

Making Democracy Work: Formal Institutions and Culture in Rural China*

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Abstract

We provide novel evidence that culture is an important determinant of the effectiveness of formal democratic institutions. We collect new data to document the presence of voluntary and social organizations in Chinese rural villages, the most important of which is the village temple, a salient node for social and associational life in this setting. We use the introduction of village elections as an improvement in formal institutions. When elections were introduced, villages with temples experienced much larger increases in public goods than villages without temples. These results suggest that formal and informal institutions are complementary, and that the presence of social capital is a necessary pre-condition for successful elections. **JEL:** P16, H41; **Key Words:** Civic Capital, Public Goods, Generalized Trust, Personalized Trust, Institutions.

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1 Introduction

“... economies that adopt the formal rules of another economy will have very different performance characteristics than the first economy because of different informal norms and enforcement.” Douglass C. North, Alfred Nobel Memorial Prize address, 1993.

A large body of empirical evidence shows that formal institutions, such as those underpinning property rights protection or the legal system, play an important role in determining economic outcomes (LaPorta et al., 1998; Acemoglu et al., 2001). Another strand of literature emphasizes the aggregate effects of culture, focusing on aspects such as trust or social capital (Glaeser et al., 2007; Tabellini, 2008).¹ However, much less attention has been paid on how formal institutions and culture interact and which, if any, are the social pre-conditions that enhance the performance of formal institutions.² This point is made clearly in the review article by Alesina and Giuliano (2015).

The purpose of our paper is to provide novel empirical evidence on the importance of culture in enhancing the performance of formal institutions. Our study takes place in the context of rural China, where village governments had been appointed by the Communist Party ever since the 1950s. Observing that these governments failed to perform tasks such as the provision of public goods, the post-Mao (post-1976) central government decided to change a formal institution: village committees changed from appointed to elected bodies. This reform constituted an improvement in formal institutions that successfully increased average expenditure on public goods.³ In this paper, we ask how the increase in expenditure in public goods generated by the change in formal institutions varied as a function the underlying culture of each village.

Before proceeding it is important to establish a working definition for culture and for social capital. We follow the bulk of empirical papers in the economics of culture literature which borrow a definition from Guiso et al. (2006): culture comprises the set of “customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation.” In a subsequent paper, (Guiso et al., 2011), social capital is defined as “*civic* capital – i.e., those persistent and shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities.” Social capital is therefore a subset of culture. Two

¹The literature on the influence of culture on economic outcomes is reviewed in Guiso et al. (2006) and Fernandez (2008).

²We discuss the few exceptions later on in the introduction.

³Zhang et al. (2004), Luo et al. (2010), Mu and Zhang (2011) and Martinez-Bravo et al. (2017).

points follow from these definitions. First, we are interested in long-lived cultural traits. Second, since in our context the outcome variable of interest is public good provision, the relevant cultural trait is *social capital*. These definitions align well with the seminal work of Putnam et al. (1994), which postulates that underlying *civic traditions* determine the local success of formal decentralization.

A priori, it is unclear whether elections and social capital are complements or substitutes in delivering public goods. On the one hand, social capital and improved formal institutions may be *substitutes*: where formal institutions fail to provide enough public goods, social capital can allay the deficiency. This view implies that villages with higher social capital would have less to gain from the introduction of elections. For example, in rural China, Tsai (2007) argues that social organizations such as temples stepped in to substitute for the failed village governments in rural China.⁴

On the other hand, there is a long social science tradition originating with de Tocqueville (1840) which argues that representative formal institutions thrive in settings with social capital. This *complementarity* is supported by several mechanisms. For example, the definition of civic capital from above suggests that village governments should have an easier time aggregating preferences and collecting fees from villagers in localities with high social capital. These differences would not be reflected in actual public goods under the rule of an appointed government that was not interested in providing them. However, once elections make the government accountable, the reduced costs of public goods provision would result in larger increases in public goods in villages with high social capital.⁵

There are three main difficulties in empirically determining whether elections and social capital are complements or substitutes. The first challenge lies in the measurement of social capital. To address this problem we use a proxy measure, the presence of village temples (*cunmiao*), which are village-wide voluntary organizations and require collective action to construct and maintain. Our usage of village temples as a proxy for social capital is motivated by the literature on local governance in China from anthropology and political science.⁶ Indeed, temples in rural China are

⁴Using a cross-section of villages, Tsai (2007) horse-races elections against temples and finds that temples are more important for public goods. However, a horserace is not a strict formal test for complementarity or substitutability, which is captured by the interaction effect. See the appendix for a more detailed discussion and our replication of her specification.

⁵Moreover, social capital can enhance accountability itself, as suggested in Nannicini et al. (2012). See Section 3 for a detailed discussion of the different potential mechanisms.

⁶Unlike places of worship in Judeo-Christian religions, village temples are non-exclusionary and any villager can participate in the religious and non-religious events held there. They also differ in that they are funded by villagers as a whole, rather than by certain members of the wealthy or noble classes. This is true both today and historically. See section 2 for more discussion.

a close analogue to associationism measures of social capital used in the economics and political science literature.⁷

The second difficulty is the lack of systematic data on village temples (or other voluntary associations) in China with a sample large enough for proper statistical analysis. To address this difficulty, we conduct an original survey of village records in a nearly nationally representative sample of rural villages across China that covers the years 1986 to 2005. These village administrative records contain detailed information on (1) village public goods expenditure, (2) cultural and social institutions, such as village temple committees, and (3) formal political changes, such as the introduction of elections. Consistent with our use of village temples as a proxy for social capital, we note that in the data the presence of village temples is positively correlated with the presence of other village-wide voluntary organizations and cultural events.

The third and final difficulty is identifying how social capital modulates the effect of elections on public goods. Elections were introduced in rural China during the late 1980s and early 1990s. The timing of the introduction of elections varied across villages.⁸ To estimate the effect of the differential impact of social capital on the introduction of elections, we estimate the interaction effect of the introduction of elections, which varies over time, and a time-invariant dummy variable for the presence of a village temple on public goods. This method is in essence a triple differences estimate that compares public goods in villages before and after elections, between villages that have and have not yet introduced elections, and between villages with and without temples. The baseline specification includes village fixed effects, which control for time-invariant differences across villages; province-time trends to control for the growing economic and cultural divergence across regions during the reform era; and year fixed effects that are allowed to differ between villages with and without temples. The latter allows the two types of villages to experience different common shocks (e.g., they control for the possibility that public goods in villages with temples may grow at a different rate than in villages without temples for reasons other than the introduction of elections).

Our empirical strategy allows for the possibility that the timing of the introduction of elections and the presence of temples are both endogenous: only the interaction of these two variables needs to be exogenous. The identifying assumption is that, conditional on the controls, the gap in public goods provision between villages with and without temples and the introduction of elections are not jointly determined. There are two primary concerns for this assumption. First, for the

⁷See Putnam et al. (1994) for the original use of this measure.

⁸Please see section 2 for a detailed discussion.

reasons discussed earlier, the gap might have been increasing for secular reasons and villages with temples may have introduced elections earlier. If both of these conditions are true, then the interaction effect would be spuriously positive. To rule out this possibility, we show that public goods provision was similarly low in villages with and without temples prior to the introduction of elections, and the timing of the electoral reform across villages was uncorrelated with the presence of a temple.

The second concern is that the presence of temples is correlated with other factors (e.g., village population) that could influence how the introduction of elections can affect public goods. To address this, we document the correlates of temples and directly control for the interaction of each correlate and the introduction of elections in the baseline specification. We also provide a large set of robustness tests to rule out the potentially confounding influence from other factors such as religiosity, human capital, income, inequality and the demographic composition of villages.

Our main result is stark: we find that elections increase public goods expenditure substantially more in villages with temples relative to those that have no temples. According to our preferred estimates, when elections are introduced, villages with temples increase public goods provision by 403,700 RMB more than villages without temples. This difference amounts to 7.7% of median household income. By comparison, the average effect of introducing elections in the entire sample is an increase in public goods expenditure of about 100,700 RMB, or 2.4% of median household income. The gap in the impact of elections on public goods provision created by the presence of a temple is thus highly economically significant. Indeed, the effect of elections on villages without temples is small and statistically indistinguishable from zero.

To check that our findings reflect differential effects of social capital in the local political economy of the village we separately examine public goods expenditure financed by villagers and expenditure financed by transfers from other levels of government. Our results are entirely driven by financing from villagers. This exercise demonstrates that the interaction of elections and social capital is circumscribed to the local elected government's ability to finance public goods and does not reflect spurious changes in policy at higher levels of government.

Our findings imply that in solving the local government public goods problem, social capital is complementary to the introduction of elections. These results provide novel empirical evidence that differences in culture can play an important role in determining the relative success of uniform improvements in formal political institutions.

We next explore whether in addition to cultural differences our proxy could be capturing other mechanisms. The first possibility we consider is whether the physical

presence of the temple has a direct effect, maybe by providing a venue for discussion of local political matters. The worry would be that as long as a place for discussion exist then elections would have the effect that we observe in villages with temples and hence the differential effect would not derive from long-lived cultural differences. To investigate this possibility, we examine the interaction effect of the introduction of elections and the presence of a school, which is the other common venue for community discussion. We find that schools have no differential effect. Second, we investigate the possibility that electoral procedures were better in villages with temples. To the extent that monitoring elections is done by citizens, this would be consistent with our cultural interpretation. However, electoral procedures may have varied for spurious reasons. For example, the central government may have paid more attention to villages with temples when elections were first introduced. We find no difference in procedural electoral aberrations between the two types of villages.

In addition to the main results, we explore the influence of different components of social capital. Specifically, the literature on the economics of culture distinguishes between *generalized trust* (e.g. trust for those unknown to an individual), which is considered an important component of social capital, and *personalized trust* (e.g. trust for those an individual already knows), which is theorized to have a neutral or possibly even negative influence on the capacity of society to organize (e.g., Banfield and Banfield, 1958; Alesina and Giuliano, 2010). We investigate these notions by comparing the effect of village temples with the effect of the presence of objects that reflect social capital within kinship groups (i.e., ancestral halls and family trees). Ancestral halls and family trees are constructed and maintained by members of a kinship and reflect the ability of the kinship group to cooperate and interact. While village temples are a proxy for village-level social capital and thus *generalized trust*, ancestral halls and family trees can arguably proxy for personalized trust (see section 2.1.2). We collect data on the presence of kinship group objects and find that their presence has no influence on how elections enhance public goods provision. This result is consistent with our claim that village temples reflect village-wide social capital and the theory that personalized trust does not benefit the village as a whole.

Setting this study in the context of rural China has several advantages. First, it provides a rare opportunity where we can observe plausible and culturally attuned proxies for social capital. Second, relative to cross-country comparisons, villages within China are much more similar to each other and therefore make better comparison groups. At the same time, unlike in many other countries, Chinese villages are largely fiscally autonomous in terms of choosing and financing village public goods, which makes it possible to examine local public goods as an outcome of differences

in local institutions and culture. Finally, the electoral reform, a uniform change in formal institutions across villages, offers a rare clean opportunity to examine the influence of social capital on elections.

This study makes several contributions to the literature. To the best of our knowledge, we are among the first to provide rigorous empirical evidence on the interaction effect of culture and the introduction of elections. In exploring the pre-determinants for successful modern institutions, we are most closely related to Dell et al. (2017), which show that historically strong states crowded in village-level collective action, which resulted in persistent norms that facilitate governance today. We are also closely related to Guiso and Pinotti (2013), which finds that the historical expansion of the suffrage in Italy had differential effects on regional voting participation rates depending on the level of civic capital.⁹

Our results, which speak to the long-run effects of social norms, add to the existing evidence that social capital is positively associated with economic outcomes across countries (e.g., Knack and Keefer, 1997; LaPorta et al., 1997; Fisman and Miguel, 2007; and Algan and Cahuc, 2009) and within countries (e.g., Baland and Platteau, 2000; Ichino and Maggi, 2000; and Algan et al., 2013); and that its effects can be long-lasting (e.g., Tabellini, 2005; Fernandez and Fogli, 2009; and Aghion et al., 2010).¹⁰ In the attempt to establish causality, our study is most closely related to the recent work of Guiso et al. (2004), Algan and Cahuc (2010), and Satyanath et al. (2013).¹¹

In exploring the differences between generalized and personalized trust, we add to studies that find generalized trust to be an important determinant of economic outcomes (e.g., Alesina and La Ferrara, 2002; Aghion et al., 2010; Algan and Cahuc, 2010; Durante, 2010). Our results complement Zhang and Zhao (2015), which examines the role of social capital within kinship groups on property rights in rural China. As a study of the political economy effects of historical institutions and culture in China, we add to a small number of recent studies such as Jia and Persson (2013);

⁹Note that we cannot provide causal estimates for voting participation since there was no voting prior to the introduction of elections. There is a larger qualitative literature on the relationship between democracy and social capital in political science. For examples of the U.S. context, see Skocpol and Fiorina (1999) and Rosenblum (2000).

¹⁰For works on social capital by sociologists, see for example Gambetta (1988) and Coleman (1998). A recent study by Satyanath et al. (2013) provides evidence that social capital can have negative effects.

¹¹Guiso et al. (2004) exploits variation in the level of social capital in the region of birth to find that higher social capital leads to more financial sophistication in Italy. Algan and Cahuc (2010) uses trust of U.S. immigrants to proxy for trust in the origin countries and finds that trust explains much of the variation in growth across countries. Satyanath et al. (2013) finds that entry into the Nazi party is much higher in regions (within Germany) with more civic associations.

Jia (2014); Xu and Yao (2015); Bai and Jia (2016).¹²

This study complements two other working papers which uses the first wave of the VDS survey. Martinez-Bravo et al. (2017) uses the first wave of the VDS to provide theoretical and empirical evidence towards understanding the tradeoffs of local elections for an autocratic regime. Padró i Miquel et al. (2012) examines how religious fractionalization interacts with the introduction of elections.¹³ The current study differs by examining the importance of social capital as a pre-condition for successful elections and adds to our earlier work in requiring a second wave of data collection of detailed information on voluntary organizations, temples, etc. These data are the first large sample systematic survey of cultural objects in rural China. The authors intend to make these publicly available so that they may facilitate future research on culture and institutions in China.

This paper is organized as follows. Section 2 discusses the background. Section 3 discusses the conceptual framework and empirical strategy. Section 4 describes the data. Section 5 presents the descriptive evidence. Section 6 presents the regression estimates. Section 7 offers concluding remarks.

2 Background

2.1 Measuring Social Capital

2.1.1 Village Temples

Our study uses the presence of village temples to proxy for village-specific social capital. In other words, villages with village temples are assumed to have higher long-standing stocks of social capital than villages without them. Four characteristics of village temples motivate us to use their presence as proxies for social capital.

First, village temples in rural China are the physical embodiment of a set of informal voluntary associations that use these venues to organize religious and secular festivals as well as other kinds of social meetings. The existence and maintenance of village temples are sustained by voluntary contributions.¹⁴ The construction of

¹²Bai and Jia (2016) studies the effect of the historical Civil Exam system on political stability. Jia (2014) examines the long run effects of Treaty Ports. Jia and Persson (2013) studies the social and cultural motivations for ethnic choice in China today. Xu and Yao (2015) shows that villages experience higher investments in public goods when their village leaders belong to large family clans.

¹³Later, we will show that the main results are robust to controlling for the interaction of the introduction of elections and religious fractionalization.

¹⁴See discussions by Huang (1998) and Thornton (2003) on the funding of village temples. Unlike the historical European context, individuals or specific groups wishing to aggrandize themselves or their family would typically construct a hall for ancestral worship rather than a village temple. We discuss these kinship group structures in more detail later in this section.

a temple thus shows that villagers have the ability to create and sustain voluntary organizations. The latter depends on pre-existing norms of reciprocity (Boix and Posner, 1998).

Second, village temples are inclusive in that they serve the entire village community. Due to the blurred lines between traditional religious practices, village temples do not exclude villagers based on beliefs. In contrast to the Western context, traditional Chinese religious practices (for most of the Han ethnic majority) involve a blend of the indigenous beliefs of ancestral worship with Confucianism and Daoism—which originated in the fourth century B.C.— and Buddhism—which was introduced around the second century B.C. (Nisbett, 2004, p. 14-17). As a result, while the village temples in our context may be more or less oriented towards a certain set of practices, they are not restricted to any one religion.¹⁵ Another sign of inclusiveness is that during festivals and holidays, village temples are a village-wide focal point. The temple council, a group of villagers that volunteer to manage the temple, gather money from villagers to organize parades, opera performances, movie showings and other ritual festivals for the benefit of all villagers (Huang, 1998).¹⁶

Third, village temples help sustain the social capital that brought about their construction. Face-to-face interaction in formally organized voluntary organizations can teach citizens the civic virtues of trust, moderation, compromise, reciprocity, and the skills of political discussion and organization (Drescher, 1968, p. 355-9). Temple grounds are often used as a gathering place and forum for discussion amongst villagers (Huang, 1998; Perry and Selden, 2003). In addition, village-wide festivals and rites allow villagers to reinforce trust and social bonds via participation (e.g. Eberhard, 1952).

Fourth, a large body of qualitative evidence from studies of Chinese village temples shows that they play a pivotal role in resolving collective action problems. For example, researchers have found that the festivals and activities surrounding temples often “inspire” villagers to take collective action (Perry and Selden 2003, p. 12). In addition to providing villagers with festivals and cultural activities, temple councils are also known to provide public goods such as care of the elderly (Huang, 1998) or infrastructure such as roads and basketball courts (Tsai, 2002). In a study of Taiwanese villages, Sun (1969) explains that while the explicit purpose of a temple is to worship deities, implicit motives are often related to increasing funding for public

¹⁵For example, traditional temples often display Bodhisattavas, Daoist immortals and in some places, even portraits or statues of Mao Zedong (Perry and Selden 2003, p. 257). Consistent with these syncretic tendencies, most villages in our sample have at most one temple.

¹⁶For example, Huang (1998) documents that the temple council of a large village raised 3,000 RMB for a three-day festival by collecting two RMB per head from all villagers, ten RMB per tractor and thirty RMB per truck from their proprietors (Huang, 1998, p. 3338).

goods such as public safety, school and irrigation. Temple councils sometimes work with the village government. Tsai (2007) records that in the villages she studies, the temple councils help village government officials gather villagers for meetings about coordinating drainage construction or banning potentially harmful practices such as using firecrackers. She states that “Village residents are expected to make donations [of money and time] to help fund activities... [Village temples] provide strong institutions enforcing each member’s responsibility to contribute to the collective good...”.

These four features of village temples strongly suggest that these structures emerge in villages with widespread beliefs and values that help overcome village-wide public goods problems, as required by our working definition of social capital discussed in the introduction.

For our analysis, there are several additional facts to keep in mind. First, although village temples (and other traditional practices) were discouraged during the Maoist era, village governments during our period of study tolerate village temples and even use the village temple to facilitate governance. In contrast, Christian churches are viewed as a potentially subversive force that can be used to mobilize people against the state (Spence, 1997).

Second, because of government-sponsored destruction during the Maoist era, most of the temples in our villages are built (or re-built) during the 1980s and 90s. We collected data on the time of construction or re-construction of the current temple, but are unable to observe whether a temple existed previous to the Maoist era. We will later use a supplementary historical dataset to show that the presence of temples in villages today is positively associated to the presence of temples in the same county in 1820 (prior to the communist regime). This, together with the anecdotal literature (Thornton, 2003), suggests that most of the temples we observe are reconstructions. This is important for our study because we are interested in the long run notion of social capital that is deeply rooted and persistent over time (as in Tabellini, 2008; Durante, 2010; Nunn and Wantchekon, 2011; Guiso et al., 2016). Consistent with this approach, our main analysis will use a time-invariant measure that is a dummy variable for whether there is *ever* a temple in a village during our study period.

2.1.2 Ancestral Halls and Family Trees

Another important aspect of traditional Chinese culture is the lineage group (e.g., Sangren, 1984). Lineage groups foster interaction and social exchange between members of the kinship group, and the most well-structured and endowed usually result

in the construction of focal objects such as ancestral halls and family trees. A Chinese family tree, *jiapu*, links all past and future males of a kinship group.¹⁷ The establishment of a family tree is seen as a significant matter for a clan as it indicates the prominence of the group both in terms of size and status. The latter partly follows from the fact that establishing and maintaining a family tree requires a certain degree of literacy and wealth, and partly from the fact that ancestral worship has been historically the most important form of spiritual practice in China. Family trees are typically books stored in the homes of the senior member of the clan. An ancestral temple or hall, *citang*, is a direct way to worship one's ancestors and is part of the ancient indigenous practice of ancestral worship. It is a physical structure constructed by members of the kinship groups and offers a place for clan members to worship their ancestors in exchange for blessings from these spirits. Construction and maintenance of ancestral temples are expensive in terms of money and the coordination required to obtain land for the temple. As a consequence, ancestral temples are rarer than family trees.

Since we are interested in the interaction effect of the introduction of village-wide elections and the village's ability to solve village-wide collective action problems, village temples are a more appropriate proxy for the type of social capital that we are interested in than lineage groups. The former are inclusive of all villagers, while the latter only involve kinship group members.

Nevertheless, the presence of these group-specific markers of social interaction can be informative regarding the contrasting influence of *generalized* trust (i.e., trust that a given person has towards a generic member of a broader community, such as other villagers) and *personalized* trust (i.e., trust that one has towards a particular individual) (Guiso et al., 2011). The presence of family trees and ancestral halls are proxies of personalized trust since the ability to construct and maintain such objects reflects the ability to cooperate among kinship group members. Similarly, their continued participation in maintenance and social activities at the ancestral hall can further enhance trust amongst kinship group members.¹⁸

While generalized and personalized trust are often found to be positively correlated, their relationship to civic capital is presumed to be rather different. Generalized trust is typically considered an essential positive component of social capital, while some have argued that personalized trust can reduce social capital (e.g., Putnam et al., 1994 and Guiso et al., 2004). Indeed, past studies have argued that high trust towards family members relative to trust towards people more generally can

¹⁷See Cohen (1990) for a detailed discussion.

¹⁸For discussions of the role of kinship groups and traditional objects maintained by the kinship group, see studies such as Huang (1998), Perry and Selden (2003), and Tsai (2007).

be a sign of weak norms of generalized morality (e.g., Banfield and Banfield, 1958 and Alesina and Giuliano, 2010). In Section 6.4, we will use the presence of family trees and ancestral halls to proxy for personalized trust, and compare its effect to that of village temples.

2.2 Village Government and Public Goods

Villages are the lowest level of administration in rural China.¹⁹ They were first organized by the communist government during the early 1950s, with two groups of leaders in each village. The first group is the village committee, which typically comprises three to five members and is led by the village chairman, henceforth VC. This position is also sometimes called the village chief or village head. The second group is the Chinese Communist Party (CCP) branch in the village, which is led by the village party secretary, henceforth PS. Before elections were introduced, all these positions were filled by appointment by the county government and village party branch.

The village government is extremely important for the well-being of its citizens and one of its main responsibilities is to choose and finance village public goods (e.g., O'Brien, 1994; Rozelle and Boisvert, 1994; Oi and Rozelle, 2000; Brandt and Turner, 2007; Whiting, 1996). Public goods are financed by imposing ad hoc taxes (e.g., fees, levies), which we refer to as *local fees* for simplicity.²⁰ Collecting these fees is not a trivial task and requires significant effort from village leaders, which is consistent with the widespread under-provision of public goods in Chinese villages prior to the introduction of elections (e.g., Zhang et al., 2004; Luo et al., 2010).

2.3 Village Elections

The main motivation for the introduction of elections was the Party's feeling that the bureaucracy was failing to control local officials.²¹ Proponents of elections argued

¹⁹The Chinese government, led by the Chinese Communist Party (CCP), is broadly ordered in a vertical hierarchy, from the central government in Beijing down to the rural levels that comprise counties and townships. According to the *National Statistical Yearbooks*, rural population decreased from approximately 83% of total population in 1980 to approximately 75% by 2000.

²⁰Such fees can be controversial in cases when villagers believe them to be extortionary and misappropriated by corrupt village governments. This led the central government to ban village fees in the *Tax and Fee Reform* in 2003. For our study, this ban has little effect as it occurred towards the end of our study period. Our estimates are robust to controlling for their introduction.

²¹Difficulties in controlling local officials were paramount in the discussions leading to the introduction of elections, as shown by this quote from the official debate.

“Who supervises rural cadres? Can we supervise them? No, not even if we had 48 hours a day...” – Peng Zhen, vice-chairman of the NPC Standing Committee, said at the chairmanship meeting of the Standing Committee of the Sixth NPC, April 6, 1987 (O'Brien and Li, 1999).

that making local leaders accountable to villagers would impose checks on the VC's behavior and allow villagers to select the most competent candidates (Kelliher, 1997; O'Brien and Li, 1999). Public goods provision featured prominently in the discussion of whether elections should be introduced (O'Brien and Li, 2006). Party leaders hoped that local governments with a democratic mandate would more effectively decide which investments were necessary as well as how to coordinate and provide them.

The democratization reforms were gradual and controlled. The VC and the village committee were to be elected by the villagers instead of appointed by the regional CCP. VCs were to be elected for three-year terms with no stipulated term limits.²² However, to ensure that village leaders would still be partially accountable to the CCP, there was no change in the selection method of the members of the village CCP branch and PS positions, who continued to be appointed.

Several innovative provincial governments began to experiment with elections in the early 1980s. After some debate within the CCP, village elections were formally codified by the central government in the *Organizational Law on Village Committees* (henceforth OLVC) in 1987. From this point onwards, all provinces were pushed to introduce elections for all rural areas.

Elections were introduced in a top-down fashion by the provincial and county governments. Once the provincial government decided to implement village elections, almost all villages within that province followed shortly (O'Brien and Li, 1999). By all accounts, villages had little discretion over the timing of introduction of elections, which is characteristic of reforms in rural China.²³ Martinez-Bravo et al. (2017) documents that implementation was rapid and uncorrelated with village characteristics.²⁴

²²The candidates were chosen by villagers in some places, while appointed by the CCP in others. A later reform made it mandatory to open nominations to villagers. Martinez-Bravo et al. (2017) finds that this reform had no effect on public goods expenditures or other outcomes. Similarly, we find no interaction effect of this later reform and the presence of temples on public goods. These results are available upon request.

²³"These [elections] should not be interpreted as bottom-up initiatives by the villagers themselves; they are not in a position to play any precedent-setting part in the initiation of new electoral reforms. There is a mistaken belief among some people outside China regarding this... elections are quietly being instituted at levels above the village, engineered first in selected districts at a distance from Beijing, through the connivance of the [central] Ministry of Civil Affairs and middle-ranking officials out in the regions." — Unger (2002, p. 222). Unger (2002) also notes the general passivity of villages in implementing rural reforms in his study of land reforms and the adoption of the *Household Responsibility Reform* during the mid 1980s.

²⁴They show that most villages within a county implemented elections in the same year, and over 60% of villages within a province introduced elections within three years of the first election in the same province; and that conditional on province fixed effects, the timing of the introduction of elections was uncorrelated with village characteristics. Note that all of the villages in our study

3 Conceptual Framework

3.1 The Effect of Social Capital and Elections on Public Good Provision

To successfully provide public goods, a community needs to overcome two difficulties. First, it needs to find a way to aggregate the preferences of community members to establish which public goods would contribute the most to social welfare. Second, it needs to overcome the free-rider problem. Communities use a variety of formal and social instruments to achieve these ends.

The introduction of elections was a change in the formal institutions that governed village life. As discussed in Section 2, in the original formal institution the village government was appointed by upper levels of government. This institutional form most likely failed in the task of public good provision because local officials shirked in the effort necessary to overcome the two difficulties named above. First, to figure out which public goods were needed, the VC required extensive discussions with villagers. Second, to muster the required financial and labor contributions from villagers, the VC had to address the free rider problem, which was exacerbated by the lack of trust between appointed officials and villagers. In contrast, elections are a formal institution that naturally provides a mechanism for aggregating preferences and keeping officials accountable so that they exert the necessary effort to overcome the aforementioned difficulties. Consistent with this view, recent studies find that elections significantly increased public goods provision in Chinese villages (Zhang et al., 2004; Luo et al., 2010; Martinez-Bravo et al., 2017). The introduction of elections therefore improved village formal institutions.

High social capital stocks facilitate public goods provision in at least three ways.²⁵ First, generalized trust implies that people expect their neighbors to do their part. If people expect their neighbors to pay for public goods, then they will themselves be more willing to pay and to informally punish those who do not comply. Hence the monetary and labor contributions necessary for the generation of public goods should be easier to raise.²⁶ Second, as de Tocqueville (1840) and proponents of “civic republicanism” argue, social capital affects citizens’ preferences and shifts community tastes from individual interest to more community-oriented interests (Drescher, 1968; Bellah, 1986). This effect should facilitate aggregating preferences to maxi-

had introduced elections by the end of the sample in 2005. See Martinez-Bravo et al. (2017) for a detailed discussion of election roll-out timing.

²⁵Recall that we follow Guiso et al. (2011) in defining social capital as “*civic* capital – i.e., those persistent and shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities”.

²⁶Boix and Posner (1998) calls this the “Rule Compliance” model.

mize social welfare. Finally, the process of aggregating preferences should also be enhanced by active participation of villagers in community associations. These associations provide opportunities for villagers to discuss civic affairs, which increases their awareness of their preferences over policies, and provides a forum for achieving consensus (e.g., Olson, 1982, Ch.1-3).

Note that these mechanisms are independent of the formal institutions that govern the community. This suggests that communities endowed with a higher level of social capital should have an easier time furnishing themselves of the public goods that are needed, irrespective of the formal institutions that govern them.²⁷ In other words, a village could overcome its public goods problem either by using representative formal institution of elections, once they become available, or by using social organizations such as temple associations that reflect the social capital existing in the village. Therefore, social capital and elections would be substitute avenues of addressing the free-rider problem. This view is supported by work on Chinese village governance such as Tsai (2002), which argues that village social organizations are more likely to arise in places where the formal institutions provide low levels of public goods. A corollary of this view is that villages with high social capital would have partly addressed their public goods problem prior to the implementation of elections and hence the electoral reforms should not have a big effect. In contrast, villages deprived of social capital would have a very low level of public goods provision under the appointment regime, and would therefore have much more to gain from the implementation of elections. This has a strong prediction for our empirical analysis: if social capital and elections are *substitutes*, there should be a larger effect of elections in villages with little social capital.

In contrast to this view, stemming from de Tocqueville (1840), there is a social science tradition arguing that participatory formal institutions perform better in societies with high social capital.²⁸ In other words, formal institutions and culture are *complements*. Several mechanisms can underpin this complementarity in the context of rural China. First, rule-compliance reduces the costs of providing public goods. In high social capital villages, the effort expended in enforcing the individual contributions should be lower. Under the appointment regime, these lower costs would not matter because the VC simply had no incentives to provide any public goods. But as elections are implemented and VCs become accountable to villagers, they can pursue further public action in places where public goods are easier to

²⁷This is the view in Ostrom (1990), among others.

²⁸Famously, Putnam et al. (1994) documents that identical formal institutions of regional governance in Italy succeed in regions with rich associational life and fail otherwise. See also Skocpol and Fiorina (1999) for a discussion of civic engagement and government performance in the US.

provide, i.e. in villages with high social capital. For instance, a village leader who does not need to spend his entire day collecting fees to rebuild the school can also propose a new project such as paving the local road.

Second, social capital enhances the community’s ability to hold officials accountable. As Olson (1982) argues, active participation in community associations provide opportunities for citizens to discuss government performance. This facilitates social scrutiny of the government. When village officials were appointed by the upper-government, they had little to fear from villager coordination and hence they could safely ignore the fact that they were in a high social capital village. Once VCs become elected, knowing that constituents in high social capital villages are monitoring their behavior in a coordinated way, elected leaders will exert more effort to govern effectively in order to avoid being voted out of office.²⁹ Indeed, in the rural Chinese context, Jing (2003) documents that attendance in village temples dramatically increases prior to villager petitions for better environmental regulation by the village government.

Third, high social capital changes preferences towards the public good. Since villager preferences are better aligned with community-oriented interests in villages with high social capital, elections in such villages should aggregate preferences in a way aligned with maximizing social welfare. In contrast, in villages with low social capital, elections will more easily degenerate into a contest between parochial interests. A closely related mechanism works through refusals to accept vote buying: in high social capital villages, individuals will be more reluctant to accept cash/goods for their votes and therefore less likely to deviate from the social welfare maximizing strategy of punishing the corrupt/bad-performing incumbent.

Regardless of the specific avenue for complementarity between elections and social capital there is a strong empirical prediction: there should be a larger effect of the introduction of elections in villages with high social capital.

The purpose of the analysis that follows is to examine whether the introduction of elections and social capital are, on net, substitutes or complements in enhancing public good provision in the Chinese context.

3.2 Identification

We estimate the following baseline equation:

$$y_{ijt} = \alpha_1 E_{ijt} + \alpha_2 (E_{ijt} \times S_{ij}) + \gamma P_{ijt} + \beta (E_{ijt} \times X_{ijt}) + \delta_i + t\theta_j + \rho_t + \varrho_t \times S_{ij} + \varepsilon_{it}, \quad (1)$$

²⁹This is the analogue in rural China of the evidence put forward by Nannicini et al. (2012) in Italy.

where the level of public goods in village i in province j during year t is a function of: a dummy variable that equals 1 after the introduction of elections, E_{ijt} ; the interaction effect of a dummy variable for high social capital that equals 1 if a village has ever had at least one temple, S_{ij} , and the introduction of elections, E_{ijt} ; village population, P_{ijt} ; the interaction of a vector of correlates of social capital, X_{ijt} , with the introduction of elections, E_{ijt} ; village fixed effects, δ_i ; province-year trends, $t\theta_j$; year fixed effects, ρ_t ; and the interaction of year fixed effects, ρ_t , with the dummy variable for high social capital, S_{ij} .

α_2 is the differential effect of the introduction of elections for villages with high levels of social capital relative to villages with low levels of social capital. If social capital and elections are substitutes, then the interaction effect will be negative, $\alpha_2 < 0$. In contrast, the hypothesis that social capital is complementary to the introduction of elections predicts a positive interaction coefficient. This interpretation assumes that the introduction of elections represents, at least on average, an improvement in the formal institutions of local governance.³⁰

Conceptually, our empirical strategy is essentially a triple differences estimate (DDD). We compare public goods investment in: *i*) villages before and after the introduction of elections, *ii*) between villages that have already introduced elections and those that have not yet, and *iii*) between villages with high social capital and villages with low social capital. Our identification strategy is that conditional on the baseline controls, the gap in public goods expenditure between villages with and without temples is not spuriously correlated with the timing of the introduction of elections.

The baseline controls are thus chosen to address concerns regarding this identification assumption. First, village fixed effects control for all differences across villages that are time-invariant (e.g., geography). Second, year fixed effects control for all changes over time that affect villages similarly (e.g., macro economic growth, economic liberalization). In addition, we introduce the interaction of year fixed effects with high social capital. This is crucial, as it allows villages with high social capital to have an arbitrarily different temporal evolution from villages with low social capital. Therefore our identification strategy certainly does not require social capital to be exogenously allocated.³¹ Third, province-time trends control for the regional

³⁰Finding that the interaction effect is zero or negative can mean either that elections did not make officials accountable to villagers or that social capital does not complement elections. However, the first interpretation clashes with the existing evidence that elections increased public goods provision and made officials accountable (e.g., Brandt and Turner, 2007; Martinez-Bravo et al., 2017). Therefore, we can test the hypothesis that social capital complements elections for public goods provision by examining whether the interaction effect is positive.

³¹Note that we have variation for these controls because the introduction of elections was staggered in timing across villages. Thus, this set of controls is not collinear with the main explanatory

divergence in economic growth in China during our period of study, which may also have been accompanied by cultural divergence (e.g. the coastal regions have become more Westernized).³²

Finally, we introduce the interaction of the introduction of elections with a vector of correlates of social capital, X_{ijt} . This is important because in the next section we document that the presence of village temples, which is our proxy for social capital, is correlated with some village characteristics such as population and religiosity. By controlling for the interaction of these correlates with the introduction of elections, we ensure that our coefficient of interest α_2 is not contaminated by the influence that these other correlates may have on the effect of the introduction of elections.

Since social capital varies by village and the timing of the introduction of elections were decided by the provincial government, the standard errors are clustered at the temple \times province level.³³

Recall that we use the presence of temples as a proxy for culture and social capital, which change very slowly over time. For this reason, we use a time-invariant measure of the presence of a temple in the village and disregard the actual date of construction of the current temple. A concern with this approach is that the construction of the current temple could itself be an outcome of elections. In the results section, we establish that this is not the case before moving on to the main specifications.

4 Data

4.1 The Village Democracy Survey

This study mainly uses village- and year-level data from a panel of 217 villages for the years 1986-2005 from *The Village Democracy Survey* (VDS) (Padró i Miquel et al., 2006; Padró i Miquel et al., 2011), which is a retrospective survey conducted by the authors of this paper. In 2006, our survey recorded the presence of village temples, traditional organizations, and the history of electoral reforms and public

variable, the interaction of the presence of a temple and the post-election dummy variable.

³²In practice, the inclusion of province-year trends make little difference to the estimates. For example, the interaction coefficient in the baseline specification in Table 3 column (5) is 40.37 (s.e. 17.16). If province-year trends are not included, the estimate is 52.13 (s.e. 18.33). We include them to make the results in this paper easily comparable to our earlier work, Martínez-Bravo et al. (2017).

³³Since the timing of the elections were decided mostly at the province level, one could also consider clustering the standard errors at the province level. In the robustness section, we follow the suggestion of Cameron et al. (2008) and estimate wild bootstrapped standard errors that are clustered at the province level since we only have 29 provinces. They are nearly identical to the temple \times province level clustered standard errors.

goods expenditures. In 2011, we returned to the same villages to collect data on social organizations, social activities, and information about village leaders. Due to an administrative error, the 2011 survey missed some villages from the first wave and only includes 195 villages. Thus, the sample size will vary depending on the variables used for the analysis. To avoid recall bias, which is a concern in retrospective surveys, our main variables are obtained from village records. For information not contained in records, our survey relies on the collective response of current and former living village leaders and elders, who were all invited to be present together to answer our surveyors. In this study, the only main variable that does not come from administrative records is the presence of family trees. Thus, the main results do not suffer from problems of recall bias related in the data.

The VDS records public goods expenditure as they are recorded in village records. Expenditures are categorized into six groups: schools, road and sanitation, electricity, irrigation, trees, and other. Public goods expenditures in our context are made and recorded per project. For example, a village government may decide that an irrigation canal needs to be repaired. The VC will raise money for this project from villagers and the expenditure (as well as the source of the funds) are recorded in the village books.

We supplement the VDS with annual data collected each year by the Ministry of Agriculture in the *National Fixed Point Survey* (NFS). This survey is a nationally representative panel. It began in 1986 and is collected each year with the exception of 1992 and 1994. The VDS is conducted in the same villages as the NFS so the data from the two surveys can be merged. In addition to village-level information, the NFS surveys a random sample of approximately 100 households per village each year (there are approximately 420 households per village in our sample). The NFS provides us with village population, household income, inequality, the share of population that is religious and other control variables. Because data about religion were not collected during the 1980s, our analysis maximizes the sample size by using the average of each variable for each village. Thus, the religion variables in our analysis are time-invariant.

We deflate the nominal values of public goods expenditure in the VDS with province-specific rural CPIs provided by China Data Online. These data are unavailable for two years during the early 1980s for one province. Thus, the final sample we use for the estimates is not perfectly balanced.

Our data have several advantages. First, they are the most comprehensive data on village-level reforms and outcomes ever constructed. This large dataset is the first to systematically record cultural objects. The panel aspect of our data means that we can control for village fixed effects to control for time-invariant differences across

villages and for year fixed effects to control for changes over time. Note that having many villages from each province means that we can also control for province-year trends, which may be important given the growing economic divergence across regions in China. The second advantage is the quality of the public expenditures data. The Ministry of Agriculture requires that each village records public goods expenditure by type and by source of financing using the same book keeping rules. Our data are based on these administrative records and are therefore detailed, accurate and comparable across villages.

At the same time, the data have two drawbacks. The first is the lack of better demographic variables. The NFS reports only crude measures of human capital and does not report a good measure of population. In our study, we will proxy for population with the number of households.³⁴ Second, the variables that the NFS contains changed over time. Thus, not all variables are available for all years. In the text, we will note this issue when it is relevant for our analysis.

Note that existing evidence shows that migrants import their cultural norms (e.g. Ichino and Maggi, 2000; Fernandez et al., 2004; Fernandez and Fogli, 2009; Algan and Cahuc, 2010) and that high immigration rates can undermine civic virtue (Alesina and La Ferrara, 2002). This phenomenon is unlikely to play a significant role in our context because government policy strictly limits permanent migration from rural areas, and those who migrate typically move to large cities.³⁵

4.2 Descriptive Statistics

Table 1 describes the temple data and its correlates. The first row shows that 33% of villages in our sample report having a temple at some point between 1986 and 2005. In an exercise not reported in the table, we examine the extent to which the variation in the presence of temples is within provinces by regressing the dummy variable indicating the presence of a temple on province fixed effects. The R-squared from this estimate is 0.14. Thus, 86% of the variation in temple is within provinces, which means that there is little spatial clustering in the presence of temples. All temples in our sample are managed by villagers and funded by villagers.

The second and third rows in Table 1 describe the social organizations and social events data. We designed the survey to focus on social organizations and events that

³⁴The NFS reports the number of permanent residents at the year end. However, 30% of the variables are reported as missing. While this variable is highly positively correlated to the number of households, we do not use it since that would significantly reduce our sample size.

³⁵Workers in China often migrate temporarily for work. However, the household registration system that ties access to public goods and government benefits makes permanent migration costly. Also, rural residents are also dis-incentivized to migrate permanently away because that results in the loss of the right to farmland.

center around cultural or entertainment activities. In particular, social organizations do not include economic cooperatives, insurance or credit pools, and social events do not include religious ceremonies.³⁶ Included events are festivals, traditional opera performances, etc. As shown in Table 1, there is on average one social organization active per every seven village-year observations and one social event per every five village-year observations.

In column (5), we see that the presence of a temple is positively and significantly correlated with the presence of other social organizations and having social events. This pattern supports the notion that village temples proxy for social and civic capital. We also find that the presence of village temples are positively correlated with the occurrence of social events. This reflects the higher stock of pre-existing civic and social capital in these villages, and also the fact that village temple grounds are often used as a venue for village-wide events.

There are no historical data on the presence of temples at the village level. Instead, in the *Qing Gazetteer*, published in 1820, there are data on the presence of temples at the county level. In the fourth row, we show that the current presence of temples at the village level is positively correlated with the historical presence of temples at the county level. This correlation supports our view that temples are markers of long-term social capital.

Next, we document that the average village in our sample has 418 households, where approximately 6% of villagers are reported by the village government as religious. The biggest religion is Buddhism, comprising 4% of villagers.³⁷ Column (5) shows that the presence of village temples is significantly and positively correlated with the size of the village population, the share of religious population, the share of Buddhist population, and the share of population that regularly participates in religious ceremonies. These correlations most likely reflect the fact that larger villages are better able to afford the construction and maintenance of temples, and the fact that the practices carried out in the temples are more related to Buddhism

³⁶ An example of a social organization is a group for performing traditional dancing or opera.

³⁷ The number of households is reported by the NFS for 1986-92, 93, and 1995-2005. To maximize the number of observations, we interpolate the existing data to fill in the missing years (e.g. we calculate the average annual growth rate for each village and use that and the reported data to calculate the number of households for the missing years).

For the years 1993, 1995-2005, the NFS reports the number of individuals in each village that considers themselves to be Christian, Muslim, Buddhist, or to belong to other religious groups, as well as the number of villagers that regularly participate in religious ceremonies. Note that for most rural residents in China, the separation between Buddhism and Daoism is not well-defined and these are not likely to be mutually exclusive categories. To maximize the number of observations for our analysis, we calculate a time-invariant average of each of these variables. Then to normalize this by total population, which we do not have, we divide it by the product of the number of households in a village and four, which is the average household size based on the size of rural households in the *1990 Population Census*.

(or Daoism) than Judeo-Christian religions. Note that the population share that is religious is much smaller than what is suggested by the prevalence of village temples. This pattern is consistent with the notion that village temples are inclusive venues for village-wide events attended by participants that are not necessarily religious.

In column (5), we see that the presence of a temple is positively correlated with religious fractionalization, which we show in our companion paper to mitigate the effectiveness of elections in providing public goods (Padró i Miquel et al., 2012). Thus, later in the paper, we will control for the interaction of fractionalization and the introduction of elections as a robustness check.

2% of villagers regularly participate in religious ceremonies. The latter measure reflects religiosity and shows that Chinese villagers are not very religious. It is important to note that this measure understates the involvement of villagers with the temple. It does not include the numerous events hosted at the temple that are not considered religious, such as festivals celebrating holidays or harvests. Virtually all villagers participate in such events and the Ministry of Agriculture therefore did not consider this an interesting question to include in the survey.

Next, we note that average government public goods expenditure prior to the introduction of elections is quite low on average. It is approximately 74,300 RMB (1,061 USD, about 2.5 USD per household; we use a 1 USD = 7 RMB conversion rate, which was the average exchange rate during the period of our study). Interestingly, note that pre-election public goods expenditure is uncorrelated with the presence of a temple.

There is significant income inequality in the villages of our sample. Households on the 90th percentile of the income distribution earn more than double the income of median households, which in turn, earn double the income of the poorest 10 percentile households. However, income and the Gini coefficient are uncorrelated with the presence of a village temple.

To understand the kinship structure of villages, the VDS records the roster of family names for each village. From this, we can calculate fractionalization and polarization indices of surnames to proxy for fractionalization of kinship groups. Again, these variables are uncorrelated with the presence of a temple. From the roster, we can also calculate the share of the two largest kinship groups. As displayed in the bottom row, on average, the two largest families comprise 50% of a village. The fact that this measure is uncorrelated with the presence of the village temple is consistent with the idea that the village temple is an inclusive village-wide organization.

VCs and PSs have on average about eight years of education. Approximately 83% of the observations have a school. Most of these are primary schools. Even though school buildings in rural China are typically financed by the upper government,

variable costs such as building maintenance and teacher salaries are typically financed by villagers. All schools are publicly provided and private schools are illegal in our context. The presence of a school is positively correlated with the presence of a temple. Since schools are public goods, this finding may reflect the fact that both the presence of a temple and the presence of a school are outcomes of high social capital, or it is possible that both are correlated with village size.

Finally, we examine ancestral halls and family trees. In our data 43% of villages have at least one family with a family tree. In contrast, only 16% of villages have at least one kinship group maintaining an ancestral halls. This difference in frequency is reasonable because the latter are much more expensive to build and maintain than the former. In columns (6) and (7), we display the correlates of ancestral halls and family trees. In Section 2, we discussed these two structures and claimed that they proxy for within-group social capital, as opposed to village temples which proxy for village-wide social capital. Our data are consistent with this claim: the bottom three rows of the table show that ancestral halls and family trees are both correlated with the kin structure of the village (positively correlated with the share of the two largest kinship groups). In contrast, the presence of village temples is uncorrelated with the kinship configuration of the village. Note that both ancestral halls and family trees are positively associated with village population. This association could partly explain the correlation between the presence of village temples and the two kinship-group objects.

5 Descriptive Evidence

As discussed above, the Ministry of Agriculture determines the categories of public goods expenditure in our data: education, road and sanitation, electricity, irrigation, environment and others.³⁸ Approximately 70% of all public goods expenditures are funded by village sources, with the remainder covered typically by transfers from upper levels of government. The fiscal breakdown is similar for each category of public goods investment. Public goods expenditure is lumpy in that only 54% of village-year observations contain positive expenditures in any category. Thus, our outcome variable is the annual sum of expenditures in all six categories.

To check for the existence of pre-election trends in public investment we examine public goods expenditures before and after the introduction of elections. We do this separately for villages with a temple and villages without. Figure 1a plots total public goods expenditure by the village government for each year since the first

³⁸These categories on average comprise 0.26%, 27%, 15%, 17%, 4.7% and 11% of total village public expenditure, respectively.

election (year “0” on the x-axis). We focus on a window that starts 10 years prior to the introduction of elections (year “-10” on the x-axis) until 10 years after the first election (year “10” on the x-axis). The figures show that prior to the introduction of elections, almost no expenditures were made anywhere. After the introduction of elections, expenditures increased dramatically in villages with temples. In villages without temples, the increase is almost imperceptible.

This figure illustrates the variation in the data that drives our estimates: the different increase in average expenditures between the two types of villages. The figure also shows clearly that there is no pre-trend in public goods expenditure in the years leading up to the first election. Crucially, this is separately true for both types of villages. In addition, the figure shows that the rise in expenditure corresponds to the timing of the reform.

As an additional validity check of our identification assumption, we repeat the plots for public goods expenditure that by village-funding source. Village sources are the ones that should be affected by elections and social capital, which are both local to the village level. Figure 1b shows that expenditure financed by village sources behaves the same way as total expenditure.

Alternatively, we can explore public goods expenditure funded by sources outside of the village. According to our interpretation, these should not be affected by changes in local institutions. As such, public goods expenditure financed from outside the village is a credible placebo outcome. Figure 1c plots expenditures financed from outside the village over time for the same time frame. We see very little activity at any time, no systematic difference between the two types of villages, and no increase with the introduction of elections.

The stark contrast between Figures 1b and 1c provide strong support for our assumption that elections only affected village-level policies and suggests that the presence of temples enhanced the effectiveness of elections at the village level.

6 Regression Estimates

6.1 Main Results

Elections and Temples As discussed, the main analysis assumes that the presence of a temple any year in our sample is a good proxy for the underlying level of social capital in the village, which is a time-invariant characteristic. This approach would not be valid if the construction of temples is a result of the introduction of elections. For this reason, before presenting the main results, we first establish that the construction of temples is not an outcome of elections by regressing a time-

varying dummy for the presence of a temple on the introduction of elections, village population, province-year trends, village and year fixed effects. This regression is shown in Table 2 column (1). The estimated coefficient is near zero and statistically insignificant. Thus, the introduction of elections has no effect on the presence of a village temple. For the rest of the analysis, we assign a time-invariant value to the temple dummy according to whether there is ever a temple in the village.³⁹

Expenditure on Public Goods Our main outcome of interest is public goods expenditure. Table 2 column (2) shows that the average effect of the introduction of elections on public goods expenditure is positive and statistically significant at the 10% level. To put this figure in context, we note that the average village contains 418 households, with a household median income of 10,080 RMB. Dividing the village-level estimated increase in public goods expenditure, 100,700 RMB, by the number of households yields 241 RMB per household, or 2.4% of median household income. This is a substantial average increase brought about by the introduction of elections.

In Table 3, we move on to examine whether this increase depends on the presence of a temple. Column (1) shows that the interaction term between the post-election dummy and the presence of a temple is positive and statistically significant at the 1% level. The effect of introducing elections on public goods is therefore very heterogeneous: elections increase public goods expenditure dramatically more in villages with temples.

Since the presence of temples is correlated with other village characteristics, it is possible that the heterogeneous effect picked up in column (1) is not due to high social capital but to the correlates of the presence of a temple. To address this possibility, we introduce the interaction of the introduction of elections with a vector that contains all of the correlates of the presence of village temples that we discussed in Table 1: village population, the share of religious population, the share of Buddhist population, the share of population that participates in religious activities, and the presence of a school, ancestral halls and family trees.⁴⁰ Column (2) shows that the interaction effect remains robust to this inclusion, and while the point estimate is slightly smaller, it remains significant at the 1% level.

Conceptually, the exercise in column (2) is a horse-race between our hypothesis that temples capture the effects of social capital on elections and the alternative that temples capture the effects of the correlates. This result shows in particular that the

³⁹A similar potential concern is that the presence of a temple (i.e., whether there was ever a temple) might have affected the year in which elections were implemented. This is not the case: the cross-sectional correlation between the temple dummy and the year of implementation of elections is only -0.06 and statistically insignificant.

⁴⁰Note that only village population and the presence of a school are time-varying.

presence of a temple has an effect on the impact of elections that is independent of the correlates. In particular, it is independent of the religiosity of the village, which is consistent with the fact that village temples are inclusive multi-purpose gathering places rather than as specifically religious structures.⁴¹

In column (3), which reports the estimates for the full baseline equation (1), we add the interaction of year fixed effects with the presence of a temple in order to allow villages with high social capital to evolve differently from villages with low social capital. In this specification, the interaction coefficient is still large, positive and statistically significant at the 1% level. It shows that relative to a village with low social capital, elections increase total public goods expenditure by an additional 403,700 RMB in a village with high social capital.

To assess the magnitude we perform the same back-of-the-envelope calculation as for the average effect. During the post-election period, the average village with a temple contained approximately 500 households (recall that villages with temples are on average larger than those without). Thus, the annual per household public expenditure increase is 807 RMB ($403,700/500 = 807$). The median household income in the same subsample was 10,445 RMB. Thus, the difference in the effect of elections between villages with high and low social capital equals 7.7% of median household income. We find this to be an economically significant gap in the increase in public goods expenditure, particularly as compared to the 2.4% average increase.

These results support the hypothesis that culture and elections are complements in solving the public goods problem at the village level.

6.1.1 Placebo

The data on public expenditure by source of funding allow us to conduct a placebo exercise. The introduction of elections and social capital at the village level should only affect the political economy of the village level. It should not affect policies that are determined at higher levels of government. In other words, the main results on total public goods expenditure should be driven by public expenditure financed by sources within the village, and not by expenditure financed by transfers from upper levels of government. Columns (4) and (5) show that this is indeed the case. The interaction effect of the introduction of elections with social capital on public goods financed by villagers in column (4) is similar in magnitude to the effect on total expenditures in column (3) and statistically significant at the 5% level. In contrast, the interaction effect on expenditures financed by transfers from the upper govern-

⁴¹Some of these controls, such as participation in religious activities, might also be the result of high social capital, so in this sense we are probably over controlling and our estimates are conservative.

ment in column (5) is near zero in magnitude and statistically insignificant. Note that the dependent variable means at the top of the table show that approximately 30% of public goods expenditure is financed by upper-government transfers. Hence, the finding that the interaction effect on this variable is zero is not an artifact of the general lack of funding from the upper government.

All in all, the regression results in Table 3 accurately reflect the information presented in Figures 1b and 1c.

6.2 Robustness

6.2.1 Wealth, Inequality, Fractionalization and Human Capital

Arguably, several other factors could influence the effectiveness of elections in providing public goods. For example, elections may be more effective if households are richer because they can better afford to pay the local taxes necessary for financing the public goods. Also, if the valuation of public goods differs across households, it may be more difficult for a democratic government to finance public goods if there is more inequality across households in the village or if household identities are more fractionalized (Alesina and La Ferrara, 2002). Alternatively, elections may be more effective when villagers are more educated given the evidence that education often indoctrinates individuals to value public goods (e.g., Aghion et al., 2010).⁴² Also, elections may be more or less effective in providing public goods in villages that are dominated by large kinship groups, depending on whether these kinship groups demand public goods. Finally, the education of the village leaders may partly determine the effect of elections since leaders with higher education may be more competent in the provision of public goods or may have a higher valuation of public goods (e.g. Martinez-Bravo, 2017).

To investigate how these factors affect elections in determining public goods and whether our main estimates are confounded by their influence, we conduct a horse race between our main interaction effect and the interaction of these additional factors with the introduction of elections. We measure income as the pre-election average household income for households on the 10th, 50th and 90th percentiles of the village income distribution; inequality as the pre-election average Gini coefficient; group disparity as the fractionalization index of kinship or religious groups; human capital as the pre-election average probability that there is a school in the village; the dominance of kinship groups as the population share of the two largest kinship

⁴²For example, studies such as Aghion et al. (2010) argue that civic capital is a set of virtues one learns at school. Thus, education may influence the effect of elections on public goods (e.g. education may increase voters value for public goods such as primary schools, or the villagers' ability to take advantage of the newly introduced elections).

groups; the human capital of village leaders as the pre-election average years of education of the VC and PS; and whether a village is near a city. We define pre-election to be a common base year – i.e., the first year that data are available for each variable.⁴³ In Table 4 columns (2)-(9), we introduce these additional factors one-by-one. In column (9), we control for the interaction of whether a village is near an urban area and the introduction of elections to address the concern that elections may influence the provision of public goods differentially in suburbs than in rural areas. In column (10), we add all of these controls simultaneously.⁴⁴ Note that the sample is smaller than the full sample due to the limited availability of some of the additional control variables. We use the same sample across all columns for consistency.

Our main estimate of the interaction of the presence of a temple and the introduction of elections is very robust. It is similar in magnitude to the estimate from the baseline specification, which is presented in column (1). Note that column 1 restricts the sample to observations for which we have information of all other variables to facilitate the comparison. This provides strong support for our interpretation that temples capture the effects of social capital and not the confounding influence of wealth, inequality, group heterogeneity, human capital, clan dominance, and geographic location. Interestingly, none of these alternative factors is statistically significant, so they do not seem to modulate the effectiveness of elections.

6.2.2 Additional Controls

We conduct several additional robustness checks for our main results. These are presented in Table 5. First, we check that our main estimate is robust to controlling for the interactions of the correlates of the presence of a temple (shown in Table 1 column (5)) interacted with year fixed effects. This allows the influence of the vector of correlates to vary flexibly over time. Column (2) shows that the interaction effect is very similar in magnitude to the baseline shown in column (1). Note that all of the regressions use the sample for which all of the control variables are available for comparison purposes.

Second, we introduce the interactions of year fixed effects with all of the village characteristics discussed in Section 6.2.1. This allows the influence of this vector

⁴³Note that the baseline specification controls for the introduction of the election and a time-varying measure of the presence of the school. This interaction control is not collinear with the interaction of the introduction of elections and the pre-election presence of a school because the former school measure is time-varying while the latter is not.

⁴⁴The results are similar in columns (4) and (5) if we control for the interaction of post-first election and the base year measure of surname or religious polarization. These results are available upon request.

of characteristics to vary flexibly over time. Column (3) shows that the interaction effect of temples and elections is very robust. In column (4), we also incorporate the interactions of these variables with the post-election dummy (as we do in Table 4 column (9)). Again, the interaction effect is similar to the baseline.

In column (5), we additionally control for the interaction of the *Tax and Fee Reform*, which made it illegal for village leaders to impose local taxes, and its interaction with the presence of the temple. Most of these reforms occurred during 2002 and 2003 and enforcement was imperfect.⁴⁵ The estimated interaction effect of the presence of a village temple and the introduction of elections is again robust.

6.2.3 Sample Selection and Alternative Clustering

Table 6 checks that our qualitative findings are robust to alternative sample restrictions. First, we check that our estimates are not driven by the large number of observations with zero public goods expenditure by restricting the sample to observations that made a positive amount of expenditure. This greatly reduces the number of observations, but the interaction coefficient is large, positive and significant at the 5% level. See column (2). In columns (3) and (4), we omit different groups of provinces with large ethnic minority populations, which have very different cultural norms from the Han Chinese (the group for whom our proxies for social capital are most relevant) and have experienced different economic and political policies. More specifically, the treatment of their traditional culture since 1949, as well as the organization of the provision of local public goods such as schools differ widely from that of the Han majority population. The estimates show that our main results are robust to the omission of the provinces where these minorities reside. In column (5), we present the baseline estimate where we cluster the standard errors at the province level. To address the fact that there are only 29 provinces, we use the wild bootstrap method as suggested by Cameron et al. (2008). The main estimate is still significant at the 10% level, and the standard error is very similar to the one clustered at the province \times temple level shown in column (1).

6.3 Alternative Mechanisms

6.3.1 Village Temples as Physical Venues for Public Discussion

As we discussed earlier, the presence of a temple reflects past (long-run) social capital. Temples also facilitate the continued investment in social capital since the management and financing of the temple requires cooperation amongst villagers.

⁴⁵We collected data on the implementation of this reform for each village.

Moreover, participation in village-wide activities (e.g., festivals) furthers villager interaction. However, in addition to all these features related to social capital, the temple also provides a physical venue for public discussion. Hence, the results we obtain could potentially be generated by the availability of such a space instead of the long-term cultural traits that we emphasize.

To examine this possibility, we note that, just like temples, school buildings provide a physical venue for public discussion which is the most likely alternative if a temple is not available. Unlike temples, schools are mostly funded by transfers from higher levels of government and their maintenance requires relatively little participation from villagers.⁴⁶ As such, they do not embody long-standing social capital or facilitate investment in future social capital.

Thus, a comparison of the influence of schools with the influence of temples can shed light on whether the main results are due to the temple's function as a physical space or the social capital that it embodies. Columns (6) and (10) of Table 4 show that the interaction of the presence of a school in the base year and the introduction of elections is small in magnitude and statistically insignificant. Thus, the presence of a public meeting space is insufficient to influence the effects of elections on public goods. This is consistent with our interpretation that temples matter because they are an outcome and marker of long-standing social capital and facilitate repeated villager cooperation over a long period of time.

6.3.2 Electoral Quality

Another alternative explanation is that electoral quality is higher in villages with temples. To the extent that quality increases with citizen monitoring (and is therefore a public good), higher quality elections in villages with temples would be consistent with our interpretation of temples as promoting social and civic capital. However, quality may also differ for other reasons, such as differential monitoring by the central government. We have no reason to think this to be the case. Nevertheless, we investigate this by comparing measures of electoral quality between villages with temples and those without. Our survey recorded whether voting by proxy was allowed, anonymous ballots were enforced or a roving ballot box was used during each election. We find no difference in average electoral quality between villages with and without temples after the introduction of elections. The mean probability of having a secret voting booth, a proxy ballot box, a floating ballot box and open

⁴⁶The typical fiscal arrangement is for the upper government to pay for the construction of the building and for villagers to pay for operating costs such as teacher salaries. The latter requires low amounts of funds. For example, in our data, public expenditure on schooling by the village comprises only 2.5% of total expenditure. All schools are public and secular in our context.

nominations (as opposed to having candidates appointed by the Party) in villages with and without temples are 32% versus 44%, 75% versus 73%, 67% versus 66%, and 22% versus 25%, respectively. None of the differences are statistically different at conventional levels. This suggests that the main empirical estimates are unlikely to be driven by higher electoral quality in the set of villages with temples.⁴⁷

6.3.3 Social Homogeneity

Given our interpretation of village temples as a place for interaction and discussion over a long period of time, it is possible that preferences of villagers are more homogenous in villages with temples. Similarly, the preferences of the village leaders may be more aligned with the preferences of citizens in such villages. Homogenous preferences can, in principle, enhance the ability of elections to increase public goods. This is not at odds with the interpretation of temples as markers for social capital. However, it could also be the case that temples only emerge in villages where citizens are not divided by strong social groupings such as class, ethnic or religious affiliation. This would complicate the interpretation of our results. However, observable attributes do not support this hypothesis. Table 1 column (5) shows that the presence of a temple is uncorrelated with diversity in kinship groups or income inequality. Similarly, we can measure religious fragmentation using the NFS data on the share of households that belong to each religion. There is no correlation between the presence of a temple and fragmentation. The correlation coefficient is 0.05 and statistically insignificant.

6.4 Personalized Trust

As we discussed in Section 2.1, we have two measures of social capital in Chinese villages. The first is the presence of temples, which captures an aspect of village-wide social capital, or *generalized trust*. The second is the presence of kinship objects (ancestral halls and family trees), which captures this aspect of social capital specific to members of the same kinship group, or *personalized trust*.⁴⁸ This gives us the opportunity to explore whether these two kinds of social capital have different effects on elections.

The baseline specification already includes a control for the interaction effect of the presence of kinship group objects and the introduction of elections because the

⁴⁷Note that we cannot examine electoral quality as an outcome measure in our baseline specification since these measures are only available after the introduction of elections.

⁴⁸That kinship networks enforce social capital for group members has been demonstrated in studies such as Zhang and Zhao (2015), which argues that social reciprocity amongst kinsmen helps to protect property rights in rural China.

presence of temples is correlated with ancestral halls and family trees. Therefore, we already know that the effect of temples is not confounded by the influence of kinship objects. In this section, we examine the coefficient for the latter. If personalized trust also facilitates the ability of elections to improve public goods, then the interaction effect of kinship objects and elections should be positive. If there is no effect, then it should be zero.⁴⁹

Table 7 column (1) re-states our baseline estimates for the sample for which we have data for all of the variables in column (3).⁵⁰ The estimates show that the interaction of the presence of an ancestral hall or family tree with the introduction of elections is small in magnitude, positive and statistically insignificant. In column (2), we exclude the interaction effect of the village temple and the introduction of elections. The interaction effect of kinship group objects and the introduction of elections is negative, small in magnitude and statistically insignificant. In column (3), we add the correlates of ancestral halls and family trees as controls (see Table 1). These are the income of households on the 10th, 50th and 90th percentiles of the village household income distribution, kinship group fractionalization, and the population share of the largest two kinship groups, each interacted with the full set of year dummy variables. The results are similar to those in column (1).⁵¹

These results are consistent with the notion that generalized trust enhances the effect of elections on public goods, but personalized trust does not. That the interaction of the presence of kinship group objects and the introduction of elections has no effect on public goods expenditure suggests that better organization and interaction within kinship groups provide little spillover to the rest of the village.

⁴⁹We collect data on the construction dates of ancestral halls and the date of the most recent revision of family trees. Using the same specification as in Table 2 column (1) and using as dependent variables a time-varying measure of the date of construction of the ancestral hall and the date of the latest revision of a family tree, we find that these objects are not outcomes of the introduction of elections. The coefficients for the introduction of the first election for the two dependent variables are 0.000054 and 0.00031, respectively. Neither is statistically significant. In the few cases where a village had multiple objects, we used the dates relevant for the oldest or the newest objects. The results are similar and available upon request. In the main regressions, we construct a time-invariant dummy variable that equals one if there is any family with an ancestral hall or family tree in the village during the sample period. Then, we interact this dummy variable with the dummy variable for the introduction of elections.

⁵⁰The sample is smaller than our full sample because we were unable to obtain data on some of these variables for administrative reasons. We use the same sample in all columns for consistency. The results in columns (1) - (3) are nearly identical when we use the full sample. They are available upon request.

⁵¹Recall that our measure of the presence of family trees is based on recall data. To check that our results are not driven by recall bias, we can restrict our attention to the interaction effect of the presence of ancestral halls (which is based on administrative data) and the introduction of elections (also from administrative data). This interaction effect is also statistically zero. The estimates are available upon request.

7 Conclusion

In this paper, we provide novel empirical evidence that culture is an important determinant of the success of formal institutions in the context of local public goods provision in rural China. We show that the introduction of elections in rural China, where villages are largely fiscally autonomous, enhances the provision of public goods significantly more in villages where a village temple is present. For this study, we collected a large survey on the presence of traditional cultural objects, the introduction of elections, as well as detailed data on public goods expenditure from village administrative records.

Our findings provide empirical evidence for a long lineage of studies, starting with de Tocqueville's *Democracy in America*, that have argued that social capital can enhance democracy. We also find, as proposed in the classic study of Putnam et al. (1994), that identical formal institutions (local village elections) result in very different outcomes as a function of the underlying culture, specifically, the strength of social capital.

Several points should be kept in mind when interpreting the results. First, our findings should be interpreted as the influence of culture on a partial democratization of political institutions, since the electoral reforms were only introduced to part of the village government, and the communist-party continued to dominate all other levels of Chinese government. Second, many of the legal instruments for the enforcement of tax payments available to national governments are not available to local governments, which rely relatively on peer pressure for enforcing taxation. This may explain why social capital is so important in our context. Third, we do not observe informal provision of public goods. This is likely not to be important in this context, where the public goods under examination are mostly infrastructure – i.e., village roads, electricity and sanitation. Nevertheless, the lack of data on informal provision means that we cannot investigate whether government expenditures crowd in or crowd out private expenditures. This does not affect our interpretation that culture is an important pre-condition for the performance of formal institutions, but is an interesting question for future research.

As an important corollary for policy makers, we note that our results shed light on why democratic reforms in many cases do not yield the same results as those experienced by Western countries during their historical democratization process. As the starting quote of this paper highlights, identical formal rules can result in widely different results as a function of the underlying culture.

A natural subject for future research is to understand the effect of social capital on democratic institutions other than elections, or the specific channels through which

social capital can enhance democracy as a whole. An equally important question is to understand the determinants of social capital. This topic has been the subject of several recent studies in the European context or in the cross-country context, but has received little attention in the other contexts.⁵² Another avenue of research is to unbundle the components of culture that can influence the effectiveness of formal institutions.

⁵²We refer only to the economics literature. For the European context, see recent studies on the origins of trust and culture such as Guiso et al. (2016). Also related is the study by Nunn and Wantchekon (2011) on the effect of the slave trade on trust in Africa.

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A Tsai (2007)

In a well-known study, Tsai (2007) shows a positive association between village temples and public good expenditure, using a cross-sectional dataset of 316 rural villages within 4 provinces collected in 2001. The study also finds that when indicators for the presence of elections and temples are included in the same regression, elections have no statistically significant relationship with public goods expenditure.

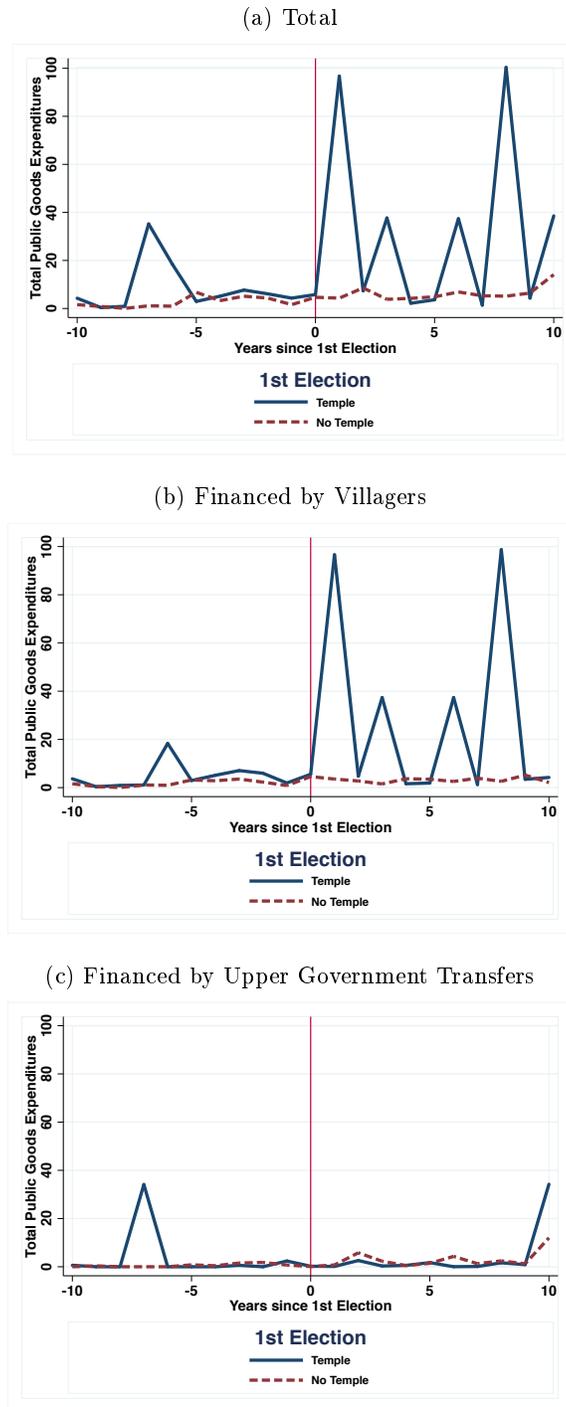
Our analysis differs from hers in two important ways. First, we have a panel of villages. Second, we estimate the interaction of the introduction of elections and the presence of temples. These two features together mean that we are able to control for village fixed effects, which control for all time-invariant differences across villages.

Table 8 replicates the main specification in Tsai (2007) with our data. Column (1) shows that there is a strong association between village temples and village public goods expenditure. The relationship is positive but smaller in magnitude when we control for village population (Column (2)). In column (3), we add a dummy variable for whether elections have been introduced. The coefficient of elections is large in magnitude and statistically significant while the coefficient of village temples remains similar to before. The positive association between temples and public goods is consistent with Tsai (2007). However, unlike her study, the relationship between elections and public goods survives the horse race in our representative sample.

In columns (4) and (5), we add year fixed effects and province-year trends. The results are qualitatively unchanged.

Note that a horserace between elections and social capital does not actually test for substitutability. The coefficient for elections when controlling for temples captures the difference in public goods across villages with and without elections, holding constant the availability of temples. It does not say that elections matter more or less in villages with temples – i.e., elections and temples are complements or substitutes. For the latter, one needs to estimate an interaction effect as in our analysis. Similarly, the positive coefficient on temples in the horserace implies that for two villages that both (neither) have elections, the one with the temple has higher public goods. It does not speak to complementarity or substitutability.

Figure 1: Public Good Expenditures by Village Government for Each Year Since the First Election



Notes: Total public expenditures are measured in constant 10,000 RMB. During the sample period, the average exchange rate was 1 USD = 7 RMB.

Table 1: The Correlates of Village Temples

	Descriptive Statistics				Correlation Coefficients		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Source	Obs	Mean	Std Dev	Temple Dummy	Ancestral Hall Dummy	Family Tree Dummy	
Village Temple Dummy	VDS	4300	0.33	0.47			
Social Organizations (#)	VDS	3900	0.14	0.43	0.1548*	0.1404*	
Social Events (#)	VDS	3900	0.20	0.60	0.1808*	0.1701*	
Presence of Temple in 1820	Qing Gazetteer	4300	0.48	0.50	0.1481*	0.0947	
Village Population (# Households)	NFS	4300	418	278	0.2133*	0.2883*	
Religious Population Share (All Religions)	NFS	4300	0.065	0.19	0.1453*	0.0991	
Christian	NFS	4300	0.015	0.05	0.09	0.1098	
Muslim	NFS	4300	0.024	0.13	-0.0504	-0.0754	
Buddhist	NFS	4300	0.036	0.11	0.2586*	0.2039*	
Other	NFS	4300	0.005	0.01	0.0834	0.0979	
Religious Fractionalization	NFS	4,300	1.92	0.15	0.2490*	-0.1088	
Population Share that Participates in Religious Ceremonies	NFS	4300	0.02	0.06	0.1603*	0.0467	
Pre-Election Gov. Public Goods Expenditure (10,000 RMB)	VDS	4300	7.43	30.74	0.0467	0.1074	
Income of 10th Percentile HH (RMB)	NFS	3727	4850	3578	0.0751	0.3096*	
Income of Median Household (RMB)	NFS	3727	10081	8287	0.0542	0.3001*	
Income of 90th Percentile Household (RMB)	NFS	3727	23563	36582	0.078	0.2288*	
Gini Coefficient	NFS	3516	0.28	0.08	0.0266	0.093	
Kinship Group Fractionalization	VDS	3880	0.72	0.23	-0.095	-0.2803*	
Kinship Group Polarization	VDS	3880	0.53	0.21	0.0516	0.0436	
Village Chairman's Years of Education	VDS	3666	8.02	2.68	-0.0547	0.1271*	
Party Secretary's Years of Education	VDS	3767	8.26	2.55	0.0257	0.1183*	
School (Dummy Var =1 if present)	VDS	4300	0.83	0.37	0.2300*	0.06	
Ancestral Hall Dummy	VDS	4300	0.16	0.36	0.2327*		
Family Tree Dummy	VDS	4300	0.43	0.49	0.2229*	0.4238*	
Share of the two largest kinship groups	VDS	4300	0.51	0.28	0.0716	0.2786*	

Notes: In column (1), VDS indicates that the variable is reported by the Village Democracy Surveys (2006,2011). NFS indicates that the variable is reported by the National Fixed Point Survey. The cross-sectional correlation coefficients in columns (5)-(7) are estimated using data aggregated to the village level. * refers to estimates that are statistically significant at the 10% level.

Table 2: The Correlation between the Introduction of Elections and the Presence of a Temple and Public Goods

	Dependent Variable	
	(1)	(2)
Dummy Variable for the Presence of a Temple (Time Varying)	0.121	13.937
Government Expenditure (10,000 RMB)		
	-0.00588 (0.0192)	10.07 (5.769)
Baseline Controls	Y	Y
Year and Village FE	Y	Y
Province - Year Trend	Y	Y
Village Population	Y	Y
Observations	4300	4300
R-squared	0.808	0.034

Notes: 7 RMB = 1 USD on average for our sample. In column (1), the dependent variable equals one if there is a temple in a given year. "Y" = "Yes" and "N" = "No" for controls. Village population is measured as the number of households in a village.

Table 3: The Effect of *Village Temples* × *The Introduction of Elections* on Public Goods Expenditure

	Dependent Variable				
	Government Public Goods Expenditure (10,000 RMB)				
	Total (1)	Total (2)	Total, Baseline (3)	Financed by Villagers (4)	Financed by Upper Gov (5)
Dependent Variable Mean	13.937	13.937	13.937	9.54	4.317
Post 1st Election x Temple (Time-Invariant)	60.85 (19.97)	45.23 (14.47)	40.37 (17.16)	37.27 (18.50)	2.850 (3.944)
Baseline Controls					
Post 1st Election	Y	Y	Y	Y	Y
Year and Village FE	Y	Y	Y	Y	Y
Province - Year Trend	Y	Y	Y	Y	Y
Village Population	Y	Y	Y	Y	Y
Correlates of Temple x Post 1st Election*	N	Y	Y	Y	Y
Temple x Year FE	N	N	Y	Y	Y
Observations	4300	4300	4300	4300	4300
R-squared	0.117	0.130	0.140	0.132	0.084

Notes: 7 RMB = 1 USD on average for our sample. "Y" = "Yes" and "N" = "No" for controls. *The correlates of the presence of a temple are: village population, the share of all religious population, the share of Buddhist population, the share of population that participates in religious activities, the presence of a school, ancestral hall and family tree. The standard errors are clustered at the province x temple level. Village population is measured as the number of households in a village.

Table 4: The Effect of *Village Temples* × *The Introduction of Elections* on Public Goods Expenditure – Robustness to Income, Inequality, Human Capital, Kinship Group Fractionalization

Dependent Variable: Government Public Goods Expenditure (10,000 RMB)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Baseline										
Post 1st Election										
x Temple	43.09 (18.41)	42.46 (18.56)	38.49 (18.96)	42.37 (18.26)	43.49 (18.48)	44.12 (18.50)	42.64 (17.92)	45.31 (17.24)	43.13 (18.47)	39.72 (18.47)
x Pre-Election Income (10th Percentile)		0.00418 (0.0102)								-0.0212 (0.0172)
x Pre-Election Income (50th Percentile)		-0.000939 (0.00811)								0.00894 (0.0102)
x Pre-Election Income (90th Percentile)		-0.000746 (0.00111)								0.000798 (0.00152)
x Pre-Election Gini			-126.4 (104.1)							-252.1 (187.9)
x Pre-Election Surname Fractionalization				18.62 (16.87)						-96.28 (86.18)
x Pre-Election Religious Fractionalization					105.5 (78.12)					123.7 (76.14)
x Pre-Election Presence of a School						-8.833 (19.25)				-11.77 (21.20)
x Population Share of the Largest Two Clans							-36.89 (24.96)			-130.5 (96.58)
x Pre-Election VC Education								1.746 (3.429)		1.724 (3.226)
x Pre-Election PS Education								-0.686 (2.081)		-0.0157 (2.080)
x Near City									1.924 (10.96)	-0.924 (10.87)
Observations	3760	3760	3760	3760	3760	3760	3760	3760	3760	3760
R-squared	0.151	0.151	0.151	0.151	0.151	0.151	0.151	0.151	0.151	0.152

Notes: 7 RMB = 1 USD on average for our sample. All regressions control for the post 1st election dummy variable, year and village fixed effects, province-time trends, village population, temple x year FE, and the interaction of the post 1st election dummy with the correlates of the presence of a temple (village population, the share of all religious population, the share of Buddhist population, the share of population that participates in religious activities, the presence of a school, ancestral hall and family tree). Village population is measured as the number of households in a village. Additional controls are stated in the table. Variables which begin with "pre-" are measured the first year that data are available. The standard errors are clustered at the province x temple level. The sample size is smaller than for the main estimates due to the limited availability of the control variables.

Table 5: The Effect of *Village Temples* × *The Introduction of Elections* on Public Goods Expenditure – Robustness to Additional Controls

	(1)	(2)	(3)	(4)	(5)
Dependent Variable: Government Public Goods Expenditure (10,000 RMB)					
Post Election x Temple	55.11 (21.24)	64.43 (20.00)	56.36 (19.52)	53.01 (20.92)	52.37 (20.81)
Controls					
Correlates of Temple x Year FE	N	Y	Y	Y	Y
Other Village Characteristics x Year FE	N	N	Y	Y	Y
Other Village Characteristics x Post 1st Election	N	N	N	Y	Y
Post Tax Fee Reform, Post Tax and Fee Reform x Temple	N	N	N	N	Y
Observations	3860	3860	3860	3860	3860
R-squared	0.142	0.225	0.178	0.180	0.181

Notes: 7 RMB = 1 USD on average for our sample. All regressions control for the post 1st election dummy variable, year and village fixed effects, province-time trends, village population, temple x year FE, and the interaction of the post 1st election dummy with the correlates of the presence of a temple (village population, the share of all religious population, the share of Buddhist population, the share of population that participates in religious activities, the presence of a school, ancestral hall and family tree). Column (2) also controls for the interaction of year fixed effects with the correlates of the presence of a temple. Column (3) controls for the interaction of year fixed effects with the village characteristics stated in Table 4. Column (4) additionally controls for the interaction of post first election with the village characteristics stated in Table 4. Village population is measured as the number of households in a village. The standard errors are clustered at the province x temple level. The sample size is smaller than for the main estimates due to the limited availability of the control variables.

Table 6: The Effect of *Village Temples* × *The Introduction of Elections* on Public Goods Expenditure – Robustness to Sample Selection and Standard Error Corrections

	Dependent Variable: Government Public Goods Expenditure (10,000 RMB)				
	(1)	(2)	(3)	(4)	(5)
	Baseline	Omit if Expenditure = 0	Omit Inner Mongolia, Qinghai	Omit Inner Mongolia, Qinghai, Ningxia, Yunnan and Hainan	Cluster SE at Province Level (Wild Bootstrapped)
Post 1st Election x Temple	40.37 (17.16)	134.9 (62.45)	39.43 (17.42)	53.40 (17.44)	40.37 (21.93)
Observations	4300	949	4220	3940	4300
R-squared	0.140	0.375	0.140	0.144	0.140

Notes: 7 RMB = 1 USD on average for our sample. All regressions control for the post 1st election dummy variable, year and village fixed effects, province-time trends, village population, temple x year FE, and the interaction of the post 1st election dummy with the correlates of the presence of a temple (village population, the share of all religious population, the share of Buddhist population, the share of population that participates in religious activities, the presence of a school, ancestral hall and family tree). Village population is measured as the number of households in a village. The standard errors are clustered at the province x temple level. Sample restrictions are stated in the column headings.

Table 7: The Effect of *Village Temples* × *The Introduction of Elections* on Public Goods Expenditure – Robustness to the Presence of Kinship Group Objects

Dependent Variable: Government Public Goods Expenditure (10,000 RMB)			
	(1)	(2)	(3)
Post Election x Temple	55.41 (21.84)		53.9 (21.71)
x Ancestral Hall or Family Tree	6.789 (32.82)	-11.90 (35.37)	-12.16 (37.72)
Controls: Post 1st Election x			
Population Share of Largest 2 Clans	N	N	Y
Pre-Election Income for 10th, 50th and 90th Percentiles	N	N	Y
Surname Fractionalization	N	N	Y
Observations	3,880	3,880	3,880
R-squared	0.142	0.141	0.143

Notes: 7 RMB = 1 USD on average for our sample. All regressions control for the post 1st election dummy variable, year and village fixed effects, province-time trends, village population, temple x year FE, and the interaction of the post 1st election dummy with the correlates of the presence of a temple (village population, the share of all religious population, the share of Buddhist population, the share of population that participates in religious activities, the presence of a school, ancestral hall and family tree). Village population is measured as the number of households in a village. Additional controls are stated at the bottom of the table. "Y" = "Yes" and "N" = "No" for controls. The standard errors are clustered at the province x temple level. The sample size is smaller than for the main estimates due to the limited availability of the control variables in column (3).

Table 8: Replication of Tsai (2007)

	Government Total Public Goods Expenditure (10,000 RMB)				
	(1)	(2)	(3)	(4)	(5)
Dependent Variable Mean	13.937	13.937	13.937	13.937	13.937
Temple (time-invariant)	13.20 (6.067)	7.215 (4.632)	6.944 (4.590)	7.632 (4.564)	11.18 (4.777)
Post 1st Election			13.01 (4.221)	5.766 (3.819)	11.62 (6.391)
Village Population	N	Y	Y	Y	Y
Year FE	N	N	N	Y	Y
Province - Year Trend	N	N	N	N	Y
Observations	4,300	4,300	4,300	4,300	4,300
R-squared	0.002	0.013	0.014	0.022	0.030

Notes: 7 RMB = 1 USD on average for our sample. "Y" = "Yes" and "N" = "No" for controls. The standard errors are clustered at the province x temple level. Village population is measured as the number of households in a village.