1,634,601
	Panel B: ΔLn(Nr. employees)					
	(1)	(2)	(3)	(4)	(5)	(6)
SOE (Y/N) × Unrest (Y/N)	0.015***	0.016***	0.016***	0.023***	0.023***	0.024***
	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)
Unrest (Y/N)	0.001	0.001	–0.002	0.000	0.000	
	(0.005)	(0.002)	(0.003)	(0.005)	(0.003)	
SOE (Y/N)	–0.004	–0.004	–0.003	–0.004	–0.003	–0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
R^2	0.37	0.38	0.39	0.37	0.38	0.39
N	1,660,712	1,659,383	1,634,578	1,660,712	1,659,383	1,634,578
	Panel C: Ln(Wage per employee)					
	(1)	(2)	(3)	(4)	(5)	(6)
SOE (Y/N) × Unrest (Y/N)	–0.003	0.002	0.002	–0.036	–0.022	–0.005
	(0.017)	(0.014)	(0.012)	(0.032)	(0.019)	(0.014)
Unrest (Y/N)	0.013	–0.006	–0.011	–0.023	–0.023	
	(0.025)	(0.011)	(0.007)	(0.032)	(0.021)	
SOE (Y/N)	0.012	0.008	0.011	0.015	0.010	0.012
	(0.011)	(0.011)	(0.009)	(0.012)	(0.011)	(0.009)
R^2	0.56	0.59	0.61	0.56	0.59	0.61
N	1,612,909	1,611,978	1,587,794	1,612,909	1,611,978	1,587,794
Controls	N	Y	Y	N	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	N	Y	Y	N	Y	Y
City × Year FE	N	Y	N	N	Y	N
City district × Year FE	N	N	Y	N	N	Y

Table 4 SOE employment around labor unrest: Same industry
This table reports estimates of

$$Employment_{ft} = \alpha + \beta_1 Unrest_{ft} + \beta_2 SOE_{ft} + \delta\left(Unrest_{ft} \times SOE_{ft}\right) + \mu' x_{ft} + \varepsilon_{ft}$$

for firms exposed to at least one unrest episode in the same industry (odd columns) and other firms (even columns). Each observation corresponds to a given firm f in a given year t. The dependent variable $Employment$ is the log-number of employees in Panel A, the change in the log-number of employees in Panel B, and the log-wage per capita in Panel C. $Unrest$ is an indicator variable that equals 1 if the firm experiences any labor unrest due to layoffs in non-SOEs within a certain radius and 0 otherwise. The radius is 11 km in Columns (1)–(4) as the value of the 25th percentile in the distribution of distances between firms and all unrest episodes. It is alternatively defined as the area of the administrative city district in Columns (5)–(8). SOE is an indicator variable that equals 1 if the firm is state owned and 0 otherwise. The vector of control variables x is the same as in Table 3. All specifications include firm, year, and firm industry-year pair fixed effects. Columns (1) and (2) and (5) and (6) additionally include city-year pair fixed effects, and Columns (3) and (4) and (7) and (8) include city district–year pair fixed effects. Standard errors (reported in parentheses) are clustered at the city district level. The last row of each panel reports the F test statistic for the difference between the coefficients of $Unrest \times SOE$ between the two subsamples as well as the associated p value in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Panel A: Ln(Nr. employees)							
	Radius (11 km)				**City district**			
Same industry	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.038***	0.007	0.036***	0.004	0.022	0.027**	0.007	0.022*
	(0.013)	(0.009)	(0.013)	(0.009)	(0.021)	(0.013)	(0.024)	(0.012)
Unrest (Y/N)	–0.016	0.004	–0.007	0.012*	0.026	0.016		
	(0.012)	(0.006)	(0.008)	(0.006)	(0.019)	(0.012)		
SOE (Y/N)	0.016	0.020**	0.017	0.021**	0.021*	0.023**	0.031**	0.023***
	(0.011)	(0.008)	(0.011)	(0.008)	(0.013)	(0.010)	(0.014)	(0.008)
R^2	0.92	0.94	0.92	0.94	0.93	0.93	0.93	0.93
N	509,647	923,085	503,232	906,609	434,292	1,000,411	428,072	983,926
Difference (p value)	0.032** (0.030)		0.033** (0.024)		–0.004 (0.896)		–0.014 (0.499)	
	Panel B: ΔLn(Nr. employees)							
	Radius (11 km)				**City district**			
Same industry	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.016***	0.007	0.016***	0.007*	0.023***	0.010**	0.023***	0.010***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.006)	(0.004)
Unrest (Y/N)	–0.001	0.002	–0.004	0.003	–0.001	0.002		
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)		
SOE (Y/N)	–0.004	–0.002	–0.004	–0.002	–0.003	–0.004	–0.003	–0.004
	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.003)
R^2	0.45	0.43	0.46	0.45	0.46	0.43	0.47	0.44
N	509,634	923,073	503,219	906,597	434,283	1,000,397	428,063	983,912
Difference (p value)	0.010* (0.086)		0.009* (0.096)		0.012 (0.119)		0.014** (0.031)	

Table 4 SOE employment around labor unrest: Same industry (continued)

	Panel C: Ln(Wage per employee)							
	Radius (11 km)				City district			
Same industry	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	–0.008	–0.003	–0.002	–0.005	–0.002	–0.027	0.013	–0.016
	(0.016)	(0.014)	(0.015)	(0.014)	(0.021)	(0.017)	(0.023)	(0.013)
Unrest (Y/N)	0.004	–0.007	0.007	–0.011	–0.047**	–0.014		
	(0.014)	(0.010)	(0.011)	(0.008)	(0.022)	(0.013)		
SOE (Y/N)	0.013	0.001	0.014	0.000	0.008	0.010	0.006	0.010
	(0.013)	(0.010)	(0.014)	(0.010)	(0.017)	(0.012)	(0.017)	(0.009)
R^2	0.66	0.66	0.68	0.67	0.68	0.65	0.69	0.67
N	490,035	898,220	483,954	882,023	416,993	973,096	411,109	956,886
Difference (p value)	–0.005 (0.835)		0.003 (0.886)		0.025 (0.366)		0.029 (0.257)	
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	Y	Y	Y	Y	Y	Y	Y	Y
City × Year FE	Y	Y	N	N	Y	Y	N	N
City district × Year FE	N	N	Y	Y	N	N	Y	Y

Table 5 SOE employment around labor unrest: Younger mayor

This table reports estimates following the same specifications as in Table 4 for firms in cities with mayors younger and older than the sample median age. Standard errors (reported in parentheses) are clustered at the city district level. The last row of each panel reports the F test statistic for the difference between the coefficients of $Unrest \times SOE$ of the two subsamples and the associated p value. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Panel A: Ln(Nr. employees)							
	Radius (11 km)				**City district**			
Mayor age	**Younger**	**Older**	**Younger**	**Older**	**Younger**	**Older**	**Younger**	**Older**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.029***	0.010	0.030***	0.007	0.036	0.024	0.024	0.014
	(0.009)	(0.008)	(0.009)	(0.008)	(0.023)	(0.015)	(0.027)	(0.010)
Unrest (Y/N)	0.013	–0.016*	0.012*	–0.002	0.027	0.008		
	(0.010)	(0.008)	(0.007)	(0.007)	(0.020)	(0.014)		
SOE (Y/N)	0.010	0.025**	0.011	0.024**	0.011	0.024**	0.013	0.024**
	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
R^2	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
N	686,163	779,220	674,882	769,096	686,163	779,220	674,882	769,096
Difference (p value)	0.019^ (0.101)		0.023** (0.037)		0.012 (0.664)		0.010 (0.720)	
	Panel B: ΔLn(Nr. employees)							
	Radius (11 km)				**City district**			
Mayor age	**Younger**	**Older**	**Younger**	**Older**	**Younger**	**Older**	**Younger**	**Older**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.014***	0.003	0.014***	0.004	0.023***	0.007*	0.023***	0.008**
	(0.004)	(0.004)	(0.004)	(0.003)	(0.005)	(0.004)	(0.005)	(0.004)
Unrest (Y/N)	–0.001	0.003	0.001	0.002	–0.002	0.001		
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)		
SOE (Y/N)	0.000	–0.006	0.002	–0.005	0.000	–0.006	0.002	–0.005
	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)
R^2	0.45	0.44	0.46	0.44	0.45	0.44	0.46	0.44
N	686,157	779,200	674,876	769,076	686,157	779,200	674,876	769,076
Difference (p value)	0.011** (0.037)		0.011** (0.033)		0.016** (0.015)		0.015** (0.028)	
	Panel C: Ln(Wage per employee)							
	Radius (11 km)				**City district**			
Mayor age	**Younger**	**Older**	**Younger**	**Older**	**Younger**	**Older**	**Younger**	**Older**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.015	–0.011	0.009	–0.008	–0.005	–0.021	0.012	–0.018
	(0.015)	(0.011)	(0.014)	(0.011)	(0.026)	(0.015)	(0.024)	(0.013)
Unrest (Y/N)	0.008	0.001	0.009	–0.011	–0.046*	0.013		
	(0.012)	(0.010)	(0.008)	(0.007)	(0.027)	(0.017)		
SOE (Y/N)	0.010	0.015	0.010	0.017	0.012	0.016	0.010	0.017
	(0.011)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)
R^2	0.67	0.66	0.68	0.67	0.67	0.66	0.68	0.67
N	662,419	758,905	651,520	748,969	662,419	758,905	651,520	748,969
Difference (p value)	0.025 (0.174)		0.016 (0.355)		0.015 (0.616)		0.029 (0.283)	
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	Y	Y	Y	Y	Y	Y	Y	Y
City × Year FE	Y	Y	N	N	Y	Y	N	N
City district × Year FE	N	N	Y	Y	N	N	Y	Y

Table 6 SOE employment around labor unrest: Fiscal deficit

This table reports estimates following the same specifications as in Table 4 for firms in cities with a fiscal deficit in the top 25% of the sample distribution (odd columns) and other firms (even columns). Standard errors (reported in parentheses) are clustered at the city district level. The last row of each panel reports the F test statistic for the difference between the coefficients of $Unrest \times SOE$ of the two subsamples as well as the associated p value in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Panel A: Ln(Nr. employees)							
	Radius (11 km)				**City district**			
Fiscal deficit	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	–0.002	0.032***	–0.002	0.027***	0.002	0.045***	–0.002	0.032**
	(0.010)	(0.008)	(0.010)	(0.009)	(0.011)	(0.013)	(0.011)	(0.014)
Unrest (Y/N)	0.004	–0.017	0.005	–0.002	0.003	0.013		
	(0.005)	(0.012)	(0.005)	(0.008)	(0.006)	(0.014)		
SOE (Y/N)	0.035***	0.014*	0.033***	0.015*	0.034***	0.015*	0.033***	0.017**
	(0.012)	(0.008)	(0.012)	(0.008)	(0.012)	(0.008)	(0.012)	(0.008)
R^2	0.93	0.92	0.93	0.92	0.93	0.92	0.93	0.92
N	620,712	988,140	611,049	974,716	620,712	988,140	611,049	974,716
Difference (p value)	–0.034*** (0.010)		–0.029** (0.027)		–0.043** (0.013)		–0.033* (0.067)	
	Panel B: ΔLn(Nr. employees)							
	Radius (11 km)				**City district**			
Fiscal deficit	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.005	0.016***	0.005	0.016***	0.005	0.021***	0.008*	0.021***
	(0.004)	(0.003)	(0.004)	(0.003)	(0.005)	(0.004)	(0.005)	(0.004)
Unrest (Y/N)	0.000	–0.000	0.001	–0.001	0.003*	–0.003		
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)		
SOE (Y/N)	0.002	–0.006*	0.002	–0.005	0.002	–0.005*	0.002	–0.004
	(0.005)	(0.003)	(0.005)	(0.003)	(0.005)	(0.003)	(0.005)	(0.003)
R^2	0.38	0.39	0.39	0.40	0.38	0.39	0.39	0.40
N	620,706	988,123	611,043	974,699	620,706	988,123	611,043	974,699
Difference (p value)	–0.012** (0.027)		–0.011** (0.020)		–0.015** (0.012)		–0.013*** (0.028)	
	Panel C: Ln(Wage per employee)							
	Radius (11 km)				**City district**			
Fiscal deficit	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	–0.024*	0.002	–0.028**	0.005	–0.007	–0.027*	–0.018	–0.004
	(0.013)	(0.011)	(0.013)	(0.011)	(0.019)	(0.017)	(0.018)	(0.015)
Unrest (Y/N)	–0.012*	–0.000	–0.011	–0.002	–0.013*	–0.012		
	(0.007)	(0.010)	(0.007)	(0.007)	(0.008)	(0.018)		
SOE (Y/N)	–0.019	0.018**	–0.015	0.020**	–0.023*	0.021**	–0.019	0.021**
	(0.013)	(0.009)	(0.013)	(0.009)	(0.013)	(0.009)	(0.013)	(0.009)
R^2	0.62	0.63	0.62	0.65	0.62	0.63	0.62	0.65
N	608,973	954,195	599,408	941,222	608,973	954,195	599,408	941,222
Difference (p value)	–0.026 (0.125)		–0.033* (0.058)		0.021 (0.396)		–0.012 (0.591)	
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	Y	Y	Y	Y	Y	Y	Y	Y
City × Year FE	Y	Y	N	N	Y	Y	N	N
City district × Year FE	N	N	Y	Y	N	N	Y	Y

Table 7 SOE employment around labor unrest: Non-state sector growth

This table reports estimates following the same specifications as in Table 4 for firms in cities with average sales growth of non-SOEs below and above the sample median. Standard errors (reported in parentheses) are clustered at the city district level. The last row of each panel reports the F test statistic for the difference between the coefficients of $Unrest \times SOE$ of the two subsamples and the associated p value. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Panel A: Ln(Nr. employees)							
	Radius (11 km)				**City district**			
Non-state sector growth	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.049***	0.016**	0.050***	0.012*	0.058***	0.030***	0.059***	0.017
	(0.016)	(0.007)	(0.016)	(0.007)	(0.018)	(0.011)	(0.018)	(0.011)
Unrest (Y/N)	0.001	–0.010	0.008	–0.001	0.001	0.010		
	(0.006)	(0.009)	(0.009)	(0.005)	(0.007)	(0.011)		
SOE (Y/N)	0.012	0.028***	0.008	0.029***	0.012	0.027***	0.009	0.030***
	(0.011)	(0.008)	(0.011)	(0.008)	(0.011)	(0.008)	(0.011)	(0.008)
R^2	0.93	0.92	0.94	0.92	0.93	0.92	0.94	0.92
N	445,095	1,214,307	433,876	1,200,723	445,095	1,214,307	433,876	1,200,723
Difference (p value)	0.032* (0.061)		0.037** (0.032)		0.028 (0.168)		0.042** (0.040)	
	Panel B: ΔLn(Nr. employees)							
	Radius (11 km)				**City district**			
Non-state sector growth	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.022***	0.012***	0.024***	0.011***	0.015*	0.016***	0.018**	0.016***
	(0.005)	(0.003)	(0.005)	(0.003)	(0.008)	(0.003)	(0.008)	(0.003)
Unrest (Y/N)	0.001	–0.000	–0.003	0.000	0.007**	–0.002		
	(0.003)	(0.002)	(0.004)	(0.002)	(0.003)	(0.002)		
SOE (Y/N)	–0.003	–0.003	–0.003	–0.003	–0.002	–0.003	–0.002	–0.002
	(0.004)	(0.003)	(0.005)	(0.003)	(0.004)	(0.003)	(0.005)	(0.003)
R^2	0.39	0.39	0.41	0.40	0.39	0.39	0.41	0.40
N	445,094	1,214,285	433,875	1,200,701	445,094	1,214,285	433,875	1,200,701
Difference (p value)	0.010* (0.099)		0.012** (0.036)		–0.001 (0.867)		0.002 (0.851)	
	Panel C: Ln(Wage per employee)							
	Radius (11 km)				**City district**			
Non-state sector growth	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	–0.007	–0.006	–0.014	–0.005	–0.001	–0.022	–0.006	–0.007
	(0.021)	(0.009)	(0.021)	(0.009)	(0.023)	(0.014)	(0.023)	(0.013)
Unrest (Y/N)	–0.007	–0.005	–0.008	–0.006	–0.012	–0.013		
	(0.010)	(0.007)	(0.009)	(0.006)	(0.012)	(0.013)		
SOE (Y/N)	0.003	0.008	0.007	0.010	0.003	0.010	0.007	0.010
	(0.013)	(0.008)	(0.013)	(0.008)	(0.013)	(0.009)	(0.013)	(0.009)
R^2	0.63	0.62	0.65	0.64	0.63	0.62	0.65	0.64
N	431,893	1,180,082	420,944	1,166,848	431,893	1,180,082	420,944	1,166,848
Difference (p value)	–0.002 (0.927)		–0.010 (0.659)		0.020 (0.470)		–0.029 (0.992)	
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	Y	Y	Y	Y	Y	Y	Y	Y
City × Year FE	Y	Y	N	N	Y	Y	N	N
City district × Year FE	N	N	Y	Y	N	N	Y	Y

Table 8 SOE performance around labor unrest and fiscal mechanism

This table reports estimates of firm performance and tax benefits around labor unrest following the same specifications as in Table 3. Performance is measured by the ratio of PP&E investment to firm revenue in Panel A and by log-output added value in Panel B. Tax benefits are measured by the ratio of tax remittance to firm total income in Panel C. Standard errors (reported in parentheses) are clustered at the city district level. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Radius (11 km)			City district		
	Panel A: PP&E investment to firm revenue ratio					
	(1)	(2)	(3)	(4)	(5)	(6)
SOE (Y/N) × Unrest (Y/N)	–1.270***	–1.036***	–0.983***	–0.930*	–0.729	–0.609
	(0.409)	(0.368)	(0.317)	(0.494)	(0.447)	(0.382)
Unrest (Y/N)	–1.040***	–0.145	0.249	–1.164***	–0.339*	
	(0.207)	(0.155)	(0.156)	(0.313)	(0.176)	
SOE (Y/N)	1.388***	1.088**	1.081***	1.262***	0.985**	0.971**
	(0.482)	(0.470)	(0.400)	(0.482)	(0.470)	(0.399)
R^2	0.84	0.84	0.85	0.84	0.84	0.85
N	1,650,212	1,649,606	1,624,931	1,650,212	1,649,606	1,624,931
	Panel B: Ln(Output value)					
	(1)	(2)	(3)	(4)	(5)	(6)
SOE (Y/N) × Unrest (Y/N)	–0.012***	–0.010***	–0.010***	–0.013***	–0.009**	–0.009**
	(0.003)	(0.002)	(0.003)	(0.005)	(0.004)	(0.004)
Unrest (Y/N)	0.004	0.002	0.001	0.006	0.001	
	(0.003)	(0.002)	(0.002)	(0.004)	(0.002)	
SOE (Y/N)	–0.002	–0.004*	–0.004	–0.003	–0.005**	–0.005*
	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)
R^2	0.71	0.73	0.74	0.71	0.73	0.74
N	915,588	914,644	898,041	915,588	914,644	898,041
	Panel C: Tax remittance to total income ratio					
	(1)	(2)	(3)	(4)	(5)	(6)
SOE (Y/N) × Unrest (Y/N)	0.071**	0.045*	0.039*	0.065*	0.051*	0.052*
	(0.034)	(0.026)	(0.022)	(0.038)	(0.030)	(0.029)
Unrest (Y/N)	–0.046	–0.010	0.012	–0.069**	–0.013	
	(0.029)	(0.018)	(0.016)	(0.033)	(0.020)	
SOE (Y/N)	–0.064**	–0.051*	–0.048**	–0.059**	–0.048*	–0.046**
	(0.028)	(0.027)	(0.023)	(0.027)	(0.026)	(0.023)
R^2	0.72	0.72	0.73	0.72	0.72	0.73
N	1,639,985	1,630,535	1,606,009	1,639,985	1,630,535	1,606,009
Controls	N	Y	Y	N	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	N	Y	Y	N	Y	Y
City × Year FE	N	Y	N	N	Y	N
City district × Year FE	N	N	Y	N	N	Y

Table 9 SOE employment around labor unrest: Unrest in SOEs

This table reports estimates following the same specifications as in Columns (2) and (3) of Table 3 and shows the reaction of SOEs to labor unrest due to layoffs in SOEs within the same area. Standard errors (reported in parentheses) are clustered at the city district level. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Radius (11 km)		**City district**	
	Panel A: Ln(Nr. employees)			
	(1)	(2)	(3)	(4)
SOE (Y/N) × Unrest in SOEs (Y/N)	–0.000	–0.001	0.001	0.002
	(0.016)	(0.014)	(0.026)	(0.021)
Unrest (Y/N)	0.001	–0.003	0.014	
	(0.009)	(0.009)	(0.016)	
SOE (Y/N)	0.025***	0.026***	0.026***	0.026***
	(0.008)	(0.007)	(0.008)	(0.007)
R^2	0.92	0.93	0.92	0.93
N	1,573,915	1,549,110	1,621,043	1,596,240
	Panel B: ΔLn(Nr. employees)			
	(1)	(2)	(3)	(4)
SOE (Y/N) × Unrest in SOEs (Y/N)	0.004	0.004	–0.002	0.002
	(0.006)	(0.005)	(0.013)	(0.009)
Unrest (Y/N)	–0.002	0.000	0.003	
	(0.004)	(0.004)	(0.006)	
SOE (Y/N)	–0.001	–0.000	–0.001	0.000
	(0.003)	(0.003)	(0.003)	(0.003)
R^2	0.39	0.40	0.38	0.39
N	1,573,893	1,549,088	1,621,020	1,596,217
	Panel C: Ln(Wage per employee)			
	(1)	(2)	(3)	(4)
SOE (Y/N) × Unrest in SOEs (Y/N)	0.026	0.024	0.001	0.004
	(0.019)	(0.016)	(0.023)	(0.020)
Unrest (Y/N)	–0.021*	–0.020*	0.006	
	(0.013)	(0.011)	(0.014)	
SOE (Y/N)	0.006	0.007	0.006	0.008
	(0.009)	(0.007)	(0.009)	(0.007)
R^2	0.64	0.65	0.63	0.65
N	1,527,114	1,502,930	1,573,743	1,549,561
Controls	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y
Firm industry × Year FE	Y	Y	Y	Y
City × Year FE	Y	N	Y	N
City district × Year FE	N	Y	N	Y

Table 10 SOE employment around labor unrest: Unrest not related to layoffs or pay

This table reports estimates following the same specifications as in Columns (2) and (3) of Table 3 and shows the reaction of SOEs to labor unrest not related to layoffs or pay in non-SOEs. Standard errors (reported in parentheses) are clustered at the city district level. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Radius (11 km)		**City district**	
	Panel A: Ln(Nr. employees)			
	(1)	(2)	(3)	(4)
SOE (Y/N) × Other unrest (Y/N)	0.006	0.007	–0.009	–0.008
	(0.008)	(0.008)	(0.009)	(0.008)
Other unrest (Y/N)	0.005	–0.006	0.004	
	(0.008)	(0.005)	(0.004)	
SOE (Y/N)	0.023***	0.024***	0.025***	0.025***
	(0.006)	(0.007)	(0.008)	(0.007)
R^2	0.92	0.93	0.92	0.93
N	1,527,659	1,502,851	1,586,225	1,561,418
	Panel B: ΔLn(Nr. employees)			
	(1)	(2)	(3)	(4)
SOE (Y/N) × Other unrest (Y/N)	0.003*	0.003	0.002	0.003
	(0.002)	(0.002)	(0.002)	(0.002)
Other unrest (Y/N)	–0.001	0.000	0.000	
	(0.001)	(0.002)	(0.001)	
SOE (Y/N)	–0.003*	–0.003	–0.003	–0.003*
	(0.002)	(0.002)	(0.002)	(0.002)
R^2	0.40	0.42	0.40	0.41
N	1,527,640	1,502,832	1,586,201	1,561,394
	Panel C: Ln(Wage per employee)			
	(1)	(2)	(3)	(4)
SOE (Y/N) × Other unrest (Y/N)	–0.003	0.001	0.005	0.010
	(0.009)	(0.009)	(0.014)	(0.012)
Other unrest (Y/N)	0.012	0.008	0.008	
	(0.009)	(0.007)	(0.008)	
SOE (Y/N)	0.005	0.006	0.009	0.011
	(0.007)	(0.007)	(0.009)	(0.007)
R^2	0.64	0.65	0.63	0.64
N	1,483,366	1,459,179	1,540,620	1,516,434
Controls	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y
Firm industry × Year FE	Y	Y	Y	Y
City × Year FE	Y	N	Y	N
City district × Year FE	N	Y	N	Y

Table 11 SOE employment around labor unrest: Listed firms
This table reports estimates of

$$Outcome_{ft} = \alpha + \beta_1 High\ unrest\ exposure_{ft} + \beta_2 SOE_{ft} + \delta\left(High\ unrest\ exposure_{ft} \times SOE_{ft}\right) + \mu' x_{ft} + \varepsilon_{ft}.$$

The sample is listed firms retrieved from the CSMAR database between 2011 and 2018. Each observation corresponds to a given firm f in a given year t. The dependent variable is the log-number of employees in the firm in Columns (1) and (2), the change in the log-number of employees in Columns (3) and (4), the log-wage per capita in Columns (5) and (6), the change in the ratio of employees with a bachelor's degree or higher to all employees in the firm in Columns (7) and (8), and the change in the ratio of employees with specialized skills to all employees in the firm in Columns (9) and (10). $High\ unrest\ exposure$ is an indicator variable that equals 1 if the listed firm and its subsidiaries together experience more than the sample median of labor unrest due to layoffs in non-SOEs in the cities they operate in and 0 otherwise. SOE is an indicator variable that equals 1 if the firm is state owned and 0 otherwise. The vector of control variables x includes firm assets, return on equity, leverage ratio, and cash-to-assets ratio. All specifications include firm, year, and city-year pair fixed effects. Columns (2), (4), (6), (8), and (10) additionally include firm industry-year pair fixed effects. Standard errors (reported in parentheses) are clustered at the city level. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Ln(Nr. employees)		**ΔLn(Nr. employees)**		**Ln(Wage per employee)**		**ΔHigh education employee ratio**		**ΔTechnical staff ratio**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
SOE (Y/N) × High	0.045**	0.054**	0.025*	0.022*	–0.067***	–0.063***	–0.192***	–0.180***	–0.068**	–0.092***
	(0.022)	(0.022)	(0.014)	(0.013)	(0.016)	(0.017)	(0.047)	(0.045)	(0.027)	(0.026)
High unrest exposure	0.014	0.015	–0.001	0.004	0.024**	0.016	0.118***	0.099***	0.058***	0.059***
	(0.016)	(0.015)	(0.012)	(0.011)	(0.009)	(0.010)	(0.030)	(0.032)	(0.020)	(0.021)
R^2	0.94	0.95	0.30	0.34	0.82	0.84	0.24	0.29	0.23	0.27
N	18,908	18,873	17,093	17,057	18,907	18,872	15,812	15,775	15,897	15,860
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
City × Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	N	Y	N	Y	N	Y	N	Y	N	Y

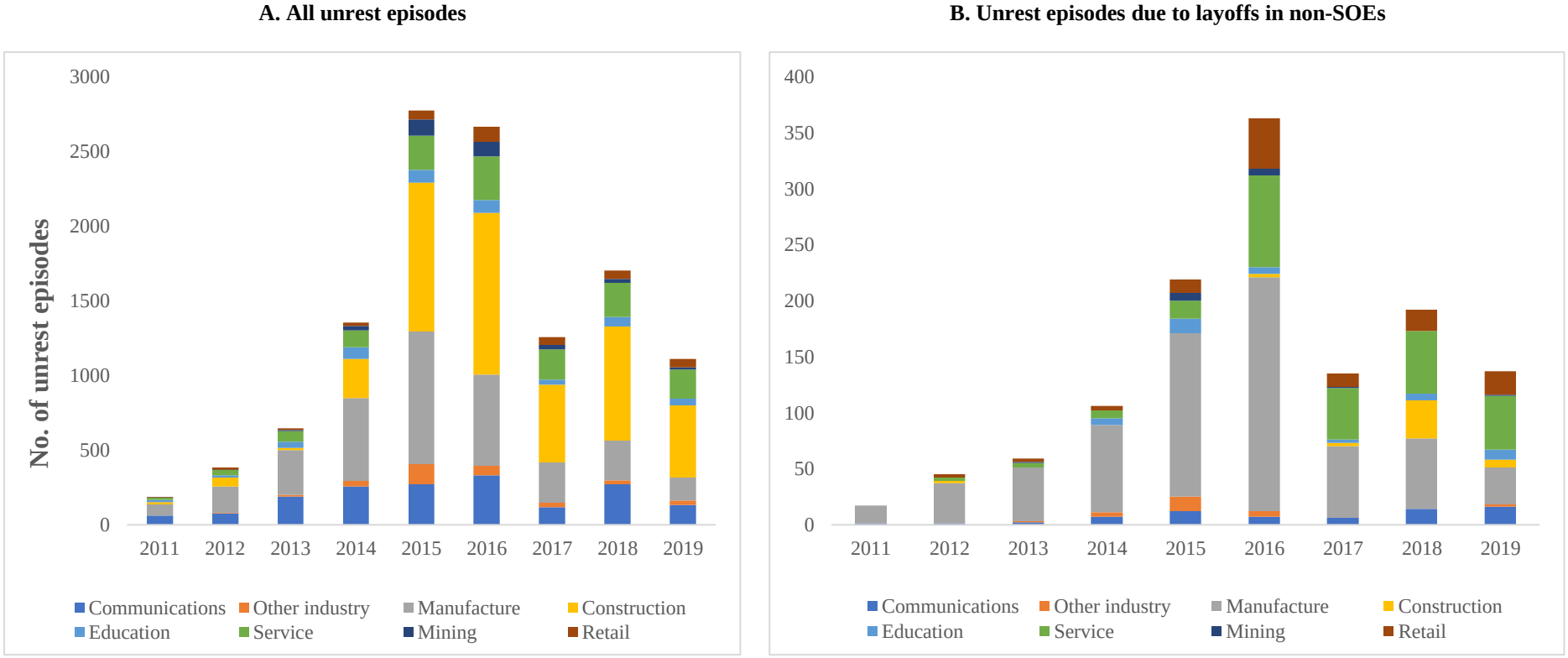
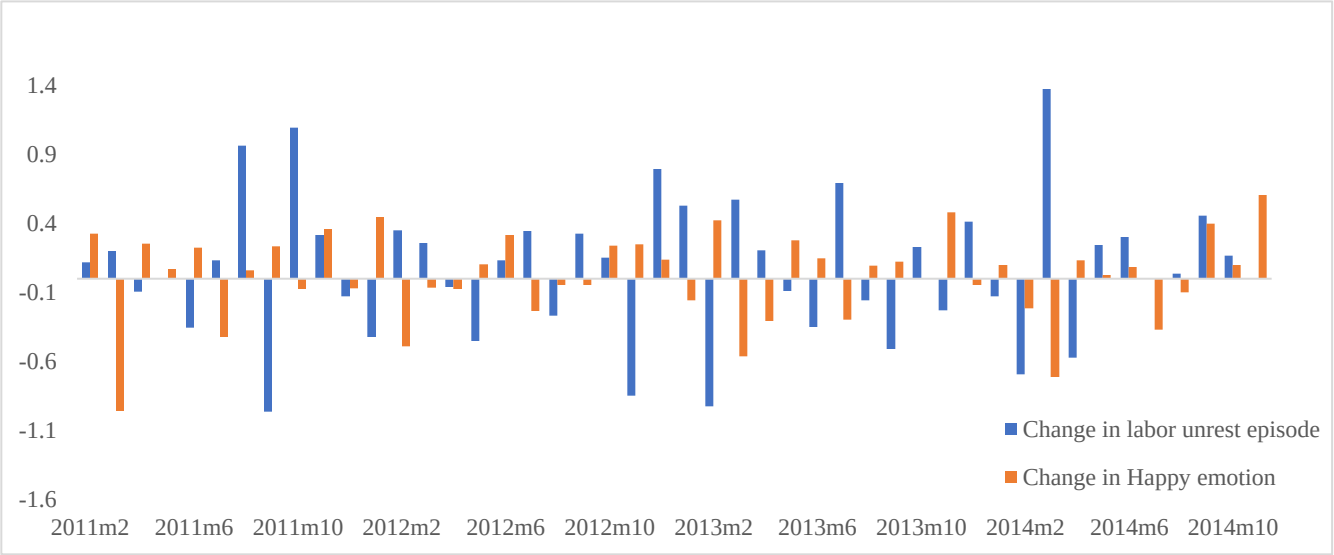


Figure 1 Number of episodes of labor unrest by industry and year

These graphs describe episodes of labor unrest recorded in the China Labour Bulletin survey by industry and year. The vertical axis is the number of episodes. Panel A reports the plot for all episodes of labor unrest. Panel B reports an analogous plot for only unrest episodes due to layoffs in non-SOEs.

A. Labor unrest and social sentiment (happiness)



B. Labor unrest and social sentiment (sadness)

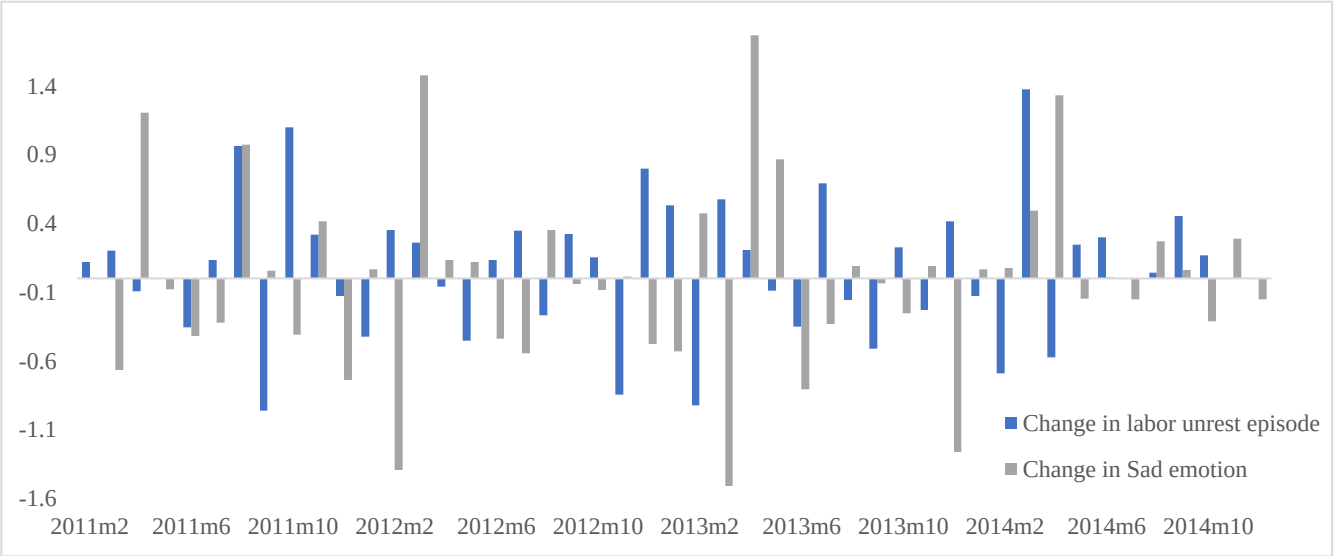


Figure 2 Labor unrest and social sentiment

These graphs describe the relation between changes in episodes of labor unrest and social sentiment (happiness in Panel A and sadness in Panel B). Labor unrest includes all episodes recorded in the China Labour Bulletin survey. We sum the number of events in each month. Data on social sentiment are from the Weibo emotion data of Chen et al. (2015). We aggregate the city and daily emotion index at the month level.

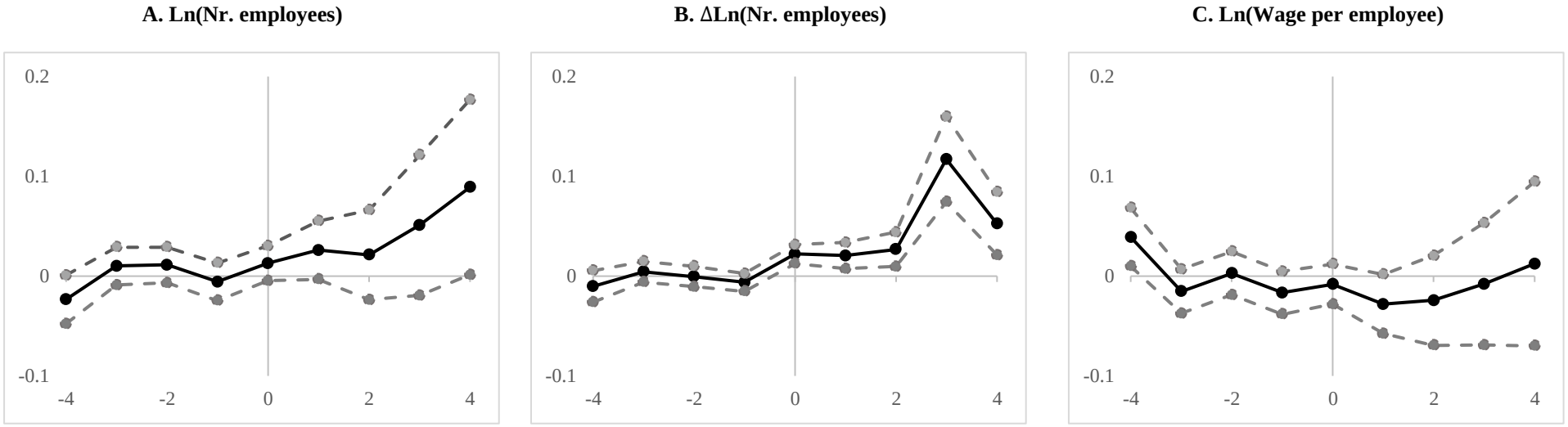


Figure 3
The graphs show the Callaway and Sant'Anna (2020) estimated coefficients of

$$Employment_{ft} = \alpha + \beta_1 Unrest_{ft} + \beta_2 SOE_{ft} + \delta\left(Unrest_{ft} \times SOE_{ft}\right) + \mu' x_{ft} + \varepsilon_{ft}$$

for SOEs in the Annual Tax Survey sample. $Unrest$ is an indicator variable that equals 1 if the firm experiences any labor unrest due to layoffs in non-SOEs within the same city district and 0 otherwise. The estimation itemizes the coefficient δ over time around the occurrence of labor unrest (year = 0). The dashed lines represent 95% confidence intervals. Panel A reports coefficients when the log-number of employees is used as the dependent variable. Panel B reports the same for the change in the log-number of employees. Panel C reports the same for the log-wage per employee. The specification uses the same set of control variables and fixed effects as in Column (3) of Table 3. Standard errors (reported in parentheses) are clustered at the city district level. All variables are defined in detail in Appendix A. The associated results are reported in Table B.2.

Appendices

Appendix A: Definitions of variables

Dependent variables	
Ln(Nr. employees)	The natural logarithm of the number of employees in the firm
Employee growth	The change in the log-number of employees between the end and the beginning of the year
Ln(Wage per employee)	The natural logarithm of the average wage per employee in the firm
PP&E-to-revenue ratio	The ratio of PP&E investment to firm total revenue (%)
Output added value	The added value of output in the firm
Output-to-revenue ratio	The ratio of output added value to firm total revenue (%)
Tax remittance to total income ratio	The ratio of tax remittance to firm total income (%)
High education employee ratio	The ratio of employees who hold a bachelor's degree or higher to all employees in the firm (%)
Technical staff ratio	The ratio of employees who are hired for their specialized skills to all employees in the firm (%)
Capital expenditures to assets ratio	The ratio of capital expenditures to firm total assets (%; CSMAR)
Tobinq	The ratio of the sum of the market value of equity and liabilities to firm total assets (CSMAR)
Other firm variables	
SOE (Y/N)	An indicator variable that equals 1 if the firm is controlled by the government in the year and 0 otherwise
Size	The natural logarithm of firm assets
Firm age	The number of years between the current year and the year the firm was established
ROA	The ratio of net profit to total assets (%)
Leverage	The ratio of total debt to firm assets (%)
Cash-to-assets ratio	The ratio of cash to firm assets (%)
Revenue growth	The revenue growth rate (%)
Unrest and macro variables	
Distance p25	The quartile value of the distance between the firm and episodes of labor unrest in the same city. The value is 11 km.
Unrest (11 km, Y/N)	An indicator variable that equals 1 if any episode of labor unrest due to layoffs occurs in a privately owned enterprise within a 11 km radius of the firm and 0 otherwise
Unrest (district, Y/N)	An indicator variable that equals 1 if any episode of labor unrest due to layoffs occurs in a privately owned enterprise in the city district of the firm and 0 otherwise

High unrest exposure	An indicator variable that equals 1 if the listed firm and its subsidiaries together are exposed to above-median unrest due to layoffs in a non-SOE in the cities where they are located and 0 otherwise
Other unrest (11 km, Y/N)	An indicator variable that equals 1 if any episode of labor unrest not related to layoffs or salary disputes occurs in a privately owned enterprise within a 11 km radius of the firm and 0 otherwise
Other unrest (district, Y/N)	An indicator variable that equals 1 if any episode of labor unrest not related to layoffs or salary disputes occurs in a privately owned enterprise in the city district of the firm and 0 otherwise
Unrest in SOEs (11 km, Y/N)	An indicator variable that equals 1 if any episode of labor unrest due to layoffs occurs in an SOE within a 11 km radius of the firm and 0 otherwise
Unrest in SOEs (district, Y/N)	An indicator variable that equals 1 if any episode of labor unrest due to layoffs occurs in an SOE in the city district of the firm and 0 otherwise
Ln(City GDP per capita)	The natural logarithm of the per capita GDP of the city in the year
Ln(City average wage per employee)	The natural logarithm of the per employee average wages in the city in the year
Young mayor	An indicator variable that equals 1 if the firm is located in a city with a mayor younger than the sample median age and 0 otherwise. We compute the median age separately for mayors in directly administered municipalities and other cities. Given the higher city administration rank, mayors in directly administered municipalities are significantly older.
Non-state sector growth	An indicator variable that equals 1 if the firm is located in a city with average non-SOE sales growth below the sample median and 0 otherwise
High deficit	An indicator variable that equals 1 if the firm is located in a city with an average deficit in the top 25% of the sample distribution and 0 otherwise. Deficit is defined as the difference between fiscal expenditures and fiscal income per capita.
Same industry	An indicator variable that equals 1 if any labor unrest experienced by the firm occurs in the same industry and 0 otherwise
Severe labor unrest	An indicator variable that equals 1 if the firm experiences at least one episode of labor unrest involving violence, death, or arrest in the year and 0 otherwise
Central SOEs	An indicator variable that equals 1 if the firm is owned by the central government and 0 if it is a non-SOE
Local SOEs	An indicator variable that equals 1 if the firm is owned by the local government and 0 if it is a non-SOE

Appendix B: Additional descriptive statistics and tests

This appendix reports additional descriptive statistics and test results omitted from the text for the sake of brevity.

Table B.1 reports estimates of the predictability of episodes of labor unrest.

Table B.2 reports results of the same test as in Table 3, using the Callaway and Sant'Anna (2020) methodology.

Table B.3 reports results of the same test as in Table 4, splitting the sample based on whether the firm experiences any severe unrest.

Table B.4 reports results of the same test as in Table 11, focusing on firm performance.

Table B.5 reports results of the same test as in Table 11 for SOEs owned by the central government and local government, respectively.

Figure B.1 shows the geographic distribution of labor unrest episodes recorded by CLB (2011-2018).

Table B.1 The predictability of unrest
This table reports estimates of

$$Unrest_{ft+1} = \alpha + \beta_1 SOE_{ft} + \mu' x_{ft} + \varepsilon_{ft}$$

in Panel A. Each observation corresponds to a given firm f in a given year t. The dependent variable, $Unrest_{ft}$, defined as in Table 3, is regressed on a number of firm- and city-level characteristics, including firm assets, firm age, return on assets, leverage ratio, cash-to-assets ratio, revenue growth, city GDP per capita, and city wage per capita. The standard errors in both panels (reported in parentheses) are clustered at the city district level. All specifications include firm and year fixed effects. Panel B reports estimates of

$$Unrest_{ct+1} = \alpha + \beta_1 \mu' x_{ct} + \varepsilon_{ct}.$$

Each observation corresponds to a given city c in a given year t. The dependent variable, $Unrest_{ct}$, measured as the total number of unrest episodes due to layoffs in non-SOEs in the city, is regressed on a number city macrolevel conditions, including city GDP per capita, city wage per capita, and the log-number of SOEs in the city. The standard errors in both panels (reported in parentheses) are clustered at the city level. All variables are defined in detail in Appendix A.

Panel A: Firm level: Unrest (Y/N) t + 1

	(1)	(2)
	Radius (11 km)	**City district**
SOE (Y/N)	0.010	0.011
	(0.007)	(0.007)
Ln(Firm assets)	0.002	–0.001
	(0.003)	(0.003)
Firm age	0.013	0.007
	(0.012)	(0.019)
ROA	0.000	–0.000
	(0.000)	(0.000)
Leverage	–0.000	–0.000
	(0.000)	(0.000)
Cash-to-assets ratio	0.000	0.000
	(0.000)	(0.000)
Revenue growth	–0.002	–0.001
	(0.001)	(0.001)
City GDP per capita	–0.034	–0.022
	(0.023)	(0.061)
City wage per capita	–0.078	–0.032
	(0.105)	(0.175)
Year FE	Y	Y
Firm FE	Y	Y
R^2	0.64	0.53
N	509,386	500,929

Panel B: City level: Unrest (Y/N) t + 1

City GDP per capita	–0.027
	(0.047)
City average wage per capita	–0.067
	(0.101)
Ln(1 + Nr. SOEs)	–0.032
	(0.086)
Year FE	Y
Firm FE	Y
R^2	0.45
N	1,440

Table B.2 SOE employment around labor unrest: Callaway and Sant'Anna (2020)
This table reports estimates of

$$Employment_{ft} = \alpha + \beta_1 Unrest_{ft} + \mu' x_{ft} + \varepsilon_{ft}$$

for SOEs (Columns (1)-(3)) and non-SOEs (Columns (4)-(6)) separately. $Unrest$ is an indicator variable that equals 1 if the firm experiences any labor unrest due to layoffs in non-SOEs within the same city district and 0 otherwise. The regression specification has the same set of control variables and fixed effects as in Column (3) of Table 3. The equation is estimated using the Callaway and Sant'Anna (2020) methodology. It corrects the potential bias introduced by comparing previously treated firms to later treated firms in the staggered difference-in-differences setting. The average effects of both pre- and post-event periods are reported. Standard errors (reported in parentheses) are clustered at the city district level. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	SOEs			**Non-SOEs**		
	Ln(Nr. employees)	**ΔLn(Nr. employees)**	**Ln(Wage per employee)**	**Ln(Nr. employees)**	**ΔLn(Nr. employees)**	**Ln(Wage per employee)**
Unrest (Y/N)	(1)	(2)	(3)	(4)	(5)	(6)
Pre-event average	–0.002	–0.003	0.002	–0.000	–0.001	–0.001
	(0.006)	(0.003)	(0.006)	(0.017)	(0.001)	(0.003)
Post-event average	0.040**	0.048***	–0.011	0.001	0.002	–0.002
	(0.019)	(0.008)	(0.017)	(0.007)	(0.002)	(0.009)
N	154,521	154,519	139,332	1,216,534	1,132,286	1,177,249

Table B.3 SOE employment around labor unrest: Severity of labor unrest

This table reports estimates following the same specifications as in Table 4 for firms exposed to at least one episode of severe unrest in a year and other firms. Severe events are ones involving violence, death, or arrest. Standard errors (reported in parentheses) are clustered at the city district level. The last row of each panel reports the F test statistic for the difference between the coefficients of $Unrest \times SOE$ of the two subsamples and the associated p value in parentheses. All variables are defined in detail in Appendix A.

	Panel A: Ln(Nr. employees)							
	Radius (11 km)				**City district**			
Severe unrest episode	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.031***	0.009	0.030***	0.004	0.036***	0.010	0.020	0.011
	(0.010)	(0.009)	(0.011)	(0.010)	(0.013)	(0.018)	(0.014)	(0.018)
Unrest (Y/N)	0.016	–0.006	0.012	–0.001	0.011	0.004		
	(0.012)	(0.006)	(0.010)	(0.008)	(0.012)	(0.005)		
SOE (Y/N)	0.013	0.020**	0.015	0.022***	0.026***	0.010	0.028***	0.014
	(0.012)	(0.008)	(0.012)	(0.008)	(0.009)	(0.012)	(0.009)	(0.012)
R^2	0.93	0.93	0.93	0.93	0.92	0.95	0.93	0.95
N	519,072	909,323	513,017	892,779	1,060,756	373,294	1,046,081	366,614
Difference (p value)	0.023* (0.083)		0.027* (0.055)		0.027 (0.212)		0.010 (0.672)	
	Panel B: ΔLn(Nr. employees)							
	Radius (11 km)				**City district**			
Non-state sector growth	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.015***	0.005	0.015***	0.007*	0.014***	0.011	0.015***	0.010
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.007)	(0.003)	(0.007)
Unrest (Y/N)	0.000	0.000	0.002	–0.000	–0.001	0.002		
	(0.003)	(0.002)	(0.004)	(0.003)	(0.002)	(0.003)		
SOE (Y/N)	–0.004	–0.000	–0.005	0.000	–0.003	0.001	–0.003	0.003
	(0.005)	(0.003)	(0.005)	(0.004)	(0.003)	(0.005)	(0.003)	(0.005)
R^2	0.46	0.43	0.46	0.44	0.42	0.50	0.43	0.51
N	519,059	909,313	513,004	892,769	1,060,739	373,289	1,046,064	366,609
Difference (p value)	0.010* (0.070)		0.009 (0.117)		0.004 (0.613)		0.005 (0.478)	
	Panel C: Ln(Wage per employee)							
	Radius (11 km)				**City district**			
Non-state sector growth	**Y**	**N**	**Y**	**N**	**Y**	**N**	**Y**	**N**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOE (Y/N) × Unrest (Y/N)	0.005	–0.008	0.006	–0.010	–0.019	0.000	–0.002	0.003
	(0.016)	(0.012)	(0.015)	(0.011)	(0.016)	(0.023)	(0.015)	(0.023)
Unrest (Y/N)	–0.033***	–0.004	–0.022*	–0.011	–0.014	–0.004		
	(0.010)	(0.009)	(0.012)	(0.010)	(0.015)	(0.009)		
SOE (Y/N)	0.015	–0.010	0.019	–0.010	0.010	–0.005	0.012	–0.008
	(0.014)	(0.010)	(0.014)	(0.010)	(0.011)	(0.015)	(0.010)	(0.015)
R^2	0.67	0.65	0.68	0.66	0.64	0.70	0.66	0.71
N	498,178	885,192	492,467	868,922	1,028,839	360,294	1,014,618	353,761
Difference (p value)	0.012 (0.513)		0.015 (0.399)		–0.019 (0.507)		–0.004 (0.886)	
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	Y	Y	Y	Y	Y	Y	Y	Y
City × Year FE	Y	Y	N	N	Y	Y	N	N
City district × Year FE	N	N	Y	Y	N	N	Y	Y

Table B.4 SOE performance around labor unrest: Listed firms
This table reports estimates of

$$Outcome_{ft} = \alpha + \beta_1 High\ unrest\ exposure_{ft} + \beta_2 SOE_{ft} + \delta\left(High\ unrest\ exposure_{ft} \times SOE_{ft}\right) + \mu' x_{ft} + \varepsilon_{ft}.$$

The sample is listed firms retrieved from the CSMAR database between 2011 and 2018. Each observation corresponds to a given firm f in a given year t. The dependent variable is the ratio of capital expenditures to firm assets in Columns (1) and (2) and Tobin's Q in Columns (3) and (4). $High\ unrest\ exposure$ is an indicator variable that equals 1 if the listed firm and its subsidiaries together experience more than the sample median of labor unrest due to layoffs in non-SOEs in the cities they operate in and 0 otherwise. SOE is an indicator variable that equals 1 if the firm is state owned and 0 otherwise. The vector of control variables x includes firm assets, return on equity, leverage ratio, and cash-to-assets ratio. All specifications include firm, year, and city-year pair fixed effects. Columns (2) and (4) additionally include firm industry-year pair fixed effects. Standard errors (reported in parentheses) are clustered at the city level. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

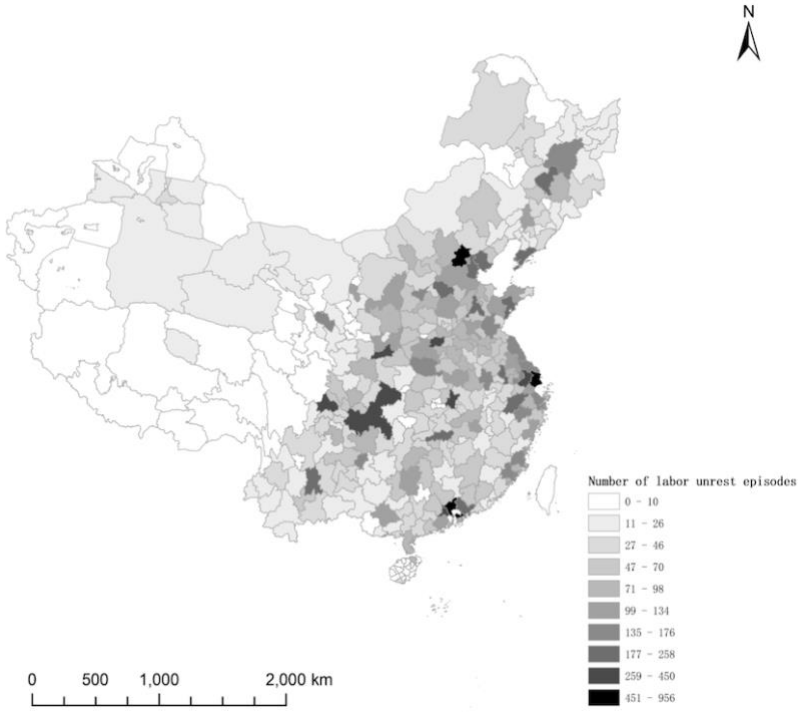
	Capital expenditures to firm assets		**Tobinq**	
	(1)	(2)	(3)	(4)
SOE (Y/N) × High	0.844***	0.706***	–0.399***	–0.299***
	(0.189)	(0.186)	(0.054)	(0.040)
High unrest exposure	–0.535***	–0.494***	0.180***	0.129***
	(0.136)	(0.137)	(0.043)	(0.038)
R^2	0.61	0.64	0.76	0.79
N	18,903	18,868	18,287	18,252
Controls	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y
City × Year FE	Y	Y	Y	Y
Firm industry × Year FE	N	Y	N	Y

Table B.5 SOE employment around labor unrest: Listed firms by ownership status

This table reports estimates following the same specification as in Column (2) of Table 11 but differentiating between SOEs owned by the central government (odd columns) and SOEs owned by the local government (even columns). Specifically, we compare labor policies between SOEs owned by the central government and non-SOEs as well as SOEs owned by the local government and the same set of non-SOEs. The last row reports the test statistic for the difference between the coefficients of $Unrest \times SOE$ between the two subsamples. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in detail in Appendix A.

	Ln(Nr. employees)		**ΔLn(Nr. employees)**		**Ln(Wage per employee)**	
	(1)	(2)	(3)	(4)	(5)	(6)
SOEs ownership	**Central**	**Local**	**Central**	**Local**	**Central**	**Local**
SOE (Y/N) × High unrest	0.062*	0.056**	0.027	0.021	–0.027	–0.083***
	(0.056)	(0.023)	(0.168)	(0.201)	(0.184)	(0.000)
High unrest exposure	0.024	0.009	0.011	0.003	–0.001	0.018*
	(0.132)	(0.553)	(0.341)	(0.792)	(0.911)	(0.070)
R^2	0.95	0.94	0.36	0.34	0.84	0.83
N	14,000	16,293	12,767	14,783	14,000	16,292
Coefficient difference is different from 0? (p value)	N (0.996)		N (0.994)		N (0.925)	
Controls	Y	Y	Y	Y	Y	Y
Year FE & Firm FE	Y	Y	Y	Y	Y	Y
City × Year FE	Y	Y	Y	Y	Y	Y
Firm industry × Year FE	Y	Y	Y	Y	Y	Y

A. All unrest episodes: City level



B. Unrest episodes due to layoffs in non-SOEs: City level

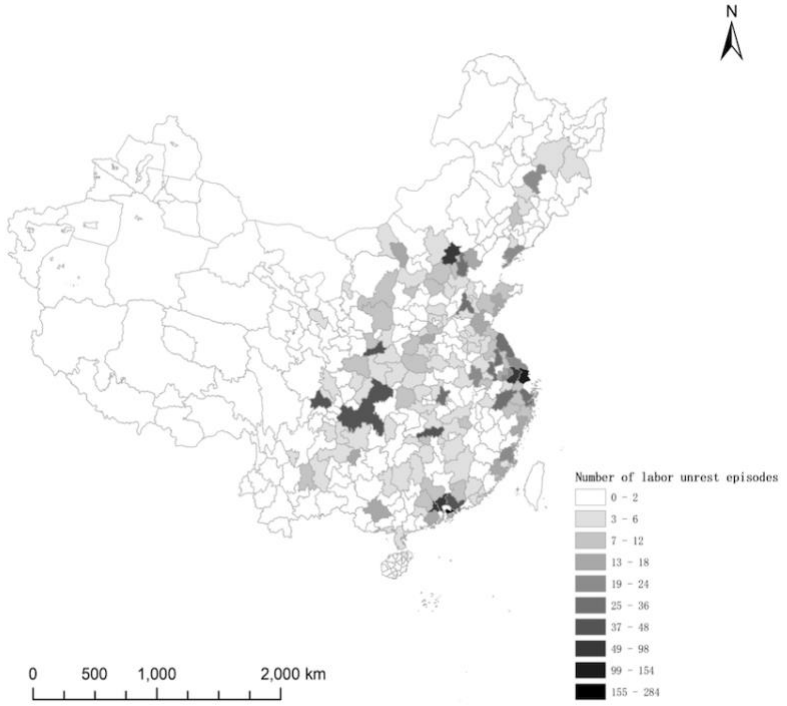


Figure B.1 Geographical distribution of labor unrest

These graphs describe the geographical distribution of labor unrest episodes recorded in the China Labour Bulletin survey. We report the total number of episodes between 2011 and 2018 at city level in Panel A (all incidents) and Panel B (incidents due to layoffs in non-SOEs).