A self-interested gesture? Corporate charitable giving in response to government fiscal pressure

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Abstract

Purpose – This study examines whether and how government fiscal pressure influences corporate charitable giving (CCG).

Design/methodology/approach – The authors exploit sub-national tax revenue sharing changes as exogenous variations to government’s fiscal pressure at the city level and then construct a quasi difference-in-differences (DiD) model to conduct the analysis based on a sample consists of 14,168 firm-year observations in China during the period of 2003 to 2012.

Findings – The authors found that firms increase charitable donations when local governments face higher fiscal pressure. Such effects are more pronounced for firms that have stronger demand for political connectedness in the sample period. Furthermore, this study’s findings suggest that the timing strategy of donating helps firms lowering the effective tax rate and building stronger political connections. In addition, donating firms outperform non-donating firms in terms of bank loan access and market reputation.

Originality/value – The authors contribute to at least three lines of literature. First, extend the understanding of timing strategies of corporate charitable behaviors. Second, contribute to the literature studying the “crowd out” effect

JEL Classification — G38, H32, M14

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between government-provided charitable funds and private donations. Finally, contribute to the emerging literature exploring the financial interests associated with corporate donation strategy (Claessens et al., 2008; Cull et al., 2015).

**Keywords** Corporate charitable giving, Government fiscal pressure, Timing strategy, Difference-in-differences method

**Paper type** Research paper

1. Introduction

Corporate charitable giving (CCG) attracts considerable academic attention in recent decades. A key concern focuses on why for-profit firms enthusiastically engage in philanthropic activities. Extant studies have investigated the motivations associated with the firm’s charitable behavior and provided three fundamental explanations (Long & Yang, 2016). The first strand of literature on altruism motives suggests that firms consider participating in charitable activities for moral reasons. Firms take on social responsibilities, despite them bringing few competitive advantages (Frey & Meier, 2004). The theory of strategic considerations, however, believes that firms do well by doing good. Firms advance their own interests through charitable giving, such as building brand recognition, strengthening consumer loyalty (Sanchez, 2000), cultivating better connections with governments (Zhang, Zhu, Yue, & Zhu, 2010; Chen, Jiang, & Yu, 2015). The third literature, known as managerial utility theory, documents managers’ desire for self-image improvement and better career reputation as main drivers of CCG (Gałaskiewicz, 1997).

The timing of CCG is much less studied by extant studies. However, firms increase charitable giving in specific time periods. For instance, some researchers found that firms contribute more after big natural disasters compared to normal times (Zhang et al., 2010; Gao, Faff, & Navissi, 2012; Liang & Renneboog, 2017). Furthermore, these studies found donating in natural disaster periods is associated with improved corporate economic performance. For another example, some studies investigated the relationship between corporate political contributions and firms’ stock returns (Cooper, Gulen, & Ovtchinnikov, 2010). They found that firms increase donations to potential candidates during election periods. Corporations achieved higher stock returns once the candidates to whom they donated were elected as officials. Overall, it seems plausibly that firms increase donations when the government demands external financial resources. Choosing the right time to donate reduces the price of giving while leads to improvements in firm performance, acting as a desirable strategy.

Motivated by the above studies, we extend existing literature to investigate whether firms report more charitable giving when local government fiscal pressure rises up. Furthermore, we test two channels that explain firms increasing charitable giving in response to local fiscal pressure: tax evasion and building political connectedness. With respect to tax evasion, governments usually implement tougher tax enforcement to raise enough revenue during fiscal hardship, causing a higher level of corporate effective tax rate (ETR). Due to tax credits and tax shelter, firms achieve more tax savings by increasing charitable giving at this time. With respect to the second explanation, the government dominates the allocation of various economic resources in transitional countries like China. A closer connection with the government means advantages in gaining political benefits. Firms are easier to establish political connections with the government when the government needs external financial assistance.

Theoretically, we predict a positive relationship between CCG and government fiscal pressure based on the following argument. Fiscal pressure is very popular among local governments, considering characteristics of China’s tax revenue sharing system. However, local officials allocate a majority of limited fiscal resources to infrastructure, as they are evaluated on regional economic development. As a result, local governments reach out to private sectors for additional financial resources to meet the ongoing demand for adequate public services. According to China’s fiscal arrangement, a large proportion of corporate
donations go to the governmental fiscal account, and the government ultimately determines the use of most of the donation money (Chen et al., 2015). In a word, CCG supports a variety of public services. When local fiscal pressure rises up, it is naturally that local governments demand more private donations (including CCG) to relieve the pressure of providing public services. On the other hand, tax credits for giving are offered by the government to encourage private donations. Because the government plays an important role in allocating key economic resources, firms are willing to increase charitable giving during fiscal hardship, with the objective to build political connections and obtain tax benefits.

Empirically, we employ a quasi DID model to examine the causal impact of government fiscal pressure on CCG. To be more specific, we identify variations in tax-revenue sharing status of the city government as exogenous shocks to local fiscal pressure, and then examine how firms react to this sudden change in local fiscal pressure with respect to charitable giving. To have a better understanding of our approach, we should first introduce China’s tax sharing system. Tax revenue is the most important factor in affecting government fiscal pressure, considering the difficulty for the government to reduce fiscal expenditure (Blanchard, Chouraqui, Hangemann, & Sartor, 1990; Goryunov, Kotlikoff, & Sinelnikov-Murlev, 2015; Bergman, Hutchison, & Jensen, 2016). In China, tax revenue is shared by the central, the provincial and the prefectural-level city (hereafter, city) governments. The proportion of tax revenue that goes to the central government is drawn up by the National Tax Law and seldom changes, whereas each provincial government has discretionary powers to allocate the rest of the tax revenue between itself and sub-level city governments. When the province government announces an increase in tax shares, tax revenue left for cities declines, while local fiscal pressure at city-level climbs up. Whether to change sub-national tax sharing rules or not is determined by provincial governments. City governments can hardly affect the decision-making of their upper-level governments in a highly centralized political system. Therefore, tax revenue sharing changes are exogenous shocks to both cities and firms. To summarize, an unexpected change made by provincial governments to increase their tax shares causes higher local fiscal pressure at city-level. Government interference with local firms increases due to higher fiscal pressure. Firms increase charitable giving as a strategy to obtain potential policy and political benefits.

The main econometric issue in this paper is attributed to omitted variables biases. In order to address this concern, we control for a variety of time-varying factors both at firm-level and city-level. Moreover, we control for permanent unobserved factors from three dimensions. Year-fixed effects are included to control for nation-wide shocks. Industry-fixed effects are included to control for unobserved industrial shocks that simultaneously affect CCG as well as provincial governments’ decision-making process. The provincial government usually determines tax revenue sharing rules based on the overall socioeconomic situation rather than that of a single city. Considering this, province fixed effects are also controlled for. Another concern is that reverse causality may plague our study. Following Card, Hallock, and Moretti (2010), we include the lead term of GFP indicator into regression models to isolate causality concern, whereas an estimate close to zero confirms the absence of such an effect. Although we cannot completely rule out the possibilities of endogeneity biases, we believe the evidence is likely to support the causal link between government fiscal pressure and corporate philanthropy.

We use China Stock Market and Accounting Research (CSMAR) database that includes the financial information of all publicly traded corporations in China. We hand-collect corporate donation information from firms’ annual financial reports year by year. The sample period spans from 2003 to 2012 during which no major national tax system reform takes place. We also hand collect each province’s publicly official documents from its government websites, from which we can describe tax revenue sharing changes province by province. We match each firm to its host city by firm’s headquarter location. With the implementation of several data filters, we obtain 14,168 firm-year observations.
We find a positive and statistically significant relationship between government fiscal pressure and CCG. Our estimates also suggest that being a financial helper to the government during fiscal hardship reciprocally help firms build political connections, reduce tax burden and make them more accessible to bank loans. In addition, the impact of government fiscal pressure on CCG is stronger for state-owned enterprises (SOEs), small firms and firms facing heavy government interference. Our findings suggest that CCG in response to government fiscal pressure is a self-interested timing strategy.

We contribute to at least three lines of literature. First and foremost, we extend the understanding of timing strategies of corporate charitable behaviors. Previous studies considered corporate donations during natural disaster periods or political election periods as desirable timing strategies. We add the evidence that CCG in response to government fiscal pressure is a self-interested timing strategy. We conduct one of the first examinations of how firms respond to government fiscal pressure via charitable giving.

Second, we contribute to the literature studying the “crowd out” effect between government-provided charitable funds and private donations. Previous studies found that government-provided grants reduced private donations that social charities could receive (Payne, 1998; Andreoni & Payne, 2011; Herzer & Nunnenkamp, 2013; Payne, 2013; Borghesi, Houston, & Naranjo, 2014). The interpretation is that government-provided charitable funds make donors feel they have contributed enough through taxation. Following their logic, private donations are very likely to increase when the tax revenue is reduced and not adequate to provide public services. In other words, we indirectly identify the crowd-out effect from the opposite side.

Finally, we contribute to the emerging literature exploring the financial interests associated with corporate donation strategy (Claessens et al., 2008; Cull et al., 2015). Specifically, we highlight the importance of cultivating political connections with governments through informal institutions.

The remainder of this paper is organized as follows. Section 2 briefly introduces China’s CCG background, as well as sub-national tax revenue sharing institution. Section 3 provides an overview of the relevant literature and develops five testable hypotheses. Section 4 identifies the framework, data and variables for the analysis. Section 5 presents the research findings. Section 6 concludes.

2. Institutional background
2.1 Corporate charitable giving in China
In this subsection, we briefly introduce the institution background of CCG in China. According to the China Philanthropy Development Report, CCG demonstrates the following features (Chen et al., 2015):

Private donations mainly come from corporations in China, opposed to the case in many developed counties where individuals contribute most to philanthropy [1]. CCG takes different forms, either cash or in-kind benefits.

A large share of donations goes to government fiscal revenue, public charities and government-backed non-governmental organizations (NGOs). Donations are mainly used in four public areas: education, environment protection, poverty alleviation and disaster relief. Corporate donations play a crucial role in assisting the government provide public services.

Corporations can donate through many channels. They can donate directly to the government, public charities or NGOs. In practice, most public charities are supported and regulated by the government. Even for the NGOs, the government has great influence on their operations, especially those large and national organizations. The donors can donate through local charities or through grassroots organizations, the proportion of donations which goes to these two channels is actually very small. In practice, there are three potential channels for firms to relieve local fiscal pressure through charitable donations: First, some of the funds are
directly donated to the local governments or local charitable organizations, and then play a role in the fiscal expenditures that fulfill the social responsibility of local governments. Second, although some of the funds are directly donated to national charitable organizations, they are substantially allocated to local social affairs through special purpose forms with certain conditions attached, which are essentially the same as the former. Third, there are also some funds donated directly to national charities, and there is no conditional use specified. In the event of a need for charitable organizations to grant assistance, places with weaker fiscal resources will also receive more allocations. Therefore, from the above three ways, the charitable donations of firms will directly or indirectly affect and transmit to the fiscal pressure of the local government.

The government ultimately determines the usage of most donation money.

2.2 The tax revenue sharing system in China

Government fiscal pressure at city-level has formed since China’s 1994 tax revenue-sharing reform. The reform is essentially a process of tax revenue centralization. Value-added tax (VAT), corporate income tax (CIT), individual income tax (IIT) are shared taxes, and tax revenues are shared by the central, provincial and city governments. The business tax (BT) belongs to sub-national tax, and tax revenue is only shared between the provincial and the city governments.

The central government shares constant proportions in revenues of the three major taxes (Wang & Herd, 2013). The revenue sharing rate of VAT for the central government is 75%, while sub-national governments (including both provinces and cities) take the rest 25%. With regards to CIT and IIT, the central government takes 60% of the revenues, while the rest 40% belongs to sub-national governments [2]. BT is a pure local tax; the central government does not share the revenue.

How the provincial government assigns the remaining tax revenues is unclear. In fact, the central government grants the provincial government discretionary powers to determine how to allocate the remaining tax income with cities (Liu, Martinez-Vazquez, & Qiao, 2014). Each province can make its own tax revenue sharing arrangement. All cities within the province should follow the rules with few exceptions. Since tax revenue-sharing rules are determined, the information will be delivered through several channels, such as TV, newspapers, Internet, etc. Under this circumstance, firms are informed that local governments become constrained in terms of fiscal revenue, while local governments would ask firms to apportion the sudden increased fiscal burden.

Provincial governments can change tax revenue sharing arrangement without much difficulty if they consider it a necessity. In a highly centralized political system, cities are not powerful enough to affect upper-level governments’ decision-making. As a result, an unexpected change made by the provincial government to increase its tax shares can be identified as an exogenous shock to cities’ fiscal revenue pressure.

Table 1 demonstrates sub-national tax revenue sharing rates of the four taxes for sample provinces. We also display tax revenue sharing changes over sample period. We see considerable differences in tax revenue sharing arrangement both across province and over time. It provides strong evidence that provincial governments actually have discretion powers in determining tax sharing rules within its jurisdiction. At the end of our sample period, the average share of provincial government in VAT revenue is 4.44%, 9.31% for CIT revenue, 10.31% for IIT revenue and 15.77% for BT revenue. We also describe the distribution of sample provinces (cities, firms) that experience tax revenue sharing changes and those not. See more details in Appendix Table A1.

In comparison, there is far less centralization in expenditures than in revenues. City governments maintain most responsibilities in a variety of public areas, such as education, public
### CAFR

| Provinces | Sub-national tax revenue sharing arrangement-shares for the provincial government |
|-----------|---------------------------------------------------------------------------------|
| Anhui     | 2002 ~ 2003, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT  
2004 ~ 2011, 0% in VAT, 0% in BT, 15% in CIT, 15% in IIT |
| Beijing   | 2002 ~ 2011, the city shares in VAT, BT, CIT and IIT  
2004, the city shares in VAT, BT, CIT  
2003, the city shares in VAT, BT, CIT |
| Chongqing | 2002, the city shares in VAT, BT, CIT and IIT  
2003, the city shares in VAT, BT, CIT |
| Guangdong | 2002, 0% in VAT, 40% in BT, 20% in CIT, 20% in IIT  
2003 ~ 2010, 0% in VAT, 40% in BT, 16% in CIT, 16% in IIT  
2011, 0% in VAT, 50% in BT, 20% in CIT, 20% in IIT |
| Guangxi   | 2002 ~ 2004, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT  
2005 ~ 2011, 8% in VAT, 40% in BT, 10% in CIT, 15% in IIT |
| Fujian    | 2002 ~ 2011, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT |
| Gansu     | Year 2002, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT  
Year 2003 ~ 2008, 5% in VAT, 0% in BT, 20% in CIT, 20% in IIT  
Year 2009 ~ 2011, 0% in VAT, 30% in BT, 20% in CIT, 20% in IIT  
*Exceptions — Lanzhou, Jiayuguan, Jinchang, Baiyin, Jiuquan |
| Guizhou   | Year 2002, 6.25% in VAT, 25% in BT, 12.5% in CIT, 12.5% in IIT  
2003 ~ 2011, 6.25% in VAT, 25% in BT, 10% in CIT, 10% in IIT  
*Exceptions — Haikou city, year 2002, 18.75% in VAT, 75% in BT, 37.5% in CIT, 37.5% in IIT  
2003 ~ 2006, 17.5% in VAT, 70% in BT, 28% in CIT, 28% in IIT  
2007 ~ 2011, 13.75% in VAT, 55% in BT, 22% in CIT, 22% in IIT  
Sanya city, 2007 ~ 2011, 8.75% in VAT, 35% in BT, 14% in CIT, 14% in IIT |
| Hainan    | Year 2002, 10% in VAT, 10% in BT, 25% in CIT, 15% in IIT  
2003 ~ 2008, 10% in VAT, 10% in BT, 20% in CIT, 10% in IIT  
2009 ~ 2011, 10% in VAT, 0% in BT, 20% in CIT, 20% in IIT |
| Hebei     | Year 2002, 15% in VAT, 60% in BT, 0% in CIT, 25% in IIT  
2003 ~ 2004, 15% in VAT, 60% in BT, 0% in CIT, 20% in IIT  
2005 ~ 2011, 12.5% in VAT, 50% in BT, 16% in CIT, 25% in IIT |
| Heilongjiang | Year 2002-2011, 12.5% in VAT, 50% in BT, 0% in CIT, 0% in IIT |
| Henan     | 2002 ~ 2011, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT |
| Hubei     | Year 2002, 8% in VAT, 30% in BT, 20% in CIT, 20% in IIT  
2003 ~ 2010, 8% in VAT, 30% in BT, 15% in CIT, 15% in IIT  
Year 2011, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT |
| Hunan     | Year 2002, 0% in VAT, 0% in BT, 15% in CIT, 15% in IIT  
2003 ~ 2011, 0% in VAT, 0% in BT, 12% in CIT, 12% in IIT |
| Jiangsu   | 2002 ~ 2011, 6.25% in VAT, 25% in BT, 12.5% in CIT, 12.5% in IIT |
| Jiangxi   | Year 2002, 15% in VAT, 60% in BT, 0% in CIT, 25% in IIT |
| Jinlin    | Year 2003, 15% in VAT, 60% in BT, 0% in CIT, 20% in IIT  
2004 ~ 2011, 12.5% in VAT, 50% in BT, 16% in CIT, 16% in IIT |
| Liaoning  | Year 2002, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT  
2003 ~ 2009, 0% in VAT, 30% in BT, 20% in CIT, 15% in IIT |
| Neimenggu | 2002 ~ 2005, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT  
2006, 5% in VAT, 20% in BT, 8% in CIT, 8% in IIT  
2007, 5.25% in VAT, 21% in BT, 8.4% in CIT, 8.4% in IIT  
2008, 5.50% in VAT, 22% in BT, 8.8% in CIT, 8.8% in IIT  
2009, 5.75% in VAT, 23% in BT, 9.2% in CIT, 9.2% in IIT  
2010, 6.00% in VAT, 24% in BT, 9.6% in CIT, 9.6% in IIT  
2011, 6.25% in VAT, 25% in BT, 10% in CIT, 10% in IIT |

Table 1.  
Sub-national tax revenue sharing arrangement  
(continued)
The large gap between fiscal revenue and expenditure leads to mounting local fiscal pressure (Martinez-Vazquez, Qiao, Wang, & Zou, 2014). A caveat should be mentioned. Once provincial government makes an unexpected increase in its tax shares, sudden increased fiscal pressure would urge local governments to raise non-tax resources to finance public welfare issues. City governments have several non-tax financial resources, the sale of land-use rights comes on top of the non-tax revenue sources. However, governments have to take the cost of installing the road, water, electricity, etc., which means they do not always generate fiscal surplus from land sales revenue (Wang & Herd, 2013). Moreover, governments are constrained from making the use of land sales revenue freely. The majority of the revenue is used for intended purposes, such as the construction of physical assets (Lu & Sun, 2013). However, we include land sales revenue into regressions where we can isolate the potential impact of land sales revenues on CCG.

Overall, corporate donations play an irreplaceable role in relieving government fiscal pressure. On the one hand, governments pay little compensation to use corporate donations. On the other hand, corporate donation finances major public welfare issues.

3. Hypothesis development
In this subsection, we develop theoretical arguments to give five testable hypotheses. The arguments involve two fundamental questions: (1) why and how firms react to increased government fiscal pressure, and (2) what benefits firms can get by donating in fiscal hardship.

| Provinces | Sub-national tax revenue sharing arrangement-shares for the provincial government |
|-----------|----------------------------------------------------------------------------------|
| Ningxia   | Year 2002, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT                               |
|           | 2003 ~ 2011, 0% in VAT, 0% in BT, 20% in CIT, 20% in IIT                          |
| Qinghai   | Year 2002, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT                              |
|           | 2003 ~ 2011, 12.5% in VAT, 0% in BT, 0% in CIT, 0% in IIT                         |
| Shanxi    | Year 2002, 8.75% in VAT, 35% in BT, 17.5% in CIT, 17.5% in IIT                    |
|           | 2003 ~ 2006, 8.75% in VAT, 35% in BT, 14% in CIT, 14% in IIT                      |
|           | 2007 ~ 2011, 7.50% in VAT, 30% in BT, 12% in CIT, 12% in IIT                      |
| Shanghai  | Year 2002, 0% in VAT, BT, CIT and IIT                                             |
| Shaanxi   | Year 2002, 0% in VAT, 0% in BT, 25% in CIT, 25% in IIT                            |
|           | Year 2003, 0% in VAT, 0% in BT, 20% in CIT, 20% in IIT                            |
|           | 2004 ~ 2011, 7.50% in VAT, 30% in BT, 20% in CIT, 20% in IIT                      |
| Shandong  | Year 2002, 0% in VAT, 20% in BT, 10% in CIT, 0% in IIT                            |
|           | 2003 ~ 2004, 0% in VAT, 20% in BT, 8% in CIT, 0% in IIT                          |
|           | 2004 ~ 2011, 0% in VAT, 20% in BT, 8% in CIT, 15% in IIT                          |
| Sichuan   | Year 2002, 8.75% in VAT, 35% in BT, 0% in CIT, 17.5% in IIT                      |
|           | 2003 ~ 2011, 8.75% in VAT, 35% in BT, 0% in CIT, 14% in IIT                      |
| Tianjin   | 2002 ~ 2011, the city shares in VAT, BT, CIT, and IIT                           |
| Xinjiang  | 2002 ~ 2011, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT                           |
| Yunnan    | Year 2002, 7.5% in VAT, 0% in BT, 30% in CIT, 30% in IIT                          |
|           | 2003 ~ 2011, 7.5% in VAT, 0% in BT, 24% in CIT, 24% in IIT                        |
| Zhejiang  | 2002 ~ 2011, 0% in VAT, 0% in BT, 0% in CIT, 0% in IIT                           |

Note(s): Table 1 presents sub-national tax revenue sharing rules and changes over 2002–2011 period for sample provinces. We hand collected the information from publicly official documents. We do not include Xizang because we have no access to collect its tax sharing documents. The four provincial-level cities (Beijing, Chongqing, Shanghai, Tianjin) share tax income with city-level urban districts. For the four provincial-level cities, we only know whether they share tax revenues with urban districts but have no valid information on the exact tax revenue sharing rates.

Table 1.
3.1 The relationship between government fiscal pressure and corporate charitable giving
In the context of China's tax revenue sharing system, local governments obtain limited financial resources from tax revenue. Because local officials are promoted on local economic performance, they finance capital construction projects in priority but allocate fiscal revenue to public welfare areas with a relatively small weight (Li & Zhou, 2005; Jia, Guo, & Zhang, 2014).

On the other side, local officials are held accountable for maintaining social stability as they seek for career promotion (Chan and Gao, 2009). To finance public welfare business, local governments expect to collect additional funding from other channels. CCG involves considerable contributions to social welfare services. Governments reach out to firms for charitable donations, and firms can help reduce governmental burdens in social areas through charitable giving (Dickson, 2003; Wang & Qian, 2011). To summarize, local governments demand more private donations to meet the ongoing commitments in financing welfare services, especially in fiscal hardship.

Several studies provide evidence that private donations serve the role as a good substitute for public expenditure. Melkote (2015) empirically examined the impact of the Great Recession on charitable giving. He found that donors contributed more during economic hardship with more concerns on the poverty and unemployment reduction. Garrett and Rhine (2009) found a negative relationship between charitable contributions and government spending. Roberts (1984), Bergstrom et al. (1986), Payne (1998), Payne (2001), Andreoni and Payne (2011) found the crowd-out effect where increasing (decreasing) government-provided grants reduced (increased) private donations.

Our next concern is why for-profit firms engage in charity business. Several studies highlight the importance of corporate charity to firms’ future financial performance. Another strand of literature suggests governments offer substantial incentives to encourage private donations. For instance, governments grant firms the access to tax preferential treatment where firms can deduct donations from tax liability (Carroll & Joulfaian, 2005; Webb, 1996; Gautier & Pache, 2015; Duquette, 2016). Collectively, these studies suggest that CCG acts as a favored strategy choice.

Hence, we give our first hypothesis.

**H1.** CCG increases when government fiscal pressure rises up.

3.2 Underlying mechanisms
In the following subsections, we discuss two motivations that drive firms to participate in philanthropic activities, i.e. tax evasion and building political connection.

Tougher tax enforcement largely offsets tax revenue loss of the government. As a result, corporate ETR is enhanced to raise enough fiscal revenue during fiscal hardship. According to *China Corporate Income Tax Law*, charitable donations not exceeding 12% of pre-tax accounting income can be fully deducted from the tax liability. Transferring charity giving to fiscal hardship brings firms more tax savings when the ETR climbs up.

Furthermore, local government has a great influence on the tax enforcement that the firm may face. Usually, local governments are more likely to provide tax incentives and shelters to firms that implement social responsibilities. Firms signal the government that they have good financial performance and a strong sense of social responsibilities by donating in fiscal pressure periods (Chen et al., 2015). In return, local governments would reduce the frequencies of tax inspection while providing tax credits to these firms. In a word, firms enjoy lower effective tax rate than those which do not engage in philanthropic activities, resulted from a better mutual relationship with local governments through charitable contributions.

**H2.** Higher corporate effective tax rate is associated with higher government fiscal pressure. Firms reduce effective tax rate if they make charitable contributions.
As discussed above, firms have a lower effective tax rate once they form a political connectedness through charitable giving. This implies that political connection plays an important role in the firm’s development, especially in transitional economies that are featured with extensive government interference. Governments control key economic resource allocations in transitional countries like China, such as preferential tax treatments (Wu, Wu, Zhou, & Wu, 2012), bank loans (Cull et al., 2015), land usage (Liu & Alm, 2016), trade protection, etc. Firms are willing to establish a closer relationship with the government by engaging in charitable activities, which facilitates them to gain critical economic resources (Leuz & Oberholzer-Gee, 2006; Bai, Lu, & Tao, 2006a, b; Faccio, 2006; Li, Meng, & Zhang, 2006).

Increasing donations in fiscal pressure periods makes it easier for firms to cultivate political connections with local governments (Goldman, Rocholl, & So, 2013). Firms are easier to please local officials when the government needs external financial resources. In other words, firms build stronger political connectedness during fiscal hardship because the government attaches greater importance to outside financial sources when they need assistance. Therefore, if the relation between CCG and government fiscal pressure is due to building political networks, we suppose firms would build stronger political connectedness since they donate in fiscal pressure periods.

We then develop our third hypothesis as follows:

**H3.** Firms that increase CCG in fiscal pressure periods are more likely to build political connection with governments.

### 3.3 Corporate charitable giving and firm performance

Prior studies suggest that political connections affect firms’ performance (Li & Zhou, 2005), we then investigate the following argument: do firms that increase donation in government fiscal pressure periods outperform those that do not. Therefore, we develop the fourth hypothesis:

**H4.** Firms that donate in government fiscal pressure periods outperform firms that do not donate.

### 3.4 Heterogeneous effect

The extent to which firms benefit from engaging in philanthropic activities varies. If H3 holds, firms that desire more political connections will spend more on charity business. Prior studies pointed out that three kinds of firms are more eager to build political connections, i.e. non-SOEs, small firms and firms in regions where institutions are weak. SOEs are controlled by governments, and they are naturally closer to governments, while non-SOEs are privately owned and they seek for more political protection. Similarly, small firms are prone to build bond with governments as they are in greater need for political protection. Finally, institutional quality represents the extent of government interference (e.g. corruption) as well as property rights protection. Firms in weak institution regions have to invest more relationship-based transactions, therefore, are more likely to engage in charity programs to bond with governments.

Finally, we propose our fifth hypothesis as follows:

**H5.** The relation between government fiscal pressure and CCG is more pronounced for firms that have a greater demand for political connectedness.

### 4. Data, variable descriptions and empirical framework

#### 4.1 Data and sample

Our sample consists of publicly A-shared corporations listed on the Shanghai and Shenzhen Stock Exchanges. We obtain the corporate financial data, corporate governance data as well as its charitable giving information from the CSMAR database.
The database contains more than 2,000 listed firms and spans 31 provinces or province-equivalent municipalities. It covers all kinds of industries, ensuring its national representativeness. We start data collection from year 2003 when all the firms are required by the Ministry of Finance to disclose charitable donation information. The data on charitable giving, displayed as one item of “non-operating expenses”, are hand collected from the footnotes of firms’ financial statements. Each firm is matched to its host city by corporate headquarter location.

To make firms more comparable, we implement several data filters. First, we exclude firms that are specially treated, namely, the firms with “ST” (specially treated) hats or “ST*” hats. Second, we exclude firms if headquarter locations are not in accordance with corporate registration locations. Third, we exclude firms if headquarter locales have been changed during the sample period. Fourth, we exclude firms if they issue B shares or H shares. Fifth, we exclude firms located in Sichuan in 2008 and in Qinghai in 2011. These two provinces suffered from catastrophic earthquakes during sample period. Firms contributing donations in these two provinces are mostly driven by altruistic motivations or public media pressures. Seventh, we exclude firms from Xizang autonomous region due to poor data quality. We finally have 14,168 firm-year observations.

In addition, city-level economic and financial data are provided by *China City Statistical Yearbook* (2004–2013).

### 4.2 Empirical measures – corporate charitable giving

We use two measures of CCG. One is the total amount of CCG, and we use this measure in our baseline regressions. The second measure is the amount of corporate public welfare donations (CPWD), and we use this measure in the robustness check. According to the tax credits for giving, we define CPWD as charitable donations that firms donate through authorized charitable social organizations or directly to county-level (or above) government. Corporate public welfare donations can be fully deductible from the tax liability since the amount of CPWD does not exceed 12% of pre-tax accounting income. We find that the amount of corporate public welfare donations is equal to that of CCG for most sample firms, implying that firms may donate to achieve intended tax obligations.

### 4.3 Firm characteristics, city-level variables and other relevant measurements

We include a set of firm-level controlling variables that previous studies use as factors that affect firms’ donating decisions. These variables are SIZE (measured by total assets, in logs), EMPLOYMENT (measured by the number of employees, in logs), ROA (measured by the ratio of net profits to assets), LEVERAGE (measured as firm’s debt over shareholders’ equity), COMPETITIVENESS (measured by the squared term of the ratio between firm output and the total industry output) and SSM (the percentage of stock shares held by the top ten executives).

We also include a set of city-level controlling variables which are supposed to affect province’s decision-making process as well as firms’ CCG decisions. They are GROWTH (gross domestic product [GDP] growth measured over the previous year), AGDP (GDP divided by the population), DENSITY (population divided by the jurisdictional land area), INDUSTRY (measured by the ratio of added value of the manufacturing industry to GDP), FE (measured by fiscal expenditures per capita, scaled by fiscal revenues per capita) and LSR (measured by the amount of land sales revenue).

To test potential mechanisms, we construct another two explanatory variables. We describe them as follows.

#### 4.3.1 Political connection (PC)

We track the working experience records of all firms’ directors from annual financial reports. Firm’s political connection with the government
(PCG) is coded using a seven-point scale indicator. Coding rules are as follows. If the director works as an official at (or above) deputy national level, he (or she) gets seven points. The director working as an official at provincial-level gets six points while officials at deputy provincial-level gets five points, and so on. We sum up PCG scores of sample firm’s directors to calculate the PCG score. An easy way to measure political connection is a dummy variable that takes the value of 1 if the CEO or chairperson is politically connected and 0 otherwise (e.g. Li et al., 2015). However, it assigns a value of 1 to all political connections at different levels, which obviously does not consider China’s actual situation, such as institutional background regarding political connections. This method may not be able to deeply consider and describe the strength of political connections; at the same time, there are differences in the influence and role capabilities of administrative hierarchies with different political ties. Obviously, the influence and role of officials are stronger when the administrative hierarchy is higher. Based on this consideration, a large number of studies have also tried to use the administrative rank of political association to measure the continuous variable of scoring (Hu & Shi, 2008; Deng & Zeng, 2009; Du, Guo, & Lei, 2009, 2010). In the analysis of this paper, we also draw on this idea to measure and analyze the political connection.

We also measure the firm’s political connections with authority committees (PCA). We examine whether the firm’s directors have any connections with China People’s Congress or the Chinese People’s Political Consultative Committee. The rules for coding PCA indicator are if the director is a member of the National People’s Congress or the National People’s Political Consultative Committee, he (or she) gets six points. If the director is a member of the provincial-level People’s Congress or the provincial-level People’s Consultative Committee, he (or she) gets four points. Two points is set for city-level authority committees and zero for others. Similarly, we sum all directors’ PCA scores. We count the value of PC indicator by aggregating PCG score and PCA score.

4.3.2 Effective tax rate (ETR). Corporate ETR is measured as corporate income tax expenses over pre-tax accounting income, and the indicator is expressed in natural logarithm form. Taking the natural logarithm of the ETR variable here is mainly based on the following points: First, it would be helpful to analyze the percentage change in the corporate effective tax rate (ETR) for each additional unit of charitable giving, and the economic implications of the estimated coefficients are stronger at this point. Second, since the value of corporate ETR is generally between 0 and 1, it is more convenient to perform statistical inference (t-test or linear regression analysis) after data transformation by taking the natural logarithm. For example, the confidence interval of the estimator is usually constructed by adding and subtracting twice the standard deviation of the sample mean, which requires the distribution of the sample mean to be asymptotically normal. If the data show non-normal distribution, then the above statistical inference method will be not applicable. Finally, as the logarithmic function is a monotonically increasing function in its domain, taking the logarithm will not change the relative relationship of the data, nor will it change the nature of the data.

4.4 Statistical summary

Table 2 reports summary statistics of CCG from various perspectives. As shown, the median value of CCG of sample firms is 0, while the mean value is 1,292,155 yuan. The result implies that at least half of sample firms do not donate; however, firms involved in charitable activities donate a considerable amount.

CCG varies considerably across regions. We find that, on average, firms in Eastern China have the highest level of donating (1,601,726 yuan), whereas firms in Middle China have the lowest level (680,653 yuan). The distribution of CCG also demonstrates variation across industries. The wholesale and retail industry reports the highest level of corporate donating (1,767,151 yuan), whereas the transport and storage industry report the lowest level (633,556
These results suggest that there are both industry-level and regional-level effects to control in estimating the effect of government fiscal pressure on CCG.

Table 3 reports the descriptive statistics of our controlling variables. The first panel presents the descriptive statistics of firm-level controlling variables. The sample corporations are very large, with average assets of 922.8 million yuan. Firms have approximately 3,723 employers on average, and most of them adopt modest financing strategies (the mean value of the leverage ratio is 0.462). The firm profitability is reasonable (3.85%), and the industry is low-concentrated (11.7%). The top ten executives hold 4.86% of corporations' stocks, suggesting the ownership of sample firms is dispersed. The effective corporate tax rate (ETR) is 2.76%, while the average political connection score is 5.02.

The second panel presents the descriptive statistics of city-level controlling variables. The annual GDP growth rate is 12.28%, and the manufacturing industry plays a key role in prompting local economic growth. The mean value of the fiscal gap indicator is 1.8, which implies that fiscal expenditure exceeding revenues by roughly 80%. Land sales revenue contributes a considerable amount to local government revenue with about five million yuan on average.

Subsequently, our sample firms are split into two groups. The (4)–(3) difference column indicates that significant differences exist between donating firms and non-donating firms. Firms involved in charitable contributions tend to be larger with respect to the employment scale and more profitable. Donating firms are more aggressive in financing policies, more
diversified in the ownership and closer to governments. We also find that firms located in more developed and industrialized areas donate more than their counterparts.

4.5 Empirical framework

We begin our empirical analysis by estimating the following model with ordinary least square (OLS) regressions:

\[
CCG_{icpt} = a + \gamma_1 \sum_{n=1}^{4} D_{pt-1,n} + \sum_{k=2}^{13} \gamma_k X^k + \sum_{t=1}^{9} \beta_t \lambda_t + \sum_{p=1}^{29} \eta_p \phi_p \\
+ \sum_{d=1}^{154} \chi_d \theta_d + \epsilon_{it}
\]

(1)

where \( CCG_{icpt} \) is the charitable giving of firm \( i \) from city \( c \), province \( p \) in year \( t \). Our interest key is the binary variable \( D_{pt-1} \). It denotes whether the province shares the revenue of a specific tax in year \( t-1 \). As we consider four major taxes, the sum of the \( D_{pt-1} \) variable ranges from 0 to 4. We use the lagged form to mitigate reverse causality concern. \( X^k \) is a vector of contemporaneous controlling variables as we discussed in Section 4.3. \( \lambda_t \) is a set of dummy variables that account for any unobserved, nation-wide shocks over time. \( \phi_p \) includes a set of dummies that control unobserved time invariant factors at provincial level. \( \theta_d \) are industry dummy variables, accounting for unobserved variations across industries. For all regressions, standard errors are clustered at city level.

To test the robustness of our results, we also focus on whether firms are responsive to a marginal change in local government fiscal pressure. We thus exclude firms locating in provinces that shared cities’ tax revenue but never changed the tax revenue sharing arrangement. This modification makes our approach more akin to difference-in-differences (DID) design. Firms that experience tax revenue sharing arrangement

| Variables                  | Full sample Mean (1) | Median (2) | Subsample CCG = 0 (3) | CCG >0 (4) | (4)-(3) T-values |
|---------------------------|----------------------|------------|-----------------------|------------|-----------------|
| **Firm-level variables**  |                      |            |                       |            |                 |
| LEVERAGE                  | 0.462                | 0.475      | 0.441                 | 0.487      | 13.001***       |
| ROA                       | 0.039                | 0.036      | 0.038                 | 0.040      | 2.460**         |
| SSM                       | 4.864                | 0.000      | 6.157                 | 3.258      | -12.101***      |
| COMPETATIVENESS           | 0.117                | 0.076      | 0.118                 | 0.116      | 0.766           |
| EMPLOYEE (persons)        | 3.723                | 1.697      | 3.243                 | 4.319      | 7.784***        |
| SIZE (ten thousand)       | 922,754              | 197,102    | 903,844               | 946,230    | 0.325           |
| ETR                       | 0.028                | 0.152      | -0.009                | 0.072      | 0.582***        |
| PC                        | 5.012                | 2.000      | 4.587                 | 5.540      | 7.886***        |
| **City-level variables**  |                      |            |                       |            |                 |
| GROWTH (%)                | 12.280               | 13.000     | 12.327                | 12.214     | -1.350          |
| INDUSTRY                  | 48.030               | 49.010     | 47.768                | 48.347     | 2.833***        |
| FE                        | 1.799                | 1.438      | 1.806                 | 1.792      | 0.670           |
| LSR (ten thousand)        | 524.865              | 343.630    | 514.520               | 537.460    | 2.171**         |
| AGDP (yuan)               | 49,055               | 43,681     | 46,909                | 51,691     | 8.772***        |
| DENSITY (person/km²)      | 677                  | 629        | 679                   | 675        | -0.597          |

**Note(s):** This table presents descriptive statistics of our controlling variables. The sample consists of 14,168 firm-year observations. We divide sample firms into two groups, donating firm and non-donating firms. We report \( T \)-test values of differences between these two groups with respect to each controlling variable. The variables are defined in Appendix Table A2. The firm-level data are from the CSMAR database. The city-level data are from the China City Statistical Yearbooks. The superscripts *, ** and *** denote significance at the 10%, 5% and 1% levels, respectively.

Table 3. Descriptive statistics of regression variables
changes serves as the “treatment” group, while firms with the provincial government never sharing tax revenue serves as the “control” group. In the baseline result, we took the regions where the provincial government’s participation in the city’s tax share changed during the sample period as the treated group, and the other regions with no change in the share status were used as the control group. At the meanwhile, the control group contains two parts: one is the sample that the provincial government never shares from the tax revenue of the city government, and the other is the sample that the provincial government shares from the tax revenue of the city government, but never changed the tax revenue sharing arrangement. In fact, the former one is the perfect control group; while the latter one also means that the city has “wasted” a part of the tax revenue and lead to fiscal pressure to some extent. Based on this point, this paper excluded firms locating in provinces that shared cities’ tax revenue but never changed the tax revenue sharing arrangement as a robustness check.

We assume CCG responsiveness is a short-term effect, because city governments are very likely to exploit other channels to relieve fiscal pressure in the long term. Therefore, the analysis window is restricted to only contain years before the tax revenue sharing change event to three years after. However, we also run the regressions with modifications to the analysis event window, extending it to 4 years, 5 years, 6 years, 7 years and 8 years, respectively. We will discuss these in robustness checks.

5. Research design and results
5.1 Results for H1
We first examine whether the government fiscal pressure imposed an impact on CCG. The results are reported in Table 4.

In columns 1 and 6, we estimate the baseline regression considering the overall tax revenue sharing status. From columns 2 to 5, we examine the impact of the government fiscal pressure on CCG as the province suddenly shares the revenue of a specific tax. From columns 7 to 10, we estimate the marginal responsiveness effect of the revenue sharing change of a specific tax.

We find the key variable of our interest has a positive and statistically significant effect on CCG in most regressions. Our results also have economic significance. On average, firms increase charitable donations by 136,773 yuan if the provincial government shares the revenue of an additional tax.

Furthermore, we find the magnitude of the coefficient of our key variable is greatest for VAT tax revenue sharing change. The result is plausible as VAT is the largest tax in China. Firms increase donations by 461,296 yuan if the provincial government shares the VAT tax revenue of an additional tax. With regards to BT and IIT, the government fiscal pressure effect holds but the magnitude of the effect is relatively smaller. With respect to CIT, the effect is not statistically significant, while the sign of the coefficient of our key variable is positive.

Finally, we find the impact is more pronounced in terms of both magnitude and statistical significance where we estimate CCG response to a marginal increase in government fiscal pressure. Our result is consistent with H1.

5.2 Results for H2 and H3
In this subsection, we investigate motivations that drive firms to increase charitable giving in government fiscal pressure periods. According to H2, we propose that corporate effective tax rate increases when government fiscal pressure rises, and then firms are more likely to reduce effective tax rates if they donate. We construct Eq. (2) to test whether firms reduce tax burden if they donate in government fiscal pressure periods.
| Variables         | (1) Overall | (2) Vat | (3) Bt | (4) Gi | (5) Bt | (6) Overall | (7) vat | (8) bt | (9) cit | (10) cit |
|-------------------|-------------|---------|--------|--------|--------|-------------|--------|--------|--------|---------|
| $D_{\text{yt}}$  | 13.677** (5.771) | 46.130** (18.676) | 38.274** (18.054) | 40.306** (18.849) | 24.471** (9.522) | 84.706** (38.679) | 84.597** (40.868) | 90.911*** (33.059) | 90.911*** (33.059) |
| LEVERAGE         | 6.513 (72.367) | 6.054 (75.675) | 6.484 (72.044) | 6.242 (69.356) | 6.701 (74.456) | 79.686 (115.487) | 79.956 (115.940) | 79.285 (114.901) | 79.285 (114.901) |
| SSM              | 0.306 (1.224) | 0.305 (1.220) | 0.301 (1.254) | 0.307 (1.228) | 0.310 (1.240) | 1.666 (2.007) | 1.668 (2.010) | 1.658 (1.998) | 1.664 (2.005) |
| COMPETATIVENESS  | 295.788 (195.886) | 296.740 (195.224) | 295.103 (195.432) | 294.325 (196.217) | 295.790 (195.887) | 837.821 (754.794) | 838.098 (755.043) | 835.938 (753.097) | 836.178 (753.314) |
| EMPLOYEE         | 24.527 (17.773) | 24.524 (17.771) | 24.474 (17.772) | 24.633 (17.722) | 24.643 (17.729) | -804.2 (26.266) | -7.873 (7.490) | -7.778 (7.308) | -8.142 (7.009) |
| ASSET            | 13.137 (15.100) | 13.129 (15.091) | 13.020 (14.966) | 13.215 (15.017) | 13.286 (15.098) | 7.338 (33.355) | 7.520 (32.955) | 7.153 (32.514) | 7.540 (32.783) |
| DENSITY          | -0.112 (0.063) | -0.112 (0.063) | -0.112 (0.063) | -0.112 (0.063) | -0.112 (0.063) | -0.172 (0.108) | -0.169 (0.107) | -0.171 (0.107) | -0.173 (0.107) |
| AGDP             | 0.001 (0.001) | 0.001 (0.001) | 0.001 (0.001) | 0.001 (0.001) | 0.001 (0.001) | -0.000 (0.000) | -0.000 (0.000) | -0.000 (0.000) | -0.000 (0.000) |
| GROWTH           | 0.315 (4.300) | 0.410 (4.100) | 0.345 (4.339) | 0.265 (4.147) | 0.388 (4.425) | -11.899 (6.462) | -11.791 (6.589) | -11.887 (6.604) | -12.048 (6.653) |
| INDUSTRY         | -3.411 (3.019) | -3.454 (3.003) | -3.410 (2.996) | -3.375 (3.013) | -3.399 (3.008) | 1.492 (4.388) | 1.436 (4.332) | 1.470 (4.324) | 1.516 (4.331) |
| FE               | -10.772 (12.362) | 0.061 (0.044) | -10.886 (12.452) | -10.776 (12.386) | -10.696 (12.437) | 122.41 (23.348) | 14.89 (23.649) | 11.83 (23.664) | 11.10 (23.628) |
| LSR              | 0.052 (0.043) | 0.051 (0.043) | 0.052 (0.043) | 0.052 (0.043) | 0.052 (0.043) | 0.314 (1.149) | 0.314 (1.149) | 0.313 (1.149) | 0.314 (1.139) |
| Constant         | 181.000 (169.159) | 159.672 (169.864) | 160.403 (168.845) | 185.353 (170.049) | 202.336 (188.983) | 701.879 (548.343) | 691.546 (548.846) | 675.588 (544.829) | 715.453 (550.348) |
| Industry FE      | Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes |
| Province FE      | Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes |
| Year FE          | Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes |
| Observations     | 10,485 10,485 10,485 10,485 10,485 | 2806 2806 2806 2806 2806 |
| $R^2$ squared    | 0.036 0.036 0.036 0.036 0.036 | 0.120 0.120 0.120 0.120 0.120 |

Note(s): Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.
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\[ ETR_{icpt} = \beta_0 + \beta_1 \sum D_{pt-1,n(n=1,2,3,4)} + \beta_2 \left( \sum D_{pt-1,n(n=1,2,3,4)} \times Don_{icpt} \right) + \sum_{t=1}^{9} \nu_t \lambda_t + \sum_{p=1}^{29} \theta_p + \sum_{d=1}^{154} \pi_d \theta_d + \epsilon_{it} \]  

(2)

where \( Don_{icpt} \) denotes whether the firm donates in the year after the tax revenue sharing change. The dummy variable equals 1 if the firm donates, and zero otherwise. We consider both the overall tax revenue sharing status and the tax revenue sharing change of a single tax. If H2 holds, we suppose \( \beta_1 \) positive and \( \beta_2 \) negative.

Similarly, as we discuss in H3, firms are more likely to build political connectedness once they donate in response to increased government fiscal pressure. Therefore, we construct Eq. (3) to test whether firms are rewarded in terms of political connection.

\[ PC_{icpt} = c_0 + c_1 \sum D_{pt-1,n(n=1,2,3,4)} + c_2 \left( \sum D_{pt-1,n(n=1,2,3,4)} \times Don_{icpt} \right) + \sum_{t=1}^{9} \nu_t \lambda_t + \sum_{p=1}^{29} \theta_p + \sum_{d=1}^{154} \pi_d \theta_d + \epsilon_{it} \]  

(3)

Here we also consider both the overall tax revenue sharing status and the tax revenue sharing change of a single tax. If H3 holds, we suppose \( c_2 \) to be positive. Results are reported in Table 5.

Columns (1)–(5) report estimations of Eq. (2). In all regressions, coefficients of the binary variable to measure tax revenue sharing change are statistically positive. It suggests that corporate effective tax rate increases due to tougher government fiscal pressure. On the other hand, coefficients of the interaction term \( \left( \sum D_{pt-1,n(n=1,2,3,4)} \times Don_{icpt} \right) \) are statistically negative. Donating firms are more capable to reduce corporate tax burden. Results confirm tax evasion as an important motivation to explain CCG behavior.

Columns (6)–(10) report estimations of Eq. (3). In all specifications, the coefficients of the interaction term \( \left( \sum D_{pt-1,n(n=1,2,3,4)} \times Don_{icpt} \right) \) are statistically positive. The results confirm H3, suggesting that firms build stronger political connection once they donate in response to increased government fiscal pressure.

5.3 Results for H4

Our next concern is do firms that donate subsequent to tax revenue sharing changes tend to outperform firms that do not. We estimate Eq. (4) to test H4:

\[ Performance_{ic,t} = a + \gamma_1 \times \sum D_{pt-1,n(n=1,2,3,4)} + \gamma_2 \times \left( \sum D_{pt-1,n(n=1,2,3,4)} \times Don_{icpt} \right) + \sum_{t=1}^{9} \beta_t \lambda_t + \sum_{p=1}^{29} \eta_p \theta_p + \sum_{d=1}^{154} \pi_d \theta_d + \epsilon_{it} \]  

(4)

We use several measures to estimate the firm performance, including return on assets (ROA), return on sales (ROS), sale fees (SR), short-term loans (SL), debt-to-equity ratio (LEVERAGE). ROA and ROS are well-known accounting performance measures. The reduction of sale fees is treated as market reputation rewards for the firm’s charitable giving. While several studies find that donating firms are more accessible to bank loans that are strictly regulated by the government in China. Estimation results of Eq.(4) are reported in Table 6.

Table 6 represents the regression results of Eq. (4). Results suggest that firms that donate subsequent to tax revenue sharing changes outperform firms that do not donate in terms of market reputation and bank loan access. However, we do not find donating firms outperform their counterparts with respect to the accounting performance. We conjecture that firms may
| Variables                  | Overall (1) | vat (2) | ETR | bt (3) | cit (4) | iit (5) | Overall (6) | vat (7) | bt (8) | cit (9) | iit (10) |
|----------------------------|-------------|---------|-----|--------|---------|---------|-------------|---------|--------|---------|---------|
| \( D_{N-1} \)             | 0.009* (0.004) | 0.033** (0.016) | 0.022* (0.014) | 0.025 (0.016) | 0.035* (0.013) | -0.198 (0.127) | -1.300** (0.591) | -0.961* (0.543) | -0.507 (0.317) | -0.303 (0.278) |
| \( \sum D_{k-4,4<4} \times \text{Donor} \) | -0.006 (0.005) | -0.010 (0.006) | -0.008 (0.005) | -0.007 (0.006) | -0.007 (0.005) | 0.025* (0.352) | 1.129* (0.253) | 0.924** (0.290) | 0.629* (0.263) | 0.756** (0.272) |
| Constant                   | 0.859*** (0.020) | 0.850*** (0.019) | 0.870*** (0.019) | 0.859*** (0.020) | 0.859*** (0.020) | 1.627 (0.864) | 1.743*** (0.867) | 1.702* (0.864) | 1.740*** (0.867) | 1.653* (0.870) |
| Industry FE                | Yes         | Yes     | Yes | Yes    | Yes     | Yes     | Yes         | Yes     | Yes    | Yes     | Yes     |
| Province FE                | Yes         | Yes     | Yes | Yes    | Yes     | Yes     | Yes         | Yes     | Yes    | Yes     | Yes     |
| Year FE                    | Yes         | Yes     | Yes | Yes    | Yes     | Yes     | Yes         | Yes     | Yes    | Yes     | Yes     |
| R-squared                  | 0.049       | 0.048   | 0.048 | 0.047 | 0.048   | 0.136   | 0.137       | 0.137   | 0.136  | 0.136  |
| Observations               | 11,637      | 11,869  | 11,869 | 11,869 | 11,869  | 11,869  | 11,869      | 11,869  | 11,869 | 11,869 |

**Note(s):** Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table 5. Underlying motivations for charitable giving.

Corporate charitable giving.
need a longer period to translate the political connection and the tax shelter advantages into performance achievement.

5.4 Results for H5
According to H5, non-SOEs, small firms and firms in areas with heavy government interference are supposed to donate more in response to government fiscal pressure. We define SOEs as firms who are ultimately controlled by the government. Firms with assets below the mean value of assets of sample firms are categorized as small firms. And we classify firms into intensive government interference group on the basis of the marketization index value. The index is reported by China’s National Economic Research Institution. Cities with the marketization score of the initial sample year lower than the mean value of sample cities of that year are categorized into intensive government interference group. As we divide the total sample into these sub-samples, we re-run Eq.(1) and results are reported in Table 7.

As shown, the positive impact of government fiscal pressure on CCG is more pronounced for small firms and firms facing heavy government interference, in terms of both statistical and economic significance.

Strikingly, we do not find any statistically significant impact of government fiscal pressure in SOEs and non-SOEs. We are concerned whether the results are caused by insufficient samples. Therefore, we include the interaction term \((\sum_{p=1}^{n} D_{pt-1,n} \times D_{sae})\) into baseline regression and re-estimate. The \(D_{sae}\) variable equals 1 for SOEs and 0 for non-SOEs. We find that SOEs donate more than their counterparts in fiscal pressure periods. SOEs have to take on more social responsibilities when the government is unable to provide sufficient public services.

5.5 Robustness checks
In the final subsection, we conduct several robustness checks. We first change measures of CCG and offer an alternative method to gauge tax revenue sharing change. We then check whether sample restrictions would bias our main findings. Subsequently, we extend the analysis window to investigate both the short-term and the long-term effects of government fiscal pressure on charitable giving. Finally, we rule out the possibility of potential bias caused by reverse causality.

5.5.1 Alternative measures. We first replace the \(D_{pt-1}/C_{0,1}\) with a continuous variable \(GFP_{pt}/C_{0,1}\). The variable \(GFP_{pt}/C_{0,1}\) denotes the substantial tax shares of a specific tax that the provincial government enjoys in the previous year. To measure the overall tax revenue sharing status, we add four \(GFP_{pt}/C_{0,1}\) variables and weight every \(GFP_{pt}/C_{0,1}\) variable by the revenue contribution of this specific tax to total tax revenue. Results are reported in columns (1)–(5) in Table 8.

We next replace the dependent variable with the CPWD variable and re-run Eq. (1). By doing this, we also examine whether the donation timing strategy facilitates firms to achieve intended tax obligations. The results are presented in columns (6)–(10) in Table 8.

| Variables | ROA | ROS | SF | SL | LEVERAGE |
|-----------|-----|-----|----|----|----------|
| \(D_{pt-1}\) | -0.001 (0.001) | -0.002 (0.002) | 0.001 (0.001) | -0.003 (0.003) | -0.005** (0.003) |
| \(\sum_{p=1}^{n} D_{pt-1,n} \times D_{sae}\) | 0.001 (0.001) | -0.0005 (0.004) | -0.003*** (0.001) | 0.016*** (0.005) | 0.035*** (0.006) |
| Constant | -0.008 (0.007) | 0.028 (0.020) | 0.010 (0.010) | -0.005 (0.024) | 0.773*** (0.025) |
| Industry FE | Yes | Yes | Yes | Yes | Yes |
| Province FE | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes |
| Observations | 12,425 | 12,425 | 12,182 | 12,403 | 12,425 |
| R-squared | 0.128 | 0.211 | 0.391 | 0.195 | 0.280 |

Table 6.
The effect of donating in fiscal hardship on firm performance

Note(s): Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.
### Table 7. Heterogeneity tests

| Variables          | Firm size | Ownership | Government interference |
|--------------------|-----------|-----------|-------------------------|
|                    | Large     | Small     | SOE                     | Non-SOE                  | Intensive      | Light       |
| \( D_{Ft-1} \)     | 3.976 (9.036) | 14.344 \( ^{**} \) (6.432) | 10.965 (7.214) | 11.486 (10.735) | 19.650 \( ^{*} \) (8.891) | 5.419 (8.884) |
| Constant           | -94.641 (102.871) | 397.477 \( ^{*} \) (183.169) | 256.956 \( ^{**} \) (155.731) | 16.990 (283.167) | 446.016 \( ^{**} \) (253.418) | -44.374 (90.559) |
| Firm-level         | Yes       | Yes       | Yes                     | Yes                      | Yes            | Yes         |
| characteristics    |           |           |                         |                          |                |             |
| City-level         | Yes       | Yes       | Yes                     | Yes                      | Yes            | Yes         |
| characteristics    |           |           |                         |                          |                |             |
| Industry FE        | Yes       | Yes       | Yes                     | Yes                      | Yes            | Yes         |
| Province FE        | Yes       | Yes       | Yes                     | Yes                      | Yes            | Yes         |
| Year FE            | Yes       | Yes       | Yes                     | Yes                      | Yes            | Yes         |
| Observations       | 1,378     | 8,907     | 3,950                   | 6,535                    | 7,536          | 2,949       |
| \( R^{2} \)        | 0.133     | 0.038     | 0.067                   | 0.048                    | 0.044          | 0.099       |

**Note(s):** Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.
### Table 8: Robustness check: alternative measurements

| Variables          | (1) Overall | (2) VAT | (3) LT | (4) CIT | (5) AT | (6) Overall | (7) VAT | (8) LT | (9) CIT | (10) AT |
|--------------------|------------|--------|--------|--------|-------|-------------|--------|-------|--------|--------|
| GFP_0_{-1, t}      | 93.714     | 346.787 | 183.787 | 174.862 | 265.837 | 13.391      | 45.249 | 36.785 | 37.684 | 40.465 |
| Constant           | -165.707   | -162.803 | -157.379 | -184.561 | -207.380 | -25.187      |       |       |        |        |
| Firm-level         | Yes        | Yes     | Yes    | Yes    | Yes   | Yes         | Yes    | Yes   | Yes    | Yes    |
| City-level         | Yes        | Yes     | Yes    | Yes    | Yes   | Yes         | Yes    | Yes   | Yes    | Yes    |
| Industry FE        | Yes        | Yes     | Yes    | Yes    | Yes   | Yes         | Yes    | Yes   | Yes    | Yes    |
| Province FE        | Yes        | Yes     | Yes    | Yes    | Yes   | Yes         | Yes    | Yes   | Yes    | Yes    |
| Year FE            | Yes        | Yes     | Yes    | Yes    | Yes   | Yes         | Yes    | Yes   | Yes    | Yes    |
| Observations       | 10,537     | 10,485  | 10,485 | 10,485 | 10,485 | 10,485       | 10,485 | 10,485 | 10,485 | 10,485 |
| R-squared          | 0.036      | 0.036   | 0.036  | 0.036  | 0.036 | 0.036        | 0.036  | 0.036 | 0.036  | 0.036  |

**Note(s):** Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.
We find our results survive the robustness check no matter we change the measurement of dependent variable or our independent variable of key interests. In most regressions, government fiscal pressure imposes a statistically positive impact on CCG.

5.5.2 Sample restrictions. In the second robustness check, we first exclude firms headquartered in provincial-level cities, e.g. Beijing, Tianjin, Chongqing and Shanghai. These four cities differ greatly from other cities with respect to tax revenue sharing system. We then replicate those regressions reported in Table 4. The results are presented in columns (1)–(5) in Table 9.

For the second sample restriction, we exclude firms belonging to polluted industries and re-estimate Eq.(1). Firms in heavy polluting industries manage to “wear the green hat” by donating. Heavy polluting firms could avoid public accusations and reduce legal penalties through charitable activities (Campbell, 2007; Koehn & Ueng, 2010). After excluding these firms, we distinguish the “green hat” effect from the government fiscal pressure effect. The results are presented in columns (6)–(10) in Table 9.

Our results hold after sample restrictions. A sudden increase in government fiscal pressure is associated with a higher level of CCG. Most coefficients of the \( D_{pt-1,n} \) variable are positive and statistically significant.

5.5.3 Extend the analysis window. In baseline regressions, we evaluate the short-term effect of government fiscal pressure. The analysis window is then restricted to contain three years after the tax revenue sharing changes. In order to investigate a long-term effect, we extend our analysis window to 4 years, 5 years, 6 years, 7 years and 8 years, respectively. The results are reported in Table 10.

As shown in Table 10, we have some interesting findings. On the one hand, our results hold irrespective of the analysis window length. On the other hand, the magnitude of the coefficient of the \( D_{pt-1,n} \) variable decreases as the analysis window expands. It reveals the fact that the government exploits other ways to deal with fiscal pressure concerns in the long run.

5.5.4 Potential endogeneity issue. Generally speaking, it is hard for firms to affect the decision-making process of provincial government. To rule out the possibility of reverse causation, we include into the \( D_{pt+1,n} \) variable into Eq. (1). It leads to a simple dynamic version of Eq. (1). We re-estimate the model and expect to see the coefficient of the \( D_{pt+1,n} \) variable close to zero. Results are presented in Table 11.

We find that coefficients of the \( D_{pt+1,n} \) variable are all statistically insignificant. The results provide evidence that our estimated effect is not driven by serious reverse causality, although results are far from definitive tests.

5.5.5 Firms’ entry and exit. The final concern we address is whether the results are driven by firms’ entry and exit. For example, it could be the case that new entry firms are more able to take on social responsibilities. Therefore, we restrict sample firms to those surviving from the beginning to the end of the sample period. Results in Table 12 again confirm our results.

6. Conclusions

Existing literature believed that firms donate during certain time periods. Choosing a proper time to donate will reduce the price of giving and bring firms more potential benefits. Our study contributes to this growing literature by exploring a new timing strategy of donating – donating in response to government fiscal pressure.

In this paper, we exploit China’s tax revenue sharing reform as exogenous changes in local government fiscal pressure. Empirical results find that firms increase charitable giving in response to government fiscal pressure. The relationship between government fiscal pressure and CCG is more pronounced for firms that have a stronger demand for building political connections. We also investigate underlying motivations. We find
### Table 9.
Robustness check: sample restrictions

| Variables                        | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
|                                  | **Bt** | Cit | iit | **Bt** | Cit | iit | **Bt** | Cit | iit | **Bt** |
| $D_{t-1}$                        | 14.778** (5.750) | 47.580** (18.806) | 41.212** (17.463) | 45.844** (24.385) | 44.696** (18.806) | 17.666* (9.601) | 68.196** (31.867) | 60.531** (29.818) | 45.586 (33.767) | 36.678 (27.786) |
| Constant                         | -89.559 (223.898) | -82.068 (221.805) | -79.497 (220.822) | -81.383 (220.064) | -84.507 (222.387) | 869.663*** (170.857) | 898.234*** (171.746) | 898.802*** (172.184) | 863.941*** (172.788) | 260.880 (165.114) |
| Firm-level characteristics       | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| City-level characteristics       | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FE                      | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Province FE                      | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE                          | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations                     | 9,204 | 9,204 | 9,204 | 9,204 | 9,204 | 7,076 | 7,076 | 7,076 | 7,076 | 7,076 |
| $R$-squared                      | 0.039 | 0.039 | 0.039 | 0.039 | 0.039 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 |

**Note(s):** Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.
| Variables                      | 4 years   | 5 years   | 6 years   | 7 years   | 8 years   |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|
|                               |           |           |           |           |           |
| $D_{yt-1}$                    | 13.133** (5.785) | 11.031** (5.543) | 13.222** (6.712) | 12.099* (6.576) | 12.003* (6.559) |
| Constant                      | −100.183 (172.729) | 52.344 (149.554) | −56.570 (182.484) | −84.732 (143.614) | −240.102 (154.905) |
| Firm-level characteristics    | Yes       | Yes       | Yes       | Yes       | Yes       |
| City-level characteristics    | Yes       | Yes       | Yes       | Yes       | Yes       |
| Industry FE                   | Yes       | Yes       | Yes       | Yes       | Yes       |
| Province FE                   | Yes       | Yes       | Yes       | Yes       | Yes       |
| Year FE                       | Yes       | Yes       | Yes       | Yes       | Yes       |
| Observations                  | 11,001    | 11,325    | 11,612    | 11,721    | 11,738    |
| $R$-squared                   | 0.036     | 0.035     | 0.030     | 0.029     | 0.029     |

**Note(s):** Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.
| Variables          | Overall | vat       | bt        | cit        | ict        |
|--------------------|---------|-----------|-----------|------------|------------|
| $D_{yt-1}$         | 14.903*** (7.270) | 51.677*** (24.262) | 36.779 (23.729) | 34.694 (26.086) | 39.320* (21.027) |
| $D_{yt+1}$         | 1.795 (6.192)      | -4.973 (22.606)    | -3.469 (20.411)  | 22.686 (22.462) | 13.535 (20.823)  |
| Constant           | -31.332 (174.067)  | -10.861 (181.032)  | -12.671 (181.024) | -53.401 (178.006) | -48.789 (174.250) |

**Firm-level characteristics***
- Yes
- Yes
- Yes
- Yes
- Yes

**City-level characteristics***
- Yes
- Yes
- Yes
- Yes
- Yes

**Industry FE***
- Yes
- Yes
- Yes
- Yes
- Yes

**Province FE***
- Yes
- Yes
- Yes
- Yes
- Yes

**Year FE***
- Yes
- Yes
- Yes
- Yes
- Yes

**Observations***
- 8,742
- 8,742
- 8,742
- 8,742
- 8,742

**R-squared***
- 0.050
- 0.050
- 0.050
- 0.050
- 0.050

**Note(s):** Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.
donating firms can reduce tax burden and build closer political connections with governments if they increase charitable giving in response to government fiscal pressure.

Our study has several implications. First, we highlight the importance of the timing for firms to fulfill social responsibility. Implementing social responsibilities at the right time helps firms obtain political and policy benefits from governments. Second, altruistic motivations do not seem plausible in explaining corporate charitable behaviors. Finally, in developing countries, governments allocate key resources on the basis of their mutual connection with firms. This should be an alert for quickly growing developing countries.

### Notes
1. The China Charity and Donation Survey (2014) reports that corporate donations account for over 70% of total donations in China. Comparatively, a study by Giving USA (2014) reports that 72% of American donations come from individuals, much more than corporations or foundations.
2. Before China’s Income Tax Revenue Sharing Reform in 2002, for both CIT and IIT, half of tax revenues go to the central government, while half revenues go to sub-national governments.
3. The World Bank (2002) reports that in China, city governments account for all expenditure on social security, welfare and unemployment insurance share 70% of budgetary education expenditure and approximately 60% of health expenditure.

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### Table 12. Robustness check—firms' entry and exit

| Variables          | Overall | Vat | It | cit | iit |
|--------------------|---------|-----|----|-----|-----|
| $D_{it-1}$         | 13.007* (7.349) | 38.375 (25.755) | 34.909 (28.051) | 40.563 (31.444) | 46.268* (24.150) |
| Constant           | 28.768 (261.527) | 41.166 (257.288) | 40.916 (255.725) | 20.160 (252.000) | 15.733 (262.217) |
| Firm-level         | Yes     | Yes | Yes | Yes | Yes |
| characteristics    |         |     |     |     |     |
| City-level         | Yes     | Yes | Yes | Yes | Yes |
| characteristics    |         |     |     |     |     |
| Industry FE        | Yes     | Yes | Yes | Yes | Yes |
| Province FE        | Yes     | Yes | Yes | Yes | Yes |
| Year FE            | Yes     | Yes | Yes | Yes | Yes |
| Observations       | 5,874   | 5,874 | 5,874 | 5,874 | 5,874 |
| R-squared          | 0.054   | 0.054 | 0.054 | 0.054 | 0.054 |

**Note(s):** Standard errors are clustered at city-level and reported in parentheses; *, ** and *** denote significance at the 10%, 5% and 1% levels.
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**Further reading**

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**Appendix**

| Groups                                      | Full sample | By province changes | Ratio | Full sample | By city changes | Ratio | Full sample | By firm changes | Ratio |
|---------------------------------------------|-------------|---------------------|-------|-------------|-----------------|-------|-------------|-----------------|-------|
| **Panel A. Distribution of sample experiencing no changes in tax revenue sharing rules in terms of province/city/firms** |             |                     |       |             |                 |       |             |                 |       |
| Province shares in four taxes               | 30          | 5                   | 0.167 | 237         | 15              | 0.063 | 14,168      | 3,143           | 0.222 |
| Province shares in three taxes              | 30          | 3                   | 0.100 | 237         | 36              | 0.152 | 14,168      | 2,505           | 0.177 |
| Province shares in two taxes                | 30          | 2                   | 0.067 | 237         | 19              | 0.080 | 14,168      | 1,538           | 0.109 |
| Province shares in one tax                  | 30          | 1                   | 0.033 | 237         | 5               | 0.021 | 14,168      | 162             | 0.011 |
| Province shares in no tax                   | 30          | 5                   | 0.167 | 237         | 46              | 0.194 | 14,168      | 2,422           | 0.171 |
| **Panel B. Distribution of sample experiencing changes in tax revenue sharing rules in terms of province/city/firms** |             |                     |       |             |                 |       |             |                 |       |
| Province increases tax shares               | 30          | 10                  | 0.333 | 237         | 80              | 0.338 | 14,168      | 2,857           | 0.202 |
| Province decreases tax shares               | 30          | 2                   | 0.067 | 237         | 22              | 0.093 | 14,168      | 678             | 0.048 |
| Province increases and decrease tax shares at different times | 30          | 2                   | 0.067 | 237         | 14              | 0.059 | 14,168      | 863             | 0.061 |

**Table A1.** Descriptive statistics of GFP indicator
| Variables | Definitions |
|-----------|-------------|
| CCG (10 thousand yuan) | Total amount of donations |
| CPWD (10 thousand yuan) | Total amount of public welfare donations |
| LEVERAGE | The ratio between debt and shareholders’ equity |
| ROA | The ratio between net profits and assets |
| SSM | Share of stocks that are held by the top 10 executives |
| COMPATIVENESS | Squared term of the ratio of firm output to industry output |
| SIZE (ten thousand yuan) | Total amount of assets (in log) |
| EMPLOYEE (persons) | The number of employees (in log) |
| GROWTH (%) | GDP growth over the previous year |
| AGDP (yuan) | GDP divided by population |
| DENSITY (persons/km²) | Population divided by the jurisdictional land area |
| INDUSTRY | The ratio of the added value of the manufacturing industry to GDP |
| FE | Fiscal expenditure per capita, scaled by the fiscal revenues per capita |
| LSR (ten thousand yuan) | The amount of land sale revenues |
| ETR | Corporate income tax expense in pre-tax accounting income, in log forms |
| PC | The sum of PCG score and PCA score |
| PCG | The score of the firm’s political connection with the government |
| PCA | The score of the firm’s political connection with People’s Congress or the People’s Political Consultative Committee |

Table A2. Variable definitions

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