

# The Trickle-Down Effect of Government Debt and Social Unrest<sup>1</sup>

Ben Charoenwong<sup>2</sup>

January 2023

## Abstract

Using a dataset of over a million local government procurement contracts in China, we study the social and economic costs of local government debt. Firms contracting with local governments with high maturing debt-to-fiscal income see an increase in accounts receivables that do not reverse, a decrease in cash balances, and an increase in the probability of litigation by creditors. These effects (1) are not driven by local economic conditions, endogenous government indebtedness, or self-selection into becoming government suppliers, (2) do not apply for government-linked firms, and (3) are larger for firms in areas with weaker labor and property rights. Affected firms are less likely to be repeat government contractors and more likely to see protests relating to non-payment of wages or pension contributions, suggesting that suppliers bear the costs involuntarily.

*JEL Classifications:* G38, H12, H13, H32, H72

*Keywords:* Public procurement, sovereign risk, financial distress

---

<sup>1</sup> We thank Sumit Agarwal, Hong Ru (discussant) and seminar participants at the IMF Asia-Pacific group, Asian Bureau of Finance and Economic Research 2022 Annual Conference, and the Reserve Bank of Australia for helpful comments and discussions.

<sup>2</sup> Ben Charoenwong, Email: [ben.charoenwong@nus.edu.sg](mailto:ben.charoenwong@nus.edu.sg), National University of Singapore Business School, 15 Kent Ridge Dr #07-69, Singapore 119245; Ben acknowledges financial support from the NUS Start-Up Grant No. R-315-000-119-133 and the Singapore Ministry of Education AcRF Tier 1 Research Grant No. R-315-000-134-115. Any remaining errors are our own.

# 1. Introduction

The accumulation of government debt has reached unprecedented levels in both developing and industrialized nations of US\$226 trillion following the Covid-19 pandemic (IMF 2021). Prior default experience in emerging markets has revealed the significant damage that sovereign default can inflict on international financial markets. However, the hazards of excessive government debt may reach far beyond the realm of economics. Yet despite the importance of protests and unrest in shaping societies (e.g., Knight 1991; Acemoglu and Robinson 2000; King and Pearce 2010; Dupas and Robinson 2012), the social costs of government debt are seldom discussed in the existing literature.

In this paper, we document evidence on the social costs of local government indebtedness in China. As of 2019, local government debt climbed to an average of 120% of the local GDP, which is equivalent to approximately 600% of the local government's fiscal income, posing systemic vulnerabilities (Lu and Sun, 2013; Barnett and Zhang, 2014; Ang et al., 2016; Amstad and He, 2020; Chen et al., 2020). In comparison, the United States city of Detroit defaulted in June 2013 with a debt-to-fiscal-income ratio of almost 700%. We show that local governments with a large amount of debt due in a particular year relative to fiscal income delay or default on their payments to non-politically-linked suppliers, typically Small and Medium-Sized Enterprises (SMEs). These suppliers then see higher accounts receivable that do not reverse, draw down their cash holdings, cut investment and R&D spending, and are more likely to experience financial distress. This trickle-down effect of local government debt leads to workers taking to the streets in protest of wage non-payment.

We investigate this trickle-down effect of government debt on private firms combining four main data sources: (1) a comprehensive dataset on all government procurement contracts in China, (2) detailed government debt data including bonds as well as local government financial vehicles' (LGFV) bond and bank financing, (3) data on firms' financial statements covering both public and private firms, and (4) detailed data on social unrest in China. Similar to Beraja et al. (2022), we employ a difference-in-difference empirical framework, comparing firms getting government procurement contracts from highly leveraged vs less indebted countries.

We find that after becoming a supplier, firms providing to more indebted governments have a 2.38-percentage-point rise in accounts receivable relative to total assets compared to firms supplying to less indebted governments in the same industry in the same time. High account receivables may have a significant impact on the daily operations of businesses. We also find that suppliers to indebted local governments are more likely to have low levels of cash, investment, and R&D. There is some evidence of additional trickle-down effects along supply networks, as affected firms also increase their accounts payable, albeit by a lesser amount than their accounts receivable. It suggests that these companies are unsuccessful in shifting the burden of the trickle-down effects of government debt onto their suppliers. Firms that contract with heavily indebted governments are also more likely to face employee protests regarding payment delays. The likelihood of employee demonstrations increases by 0.18% in these organizations, a statistically and economically significant increase.<sup>3</sup>

Our results are robust to alternative measures of government indebtedness using both the quantity and price of local government debt and do not appear driven only by local economic conditions. In addition, the results are not driven simply by time-to-build concerns or repeat contracts as removing contracts with a greater than one-year duration and firms with multiple contracts do not change our results. The results are also not driven by the Chinese Communist Party's anti-corruption period when local governments did not operate normally due to the loss of leaders and personnel.

However, two types of endogeneity could potentially hinder our causal interpretation of the results. The first endogeneity is that government debt, the financial distress of local businesses, and protests may be merely the result of slow regional economic growth or other regional factors. We apply three approaches to resolve this issue. In our baseline specification, we first control for local GDP growth and other alternative metrics of economic growth and find that the additional control variables do not affect our findings. Second, we investigate the subsample of suppliers located in different cities from the local governments they serve. As the government and suppliers are not located in the same location, it is unlikely that the same

---

<sup>3</sup> Note that the match from protests to employers is incomplete as not every protest contains information on a firm. Appendix Table A.4 repeats our analyses at the city level instead, which retains all the data on social unrest, and generates a point estimate over three times those reported at the firm-year level.

regional economic shocks are being captured. We find that the sub-sample of data from different city suppliers is nearly comparable to our baseline result, mitigating the concern that our results are caused by the same regional economic shock.

To further alleviate this endogeneity, we use an instrumental variable (IV) approach to isolate the component of government debt that is plausibly exogenous to local economic factors. Motivated by the existing literature, the instrument for government debt is an indicator variable for whether there are ministerial-level or higher national policymakers who were born in the city, according to Huang et al (2020). According to a substantial body of research, such political ties are related to increased municipal fiscal expenditures, which may increase government debt (e.g., Gao et al. 2021, Bai and Jia 2016) in the past. Then, the amount of government debt from past issuances that are maturing in a particular year is deemed plausibly exogenous to local economic factors. In this analysis, we find that the IV results are larger than the OLS results. This difference suggests that the endogeneity introduces a downward bias. This is plausible for at least two reasons. First, local government debt issuance may be positively associated with future growth prospects, isolating the variation in government debt that was from the past and not correlated with future growth prospects increases the point estimate on our main effects. Second, local firms, expecting that an indebted government may delay its payment for procurement contracts, would likely be more conservative in and seek more protective terms like a higher prepayment in their contracts. Either or both of these effects will cause our baseline results to be under-estimated due to the discreet business conduct of private firms.

The second endogeneity is the self-selection of firms to become government suppliers. For example, on the one hand, firms closer to fiscal distress may gamble for resurrection by contracting with governments in case they get repaid. This implies the estimated trickle-down effects are overstated. On the other hand, firms may also use contracting with indebted governments as a costly signal to other potential customers of their financial condition. This implies the estimated trickle-down effects are understated. We conduct three checks to alleviate this endogeneity concern. First, our results are unaffected if we remove firms with rapid growth in total sales, as those with fast expansion may be more prone to overextend their resources and become insolvent later. Second, we construct an index constructed from observables,

similar to Beraja et al. (2022) to control for numerous firm- and region-specific characteristics that may influence the selection of local firms to be chosen as government suppliers. Third, firms that have entered contracts with the government early only see large increases in accounts receivable after they become suppliers to indebted governments.

In addition, we provide three additional empirical results that suggest firms do not appear to voluntarily extend credit to indebted governments. First, the firms lending to the government through trade credit tend to be smaller and have higher costs of capital. Second, we do not find evidence of a quid-pro-quo as firms lending to the government do not appear to win future government contract bids, tax benefits, or land quotas. In fact, more than sixty percent of firms only engage in a single government contract and those that had supplied to highly indebted governments are less likely to be repeat government contractors. Third, the trickle-down effects appear driven by hard-to-detect government debt. Potential suppliers may look at a local government's balance sheet and evaluate whether it is fiscally sound. Government debts may be issued in the form of government bonds or LGFVs loans and bonds. The latter is substantially less transparent than the former, as investors do not have easy access to the identities and financial statement information of LGFVs. Defining transparent government debt as government bonds and less-transparent debt as those originating from LGFVs which require firms to match LGFVs to local governments, we find the trickle-down effects are driven by the less transparent debt.<sup>4</sup> Altogether, these results are most consistent with firms being forced to share the burden of government debt involuntarily rather than potential insider transactions with the government.

We further corroborate the trickle-down effect of government debt to firms with four more heterogeneity tests. First, we find that the relationship between government debt and local suppliers becoming the subject of protests is stronger when the awarded suppliers' procurement contract value is greater, indicating that the firms are undergoing a more severe liquidity shock. Second, the effect is also more pronounced in regions with fewer property rights, where businesses may be more subject to expropriation by local governments. In a similar spirit, the trickle-down effect of government debt only exists among non-politically connected suppliers,

---

<sup>4</sup> Taking a slightly different definition splitting transparent debt into all bonds (from governments directly or from LGFVs) and debt coming from non-bonds (which include bank debt) also shows that the effects are larger for non-bond debt.

consistent with existing U.S.-based studies indicating that politically-connected government suppliers can renegotiate with the government (Brogaard et al, 2021). Third, the effect is diminished in areas with more employee protections. Fourth, firms with less liquidity before the indebted government's payment delays see more employee protests, suggesting that the liquidity of local suppliers is the driving force behind their being the target of local demonstrations.

Finally, what are the characteristics of employees who protest non-payment of wages? We find that the estimated effect is greater when local firms operate in industries that employ more low-skilled employees. In addition, we find this collective action is more prominent in firms with a more homogeneous labor force, such as those with similar demographics and kinship ties to the same hometown. In addition, larger organizations are more likely to see a demonstration, consistent with the concept that coworkers incur fewer costs when organizing protests.

## **Related Literature**

Our paper contributes to the literature on the Chinese government debt. A group of literature has discussed the origin and sustainability of Chinese government debt (Feng, 2013; Sun, 2019; Amstad and He, 2020). Some focused on their nexus with the shadow banking system (Hachem, 2018; Wu, 2019; Chen et al., 2020; Gao et al., 2021). However, few have explored the impact of rising government debt on firm behaviors (Liang et al., 2017; Cong et al., 2019; Huang et al., 2020). To our knowledge, ours is the first paper to explore its implication over the nature of the government, i.e., whether the government's financial conditions affect private firms. Our research also challenges the long-held belief that governments bail out banks and companies during financial crises in general (Blau et al., 2013; Hung et al., 2017) by studying the behavior of local governments.

We also contribute to the government procurement literature, which focuses on the underlying corruption, collusion, and welfare loss from discretionary awarding decisions, especially in emerging markets. (Mahmood, 2010; Pontré et al., 2011; Dastidar and Mukherjee, 2014; Fazekas and Kocsis, 2020) Our paper, however, focuses on the post-procurement effects on firms. Most relevant to this article is Beraja et al. (2022), who explain part of the rapid

development of AI companies in China due to the government procurement and sharing of big data. We emphasize that the government may expropriate companies through procurement contracts under poor property protection and institutions, whereas existing research like Ferraz et al. (2016) shows that government procurements increase supplier firms' growth. Our paper is also related to the literature regarding the nature of the government. There has been extensive literature on whether the government is the helping or grabbing hand and the government's role in economic development. (Shleifer and Vishny, 1993, 1994; Frye and Shleifer 1996; La Porta et al., 1999). We complement that literature by suggesting that the nature of the government could be contingent on its financial status. To that end, our paper is related to Tilly (1985) and other papers on the form of government. In a recent paper, Sánchez De La Sierra (2020) suggests that the form of the government, exploitive or not, would be highly determined by the difficulty of monopolizing the main resource.

Finally, our paper is related to the literature on economic conditions and social unrest, which has linked income inequality (Alesina and Perotti 1996; Acemoglu and Robinson 2000) and fiscal conditions (Ponticelli and Voth 2020) with collective actions. Existing literature is more focused on changes in farmers' crop incomes (Miguel et al., 2004; Miguel, 2005), and studies have also pointed to the impact of cutting off trade-based sources of income (Dell et al., 2019). Research on collective action in China has focused more on the nineteenth century. For example, Bai and Jia (2016) discussed the impact of cutting off opportunities for upward mobility on elite participation in uprisings, and Cao and Chen (2022) discussed the impact of cutting off sources of trade on docks. This paper focuses on contemporary China and studies the unpaid wages of company employees, an important cause of collective action. For temporary workers who work in small and medium-sized firms, the pressure of the government's debt is passed on through the company, which may bring about more serious social problems.

## **2. Institutional Background**

### **2.1 Local Government Debt in China**

Governments must sell assets or borrow to cover the difference between their income and

fiscal expenditures. In China, local governments bear most of the costs of regional affairs, including primary/middle education, medical and old-age care, and the payroll of civil servants. On top of that, incentivized “promotion tournaments,” government officials frequently make large infrastructure investments to stimulate the economy (e.g., Li and Zhou, 2005; Jin et al., 2005; Han and Kung, 2015; Bai et al., 2016; Lv et al., 2020). According to China’s Bureau of Statistics, local governments account for an annual average of 84.5% of the total government expenditures in China in the past decade.

On the other hand, the fiscal income share of local government as a fraction of total government income has decreased over the years. Since a tax reform in 1994, the central government has gained more taxing authority through corporate and individual income taxes. Since then, the fiscal income share of local government decreased from 78 percent to 47 percent through 2009. Considering that local government expenditures account for more than 70% of the total government expenditure, the decline in local government income share has led local governments to have a significant fiscal gap of around 20% of the total government revenue. This leads local governments to issue more debt to finance their spending.

Prior to the 2014 New Budget Law, local governments could not issue bonds directly.<sup>5</sup> As a result, government financing platforms – a special purpose vehicle – were established to bypass this regulation. China’s local-platform debt model gained momentum after the 2008 financial crisis. At that time, the central government launched a 4 trillion economic stimulus plan, 1.18 trillion RMB of which came from the central government, and the remaining 2.82 trillion came from local government spending. As a result, local governments had to use SPVs for debt for financing because they had no additional fiscal revenues sources. Since then, local financing platforms emerged in 2009 and grew to 11,567 local government financing platforms in 2019. Less than a fifth of existing SPVs are provincial-level, about 56 percent are municipal-level, and more than 20 percent are county-level.<sup>6</sup>

Most SPVs are companies with no real business operations. The head of the local government or its finance department usually takes the duality position as the head of the SPV

---

<sup>5</sup> The old budget law in 1995 stopped the local government from issuing debt. In addition, the Law of the People’s Bank of China, which took effect at the same period, also stopped the banks from lending to local governments.

<sup>6</sup> Data from practitioner’s report: [In-Depth: Thematic research on local government debt](#).



to ensure absolute control of the SPV. The SPVs borrow in two ways. First, SPVs can issue “quasi-municipal debt” in the inter-bank market. The debts range from short-term financing notes to long-term bonds. All debt issuance needs approval from the National Development and Reform Commission and carries an annual interest rate of around 5.5%. The local government can also use SPVs to obtain loans from local banks. Those loans are usually guaranteed by the government fiscal revenue. Local banks, which local governments ultimately own,<sup>7</sup> typically do not chance to reject their loan application. While the debt issued in the inter-bank market is easy to track, the total amount of bank lending to the SPV is hard to monitor by central governments, as debt issuance is entirely off the book. This brings about systemic risks concerns.

To put the untraceable SPV debt under more oversight, the New Budget Law in 2014 allowed local governments to issue debts directly once the State Council approves. The provincial-level governments must guarantee the municipal governments’ bond to motivate strict monitoring over the debt quality of the subordinate governments. The local tax revenue also guarantees the bonds for general uses, and those for specific projects are mainly repaid with corresponding land sale revenue or project revenues (e.g., highway tolls).

At the same time, the local governments are not allowed to issue new debt via SPVs. In 2015, the central government required that the local SPV debt be converted into local government debt by the end of 2018. Otherwise, the governments will no longer provide any support to debt repayment. The local governments are also prohibited from providing guarantees for any outstanding or newly issued debts of SPVs. However, anecdotal evidence suggests that the local governments are trying to cut the SPV loans. For example, Chongqing city dismissed several county officials for providing illegal guarantees for SPVs.

Local government debts have been increasing over the past years. Figure A.1 illustrates the total outstanding and maturing SPV bonds, SPV bank loans, and government debt. By the end of 2019, these three types of debts account for 85% of total GDP. Before 2014, the main method for local government debt finance was SPV loans from banks. The local government direct debt has experienced dramatic increases ever since its inception in 2014. By the end of

---

<sup>7</sup> Another reason for the dependence of the local banks over the government is that the government usually puts their fiscal income into local banks as deposits.

2019, it has been around 55% of the local governments' fiscal income. The total amount of SPV bonds and SPV bank loans have been almost constant over the years, reflecting an effort of local governments to replace it with government debts.

In a survey by the National Audit Office on outstanding government debt in 2013, total debt outstanding by local governments account for 36.74% of total local GDP; three provincial government (out of 34), 99 city-level government (out of 385), 195 county governments (out of 2000) having debt obligation more than 100% of its fiscal income<sup>8</sup>. The expansion of local debt raised concern over the default likelihood of local governments. In 2017, Moody warned of the systemic risks of local debt and lowered the Chinese sovereign rating from Aa3 to A1.

Since 2014, the central government has taken a policy stance that it would not be responsible for the local debt. Despite the huge debt burden on local government, there has been no default yet. The main reason may be more political rather than economic. With the local debt accumulating, it is a consensus that first to default local government would trigger a domino effect, probably bringing about a systemic risk to all participants in the local debt market, affecting banks, the local government, and institutional and retail bondholders. The local leaders, whose promotion decisions are made by its higher government, are concerned that the first to default would be a huge political stain that will cost them their political careers. Anecdotal evidence shows that local governments make disparate moves to make their debt sustainable. For example, a distressed county government in Guangdong was forced to lease its government hall to a bar to repay its debt. Chinese local governments, in the absence of a formal bankruptcy code and a check on their power, typically default selectively to relieve debt pressure (Gao et al., 2021).

## **2.2 Government Procurement and Payment**

Chinese firms can become suppliers to the government if they have relevant professional competence, well-documented financial statements, and a tax record. Local governments use public bidding to choose suppliers. The Ministry of Finance also stipulated that small and

---

<sup>8</sup> Appendix Figure 2 shows the number of cities with percentage of outstanding debt to fiscal income higher than certain thresholds.

medium enterprises (SMEs) should enjoy preferential treatment in the bidding procedure, and at least 30% of the government procurement must go to the SMEs. By the end of 2019, more than 95% of government procurements are finished by private companies, with more than 77% finished by SMEs.

In China, the suppliers of the government procurements are determined in many ways, e.g., public bidding, competitive negotiation, purchasing inquiry. According to the Government Procurement Law, for all government procurements after 2015, the local government has to disclose the relevant information such as the identity of the supplier, the price, and quantity of the procurement within two working days after the decision was made. All information is disclosed on China Government Procurement Website<sup>9</sup>, the official website for government procurement publicity. See Figure A.3 for an example of a disclosed procurement contract.

However, the local governments can delay or deny the repayments to suppliers after the goods or services are provided. This is especially true for those private firms without political connections. Several reasons lead to the pervasive delay of government procurements. The payment process of local government is complicated, involving the financial department auditing and progress confirmation of third-party agencies. The government officials may want to use the opportunities to extract rents from the private suppliers. It is also likely that under great pressures, the governments may not have sufficient cash flows to make ends meet, and the repayment to the suppliers must be delayed. Statistics show that the total overdue repayments to government procurement by the end of 2018 were at least 890 billion RMB, most of the suppliers are SMEs. By the end of August 2018, 480 local governments in China appear on the “Dishonest debtor” name list, meaning that they default on the procurement at least once.<sup>10</sup>

China’s judicial system does not impose sufficient checks on its government. Under the leadership of the local Party Committee,<sup>11</sup> the Chinese courts generally favor the local

---

<sup>9</sup> <http://www.ccgp.gov.cn/>

<sup>10</sup> Some payment delays persist for a long time. For instance, a listed company named Orient Landscape, whose main business is to provide urban garden planting services to local governments, disclosed a total account receivable of 8.9 billion RMB, or 21.3% of its total asset. It is estimated that only 40% of its account receivable would be paid at all. One of its largest clients, the Management Committee of Binzhou Economic Development Zone, only paid 13 million out of its total of 1.5 billion unpaid procurements between 2014 and 2018.

<sup>11</sup> The head of Chinese courts is selected and appointed by the head of the local polity and legal commission, one division of the local party committee.

government in the face of conflicts between the government and the private citizens. Figure A.4 illustrates the total number of cases brought by the government suppliers against governments that delayed payment over the years. For all 2,806 cases, the total amount of unpaid payments and interest amounted to about 106.1 billion Yuan. The small absolute number of cases reflects the reluctance of the suppliers to sue the government unless the value at stake was significant. More than 55% of cases were directly rejected to trial by the court over the years. For those courts that allow the prosecution, it is most likely that the suppliers would win the trial. However, in most cases, the courts do not have the enforcement power to force the government to repay.

The governments' non-repayment on procurement may cause their suppliers to run out of liquidity. Most banks in China do not issue loans to private firms for more than one year. To finance the project longer than one year, firms need to repay the loan first after one year and re-borrow the loan conditional on the banks' consent. Suppose the government failed to repay the suppliers within one year. In that case, the supplier must borrow from other resources to fill the funding gap caused by the account receivable against the government. Failing to do so would mean that the firm would default on its bank loans and be listed as the "Dishonest Debtor." Given that private firms face credit rationing from banks, many suppliers cannot borrow sufficient capital from the bank. As a result, it is not uncommon for firms to borrow expensive private loans, which charge an interest rate of 24% to finance their account receivable towards the government. That seriously weakens the financial health of the firm.

Moreover, government payables may exhaust the firms' working capital, leading to the failure to repay its upstream suppliers in time. It means that the governments' high pressures are passed among private firms, getting more involved firms. During the bankruptcy procedure in China, when one debtor borrows from multiple creditors, it is usually the case that creditors have the first move advantage. Those who first litigate and liquidate the firm may grab more assets and benefit from their first-mover advantages. Therefore, those distressed government suppliers' risk being run by the creditors and liquidating pre-maturely. Therefore, the institutional setting of the local government procurement environment motivates our empirical analyses.

## **2.3 Government Debt and Social Unrest**

On top of delaying payments to their suppliers, financially distressed firms in China also delay their payments to their employees, especially to migrant workers. This is so widespread that more than 40% of rural workers admitted to having experienced that and the total amount of late payments may have reached billions of RMB.

China's unions are typically not involved in issues like unpaid wages because their primary goals are to eliminate employee dissatisfaction with their working conditions and promote workplace safety. Unions typically take the company's side and encourage unpaid employees to pursue legal channels, as opposed to organizing employees' collective bargaining with the employers. The legal process is expensive and extremely cumbersome for individual employees. First, they must report to the Labor Inspection Brigade inside the Human Resources and Social Security Bureau. Next, they must present their case to the local Labor Dispute Arbitration Committee. Finally, they must file a lawsuit and wait for the court's ruling and enforcement. In practice, these processes take at least 4 months to complete, according to reports from 2013. A significant majority of unpaid workers just have a temporary contract with the company rather than being properly hired. The majority of them are from nearby rural areas, have no formal education, and have to support their families by performing manual labor for the construction project. It is particularly costly for them to go through the legal process since they must quit their jobs, lose income for a protracted period, and wade through several complex legal documents.

There is no guarantee that the court will make the wage payment even if the employee is able to present enough proof and is supported by the court. Most workers who sue their employers only receive half their wages two or three years after the default, according to the Supreme Procuratorate. The primary reason is that if the employers aren't paid by the government, they won't have enough cash on hand to cover the payment.

The high costs of the judicial process motivate underpaid workers to look for alternate solutions. One potentially dangerous but effective one is protesting. The central government's top priority is social stability. Local government authorities are more inclined to respond to the protests of unpaid workers before things get out of control since local collective action might

affect promotions. Although most protest material in the media is promptly censored, protests are more likely to be responded to if they are covered by specific major media. The local administration generally responds to about 6% of all protests. On the other hand, local police may choose to suppress the protests, in which case the protesters risk being detained. However, it does not serve as a significant deterrent for desperate peasant workers who are awaiting payment.

As a result, a significant portion of local unrest incidents are protests over unpaid wages. 8,574 accusations regarding unpaid wages were made out of the 11,799 collective action episodes from 2013 to 2019 in the Chinese labor bulletin database used in this paper. The majority of the companies involved were in the manufacturing (24.57%), service (16.41%), and construction (48.72%) sectors that actively hire migrant workers. These collective activities often involve less than 100 participants and take the form of protests, processions, displaying banners, and requests for the intervention of labor justice and other authorities.

Construction companies frequently use their own funds or even borrow money from banks to cover project costs in government procurement projects, expecting to be paid once the project is finished and put to use. They face immediate financial difficulties, bank lawsuits, and listing as defaulters when payments are not made on time. The unpaid employees, who are primarily peasant workers, may protest at the corporate headquarters. There are some distressed companies that directly organize the peasant workers to protest against the government department that owes them money for the projects or products. An incident that occurred in the province of Henan serves as an illustration of how collective action was sparked when local government debt pressure caused the failure to pay suppliers. Through a tender auction, the company assisted the government in constructing an office building. The job was finished, but the government didn't pay for it. As a result, the company was unable to pay its employees or recoup the building costs it had advanced. Some of the workers are so impoverished that they have no choice except to survive on the income from odd occupations, including scavenging near the government while they wait for payment. The company's owner led the employees in a banner-borne protest at the government demanding payment of their "blood-earned money." Unfortunately, three years after the project's completion, the company still hasn't received the

payment<sup>12</sup>.

Such collective action comes at a very significant cost to the government. In 2021, the central government spent 189 billion yuan on public security, which is a significant amount compared to other programs like education (169 billion yuan) and general public services (157 billion yuan). This amount represents 5.4 percent of the central government's spending (excluding transfers to localities).

### **3. Data and Methodology**

The data in this paper comes from three different sources: (1) government procurement, (2) government debt, (3) corporate financial information, and (4) social unrest information.

First, we collect information on more than one million procurement announcements between 2013 and 2019, covering a total of 32 provinces and 324 cities in China. It is worth noting that the procurement law was implemented in 2014, and the procurement announcement before 2013 is not standardized in format and fewer in number. However, its impact on our merged database is limited as most firm-level information is only available after 2014. We extract key information, including the procurement government, the project/goods involved, the vendor's identity, purchase amount, and prices. We then construct company-by-year panel data by summing the total government procurements for the firm in the specific year. Although on average, one firm has 1.7 procurement contracts over the 7-year sample period (2013-2019), a firm rarely receives multiple contracts from the government in one year. In those very rare cases that one firm receives contracts from multiple governments, we use the feature of the government with the largest procurement contract amount.

Second, government debt data comes from the Wind database, a widely used financial database used by both academics and practitioners. As mentioned before, Chinese local governments raise debt in two ways. The first one is to issue bonds directly. However, Chinese local governments were not allowed to issue bonds directly until 2014, when the central government tried to make the total quantity of local government debt more transparent. The second way is to use the local SPVs, usually called local government financial vehicles

---

<sup>12</sup> Case from media report: [Two village committees built office buildings and owed wages to migrant workers](#).

(LGFVs), to issue debt. This is the primary method to raise external finance for local government. The LGFVs can issue bonds in the market or take interest-bearing loans from banks. Panel A of Figure A.1 shows the stock of each type of debt over our sample period from 2014 to 2019. While the bond issued by LGFVs, i.e. municipal corporate bonds (MCBs), are open to the market, the loan and other interest-bearing debt are relatively harder to track. Then, for the local government bonds and MCBs, we obtain the relevant information regarding the date of issuance, identity of the issuer, maturity date, total amount, and coupon rate. The most challenging task is identifying LGFVs from all other non-LGFV debt-issuing companies. The name list of LGFVs comes from the Wind database. It is estimated to cover more than 70% of all LGFVs. Information regarding other LGFV interest-bearing debt comes from their financial statements. Most LGFVs are not listed companies, so they must announce financial statements only when they issue bonds. We then sum the local government bond, municipal corporate bonds, and other interest-bearing debt of LGFVs as the total debt of local governments. Panel B of Figure A.1 shows that although there was a substantial increase in the local government bond recently, the maturing debts are mostly MCBs and LGFV debts.

Third, data on financial statements of public suppliers are from Oriana, the Asia Pacific company information from Bureau van Dijk, a Moody's Analytics Company.<sup>13</sup> The data include information on public and private companies and are primarily consolidated from original filings to regulatory agencies, which include a company's directors and contracts, corporate structures, financial statement variables. Although not all financial statement information is available, we rely on the headline financial statement information, for which data are more readily available. We obtained basic information and shareholder profiles of approximately 2 million companies in China from 2009 to 2019. We only keep companies with at least three years of complete financial information and winsorize total assets at the 5% level to avoid skewing our results by extreme value observations. We end up with 2,783,374 observations from 997,024 companies.

Last, we obtain social unrest data from China Labor Bulletin (CLB), a Hong Kong-based

---

<sup>13</sup> The dataset belongs to the same company as the global Orbis database, which is also a Bureau Van Dijk Moody's Analytics Company. This dataset was shown by (Kalemli-Ozcan et al. 2015) to permit the construction of a nationally representative sample compared to aggregate Eurostat statistics.



non-governmental organization. It collects and continuously updates a database of collective actions in mainland China since 2010. The database contains the most exhaustive collection of local unrest incidents in China that have ever appeared in the media, including some that were deleted afterward. The main sources of information are mainstream social media in mainland China, such as Weibo (China's equivalent of Twitter), WeChat subscription account, and Tianya Forum, etc, as well as some official media coverage. During our sample period from 2013 to 2019, there are a total of 11,799 incidents covering 357 cities, of which 8,575 incidents involved wage arrears. The majority of protests appear to be wage-related. In the remaining situations, employees demand pay raises, pension benefits, or improved working conditions. Where available, the database provides detailed information about each event, including its date, the city where it happened, the companies involved, the cause, as well as the type of action, the size of the personnel, and the official response.

We merge the three databases using the firm identities and city names and obtain 13,866 supplier firms from 231 cities with complete financial information and with 110 unrest records concerning 69 firms<sup>14</sup>. The sample covers 46,549 firm-year observations. Table A.1 shows the definition of all variables, and Table 1 shows the summary statistics.

## 4. Empirical Analyses

### 4.1 Empirical Specification

We estimate a regression specification of the form:

$$y_{i,t} = \beta 1[\text{Gov. supplier}]_{it} \times 1[\text{High pressure}]_{it} + X'_{i,t-1}\Gamma + \alpha_{j(i),t} + \mu_c + \rho_t + \varepsilon_{i,t},$$

where  $i$  indexes a firm, and  $t$  indexes a year. The outcome variables  $y_{i,t}$  are firm characteristics. In the baseline regression the outcome variable is the account receivables scaled by past total assets. In later sections we explore other firm characteristics, e.g. its cash-holding,

---

<sup>14</sup> When matching firms involved in social unrest (CLB firms) with supplier firms, we conduct fuzzy matching based on company name. This is because these names are mainly from social media, and the post may not include the full name as the firm is registered or only refer to a branch. For example, China Guanghui Development Co., Ltd. may appear in the CLB database as "Guanghui Company" or "Beijing Guanghui Branch". The process of fuzzy matching is as follows: First, according to the naming convention of "region" + "keyword" that most Chinese companies follow, we remove the region or city in the name of each CLB firm. Next, we search in our supplier database for the first three Chinese characters of CLB firm names. Then, we manually check the matching results and keep the most reasonable one (if any) for each CLB firm. Finally, for supplier firms that match multiple CLB firms, we aggregate the number of unrest events.

investment, and R&D expenditure, as well as number of firm-related unrests. We cluster standard errors by firm.

Our main variable of interest is the interaction between the  $1[\text{Gov. supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$ .  $1[\text{Gov. supplier}]_{it}$  is a dummy variable that is 0 before the firm becomes a government supplier and 1 after a firm becomes a government supplier.  $1[\text{High pressure}]_{it}$  is a dummy variable that equals 1 if the government has a higher-than-median government debt-to-income ratio.<sup>15</sup> The definition of  $1[\text{High pressure}]_{it}$  is based on the comparison to median of government observations of the same year to avoid overweighting observations from later years in our sample since debt has risen across the board.  $X_{i,t-1}$  is a set of time-varying firm characteristics, including firms' total asset, leverage ratio, profitability and tangibility. We also control for unrest characteristics in relevant analysis, including types of action, number of participants and whether there is violence.  $\alpha_{j(i),t}$  denotes industry-by-year fixed effects. Time invariant features of cities and annual macroeconomic conditions affecting all firms are absorbed by city fixed effects  $\mu_c$  and year fixed effects  $\rho_t$ , respectively.

## 4.2 Trickle-Down of local government debt pressure

We first examine whether the local government can pass their debt pressure to their local suppliers. Table 2 shows the baseline results on the firm financials. In Column (1), the coefficient of the interactive term between the  $1[\text{Supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$  is positive and significant, meaning that once firms become suppliers of a highly indebted local government, they subsequently see higher account receivables compared to another firm in the same industry that became a supplier of a less indebted government around the same time. The point estimate suggests that suppliers to an indebted government are associated with 6.7 million RMB (approx. 1 million USD) of additional account receivables after the contract is signed. This is economically meaningful, as it accounts for 23.2% of the total value of the average amount of government procurement, 25.3 million RMB. In other words, the local government in debt may pass the debt pressure by delaying their promised payments to private firms.

From Columns (2) onwards, we show that the high account receivables may cause serious

---

<sup>15</sup> Government income includes both income from taxation and the extra-tax income, mostly from the sale or leasing of land.

liquidity problems for those suppliers. This is mainly reflected in the reduction in the amount of cash available to them. Consistent with this hypothesis, we find the suppliers of these indebted governments had a very significant decrease in their cash levels. The lack of internal financing due to the exogenous shock is likely to have a real impact on firms' behaviors, considering most firms in China lack sufficient external financial means. We find that those affected suppliers are associated with a slower growth rate in their fixed assets, suggesting that they are delaying their investments. Their research and development expenditures are also declining further, suggesting that firms are sacrificing their innovation potential to stay survive when liquidity is low. Column (5) also shows a decrease in firms' ROE by 20% compared to the sample average, indicating that the liquidity shortage has a major impact on the firm's overall profitability

We consider several robustness tests that address the concern that the rapid rise in account receivables for indebted government suppliers may be related to several factors. Panel A of Table A.2 shows the following results. First of all, these accounts receivable are likely elevated because government projects are not yet finished and thus unpaid. To ensure the robustness of our findings, we also consider the length of time it took to complete the project, where the possibility is that some projects took so long to complete that the company's accounts receivable took a long time to clear. We find that controlling for this has little effect on the results. At the same time, some companies may have multiple government projects of a similar nature. This can cause our AR calculations to be inaccurate and simply reflect repeated procurements. We, therefore, consider companies that have only one government order.

Another possibility is the efficiency of the government, which may be decreasing due to the anti-corruption. It could be because officials are being investigated and punished causing a shortage of staff, or it could be because the anti-corruption has made many officials fearful and reluctant to work.

We also ended up looking at whether the company's accounts receivable represented delayed payments or simply accrual accounting. Specifically, we looked at companies that might be manipulating accruals by focusing on those with sister companies who may be more likely to manipulate their AR and find quantitatively similar results.

Finally, we discuss including only municipality-level government in our sample, and the

point estimate remains similar level. Our results suggest that the results do not appear driven by outliers, contract features, confounding events, or any financial manipulation. These support our interpretation that suppliers to more indebted governments appear to provide more short-term financing for governments compared to those supplying to less indebted governments.

One may still question the way we generate the measure of government indebtedness. In Figure 2, we tabulate the correlation between the local government indebtedness and suppliers' account receivable. The high government indebtedness is not related to firms' accounts receivable at all before the firm becomes the government's supplier. On the other hand, the firms' accounts receivable would increase with the local government's indebtedness after they become the supplier and only when the government pressure is severe, i.e. more than 50% of local government income is forced to repay debt. According to the figure, changing the definition of an indebted government, such as defining 60% of the repayment ratio as a highly indebted government, would not change our main results. Besides, we conduct several robustness checks with different definitions of indebted government. The results are shown in Table A.3. In addition to the absolute cut-off of 100% of fiscal income, we also consider whether the government issues bond with higher than median interest spread to capture the possible deterioration of the debt issuer's credit rating and the associated rollover risks even when the total scale of debt is not large. The results still support our main conclusions.

In Table 3, we further show that the transmission of the local debt pressure has a significant ripple effect in terms that other firms, like the suppliers of those suppliers, are also affected. Firstly, the account payables of those government suppliers also go up, suggesting that those distressed suppliers have no choice but to delay their payment to their suppliers. However, we find that the net account receivable, the total account receivable minus the account payable, still increases for those government suppliers. It suggests that the trade credit finance they manage to obtain from their suppliers is not sufficient to compensate for their liquidity loss due to delayed payment from the government. The coefficients mean that firms managed to split half of the debt pressure to their suppliers through accounts payable and retain the other half on their balance sheets.

If the increase of the account payable is mainly driven by the dry-out of the liquidity, we

are expecting an increase in litigation as an attempt to their creditors are chasing their payments. Indeed we find that the likelihood that the government suppliers are sued by their creditors is increased, indicating that the high account payable is the consequence of firms' low liquidity, rather than other factors such as enhanced bargaining power or a rise in sales. We obtain the government suppliers' litigation information regarding their default. Litigation is necessary for the creditors to liquidate the asset of the defaulted borrower, and all the litigation information is included in the judicial database of China (Franks et al., 2021). Column (3) of Table 3 shows that the probability of government suppliers being sued was significantly higher after they accumulated high account receivables, suggesting that the firms are more likely to default on their loans due to the exhaust of internal funding and operational cash.

### **4.3 The effect on social unrest**

One key consequence of financially distressed suppliers to those indebted governments is that those suppliers may also default on their employees by delaying their wages. In Table 4, we explore the likelihood of employees taking to the streets in protest after the government default on their employer. We find that the likelihood of supplier's employees unrest increases by around 0.2% for the indebted government compared with the non-indebted government.<sup>16</sup> The result is unchanged when controlling for a series of firm-related characteristics, such as the total asset and leverage ratio. The results stand all robustness tests we mentioned beforehand, as shown in Panel B of Appendix Table 2 and 3.

To mitigate the concern that the OLS results could just capture the certain established trend of dry-out of supplier's liquidity, we draw figures for the three main variables, the suppliers' accounts receivable, cash ratio, and the probability that they are involved in wage-related unrests, against years before and after they obtain government procurements. The point estimates reported in Figure 3 suggest that there is no established trend before the firm becomes the supplier.

To ensure that certain outliers do not drive our results, we decompose the government into quartiles according to their respective government pressures. If the high pressure drives the

---

<sup>16</sup> Regression results shown in Table A.4 also suggest a positive correlation between government indebtedness and the probability of social unrest.

delay in repayment, one would expect to see a monotonically increasing effect over the supplier's account receivables as well as the probability of protest across local government debt-to-income quartiles: Those governments with the highest (lowest) High pressure should be associated with the largest (smallest) local firms' account receivables. This conjecture is supported in Table 5. The coefficient of the most indebted government is highest, followed by the coefficient of the less indebted governments.

## **4.4 Endogeneity and Confounding Factors**

### **4.4.1. Local factors**

There are several types of endogeneity issues associated with this study. The first one is that the increased indebtedness of the local government and the increase in local protests may both be the result of certain local conditions, notably the economic slowdown. We try to address this concern in the following ways. First, we define dummy variables indicating whether the city has higher than median GDP growth, or fiscal expenditure. Column (1)-(2) in table 6 include the interaction between the dummy variables and 1[Gov. Supplier] and 1[High pressure]. For either case, we find that the coefficient of the interaction is not significant, suggesting that the local economic condition may not be the main driver of our result. Moreover, adding this interaction does not change our main result in the baseline specification.

Second, we use the subsample of those suppliers being connected to the non-local government. As suppliers are not local, they are less likely to be affected by local economic conditions, such as GDP and government expenditure. If the impact is caused by certain local economic factors, one would expect that the effect is smaller for non-local firms. However, using the non-local supplier subsample, we find that the scale of the coefficient is even larger than our baseline specification, suggesting that even if the hidden variable issue exists, it would work against our result.

In addition, we also explored the changes in the total number of non-wage-related protests. Compared with protests where protestors are demanding the government or employers to pay wages, those protests not related to protests, such as demand for higher benefits, lower inflation, or certain regulation over working environments, are more likely to be related to local economic factors instead of related to high government debts. We further investigate whether

those employees are making more protests on non-wage-related demands. In column (3) of Table 6, the result shows that employees of those indebted government's suppliers make no more changes on non-wages demand, suggesting that it is not likely to be driven by the local economic situation.

#### **4.4.2. Selection of supplier firms**

The second type of endogenous issue is that those suppliers of indebted government are highly selective, i.e., they are completely different from normal firms and the difference could be the reason for their employees' protests. One possibility is that firms being the suppliers of highly indebted governments might be expanding aggressively, one feature could be correlated with treating their own employees in a non-decent way. Therefore, we directly account for recent firm growth in our empirical specifications. We define an expanding firm dummy that equals 1 if the firm's recent sales growth is higher than the median level, and then interact this expanding firm dummy with the  $1[\text{Supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$  interaction. The result is shown in Column (1) of Table 7. We find that those firms with recent fast expansion are not correlated with the higher protests.

Second, suppliers of the indebted governments may be different from suppliers of the non-indebted government along unobservable time-varying characteristics. For instance, the government may grant procurement contracts to those firms according to certain soft information: such as those with the greatest expansion potentials. We therefore follow Beraja et al. (2022) to construct a firm index and a contract index, to control for hidden factors that may affect the matching of firms with local governments. We proxy for firms' annual index using their establishment year, size, leverage, and shareholder composition prior to becoming a government supplier. We also calculate the contract index using its type, term, and total amount. After controlling for the two indexes in our regression (Column (2)-(3) of Table 7), our main result is also unchanged. This alleviates the concern that our results are driven by certain features of the suppliers and the contracts.

Finally, we exclude this possibility with the firm that has been the government supplier before the government becomes indebted. One would expect that those suppliers that sustained a long relationship with the local government are less likely to be subject to the selection

problem. Column (4) of Table 7 uses the subsample of such firms, and show that the coefficient of  $1[\text{High pressure}]_{it}$  is still robust, suggesting that the selection issue may not be a major one either.

#### 4.4.3. Instrumental variable approach

Because local governments may issue more debt when they believe future growth prospects are good, our baseline estimates may underestimate the true trickle-down effects of government debt. To mitigate this endogeneity concern, we use an instrumental variable regression. In particular, we follow Huang et al. (2020) to use the local political connection  $1[\text{Top leader connection by hometown}]_{it}$  as the instrument, defined as 1 if the city is hometown to any top national leader (above ministry level)<sup>17</sup>. The instrumental variable isolates the variation of government debt maturing in a particular year with a measure based on whether the top leader was born in that particular hometown decades. The instrument is relevant because connected cities are more able to push for projects financed with government debt due to favors from the central government. The exclusive restriction condition is also plausibly satisfied, as a city's political connections are not directly related to economic conditions and protests of local employees.

Table 8 shows the estimation results. In the first stage regression, we find that top leader connections matter for debt accumulation. Being hometown of top leaders is associated with significantly high local debt. In the second stage, we find that government indebtedness significantly impacts a firm's accounts receivable, as well as the probability of wage-related unrests. Both coefficient scales are more than twice the OLS ones, suggesting that the endogeneity issue in the OLS regression may work against us by bringing down the coefficient. It could be the case that local firms, expecting that an indebted government may delay its payment for procurement contracts, would be more discreet in bidding and seek more protective terms like a higher prepayment in their contracts. This means that our result is underestimated due to the discreet business conduct of private firms. By bringing in exogenous shocks to local government indebtedness, the instrumental variable regression ignores this

---

<sup>17</sup> We also follow Ru (2018) and use the whether the local officials are in their first two years in office as another instrument variable. When local officials firstly take office, they are more motivated to take economic stimulating policies to maximize their promotion probability, most of which are financed by local government debts, thus increasing local government indebtedness. The instrument generates similar results.



possibility and therefore yields higher coefficients.

## 5. Economic Mechanisms

We consider two competing economic mechanisms to explore how the debt pressure is trickled down from the local government to its suppliers and then to their employees, causing social unrest: quid pro quo, or local government expropriation.

### 5.1 Quid pro quo

Firstly, local firms may be willing to provide the local government with trade credit even in the threat of unrest because they get other benefits in return. In this case, those firms with lower costs of capital are more likely to help the government, as those highly indebted local governments may be so loathed by the financial market to justify an interest rate higher than the private firms.<sup>18</sup> We proxy for firms' cost of capital with the industry's average financing cost measured by interest expense to total debt. We would expect firms with high costs of capital should be less likely to engage in trade credit injection to the government. However, column (1) in Panel A of Table 9 suggests that firms with high costs of capital suppliers do not see any differential changes in their probability to protest compared to those with lower capital costs. Therefore, a firm's strategic financing of local governments due to their differential cost of capital unlikely leads to our results.

In addition, the provision of trade credit to indebted local governments could be the reciprocal behavior from the supplier's side to the government's favoritism (Compte et al., 2005; Ishii, 2009). We explore the several plausible ways a government can help a firm: granting more procurement contracts, reducing its taxes, or offering more land purchasing. The government may be more likely to grant more contracts to its favored firms even if others submit more competitive bids (Goldman et al., 2008). Governments can often exclude

---

<sup>18</sup> There is some anecdotal evidence that suggests that the real cost of capital government debts could be significantly higher than the interest rate on paper, especially for those governments with small fiscal income. It is estimated that the local government's interest rate could be as high as 10%. See <https://www.reuters.com/article/china-local-debt-snowball-fin-cost-idCNCNE95201X20130603>. In one extreme case, one district government issue debt with an interest rate of 15% to its employees. See [http://www.jsthinktank.com/jiangsuzhiku/cjcyjjy/news/201706/t20170607\\_4196168.shtml](http://www.jsthinktank.com/jiangsuzhiku/cjcyjjy/news/201706/t20170607_4196168.shtml).

competing bidders by placing special requirements on their purchases so that their preferred firms are the only ones that meet the criteria. Alternatively, the government also has discretionary power in determining the taxes that a firm needs to hand in and may grant more taxation exemption to its favored firms.<sup>19</sup> The government may also choose to return the favor by using land sales to the firm to repay its financial debt. We address these potential reciprocities by collecting information on procurement contracts, the tax expense as well as the land purchase of the supplier, and regress them on  $1[\text{Supplier}]_{it}$  and  $1[\text{High pressure}]_{it}$  variables. Panel B of Table 9 reports the results of the analyses and fails to detect a significant effect for these favored government treatments, suggesting that the reciprocal behavior of the firms does not drive the results.

## 5.2 The expropriation channel

We explore whether the expropriation of the local government causes the effect. Local firms may be forced to provide subsidies to the local government because the government may refuse to pay the procurement on time after delivering goods and projects. There is no judicial remedy available to force the local government as all courts in China are affiliated with the local government. As a result, the local firms may be forced to accumulate high account receivables, not able to pay their workers and result in an increased probability of protests. We test this hypothesis by exploring heterogeneity both in firms and in the local government's intention of expropriation.

First, we define a dummy variable indicating that the suppliers' procurement contract value is greater, and thus face more severe liquidity shock when they are delayed payment. Column (2) of Panel A in Table 9 shows such firms have a higher probability of becoming the subject of protests after supplying to indebted governments.

Second, we use an ETC index of local government corruption following Cai et al. (2011) to measure to what extent the local government officials extort private firms without any checks and balances. Column (3) shows that regions with lower levels of property rights are associated with higher increases in the probability of protest. Similarly, we explore the effect on

---

<sup>19</sup> For instance, in a very influential paper, Li et al, (2008) suggests that firms connected to local governments enjoy significant higher level of tax exemptions than unconnected firms, illustrating the great discretionary power of Chinese local government in determining the local firms' tax exemptions.

politically-connected firms, because those with government officials on their board are likely to renegotiate with the government. Column (4) shows that the probability that workers from these firms go on protest related to wage payment is much lower. This result indicates that local governments' delay in repayment is selective and may follow a kind of pecking order, prioritizing firms with more bargaining power and strategic importance based on the Communist Party's designation and disproportionately hurting smaller firms with less bargaining power. In addition, employee protections mitigate the effect of supplying to indebted governments on the probability of unrest. We measure labor protection with the marketization index by Fan et al (2018). Column (5) in Panel A of Table 9 shows that regions with better labor protection are associated with a lower effect.

Lastly, the effect of government debt is worsened among firms with less liquidity. Column (6) shows that firms with negative working capital before the indebted government's payment delays see more employee protests, suggesting that the liquidity of local suppliers is the driving force behind their being the target of local demonstrations.

These results suggest that the firms' provision of trade credit and higher possibility of unrest may not be its choice but an outcome imposed by the local government. These heterogeneous effects are particularly concerning as the smallest and weakest firms and their workers appear the most extorted.<sup>20</sup>

### **5.3 Hard-to-detect government debt**

Having confirmed that the growth in accounts receivable and the increase in protests were due to expropriation by the local government, an intuitive question remains: Why would the supplier firms agree to contract with the governments? We provide one possible explanation that these companies are not aware that the government is under high debt pressure. There are two major sources of local government debt, the government's bonds and the LGFV's debt, which includes municipal bonds and other debt such as bank loans that need to be found in their financial statements. The latter is very difficult to detect. For normal non-financial firms, it is already difficult for them to link LGFV's debt to government pressure, not to mention

---

<sup>20</sup> These latter results also further contradict the hypothesis that firms supply credit to governments due to their lower capital costs as smaller firms likely have higher costs of capital.

understand the financial information. The opaqueness of government debt prevents the suppliers from understanding the actual debt situation of the government and thus anticipating that the debt pressure may be transferred to them. We confirm the explanation in Table A.5 by separating debt pressure from LGFV and non-bond debt and show that our results are more pronounced when the pressure mostly comes from hidden debt.

## **6. Concluding Remarks**

### **6.1. Employee Characteristics & Collective Action**

We conclude our study by exploring what facilitates the local employees to organize a protest. In Table 10, we discuss features of protestors in several aspects: Firstly, anecdotal evidence shows that a large share of rural workers in the unskilled labor-intensive industry, such as construction and manufacturing, would fall victim to wage delay and they are more likely to protest. We use the average product complexity index from The Growth Lab at Harvard University (2019) to proxy task complexity in each industry and show that those workers doing less complex work are more likely to organize protests. Meanwhile, there is a higher probability of unrest in cities with a higher proportion of workers in agricultural and industrial firms. Next, the literature emphasizes the importance of coordination to overcome the free-riding problem associated with protests (Passarelli and Tabellini, 2013; Bai and Jia, 2016). As the benefits of participating in the unrest grow with the number of participants, more social links from the workplace or family ties increase the probability of unrest.

Our results in column (5)-(6) of Table 10 show that firms with a large employee population are more likely to experience protests, as it is much easier to organize a protest within one firm than across different firms. We also obtain the number of local clans from Clan Culture Database, which summarizes all family ties from General Catalog of Chinese Genealogy, and find that regions with stronger family ties are more likely to experience local protests, suggesting the role of social capital in facilitating group actions.

### **6.2. Conclusion**

We show that firms supplying to indebted governments face payment backlogs that

predict future liquidations and lower future firm growth. Corroborating the extant empirical literature documenting the crowding-in effect of government spending on research and development (e.g., Beraja et al. 2022), we show evidence suggesting that financial hardships lead governments to delay procurement contract payments also cause a negative externality to local firms. We also document that local governments in China appear to prioritize payments for contracts most aligned with the federal government's objectives and those with more bargaining power and delaying payments more for those where local governments appear stronger relative to firms. Finally, deteriorating financial conditions at non-state-linked government suppliers are associated with protests on non-payment of wages and pensions, highlighting a social cost of government debt resulting from the trickling down of indebtedness to firms.

## References

- Acemoglu, D., & Robinson, J. A. (2000). Why did the West extend the franchise? Democracy, inequality, and growth in historical perspective. *The quarterly journal of economics*, 115(4), 1167-1199.
- Alesina, A., & Perotti, R. (1996). Income distribution, political instability, and investment. *European economic review*, 40(6), 1203-1228.
- Amstad, M., & He, Z. (2020). 5. Chinese Bond Markets and Interbank Market (pp. 105-148). Princeton University Press.
- Anderson, M. L. (2008). Multiple inference and gender differences in the effects of early intervention: A reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects. *Journal of the American statistical Association*, 103(484), 1481-1495.
- Ang, A., Bai, J., & Zhou, H. (2016). The great wall of debt: Real estate, political risk, and Chinese local government credit spreads. *Columbia Business School Research Paper*, (15-57).
- Bai, C. E., Hsieh, C. T., & Song, Z. M. (2016). The long shadow of a fiscal expansion (No. w22801). National Bureau of Economic Research.
- Bai, Y., & Jia, R. (2016). Elite recruitment and political stability: the impact of the abolition of China's civil service exam. *Econometrica*, 84(2), 677-733.
- Barnett, M. S. A., & Zhang, M. Y. S. (2014). Fiscal Vulnerabilities and Risks from Local Government Finance in China (No. 2014/004). International Monetary Fund.
- Beraja, M., Yang, D. Y., & Yuchtman, N. (2022). Data-intensive innovation and the State: evidence from AI firms in China. *The Review of Economic Studies*, forthcoming.
- Blau, B. M., Brough, T. J., & Thomas, D. W. (2013). Corporate lobbying, political connections, and the bailout of banks. *Journal of Banking & Finance*, 37(8), 3007-3017.
- Brogaard, J., Denes, M., & Duchin, R. (2021). Political influence and the renegotiation of government contracts. *The Review of Financial Studies*, 34(6), 3095-3137.
- Cai, H., Fang, H., & Xu, L. C. (2011). Eat, drink, firms, government: An investigation of corruption from the entertainment and travel costs of Chinese firms. *The Journal of Law and Economics*, 54(1), 55-78.

- Cao, Y., & Chen, S. (2022). Rebel on the Canal: Disrupted Trade Access and Social Conflict in China, 1650–1911. *American Economic Review*, 112(5), 1555-90.
- Chen, Z., He, Z., & Liu, C. (2020). The financing of local government in China: Stimulus loan wanes and shadow banking waxes. *Journal of Financial Economics*, 137(1), 42-71.
- Compte, O., Lambert-Mogiliansky, A., & Verdier, T. (2005). Corruption and competition in procurement auctions. *Rand Journal of Economics*, 1-15.
- Cong, L. W., Gao, H., Ponticelli, J., & Yang, X. (2019). Credit allocation under economic stimulus: Evidence from China. *The Review of Financial Studies*, 32(9), 3412-3460.
- Dastidar, K. G., & Mukherjee, D. (2014). Corruption in delegated public procurement auctions. *European Journal of Political Economy*, 35, 122-127.
- Dell, M., Feigenberg, B., & Teshima, K. (2019). The violent consequences of trade-induced worker displacement in Mexico. *American Economic Review: Insights*, 1(1), 43-58.
- Dupas, P., & Robinson, J. (2012). The (hidden) costs of political instability: Evidence from Kenya's 2007 election crisis. *Journal of Development Economics*, 99(2), 314-329.
- Faccio, M. (2006). Politically connected firms. *American Economic Review*, 96(1), 369-386.
- Fan G., Wang X., & Hu L. (2018). Marketization index report by provinces in China.
- Fazekas, M., & Kocsis, G. (2020). Uncovering high-level corruption: Cross-national objective corruption risk indicators using public procurement data. *British Journal of Political Science*, 50(1), 155-164.
- Feng, X. (2013). Local government debt and municipal bonds in China: Problems and a framework of rules. *The Copenhagen Journal of Asian Studies*, 31(2), 23-53.
- Ferraz, C., Finan, F., & Szerman, D. (2016). *Procuring firm growth: the effects of government purchases on firm dynamics* (No. w21219). National Bureau of Economic Research.
- Franks, J., Miao, M., & Sussman, O. (2022). Resolving financial distress where property rights are not clearly defined: the case of China.
- Frye, T., & Shleifer, A. (1996). The invisible hand and the grabbing hand.
- Gao, H., Ru, H., & Tang, D. Y. (2021). Subnational debt of China: The politics-finance nexus. *Journal of Financial Economics*.
- Gao, J., Gao, B., & Wang, X. (2017). Trade-off between real activities earnings management and accrual-based manipulation-evidence from China. *Journal of International*

- Accounting, Auditing and Taxation, 29, 66-80.
- Goldman, E., Rocholl, J., & So, J. (2008). Political connections and the allocation of procurement contracts. Working paper.
- Hachem, K. (2018). Shadow banking in China. *Annual review of financial economics*, 10, 287-308.
- Han, L., & Kung, J. K. S. (2015). Fiscal incentives and policy choices of local governments: Evidence from China. *Journal of Development Economics*, 116, 89-104.
- He Y, & Wang W. (2015). Land finance, official characteristics and local debt inflation: empirical evidence from provincial municipal investment in China. *Journal of Central University of Finance and Economics*, 6, 10-19.
- Huang, Y., Pagano, M., & Panizza, U. (2020). Local crowding-out in China. *The Journal of Finance*, 75(6), 2855-2898.
- Hung, C. H. D., Jiang, Y., Liu, F. H., Tu, H., & Wang, S. (2017). Bank political connections and performance in China. *Journal of Financial Stability*, 32, 57-69.
- Ishii, R. (2009). Favor exchange in collusion: Empirical study of repeated procurement auctions in Japan. *International Journal of Industrial Organization*, 27(2), 137-144.
- Jin, H., Qian, Y., & Weingast, B. R. (2005). Regional decentralization and fiscal incentives: Federalism, Chinese style. *Journal of public economics*, 89(9-10), 1719-1742.
- King, B. G., & Pearce, N. A. (2010). The contentiousness of markets: Politics, social movements, and institutional change in markets. *Annual review of sociology*, 36, 249-267.
- Knight, J. (1992). *Institutions and social conflict*. Cambridge University Press.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1999). The quality of government. *The Journal of Law, Economics, and Organization*, 15(1), 222-279.
- Lane, P. R. (2012). The European sovereign debt crisis. *Journal of economic perspectives*, 26(3), 49-68.
- Li, H., & Zhou, L. A. (2005). Political turnover and economic performance: the incentive role of personnel control in China. *Journal of public economics*, 89(9-10), 1743-1762.
- Li, H., Meng, L., & Zhang, J. (2006). Why do entrepreneurs enter politics? Evidence from China. *Economic Inquiry*, 44(3), 559-578.



- Li, H., Meng, L., Wang, Q. and Zhou, L.A., (2008). Political connections, financing and firm performance: Evidence from Chinese private firms. *Journal of development economics*, 87(2), pp.283-299.
- Liang, Y., Shi, K., Wang, L., & Xu, J. (2017). Local government debt and firm leverage: Evidence from China. *Asian Economic Policy Review*, 12(2), 210-232.
- Lu, Y., & Sun, T. (2013). Local government financing platforms in China: A fortune or misfortune?. *International Monetary Fund*.
- Lv, B., Liu, Y., & Li, Y. (2020). Fiscal incentives, competition, and investment in China. *China Economic Review*, 59, 101371.
- Mahmood, S. A. I. (2010). Public procurement and corruption in Bangladesh confronting the challenges and opportunities. *Journal of public administration and policy research*, 2(6), 103-111.
- Miguel, E., Satyanath, S., & Sergenti, E. (2004). Economic shocks and civil conflict: An instrumental variables approach. *Journal of political Economy*, 112(4), 725-753.
- Miguel, E. (2005). Poverty and witch killing. *The Review of Economic Studies*, 72(4), 1153-1172.
- Ponticelli, J., & Voth, H. J. (2020). Austerity and anarchy: Budget cuts and social unrest in Europe, 1919–2008. *Journal of Comparative Economics*, 48(1), 1-19.
- Pontré, J., Welter, V., Malta, J. N. V., Faria, I., & Chernyshova, A. (2011). Risk Management in humanitarian procurement and supply chain. *Journal of Public Procurement*.
- Ru, H. (2018). Government credit, a double-edged sword: Evidence from the China Development Bank. *The Journal of Finance*, 73(1), 275-316.
- Sánchez De La Sierra, R. (2020). On the origins of the state: Stationary bandits and taxation in eastern congo. *Journal of Political Economy*, 128(1), 000-000.
- Shleifer, A., & Vishny, R. W. (1993). Corruption. *The quarterly journal of economics*, 108(3), 599-617.
- Shleifer, A., & Vishny, R. W. (1994). Politicians and firms. *The quarterly journal of economics*, 109(4), 995-1025.
- Sun, L. (2019). The structure and sustainability of China's debt. *Cambridge Journal of Economics*, 43(3), 695-715.

Tilly, C. (1985). Models and realities of popular collective action. *Social research*, 717-747.

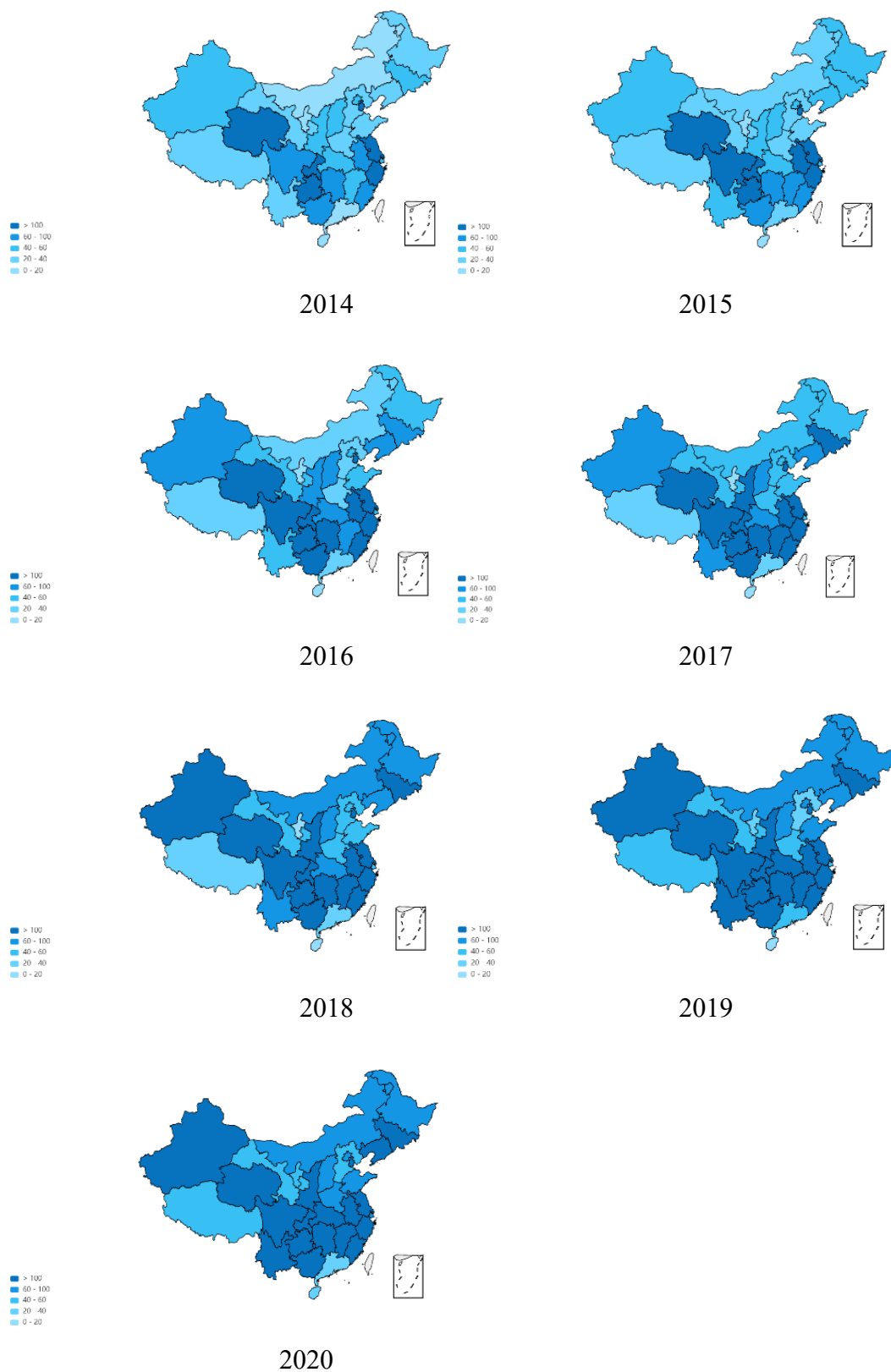
Wu, F. (2019). Land financialisation and the financing of urban development in China. *Land Use Policy*, 104412.

Xu, N., Chen, Q., Xu, Y., & Chan, K. C. (2016). Political uncertainty and cash holdings: Evidence from China. *Journal of Corporate Finance*, 40, 276-295.

---

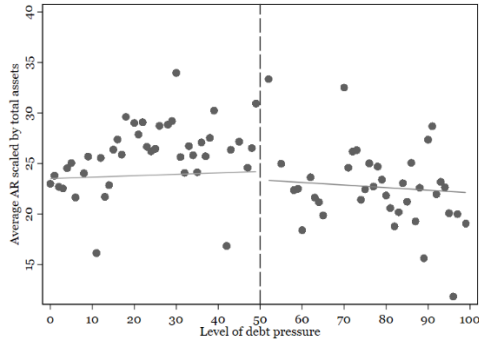
## Tables and Figures

**Figure 1. Percentage of maturing debt to total fiscal income (%), 2014-2020 annually.**

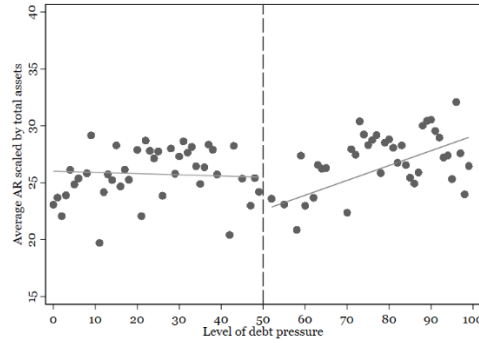


**Figure 2. Fitted value of debt pressure and firm account receivables.**

This figure presents the correlation between local government debt pressure and firms' account receivables. The x-axis is the level of government debt pressure measured by the debt to repay as share of the local government fiscal income, and is sorted into 100 groups. The y-axis is the average account receivable for firms with government procurement contract.



Panel A. Pre-supply, two fitted lines.

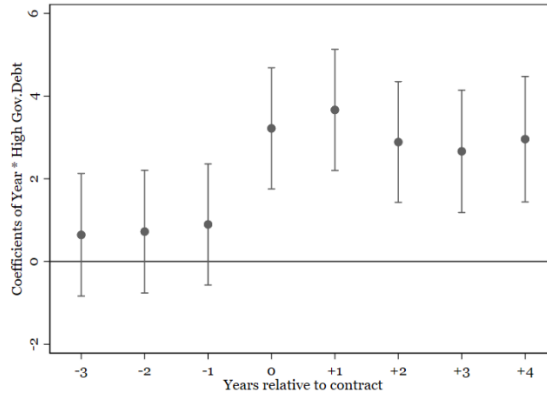


Panel B. Post-supply, two fitted lines.

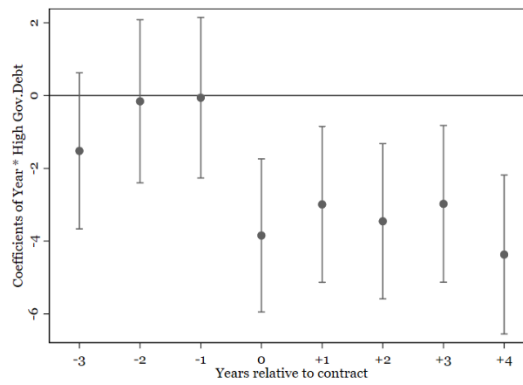
**Figure 3. Dynamics of trickle-down and social unrest.**

This figure presents the coefficients of the interaction between 1[High pressure] and the number of years relative to supplying to local government. The dependent variable for Panels A-C are account receivables, cash ratio and probability of unrests, respectively.

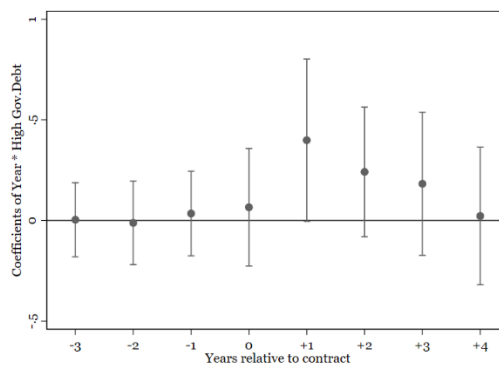
Panel A. Accounts receivables



Panel B. Cash ratio



Panel C. Probability of protests



**Table 1. Summary Statistics**

This table shows the summary statistics of the main variables in this study. The sample comprises 46,549 firm-year observations.

Variables:	Mean	Std. dev	P25	Median	P75
Panel A. Key variables					
Account receivable	24.962	20.236	8.986	20.767	36.533
1[Unrest]	0.180	4.244	0	0	0
1[Gov. supplier]	0.787	0.409	1	1	1
1[High pressure]	0.322	0.467	0	0	1
Panel B. Firm characteristics					
Cash	21.337	20.488	6.497	14.797	29.327
Fixed assets growth	-0.349	28.138	-0.007	0.000	0.07
R&D expense	1.817	5.300	0.000	0.000	0.000
ROE	6.926	42.951	0.46	5.63	16.01
Account payable	17.39	18.683	2.672	11.528	25.965
Net account receivable	7.572	22.876	-3.391	5.253	19.557
1[Ligitation]	0.851	9.184	0	0	0
Tangible asset	17.359	19.552	2.115	9.49	27.533
Asset turnover	127.829	184.991	51.707	89.489	152.732
Leverage ratio	50.989	26.629	30.241	52.605	72.946
ROA	3.636	10.109	0.19	2.04	6.65
Total Assets	1124.73	4021.82	13.269	60.091	328.983
1[Firms expanding]	0.169	0.374	0	0	0
1[Other city]	0.584	0.493	0	1	1
Financing cost	0.001	0.001	0	0	0.001
External-finance dependence	0.196	3.298	-2.104	0.137	1.248
1[Connected]	0.001	0.038	0	0	0
Employment	546.67	2543.78	10	10	100
1[Multiple contracts]	0.27	0.44	0	0	1
Number of contract	1.582	1.336	1.00	1.00	2.00
1[Follow-up contract]	0.473	0.499	0	0	1
Tax expense	0.825	1.506	0.017	0.304	1.058
Number of land bought	0.004	0.602	0	0	0
Area of land bought	0.004	0.643	0	0	0
Panel C. Other characteristics					
1[High GDP]	0.414	0.493	0	0	1
1[High fiscal expenditure]	0.439	0.496	0	0	1

1[Top leader connection by hometown]	0.731	0.444	0	1	1
1[Poor labor protection]	0.656	0.475	0	1	1
1[Poor property right protection]	0.271	0.445	0	0	1
Task complexity	0.501	0.404	0.479	0.6	0.6
Percentage of lower-skill labor	40.161	11.632	40	40	40
Local clan	38.628	48.825	1	13	71

---

**Table 2. Local debt pressure on suppliers' account receivables, liquidity and investment**

This table reports regression coefficients of firms' financial characteristics on government supplier indicators. The account receivable and cash are scaled by total assets, and R&D expense by total sales. Column (1) – (5) reports estimated coefficients of the interaction of post-becoming supplier dummy and government high debt pressure dummy with time-varying controls. Control variables include firm size, tangibility, leverage and profitability ratios. All regressions include year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Account receivable	Cash	Fixed assets growth	R&D expense	ROE
	(1)	(2)	(3)	(4)	(5)
1[Gov. supplier]	0.132 (0.240)	0.171 (0.256)	-0.237 (0.415)	0.260* (0.147)	-0.166 (0.540)
1[High pressure]	-2.606*** (0.350)	1.487*** (0.377)	0.886 (0.717)	0.329 (0.262)	0.896 (0.757)
1[Gov. supplier] * 1[High pressure]	2.384*** (0.348)	-0.739* (0.382)	-0.814 (0.501)	-0.546** (0.248)	-1.530* (0.840)
Control	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry x year FE	Yes	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes	Yes
Observations	46,549	46,549	34,074	15,503	46,549
R <sup>2</sup>	0.871	0.855	0.320	0.748	0.767



**Table 3. Local debt pressure on suppliers: the ripple effect**

This table reports further outcomes of becoming government supplier indicators. The account payable and net account receivable are scaled by total assets, and 1[Litigation] by 100. Column (1) – (3) reports estimated coefficients of the interaction of post-becoming supplier dummy and government high debt pressure dummy with time-varying controls. Control variables include firm size, tangibility, leverage and profitability ratios. All regressions include year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Account payable	Net account receivable	1[Litigation]
	(1)	(2)	(3)
1[Gov. supplier]	-0.368* (0.196)	0.500* (0.287)	0.011 (0.022)
1[High pressure]	-0.667** (0.299)	-1.939*** (0.422)	-0.307** (0.127)
1[Gov. supplier] * 1[High pressure]	1.289*** (0.303)	1.095*** (0.425)	0.331** (0.136)
Control	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry x year FE	Yes	Yes	Yes
City FE	Yes	Yes	Yes
Observations	46,549	46,549	46,549
R <sup>2</sup>	0.884	0.846	0.985

**Table 4. Local debt pressure on social unrest**

This table reports regression coefficients of number of social unrests related to government suppliers. The dependent variable is dummy variable indicating whether there are social unrests due to wage arrears and is scaled by 100. Column (1) reports estimated coefficients of the interaction of post-becoming supplier dummy and government high debt pressure dummy with no controls. Column (2) adds firm characteristic controls. All regressions include year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	1[Unrest]	
	(1)	(2)
1[Gov. supplier]	0.024 (0.081)	-0.005 (0.082)
1[High pressure]	-0.130* (0.074)	-0.120* (0.073)
1[Gov. supplier] * 1[High pressure]	0.175* (0.092)	0.189** (0.093)
Control	No	Yes
Year FE	Yes	Yes
Industry x year FE	Yes	Yes
City FE	Yes	Yes
Observations	46,549	46,549
R <sup>2</sup>	0.014	0.018

**Table 5. Local Government Indebtedness Intensity and Government Debt Type**

This table reports the effect of different levels of government debt on firm's account receivables and related social unrest. We create a quartile indicator on the degree of government pressure based on percentage of debt to fiscal income, with Q1 (Q4) indicating the smallest (greatest) government pressure. All regressions include control variables and year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Account receivable	1[Unrest]
	(1)	(2)
1[Gov. supplier] * 1[High pressure (25-50 percentile)]	-0.502 (0.573)	-0.005 (0.139)
1[Gov. supplier] * 1[High pressure (50-75 percentile)]	2.696*** (0.749)	0.182** (0.083)
1[Gov. supplier] * 1[High pressure (75-100 percentile)]	5.423*** (0.787)	0.369*** (0.117)
Control	Yes	Yes
Year FE	Yes	Yes
City FE	Yes	Yes
Industry x year FE	Yes	Yes
Observations	46,549	46,549
R <sup>2</sup>	0.161	0.019

**Table 6. Endogenous concerns: Controlling for effects of local economy**

This table addresses endogeneity concerns about the potential impact of the local economy. Column (1) and (2) control for indicators of the local economy (Local GDP growth) and government spending (Local fiscal expenditure), respectively. Column (3) use the sample of firms with procurement contracts only from non-local governments. Column (4) use number of social unrests that are unrelated to wage as dependent variable. All regressions include year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	1[Unrest]			
	Local GDP growth	Local fiscal expenditure	Subsample: Government from different cities	1[Unrest (non-wage)]
Key indicator:	(1)	(2)	(3)	(4)
1[Gov. supplier] * 1[High pressure]	0.222*	0.250*	0.317**	-0.010
	(0.126)	(0.129)	(0.140)	(0.061)
1[Gov. supplier] * 1[High pressure] * Local GDP growth	-0.083			
	(0.160)			
1[Gov. supplier] * 1[High pressure] * local fiscal expenditure		-0.249		
		(0.166)		
Control	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Industry * Year FE	Yes	Yes	Yes	Yes
Observations	46,549	46,549	27,201	46,549
R <sup>2</sup>	0.018	0.019	0.027	0.004

**Table 7. Endogenous concerns: Selection of supplier firms**

This table addresses endogeneity concerns about the selection of supplier firms. Column (1) reports the coefficients of the interactions with the dummy variable indicating that firms have been expanding over the last years. Column (2) – (3) reports the coefficients when controlling for all the interactions between the firm index and the year dummy ( $\sum_T T_t X_{it}$ ), and the interactions between the contract index and year dummy ( $\sum_T T_t C_{it}$ ). Column (4) includes firms that have been suppliers during sample period (i.e. before 2015). All regressions include year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	1[Unrest]			
Key indicator:	1[Firms expanding]	Index_firm	Index_contract	Subsample: always suppliers
	(1)	(2)	(3)	(4)
1[Gov. supplier] * 1[High pressure]	0.217** (0.110)	0.165** (0.081)	0.189** (0.093)	0.159* (0.082)
1[Gov. supplier] * 1[High pressure] * Key indicator	-0.162 (0.145)	0.199 (0.208)	0.042 (0.035)	
Control	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Industry * Year FE	Yes	Yes	Yes	Yes
Observations	46,549	46,549	46,549	26,505
R <sup>2</sup>	0.018	0.019	0.018	0.041

**Table 8. 2SLS regressions: local leader as instrumental variable**

This table shows the results with instrument variable for local government debt pressure: the dummy variable indicating whether there are top national policy-makers (at the ministerial level or above) who were born in the city, following Huang et al. (2020). Column (1) shows 1<sup>st</sup> stage estimates, and column (2)-(3) show 2<sup>nd</sup> stage results. All regressions include year, city and industry-year fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	1st stage	2nd stage	
	1[High pressure]	Account receivable	1[Unrest]
	(1)	(2)	(2)
1[higher leader connection by hometown]	0.467*** (0.010)		
1[Gov. supplier] * 1[High pressure]		6.166*** (1.357)	0.587* (0.339)
Control	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
City FE	Yes	Yes	Yes
Industry * Year FE	Yes	Yes	Yes
Observations	46,533	46,533	46,533
R <sup>2</sup>	0.396	0.124	0.004
Cragg-Donald Wald F-stat	4,922.451		

**Table 9. Mechanism analysis: Quid pro quo or expropriation**

This table shows results of the mechanism analysis. Panel A shows coefficients when controlling for various key indicators. Column (1) reports the coefficients with interaction terms with the industry's average financing cost. Column (2) includes the indicator showing whether the firm's sales rely on government contracts. Column (3)– (4) reports the coefficients when controlling for dummy variables indicating poor property right protection with ETC measure by Cai et al (2011), and whether the firm is politically-connected. Column (5) includes interaction term with good labor protection based on the marketization index by Fan et al (2018). Column (6) includes the indicator showing the firm with less liquidity. Panel B explores the influence of other possible benefits enjoyed by the suppliers to justify its high account receivables as a return to governments' favors. We use the dummy variable indicating multiple contracts, number of contracts, indicator variable of any follow up contracts, the taxation, as well as the natural logarithm of number and area of land bought as proxies for the favorable treatment received by suppliers. All regressions include year, industry-year and city fixed effects. Robust standard errors are reported below the regression coefficients. \* \*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Dependent variable: 1[Unrest]						
Key indicator:	Average financing cost	1[Reliant on procurement]	1[Poor property rights]	1[Connected]	1[Good labor protection]	1[Illiquid]
	(1)	(2)	(3)	(4)	(5)	(6)
1[Gov. supplier] * 1[High pressure]	0.296** (0.116)	0.002 (0.058)	0.101 (0.091)	0.192*** (0.071)	0.258*** (0.092)	0.090 (0.060)
1[Gov. supplier] * 1[High pressure] * Key indicator	8.002 (49.780)	0.250** (0.108)	0.808** (0.411)	-1.196* (0.615)	-0.311** (0.127)	0.667** (0.317)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry x year FE	Yes	Yes	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,237	46,549	22,979	46,549	46,549	46,549
R <sup>2</sup>	0.026	0.019	0.023	0.019	0.019	0.019

Panel B. Potential favors to firms						
Dependent variable:	1[Multiple contracts]	Number of contract	1[Follow-up contract]	Tax expense	Number of land bought	Area of land bought
	(1)	(2)	(3)	(4)	(5)	(6)
1[Gov. supplier] * 1[High pressure]	-0.078*** (0.012)	-0.081*** (0.027)	0.014 (0.013)	-0.012 (0.035)	-0.000 (0.003)	-0.002 (0.004)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE			Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry x year FE	Yes	Yes	Yes	Yes	Yes	Yes

City FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,549	46,549	46,549	46,550	46,549	46,549
R <sup>2</sup>	0.072	0.081	0.524	0.766	0.304	0.272



**Table 10. Coordination of social unrests**

This table reports coefficient estimates about coordinating cost of unrests. We split the sample by: 1) average product complexity within the industry, 2) percentage of labor in 1<sup>st</sup> and 2<sup>nd</sup> industries, 3) number of firm employers, and 4) number of local family clans. All regressions include year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:		1[Unrest]							
Key indicator:	Task complexity		Percentage of labor in 1st and 2nd industries		Number of employments		Number of local clans		
	High (1)	Low (2)	High (3)	Low (4)	High (5)	Low (6)	High (7)	Low (8)	
1[Gov. supplier] *	0.271*	0.130	0.238*	0.138	0.384*	0.075	0.333**	0.037	
1[High pressure]	(0.156)	(0.090)	(0.130)	(0.108)	(0.224)	(0.055)	(0.168)	(0.112)	
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Industry x year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Observations	27,475	19,074	9,507	37,042	15,971	30,578	21,823	24,726	
R <sup>2</sup>	0.030	0.027	0.048	0.021	0.028	0.029	0.019	0.023	

## A. Appendix

**Table A.1 Variable Definition**

Variables:	Description
Panel A. Key variables	
Account receivable	Firms' account receivables as % of total asset
1[Unrest]	1 if there is any social unrest related to wage payment, scaled by 100
1[Gov. supplier]	1 after the firm became the supplier of the government
1[High pressure]	1 if either the maturing debt (% of fiscal income) or average spread is higher than the year median level of all city governments.
Panel B. Firm characteristics	
Cash	Cash as % of total asset
Fixed assets growth	Growth rate of fixed assets
R&D expense	R&D expense as percentage of total sales
ROE	Return on equity
Account payable	Account payables as % of total asset
Net account receivable	Account receivables net of account payables as % of total asset
1[Litigation]	100 if firm being sued for not repaying
Tangible asset	Tangible asset as % of total asset
Asset turnover	Asset turnover, sales/tot.asset
Leverage ratio	Leverage ratio, debt/tot. asset
ROA	Return on assets
Total Assets	Total assets, in million RMB
1[Firms expanding]	1 if firm sales is growing more than 50%.
1[Other city]	1 if firm is supplier to the city other than where the firm is registered
Financing cost	Average interest cost of industry
External-finance dependence	Average capex not funded by operating funds of industry
1[Connected]	1 if the firm is politically-connected
Employment	Number of employees of the company
1[Multiple contracts]	1 if firm signed multiple contracts with government
Number of contract	Number of contracts
1[Follow-up contract]	1 if firm signed any follow-up contract after the one in the sample
Tax expense	Tax expense of firm, scaled by total assets
Number of land bought	Natural logarithm of number of land bought by the firm, scaled by 100
Area of land bought	Natural logarithm of area of land bought by the firm, scaled by 100
Panel C. Other characteristics	

1[High GDP]	1 if GDP growth rate is larger than sample median
1[High fiscal expenditure]	1 if fiscal expenditure (scaled by GDP) is larger than sample median
1[Top leader connection by hometown]	1 if the city is hometown to top national leader (above ministry level)
1[Poor labor protection]	1 if the labor factor liquidity component of property protection index by Fan et al.(2018) is lower than sample median
1[Poor property right protection]	1 if ETC cost of listed firms by Cai et al (2011) in the city is higher than sample median
Task complexity	Industry average task complexity index from Harvard ATLAS of Economic Complexity database. <a href="https://atlas.cid.harvard.edu/about-data">https://atlas.cid.harvard.edu/about-data</a>
Percentage of lower-skill labor	Percentage of labor in non-service industries
Local clan	Number of family clans in the city

---

**Table A.2 Robustness checks for alternative specifications**

This table reports regression coefficients of a variety of robustness checks about the increase of firms' account receivables. The dependent variable of Panel A is account receivable, and that of Panel B is the dummy variable indicating whether there is any unrest related to wage payment. In Column (1) the firm is categorized as becoming supplier only after the due time to finish the project or good delivery. In Column (2), we include suppliers with only one contract with the government contract throughout our sample period. In Column (3) we exclude those procurement contract that finished during the local anti-corruption campaign period. In Column (4) we only include the sample of standalone firms that are affiliated to a corporation group. In Column (5) we exclude those procurement contract with provincial-level government. Control variables include firm size, tangibility, leverage and profitability ratios. All regressions include year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Dependent variable: Account receivable					
	1[Gov. supplier]: finished projects	Sample: Including only one procurement	Sample: excl. Anti corruption period	Sample: firms in a corporation group	Sample: municipality
	(1)	(2)	(3)	(4)	(5)
1[Gov. supplier] *	2.379***	1.973***	2.430***	2.549***	1.951***
1[High pressure]	(0.347)	(0.392)	(0.448)	(0.389)	(0.368)
Control	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry x year FE	Yes	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes	Yes
Observations	46,549	33,971	29,816	33,442	34,912
R <sup>2</sup>	0.871	0.872	0.904	0.875	0.876
Panel B. Dependent variable: 1[Unrest]					
	(1)	(2)	(3)	(4)	(5)
1[Gov. supplier] *	0.189**	0.185*	0.185**	0.232*	0.210*
1[High pressure]	(0.093)	(0.107)	(0.094)	(0.124)	(0.124)
Control	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

Industry x year FE	Yes	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes	Yes
Observations	46,549	33,971	29,816	33,442	34,912
R <sup>2</sup>	0.018	0.025	0.022	0.022	0.020

**Table A.3 Robustness checks for debt pressure measures**

This table reports regression coefficients of a variety of robustness checks about the measurement of government debt. The dependent variable of Panel A is account receivable, and that of Panel B is the dummy variable indicating whether there is any unrest related to wage payment. Column (1) defines 1[High pressure] as debt level (scaled by fiscal income) being higher than 100. Column (2)-(3) compare debt level and value-weighted average interest spread with the annual median. Column (4) use the absolute debt percentage to fiscal income. All regressions include year, industry-year and city fixed effects. Standard errors are clustered by firm and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Dependent variable: Account receivable				
Definition:	1[Debt level>100%]	1[Debt level>median or Debt spread>median]	1[Debt level>median and Debt spread>median]	Debt level (%)
	(1)	(2)	(3)	(4)
1[Gov. supplier]	0.788*** (0.224)	0.124 (0.257)	0.809*** (0.217)	0.718*** (0.256)
1[High pressure]	-0.847* (0.435)	-1.967*** (0.303)	-0.835* (0.503)	-0.004 (0.003)
1[Gov. supplier] * 1[High pressure]	0.931** (0.431)	1.786*** (0.313)	1.282** (0.538)	0.004 (0.002)
Control	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry x year FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	46,549	46,549	46,549	46,549
R <sup>2</sup>	0.871	0.871	0.871	0.871
Panel B. Dependent variable: 1[Unrest]				
	(1)	(2)	(3)	(4)
1[Gov. supplier]	0.010 (0.068)	-0.038 (0.096)	0.040 (0.063)	-0.047 (0.077)
1[High pressure]	-0.248** (0.103)	-0.126 (0.088)	-0.170** (0.069)	-0.002*** (0.001)
1[Gov. supplier] * 1[High pressure]	0.376*** (0.116)	0.206** (0.103)	0.276** (0.133)	0.002*** (0.001)
Control	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Industry x year FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Observations	46,549	46,549	46,549	46,549
R <sup>2</sup>	0.019	0.018	0.018	0.019

**Table A.4 Local debt pressure on social unrest: city level analysis**

This table reports regression coefficients of number of social unrests related to local government debt. The dependent variable for column (1)-(2) is the total number of social unrests in the city, and for (3) - (4) the number of unrests due to wage arrears. Column (2) and (4) includes control variables on local economic conditions. All regressions include year and city fixed effects. Standard errors are clustered by city and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Total unrest		Wage-related unrest	
	(1)	(2)	(3)	(4)
1[High pressure]	1.218** (0.515)	1.431*** (0.539)	0.713* (0.382)	0.860** (0.372)
GDP		0.010 (0.017)		0.006 (0.011)
Fiscal expenditure		0.870*** (0.194)		0.740*** (0.110)
Population		-0.422* (0.224)		-0.061 (0.142)
Employment rate		-0.048 (0.912)		0.372 (0.646)
Urban labor percentage		-0.667 (1.186)		-0.467 (0.743)
City FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,574	1,357	1,574	1,357
R <sup>2</sup>	0.618	0.666	0.518	0.592



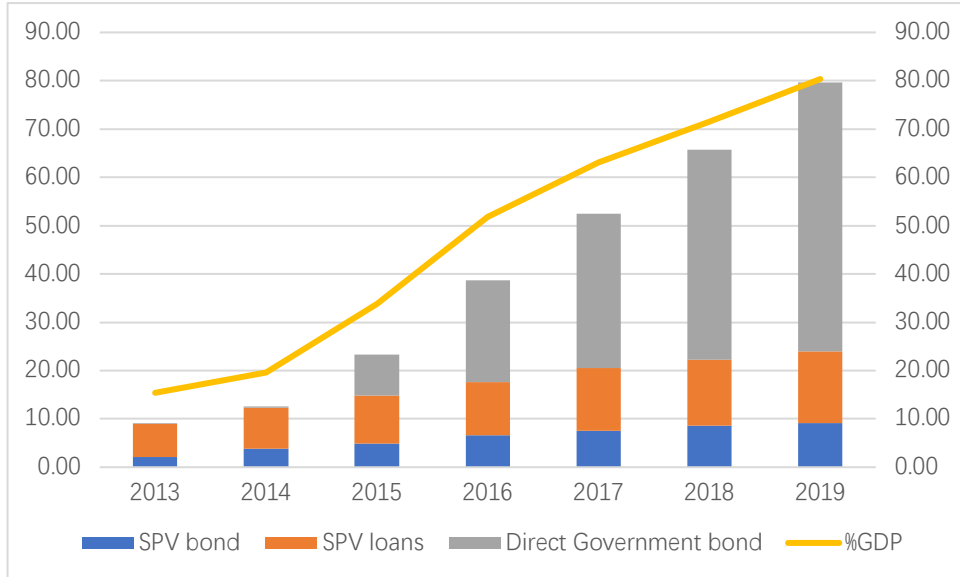
**Table A.5 Hidden local government debt**

This table reports regression coefficients related to different types of local government debt. The dependent variable for column (1)-(2) is account receivables, for (3) - (4) the dummy variable indicating whether the firm has multiple contracts with the government, and for (5) - (6) the dummy variable indicating whether there is any unrest. We measure hidden debt with 1[High Pressure from SPV(Other debt)], which is defined as 1 if the percentage of SPV debt (Other debt) to fiscal income is higher than median of total debt level, and 0 otherwise. 1[High Pressure from government(Bond)] is defined as 1 if: 1) total debt level is higher than median and 2) 1[High Pressure from SPV(Other debt)] is zero. All regressions include year and city fixed effects. Standard errors are clustered by city and are reported below the regression coefficients. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

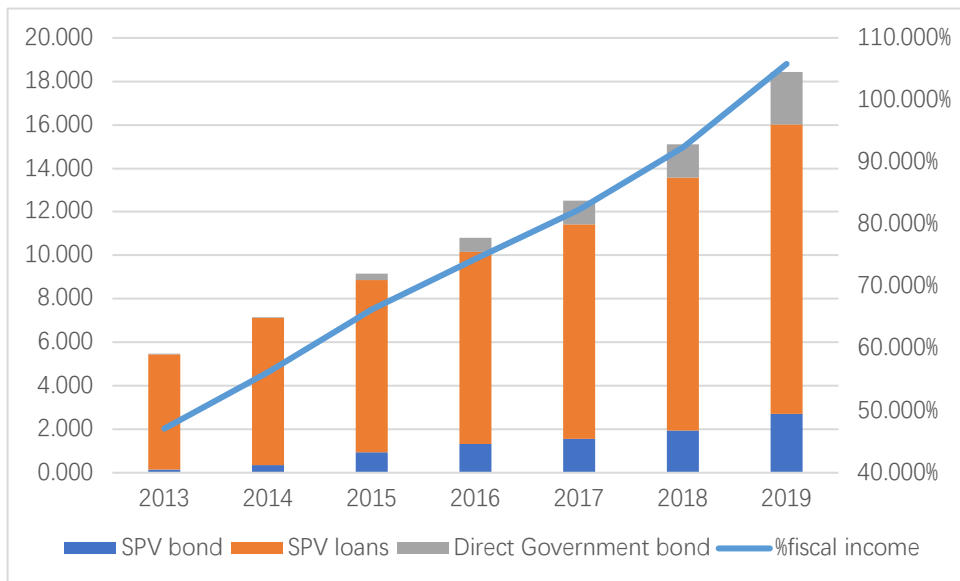
Dependent variable:	Account receivables	1[Multiple contracts]	1[Unrest]
	(1)	(2)	(3)
1[Gov. supplier] * 1[High Pressure from SPV]	2.372*** (0.313)	-7.757*** (0.941)	0.191*** (0.071)
1[Gov. supplier] * 1[High Pressure from government]	0.564 (1.287)	-7.259 (4.858)	-0.146* (0.076)
Control	Yes	Yes	Yes
Firm FE	Yes		
Year FE	Yes	Yes	Yes
Industry x year FE	Yes	Yes	Yes
City FE	Yes	Yes	Yes
Observations	46,549	46,549	46,549
R <sup>2</sup>	0.871	0.072	0.018

**Figure A.1. Outstanding and maturing debt components and as percentage of total GDP.**

Panel A: Outstanding debt components and as percentage of fiscal income

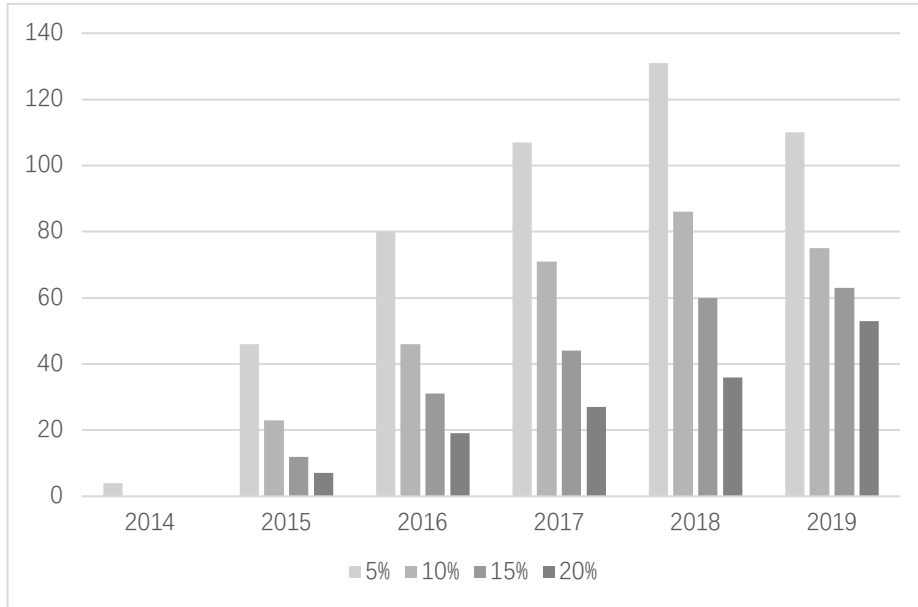


Panel B. Maturing debt and as percentage of fiscal income.

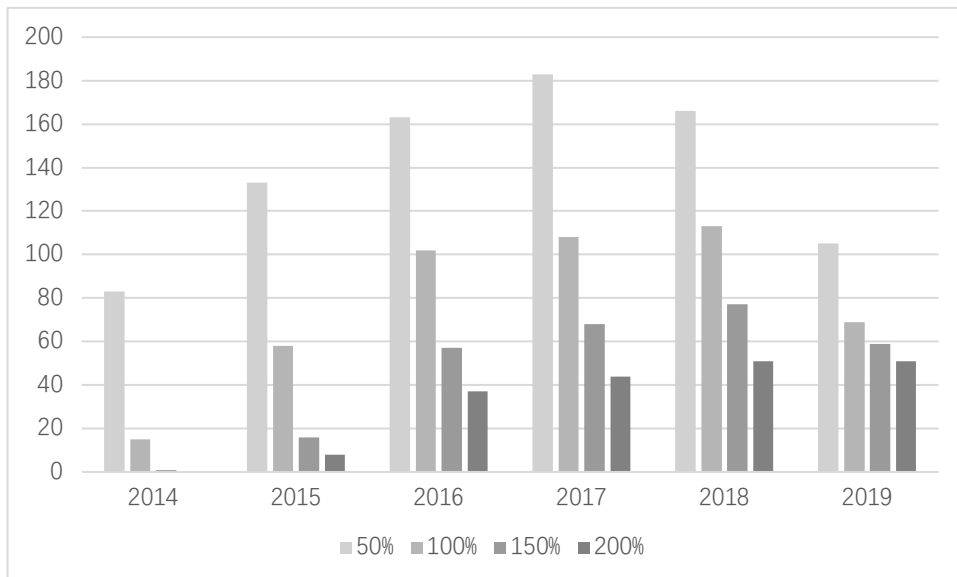


**Figure A.2 Local government debt accumulation over 2014-2019.**

Panel A. Number of cities with percentage of maturing debt to fiscal income higher than certain thresholds. (Total: 295 cities)



Panel B. Number of cities with percentage of outstanding debt to fiscal income higher than certain thresholds. (Total: 295 cities)



**Figure A.3 One procurement contract published by local governments**

公告信息:			
采购项目名称	国家税务总局曲阜市税务局综合业务办公用房维修改造项目		
品目	工程/修缮工程/房屋修缮, 工程/装修工程		
采购单位	国家税务总局曲阜市税务局		
行政区域	曲阜市	公告时间	2019年07月29日 10:23
本项目招标公告日期	2019年07月03日	中标日期	2019年07月26日
评审专家名单	杜峻、骆雅琳、桑志华、韩宝进、刘元涛		
总中标金额	¥288.398838 万元 (人民币)		
联系人及联系方式:			
项目联系人	许永刚		
项目联系电话	13355188817		
采购单位	国家税务总局曲阜市税务局		
采购单位地址	山东省曲阜市春秋路4号		
采购单位联系方式	孔科长 0537-4692188		
代理机构名称	山东省鲁成招标有限公司		
代理机构地址	山东省济宁市任城区古槐路58-9号201室		
代理机构联系方式	许永刚 13355188817		

**Figure A.4 Number of cases between government and firm**

This figure listed total number of cases related to a procurement contract between government entity and firm, and the number and percentage of cases rejected by the court.

