

# Making Democracy Work: Culture, Social Capital and Elections in China\*

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## Abstract

This paper aims to show that culture is an important determinant of the effectiveness of formal democratic institutions, such as elections. We collect new data to document the presence of voluntary and social organizations and the history of electoral reforms in Chinese villages. We use the presence of village temples to proxy for culture, or more specifically, for social (civic) capital and show that their presence greatly enhances the increase in public goods due to the introduction of elections. These results support the view that social capital complements democratic institutions such as elections.

**JEL:** P16, H41; **Key Words:** Civic Capital, 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 important roles in determining economic outcomes (Acemoglu, Johnson, and Robinson, 2001; LaPorta, de Silanes, Shleifer, and Vishny, 1998). Another strand of literature emphasizes the aggregate effects of culture, focusing on aspects such as trust or social capital (Glaeser, Ponzetto, and Shleifer, 2007; Tabellini, 2008).<sup>1</sup> However, little 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.<sup>2</sup>

The purpose of our paper is to provide novel and rigorous empirical evidence on the importance of culture as a pre-condition for formal institutions such as elections. Following the seminal work of Putnam, Leonardi, and Nanetti’s (1994), which postulates that underlying *civic traditions* determine the local success of a formal decentralization, we focus on proxies of social and civic capital and study their influence on the introduction of elections.

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 became elected bodies. This reform was successful in increasing average expenditure on public goods and arguably improved formal institutions by

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<sup>1</sup>We use definitions of culture and social capital from Fernandez (2008) and Guiso, Sapienza, and Zingales (2011), respectively.

<sup>2</sup>We discuss the few exceptions later on in the introduction.

increasing accountability.<sup>3</sup> In this paper, we ask whether the improvement due to the change of formal institutions (i.e., the introduction of elections) depended on the underlying culture (i.e., social capital) of each village.

*A priori*, it is unclear whether elections and social capital are complements or substitutes in delivering public goods. Guiso, Sapienza, and Zingales (2011) define 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.” This definition suggests that 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.

In contrast, 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.<sup>4</sup>

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. We address this problem by using a proxy measure, the presence of village temples, which are village-wide voluntary organizations and

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<sup>3</sup>Luo, Zhang, Huang, and Rozelle (2010), Martinez-Bravo, Padró i Miquel, Qian, and Yao (2014), Mu and Zhang (2011) and Zhang, Fan, Zhang, and Huang (2004).

<sup>4</sup>Moreover, social capital can enhance accountability itself, as suggested in Nannicini, Stella, Tabellini, and Troiano (2010). See Section 3 for a detailed discussion of the different potential mechanisms.

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.<sup>5</sup> Moreover, temples are a close analogue to associationism measures of social capital used in the economics and political science literatures.<sup>6</sup>

The second difficulty is the lack of systematic data on village temples (or other voluntary associations) in China with a sample large enough for rigorous 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, the *Village Democracy Survey* (VDS), which covers the years 1986 to 2005. These village administrative records contain detailed information on village public goods expenditure, as well as on social institutions, such as village temple committees, and formal political changes, such as the introduction of elections. Consistent with our use of village temples as a proxy for social capital, we use the VDS to document that 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 impact of elections on public goods. Elections were in rural China during the late 1980s and early 1990s. The timing of the introduction of elections varied across villages.<sup>7</sup> 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 conceptually similar to 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

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<sup>5</sup>Unlike 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.

<sup>6</sup>See Putnam, Leonardi, and Nanetti (1994) for the original use of this measure.

<sup>7</sup>Please see section 2 for a detailed discussion.

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 type 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 faster rate than in villages without temples absent 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. This assumes that, conditional on the controls, the interaction of the introduction of elections and the presence of a village temple is not jointly determined with investment in public goods. There are two obvious concerns for this assumption. First, for the reasons discussed earlier, villages with temples may always have higher levels of public goods provision (even absent elections) and may have introduced elections earlier. If both of these conditions are true, then the interaction effect will 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.

We find that elections have little effect on public goods expenditure in villages

with low social capital, and large positive effects in villages with high social capital. More specifically, for villages with high social capital, elections explain 24.6% of the increase in public goods expenditure between 1986 and 2005. In contrast, in villages with low social capital, elections explain little of the increase in average public goods expenditure. To check that our findings reflect the role of social capital in facilitating the elected government's ability to finance public goods, we separately examine public goods expenditure financed by villagers and expenditure financed by other levels of government. Our main results are entirely driven by financing from villagers. This exercise demonstrates that the effects of elections and social capital are circumscribed to the local political economy of the village and do not reflect spurious changes in policy at higher levels of government.

Our findings imply that social capital is complementary to the introduction of elections in terms of government public goods expenditure. They provide strong and novel empirical evidence that culture can play an important role in determining the success of improvements in formal political institutions.

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 negative influence on the capacity of society to organize (e.g., Alesina and Giuliano, 2010; Banfield and Banfield, 1958). 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). While the former is a proxy for village-level social capital and thus *generalized trust*, the latter can arguably proxy for personalized trust (see section 2.2.2). We find that the presence of kinship group objects 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.

To provide additional evidence for our interpretation, we contrast the influence of temples to that of school buildings, which are funded by higher levels of government and independent of village social capital, but like temples, provide a public meeting place. We find that the presence of schools does not influence how elections affect public goods. This supports our interpretation that the main results are driven by the temple as an embodiment of social capital.

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 policy experiment for examining the influence of social capital on elections.

Note that conceptually narrowing our interpretation of temples as a proxy for culture to a proxy for social capital is helpful for understanding the mechanisms that drive the empirical results. However, for the main purpose of our paper, which is to understand whether culture is an important determinant for the effectiveness of elections, we do not need for temples to proxy for social capital exclusive of other cultural traits.

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. We are most closely related to Guiso and Pinotti (2012), 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. Another related study is Nannicini, Stella, Tabellini, and Troiano (2010), which theorizes that individuals living in regions with social capital assign higher values to public goods and provide supporting empirical evidence from Italy showing that elected leaders from regions with higher social capital receive more electoral punishment for shirking from parliamentary duties or being subject to criminal investigations. Our study adds to the existing evidence by directly examining the introduction of elections and its effect on policy outcomes, by showing consistent evidence from a very different context, and by contrasting generalized and personalized trust.<sup>8</sup>

A larger number of studies have shown that social capital is positively associated with economic outcomes across countries (e.g., Algan and Cahuc, 2009, Fisman and Miguel, 2007; Knack and Keefer, 1997 and LaPorta, Lopez-Silanes, and Shleifer, 1997) and within countries (e.g., Algan, Cahuc, and Shleifer, 2013; Ichino and Maggi, 2000; Baland and Platteau, 2000); and that its effects can be long-lasting (e.g., Aghion, Algan, Cahuc, and Shleifer, 2010; Fernandez and Fogli, 2009 and Tabellini, 2005).<sup>9</sup> At the same time, a recent study by Satyanath, Voigtlaender, and Voth (2013) provides evidence that social capital can have negative effects. In the attempt to establish causality, our study is most closely related to the recent work of Algan and Cahuc (2010), Guiso, Sapienza, and Zingales (2004) and Satyanath, Voigtlaender, and Voth (2013).<sup>10</sup>

In exploring the differences between generalized and personalized trust, we add

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<sup>8</sup>Note 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 Rosenblum (2000) and Skocpol and Fiorina (1999).

<sup>9</sup>For works on social capital by sociologists, see for example Coleman (1998) and Gambetta (1988).

<sup>10</sup>Guiso, Sapienza, and Zingales (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) finds that changes in the level of trust of U.S. immigrants over time can explain a significant degree of growth differences across the immigrants' countries of origin. Satyanath, Voigtlaender, and Voth (2013) finds that entry into the Nazi party is much higher in regions (within Germany) with more civic associations.

to studies that find generalized trust to be an important determinant of economic outcomes (e.g., Aghion, Algan, Cahuc, and Shleifer, 2010; Alesina and La Ferrara, 2002; 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.<sup>11</sup>

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 (2014); Jia and Bai (2014); Jia and Persson (2013).<sup>12</sup>

In focusing on elections, we add to studies of the average effect of elections in China discussed earlier. In particular, we complement two earlier companion studies. (Martinez-Bravo, Padró i Miquel, Qian, and Yao, 2014) shows the introduction of elections affects a number of policy outcomes and Padró i Miquel, Qian, and Yao (2012) shows that elections were less effective where there was more religious fractionalization. This paper differs by examining the influence of culture and social capital on elections, which as we discussed earlier, is a prominent and open question in the political economy literature.<sup>13</sup> The current study also differs in requiring the collection of detailed information on voluntary organizations, temples, etc. These data are the first large sample systematic data on cultural objects in rural China. The authors intend to make these publicly available along with the first wave of data 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

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<sup>11</sup>Our study is also generally related to the broader literature on the influence of culture on economic outcomes, which is reviewed by Guiso, Sapienza, and Zingales (2006) and Fernandez (2010).

<sup>12</sup>Jia and Bai (2014) 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.

<sup>13</sup>Later, we will show that the presence of a village temple is uncorrelated with religious fractionalization and that the main results are robust to controlling for the interaction of the introduction of elections and religious fractionalization

estimates. Section 7 offers concluding remarks.

## 2 Background

### 2.1 Defining Culture and Social Capital

Our paper uses established definitions for culture and social capital from the recent economics literature. In an overview of the economics of culture, Fernandez (2008) defines culture as “beliefs and preferences that vary systematically across groups of individuals separated by space (either geographic or social) or time”. In a review of the literature of social capital, Guiso, Sapienza, and Zingales (2011, p. 420) defines 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”. This definition is consistent with the definitions used in most social science disciplines.<sup>14</sup> As such, social capital is a component of culture.

### 2.2 Measuring Social Capital

#### 2.2.1 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

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<sup>14</sup>For examples of well-known studies in disciplines other than economics, see Bourdieu (1986) and Coleman (1998) for works in sociology, Fukuyama (1995) and Putnam, Leonardi, and Nanetti (1994) in political science. This definition is more specific, but consistent with the definitions used in these studies. It is also consistent with the definition used in experimental studies such as Karlan (2005). See Guiso, Sapienza, and Zingales (2011) for a detailed comparison of the different definitions and Durlauf and Fafchamps (2005) for detailed discussions of the conceptual issues in the social capital literature.

of village temples are sustained by voluntary contributions.<sup>15</sup> The construction of 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.<sup>16</sup> 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 and Confucianism and Daoism, which both began during 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”. 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).<sup>17</sup>

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

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<sup>15</sup>See 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.

<sup>16</sup>For example, traditional temples often display Bodhisattavas, Daoist immortals and in some places, even portraits or statues of Mao Zedong (Perry and Selden, p. 257). Most villages in our sample have at most one temple.

<sup>17</sup>For 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.

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, 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 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 the definition of social capital above.

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 Durante, 2010, Guiso, Sapienza, and Zingales, 2014; Nunn and Wantchekon, 2009; Tabellini, 2008). 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.

### 2.2.2 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.<sup>18</sup> 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. 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

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<sup>18</sup>See Cohen (1990) for a detailed discussion.

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 they 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, Sapienza, and Zingales, 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.<sup>19</sup>

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., Guiso, Sapienza, and Zingales, 2004; Putnam, Leonardi, and Nanetti, 1994). Indeed, past studies have argued that high trust towards family members relative to trust towards people more generally can be a sign of weak norms of generalized morality (e.g., Alesina and Giuliano, 2010; Banfield and Banfield, 1958). In Section 6.2, we will use the presence of family trees and ancestral halls to proxy for personalized

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<sup>19</sup>For 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).

trust, and compare its effect to that of village temples.

### 2.3 Village Government and Public Goods

Villages are the lowest level of administration in rural China.<sup>20</sup> 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; Oi and Rozelle, 2000; Rozelle and Boisvert, 1994, Brandt and Turner, 2007; Whiting, 1996). Our supposition that this requires significant effort from village leaders is consistent with the widely held belief that there was a general under-provision of public goods in Chinese villages prior to the introduction of elections (e.g., Zhang, Fan, Zhang, and Huang, 2004; Luo, Zhang, Huang, and Rozelle, 2007, 2010).

Village governments finance public goods by imposing ad hoc taxes (e.g., fees, levies). In our paper, we refer to these tariffs as *local fees* for simplicity.<sup>21</sup>

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<sup>20</sup>The 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.

<sup>21</sup>Such fees can be controversial in cases when villagers believe them to be extortionary and misallocated 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 will have little effect as it occurred towards the end of our study period. But we will check that our estimates are robust to controlling for their introduction.

## 2.4 Village Elections

The main motivation for the introduction of elections was the Party’s feeling that the bureaucracy was failing to control local officials.<sup>22</sup> Proponents of elections argued 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 on 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.<sup>23</sup> 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.

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<sup>22</sup>Difficulties 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).

<sup>23</sup>The 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, Padró i Miquel, Qian, and Yao (2014) 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.

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.<sup>24</sup> Martinez-Bravo, Padró i Miquel, Qian, and Yao (2014) documents that implementation was rapid and uncorrelated with village characteristics.<sup>25</sup>

### 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 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, the original formal institution, in which the village government was appointed, most likely failed in the task of public good provision because local officials shirked in the effort necessary to overcome the two

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<sup>24</sup>“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.

<sup>25</sup>They 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 had introduced elections by the end of the sample in 2005. See Martinez-Bravo, Padró i Miquel, Qian, and Yao (2014) for a detailed discussion of election roll-out timing.

difficulties name 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 (Luo, Zhang, Huang, and Rozelle, 2010; Martinez-Bravo, Padró i Miquel, Qian, and Yao, 2014; Zhang, Fan, Zhang, and Huang, 2004). The introduction of elections therefore improved village formal institutions.

High social capital stocks should facilitate public goods provision in at least three ways.<sup>26</sup> 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.<sup>27</sup> 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 (Bellah, 1986; Drescher, 1968; Nannicini, Stella, Tabellini, and Troiano, 2010). This effect should facilitate aggregating preferences to maximize 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). These mechanisms suggest that communities endowed with a higher level of

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<sup>26</sup>Recall that we follow Guiso, Sapienza, and Zingales (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”.

<sup>27</sup>Boix and Posner (1998) calls this the “Rule Compliance” model.

social capital should have an easier time furnishing themselves of the public goods that are needed, irrespective of the formal institutions that govern them.

The discussion so far suggests that elections and social capital should be *substitute* technologies to solve the public goods problem.<sup>28</sup> In other words, a village could overcome its public goods problem either by using the 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. This view is supported by work on Chinese village governance such as Tsai (2002), which argues that village social capital is more likely to arise in places where the formal institutions provide low levels of public goods. According to this view, 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 public goods provision under the appointment regime, and would therefore have much more to gain from the implementation of elections. Substitutability thus predicts 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.<sup>29</sup> In other words, formal institutions and culture are *complements*. Several mechanisms can underpin this complementarity in the context of rural China. First, as we have discussed, in high social capital villages, the costs of enforcing the individual contributions necessary to bring about public goods are 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

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<sup>28</sup>This is the view in Ostrom (1990), among others.

<sup>29</sup>Famously, Putnam, Leonardi, and Nanetti (1994) documents that the 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.

further public action in places where public goods are easier to provide, i.e. in villages with high social capital. For instance, a village leader who does not need to spend his whole day collecting fees to rebuild the school can also propose a new project such as paving the local road.

Second, 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.

Third, as Olson (1982) argues, active participation in community associations provide opportunities for citizens to discuss government performance. This facilitates social scrutiny of the government and increases the ability of citizens to keep elected officials accountable. 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. 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. These channels of complementarity all predict that elections should have a larger effect in villages with high social capital.

In the analysis that follows, we 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:

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

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,  $\delta_i$ ; province-year trends,  $t\theta_j$ ; year fixed effects,  $\rho_t$ ; and the interaction of year fixed effects,  $\varrho_t$ , with the dummy variable for high social capital,  $S_{ij}$ .

$\alpha_1$  captures the effect of the introduction of elections for villages with low social capital,  $S_{ij} = 0$ .  $\alpha_1 + \alpha_2$  captures the effect of the introduction of elections for villages with high social capital,  $S_{ij} = 1$ .  $\alpha_2$  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,  $\hat{\alpha}_2 < 0$ . 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 increased accountability.<sup>30</sup>

Conceptually, our empirical strategy is similar to 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 assumes that conditional

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<sup>30</sup>Finding 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, Padró i Miquel, Qian, and Yao, 2011). Therefore, we can test the hypothesis that social capital complements elections for public goods provision by examining whether the interaction effect is positive.

on the baseline controls, our measure of social capital is not correlated with other factors that influence the effects of elections on public goods expenditures.

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) and by introducing the interaction of year fixed effects with high social capital, we allow villages with high social capital to have an arbitrarily different temporal evolution.<sup>31</sup> Third, province-time trends control for the regional 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).<sup>32</sup>

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  $\alpha_2$  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.<sup>33</sup>

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<sup>31</sup>Note 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 variable, the interaction of the presence of a temple and the post-election dummy variable.

<sup>32</sup>In 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, Martinez-Bravo, Padró i Miquel, Qian, and Yao (2014).

<sup>33</sup>Since 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, Gelbach, and Miller (2008) and estimate wild bootstrapped standard errors that are clustered at the province level since we only have 29 provinces. They are nearly

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, Qian, and Yao, 2006; Padró i Miquel, Qian, and Yao, 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 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.

We supplement the VDS with annual data collected each year by the Ministry

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identical to the temple $\times$ province level clustered standard errors.

of Agriculture in the *National Fixed Point Survey* (NFS). This survey is nationally representative and villages are updated over time. 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.

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. Having a large number of villages means that we can also control 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 are 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.<sup>34</sup> 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. Algan and Cahuc, 2010; Ichino and Maggi, 2000; Fernandez, Fogli, and Olivetti, 2004; Fernandez and Fogli, 2009) 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.<sup>35</sup>

## 4.2 Descriptive Statistics

Table 1 describes the temple data and its correlates. The first row shows that 33% of villages in our sample have temples at some time 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 adjusted R-squared from this estimate is 0.14. Thus, over 85% 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. Similarly, all temples are mainly 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 center around cultural or entertainment activities. In particular, social organizations do not include economic cooperatives, insurance or credit pools, and social events

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<sup>34</sup>The 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.

<sup>35</sup>Workers 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.

do not include religious ceremonies. Included events are festivals, traditional opera performances, etc. As shown in Table 1, there is on average one social organization 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 to 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 very long-term social capital.

Next, we document that the average village in our sample has 414 households, where approximately 6% of villagers are reported by the village government as religious and 2% regularly participate in religious ceremonies.<sup>36</sup> The biggest religion is Buddhism, comprising 4% of villagers. Column (5) shows that the presence of

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<sup>36</sup>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*.

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 (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.

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. That this measure is uncorrelated with the presence of the village temple is again 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.<sup>37</sup>

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: 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 and negatively correlated with fractionalization). In contrast, the presence of village temples is uncorrelated with the kinship make-up 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.

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<sup>37</sup>Villages schools in rural China are funded jointly by villagers and the upper levels of government. Typically, the latter provides the physical building while the village government raises funds from villagers to pay for variable costs such as teacher salaries.

## 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.<sup>38</sup> 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 election (year “0” on the x-axis). We focus on a window that starts 10 years prior to the introduction (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 much less pronounced.

This figure illustrates the variation in the data that drives our estimates: the difference 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 and 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 expenditures that are financed by village sources. These are

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

the sources of funds 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 provides strong support for our assumption that elections only affected village-level policies and that the presence of temples modified 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.<sup>39</sup>

**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.

In Table 3, we present our main results. Column (1), we examine the interaction term between the post-election dummy and the presence of a temple. It is positive and statistically significant at the 1% level. The average effect of elections in villages with temples is the sum the interaction coefficient and the uninteracted coefficient of the post-election dummy variable (not presented).<sup>40</sup> The sum, shown at the bottom of the table, is large and positive, which means that the effect of introducing elections on public goods is very heterogeneous: elections increase public goods expenditure in villages with temples (with high social capital), but have little effect in other villages.

Since the presence of temples is correlated with other village characteristics, it could be 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 mitigate 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 are presented 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.<sup>41</sup> Column

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<sup>39</sup>A 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.

<sup>40</sup>The value of the post-election coefficient is not meaningful by itself since the baseline specification includes the interaction of the introduction of elections and the village population. Therefore, the uninteracted dummy variable literally reflects the effect of the introduction of elections in villages with zero population.

<sup>41</sup>Some 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. We keep them for consistency and to be conservative.

(2) shows that the heterogeneous effect of elections in villages with high social capital 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 (3) 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. The results show in particular that the 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.

In column (4), 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 of the results, we use the coefficients of column (3) to compute that for a village with average population and a temple, the introduction of elections increases public goods expenditures by 280,700 RMB. This is reported at the bottom of the table.<sup>42</sup> Since villages with temples experienced an increase in average public goods expenditure of 1,140,730 RMB (from 64,296 RMB in 1986 to 1,205,035 in 2005), this means that elections explain 24.6% of the increase over the three decades of the sample period for villages with temples. In contrast, for the average village without a temple, elections have no statistical effect on public goods

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<sup>42</sup>This is the sum of the coefficient for the post-election dummy variable, the interaction of the post-election dummy variable and the presence of a temple, and the interaction of the post-election dummy variable and village population multiplied by average village population. The coefficient for the interaction of village population and the introduction of elections is 0.161. Village with temples have on average a population of 343 households.

expenditures.<sup>43</sup>

These results support the hypothesis that culture is an important determinant of the success of elections. Specifically, they suggest that social capital enhances the ability of elected governments to provide public goods.

Recall that conceptually narrowing our interpretation of temples as a proxy for culture to a proxy for social capital is helpful for understanding the mechanisms that drive the empirical results. However, for the main purpose of our paper, which is to understand whether culture is an important determinant for the effectiveness of elections, we do not need for temples to proxy for social capital exclusive of other cultural traits such as religion.

### 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 at 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 government 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,

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<sup>43</sup>Note that it is inappropriate to compare the interaction effect to the average public goods expenditure in the sample of 139,370 RMB because of the extreme rapid growth in this variable during the sample period.

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.

These results are consistent with the information presented in Figures 1b and 1c and the hypothesis that social capital is complementary to elections in enhancing public goods provision.

## 6.2 Personalized Trust

As we discussed in Section 2.2, we have two measures of social capital in Chinese villages. The first is the presence of temples, which captures village-wide social capital, or *generalized trust*. The second is the presence of kinship objects (ancestral halls and family trees), which captures social capital specific to members of the same kinship group, or *personalized trust*.<sup>44</sup> 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 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 influences 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.<sup>45</sup>

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<sup>44</sup>That 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.

<sup>45</sup>We 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 1a column (1) and a time-varying measure of the date of construction of the ancestral hall and the date of the latest revision of a family tree as dependent variables, 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. 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 a 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.

Table 4 column (1) re-states our baseline estimates for the sample for which we have data for all of the variables in column (3).<sup>46</sup> 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).<sup>47</sup>

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.

## 6.3 Robustness

### 6.3.1 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

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<sup>46</sup>The 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.

<sup>47</sup>Recall 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.

the public goods. Also, if the valuation of public goods differ 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 households 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, Algan, Cahuc, and Shleifer, 2010).<sup>48</sup> 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 value public goods more highly and thus exert more effort towards their provision.

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 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 groups; and the human capital of village leaders as the pre-election average years of education of the VC and PS. We define pre-election to be a common base year – i.e., the first year that data are available for each variable. In Table 5 columns (2)-(7), we introduce these additional factors one-by-one. In column (8), 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 influence the provision of public goods

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<sup>48</sup>For example, studies such as Aghion, Algan, Cahuc, and Shleifer (2010) argue that civic capital is a set of virtues one learns at school. Thus, if education can 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)

differentially in suburbs than in rural areas. In column (9), we control for all of them simultaneously.<sup>49</sup> 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 that is stated in column (1). 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.

### 6.3.2 Additional Controls

We conduct several additional robustness checks for our main results. 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 a 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 6.3.1. This allows the influence of this vector 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 additionally add the interactions of these variables with the post-election dummy (as we do in Table 5 column (9)). Again, the interaction effect is similar to the baseline.

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<sup>49</sup>The results are similar in column (4) if we control for the interaction of post-first election and the base year measure of surname polarization. These results are available upon request.

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.<sup>50</sup> The estimated interaction effect of the presence of a village temple and the introduction of elections is again robust.

### 6.3.3 Sample Selection and Alternative Clustering

Table 7 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. This alleviates the concern that our main result is driven by the observations with no investment recorded. 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 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 their omission. 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, Gelbach, and Miller (2008). The main estimate is still significant at the 5% level, and the standard error is very similar to the one clustered at the province  $\times$  temple level shown in column (1).

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<sup>50</sup>We collected data on the implementation of this reform for each village.

## 6.4 Placebo: Temples versus Schools

As we discussed earlier, the presence of a temple reflects past (long-run) social capital, and also facilitates continued investment in social capital since the management and financing of the temple requires cooperation amongst villagers and participation in the village wide activities (e.g., festivals) furthers villager interaction. The temple also provides a physical venue for public discussion.

Like temples, school buildings provide a physical venue for public discussion. Unlike temples, they are mostly funded by transfers from higher levels of government and their maintenance requires relatively little participation from villagers.<sup>51</sup> As such, they are unlikely to embody long-standing social capital or to 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 (5) and (9) of Table 5 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 for influencing the effects of elections on public goods. This is consistent with our interpretation that temples matter because they are an outcome of long-standing social capital and facilitate repeated villager cooperation over a long period of time.

## 7 Conclusion

In this paper, we provide novel and rigorous empirical evidence that culture is an important determinant of the success of formal institutions, such as elections in the context of local public goods provision in rural China. We show that the introduction

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<sup>51</sup>The 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.

of elections in rural China, where villages are largely fiscally autonomous, enhances the provision of public goods significantly better 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 novel statistical evidence for a long lineage of studies, starting with de Tocqueville (1840)'s *Democracy in America*, that have argued that social capital can enhance democracy. We also find, as in the modern classic Putnam, Leonardi, and Nanetti (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.

For policy makers, these results can 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.

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 of the European context or the cross-country context, but has

received little attention in the Chinese context.<sup>52</sup> Another avenue of research is to identify other components of culture that can influence the effectiveness of formal institutions.

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<sup>52</sup>We refer only to the economics literature. For the European context, see recent studies on the origins of trust and culture such as Guiso, Sapienza, and Zingales (2014). 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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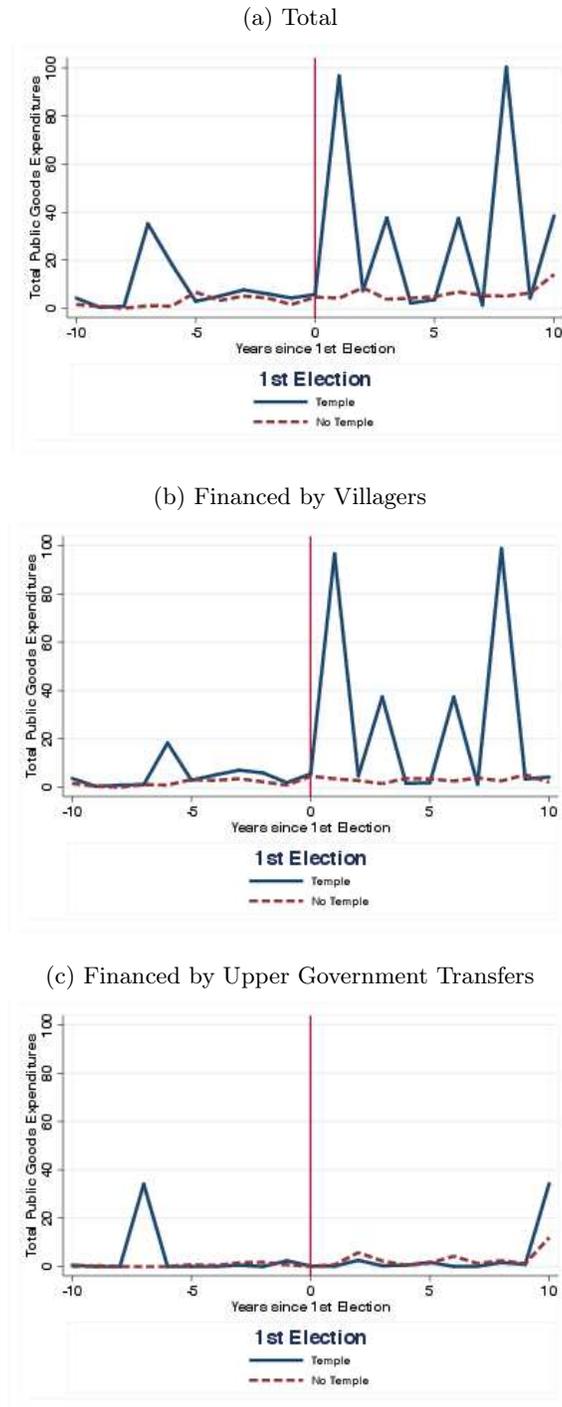
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Figure 1: Public Good Expenditures by Village Government for Each Year Since the First Election



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 (Time-Invariant)	VDS	4800	0.39	0.49			
Social Organizations (#)	VDS	3600	0.14	0.48	0.1548*	0.1404*	0.055
Social Events (#)	VDS	3600	0.20	0.50	0.1508*	0.1701*	0.1385*
Presence of Temple in 1820	Qing Gazetteer	4800	0.48	0.50	0.1481*	0.0947	0.0551
Village Population (# Households)	NFS	4800	417.05	277.71	0.2133*	0.2883*	0.2438*
Religious Population Share (All Religions)	NFS	4800	0.06	0.19	0.1453*	0.0991	0.0515
Christian	NFS	4800	0.01	0.05	0.09	0.1068	0.000
Muslim	NFS	4800	0.02	0.19	-0.0504	-0.0754	-0.1027
Buddhist	NFS	4800	0.04	0.11	0.2785*	0.2093*	0.1540*
Other	NFS	4800	0.01	0.01	0.0894	0.0979	-0.0029
Population Share that Participates in Religious Ceremonies	NFS	4800	0.02	0.05	0.1503*	0.0427	0.0228
Pre-Election Public Goods Expenditure (10,000 RMB)	VDS	4800	7.48	30.74	0.0487	0.1074	0.0248
Income of 10th Percentile HH (RMB)	NFS	3727	484.55	3577.99	0.0751	0.3096*	0.0271
Income of Median Household (RMB)	NFS	3727	10080.78	8286.55	0.0542	0.3001*	0.0907
Income of 90th Percentile Household (RMB)	NFS	3727	23553.24	35581.55	0.078	0.2286*	0.1180*
Gini Coefficient	NFS	3515	0.28	0.08	0.0255	0.093	0.1041
Kinship Group Fractionalization	VDS	3880	0.72	0.29	-0.095	-0.2803*	-0.1577*
Kinship Group Polarization	VDS	3880	0.53	0.21	0.0515	0.0485	0.0607
Village Chairman's Years of Education	VDS	3656	8.02	2.59	-0.0547	0.1271*	-0.1059
Party Secretary's Years of Education	VDS	3757	8.25	2.55	0.0257	0.1183*	0.0117
School (Dummy Var = 1 if present)	VDS	4800	0.89	0.31	0.2300*	0.05	0.0918
Ancestral Hall Dummy (Time-Invariant)	VDS	4800	0.15	0.35	0.2327*		
Family Tree Dummy (Time-Invariant)	VDS	4800	0.48	0.49	0.2229*	0.4236*	
Share of the two largest kinship groups	VDS	4800	0.51	0.28	0.0715	0.2785*	0.2425*

Notes: In column (1), VDS indicates that the variable is reported by the Village Democracy Surveys (2005,2011). 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	
	Dummy Variable for the Presence of a Temple (Time Varying)	Public Goods Expenditure (10,000 RMB)
	(1)	(2)
<b>Dependent Variable Mean</b>	<b>0.121</b>	<b>13.937</b>
Post 1st Election	-0.00588 (0.0192)	10.07 (5.769)
<b>Baseline Controls</b>		
Year and Village FE	Y	Y
Province - Year Trend	Y	Y
Village Population	Y	Y
<b>Observations</b>	<b>4300</b>	<b>4300</b>
<b>R-squared</b>	<b>0.808</b>	<b>0.034</b>
<b>Effect of Elections w/ Mean Village Population</b>		
Villages with Temple		57.70
SE		21.09

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				
	Public Goods Expenditure (10,000 RMB)				
	Total	Total	Total, Baseline	Financed by Villagers	Financed by Upper Gov
	(1)	(2)	(3)	(4)	(5)
<b>Dependent Variable Mean</b>	<b>13.937</b>	<b>13.937</b>	<b>13.937</b>	<b>9.54</b>	<b>4.317</b>
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)
<b>Baseline Controls</b>					
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
<b>Observations</b>	<b>4300</b>	<b>4300</b>	<b>4300</b>	<b>4300</b>	<b>4300</b>
<b>R-squared</b>	<b>0.117</b>	<b>0.130</b>	<b>0.140</b>	<b>0.132</b>	<b>0.084</b>
<b>Effect of Elections w/ Mean Village Population</b>					
Villages with Temple	32.46	32.46	28.07	35.33	-7.144
SE	20.63	13.51	20.61	13.23	5.379

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. The number of observations vary due to the availability of the explanatory variables.

Table 4: The Effect of *Village Temples* × *The Introduction of Elections* on Public Goods Expenditure – Robustness to the Presence of Kinship Group Objects

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

**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 5: 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)
	Baseline								
Post 1st Election									
x Temple	43.00 (18.41)	42.45 (18.55)	39.40 (18.95)	42.37 (18.25)	44.12 (18.50)	42.54 (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)		-0.000230 (0.00811)							0.00894 (0.0102)
x Pre-Election Income (90th Percentile)		-0.000748 (0.00111)							0.000798 (0.00152)
x Pre-Election Gini			-125.4 (104.1)						-252.1 (187.9)
x Pre-Election Surname Fractionalization				18.52 (15.87)					-98.28 (88.18)
x Pre-Election Presence of a School					-9.833 (19.25)				-11.77 (21.20)
x Population Share of the Largest Two Clans						-26.89 (24.95)			-120.5 (95.58)
x Pre-Election VC Education							1.748 (3.429)		1.724 (3.225)
x Pre-Election PS Education							-0.585 (2.081)		-0.0157 (2.080)
x Near City								1.924 (10.98)	-0.924 (10.87)
Observations	3750	3750	3750	3750	3750	3750	3750	3750	3750
R-squared	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 × 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 × 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 Additional Controls

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

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 7: The Effect of *Village Temples*  $\times$  *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)	(3)	(4)	(5)	
	Baseline	Omit if Expenditure = 0	Omit Inner Mongolia, Qinghai	Omit Inner Mongolia, Qinghai, Ningxia, Yunnan and Hainan	Province Level (Wild Bootstrapped Standard Errors)
Post 1st Election $\times$ 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  $\times$  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  $\times$  temple level. Sample restrictions are stated in the column headings.