

Making Democracy Work:
The Effects of Social Capital and Elections
on Public Goods in China*
(Preliminary)

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Abstract

This study investigates the extent to which pre-existing social (civic) capital interacts with village elections in determining government provision of local public goods. We collect a unique survey to document the presence of voluntary and social organizations and the history of electoral reforms in China. We exploit the staggered timing in the introduction of elections to estimate the interaction effect of the introduction of village elections and social capital on government-provided public goods. The results show that social capital significantly enhances the effect of elections. We rule out alternative explanations and provide suggestive evidence for the mechanisms driving our results.

Key Words: Civic Capital, Culture, Trust, Informal and Formal Institutions

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1 Introduction

A large body of empirical evidence show that formal and informal institutions play important roles in determining economic outcomes (e.g., Acemoglu et al., 2001, 2005; Guiso et al.; Porta et al.; Tabellini).¹ There is much less evidence on how these two types of institutions interact. The deficit of rigorous empirical evidence on this question is particularly noticeable given the widely held belief that they should interact. For example, Putnam et al. (1994) famously argues that informal institutions, such as *civic traditions*, are important in determining the performance of formal institutions in Italy. Similarly, both the *modernization* (e.g., Lipset, 1959) and the *critical junctures* hypotheses (Acemoglu et al., 2008) suggest that long-term pre-existing conditions such as informal institutions are necessary for formal democracy to be successful.

This paper addresses this gap in the literature by examining the extent to which *social capital*, an informal institution, influences the effect of the introduction of village-level elections, a formal democratic institution, on local government-provided public goods. In studying social capital, we inevitably face the difficulty that this term can be used to describe numerous related, but distinctive, concepts. Although social scientists have not yet converged on one definition, our study follows Guiso et al. (2011) and Nannicini et al. (2010) 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”.² As such, social capital in our context is deeply rooted and persistent over time.³

Social capital and elections can interact in several ways to affect public goods. For example, if the appointed (pre-reform) government under-provides public goods, then the introduction of elections, which shifts the accountability of village leaders towards villagers, can have a larger impact in villages with high levels of social capital. This is because citizens in villages with higher stocks of social capital can provide elected leaders with clearer signals of their preferences, because civic virtues cause villagers to have higher value for public goods, or because social capital enhances

¹For example, Acemoglu et al. (2001, 2005) and Porta et al. (1998) show that formal institutions such as colonization and legal origins are important determinants of income and growth. Alternatively, Guiso et al. (2004) and Tabellini (2008) find that informal institutions such as culture contribute to economic outcomes.

²Guiso et al. (2011) proposes this definition and provides a detailed justification for it. See section 2 for a more detailed discussion.

³Our definition differs from the one used in recent field experiments such as Field et al. (2011), which conceptualize social capital as cooperation learned over a short period of time.

the villagers' ability to monitor the elected politician.⁴

The two main difficulties for the empirical analysis are data and identification. First, we need to measure social capital. Building on the anthropology and political science literature on local governance in China, we use the presence of village temples, which are village-wide voluntary organizations to proxy for villages having high stocks of social capital.⁵ This captures the fact that a certain degree of social capital is necessary to construct village temples and that once present, village temples further enhance social capital by providing a public meeting place for citizen discussion.⁶ To capture the notion that social capital is an outcome of historical factors and change slowly over time (e.g., Durante, 2010, Guiso et al., 2008; Nunn and Wantchekon, 2009; Tabellini, 2008), our study uses a time-invariant measure of social capital.⁷ For data, we collect a large unique survey for a nearly nationally representative sample of rural Chinese villages across China for the years 1986-2005, the *Village Democracy Survey* (VDS). Consistent with our use of village temples as a proxy for social capital, we document that the presence of village temples is positively correlated with the presence of other village-wide voluntary organizations and cultural events.

Second, we need to identify the causal effects of social capital on democratization. Our study takes advantage of the introduction of elections in rural China during the late 1980s and early 1990s. The timing of the introduction of elections varied across villages, but these reforms were implemented in a top-down fashion with little input from villages. They were typically initiated at the behest of the province level and introduced in villages of each province in a quasi-random fashion.⁸ To estimate the effect of the differential impact of social capital on the introduction of elections, we estimate the interaction effect of the introduction of elections, which varies over time, and a time-invariant dummy variable for the presence of a village temple on public goods. If social capital enhances elections, then the interaction effect should be positive. We control for village fixed effects, which absorbs all time-invariant differences across villages (including the main effect of

⁴See Section 3 for a detailed discussion.

⁵See the section on background for a detailed discussion and references.

⁶Unlike places of worship in Judeo-Christian religions, village temples are non-exclusionary such that 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.

⁷This is consistent with the more general notion that cultural norms are transmitted within families (e.g., Bisin and Verdier, 2001; Cipriani et al., 2007) and across generations (e.g., Algan and Cahuc, 2010; Guiso et al., 2007; Fernandez et al., 2004; Fernandez and Fogli, 2009).

⁸There are few exceptions. Please see section 2 for a detailed discussion and section 5 for robustness checks.

social capital), and year fixed effects, which control for all changes over time that affects all villages similarly such as macro economic changes taking place in China during this period. We also control for province-time trends to control for the growing economic divergence across regions during the reform era.

Our empirical strategy is similar to a triple differences estimate (DDD). Conceptually, we first estimate a *differences-in-differences* estimate (DD) to compare public goods before and after the introduction of elections, between villages that have already introduced elections to those that have not yet introduced them. Then, we estimate the DDD, which compares the DD estimate in villages with high social capital (e.g. with village temples) to the DD estimate in villages with low social capital (e.g., with no village temples). Identification assumes that conditional on our baseline controls, the interaction of the introduction of elections and social capital is not jointly determined with investment in public goods – i.e. the presence of social capital is not correlated with other factors (in addition to the baseline controls) that can influence the effect of elections on public goods. We do not take this as given and use our data to document the correlates of village temples. Our baseline estimates directly control for these correlates to ensure that our results are not confounded. We also provide a large number of robustness checks after presenting the main results.

The results show 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. 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 versus public goods expenditure financed by other levels of government. Our main results are entirely driven by financing from villagers, and we find suggestive evidence that the increase in expenditure is paralleled by an increase in local taxes. We also show that elections increased the provision of public goods and that the increase corresponded to villagers’ demand. The findings show that social capital enhances the introduction of elections in terms of government-provided public goods. More generally, they show that pre-existing informal institutions can play an important role in determining the success of formal political institutions.

The main caveat for interpreting our results is the concern that the presence of village temples is correlated with other factors that can influence the effect of elections. This is unlikely *a priori*

since the baseline estimates directly control for correlates of our social capital proxy. However, to be cautious, we provide a large body of evidence to rule out the potentially confounding influences from other factors such as religiosity, human capital, income, inequality, and the demographic composition of villages.

In addition to the main results, our analysis can shed light on the mechanisms underlying them. We show that the presence of village temples is positively correlated with the presence of temples in the same county in 1820 and that the presence of such historical temples have similar (albeit smaller and less precisely estimated) influences as village temples on elections and public goods. This is consistent with our interpretation of village temples as being correlated with long term social norms. We are also able to investigate the effects of a key component of social capital, *generalized trust* (e.g. trust for those unknown to an individual) by contrasting the effect of village temples with the effect of ancestral temples and family trees, which correlate with voluntary organizations that include only the members of a kinship group (rather than the entire village) and arguably correspond more to *personalized trust* (e.g. trust for those an individual already knows).⁹ We find that the interaction effect of the presence of kinship group organizations and elections have little influence on elections, while our estimate of the interaction with social capital is very robust to controlling for these additional factors. These results are consistent with the theory that generalized and personalized trust have very different influences on social capital.¹⁰

Setting this study in the context of rural China provides several advantages. First, it provides a rare opportunity where we can observe the outcomes of social capital, and therefore construct plausible proxies for this otherwise unobservable phenomenon. Second, relative to cross-country comparisons, villages within China are much more similar to each other in every aspect and therefore make better comparison groups. At the same time, Chinese villages are largely fiscally autonomous in terms of determining and financing village public goods such as irrigation and schools, a feature that distinguishes China from many other countries and one that allows us to examine many of the outcomes studied in the cross-country literature at the village level. Finally, the introduction of village elections offers a rare policy experiment for examining the influence of social capital on

⁹Consistent our assumptions, we document that they are solely financed and maintained by kinship group members, that their presence is positively correlated with the size of kinship groups, and uncorrelated with the presence of other voluntary organizations.

¹⁰For example, past studies have argued that generalized trust facilitates social capital while personalized trust may be detrimental to it (e.g., Putnam et al., 1994).

elections.

This study makes several contributions to the literature. To the best of our knowledge, we are the first to provide rigorous empirical evidence on the influences of social capital on elections. In examining the interaction of formal institutions and social capital, we are most closely related to Guiso and Pinotti (2012), which finds that the the historical expansion of the franchise in Italy had differential effects on regional voting participation rates depending on the level of civic capital. Another closely related study is Nannicini et al. (2010), which theorizes that individuals living in regions with social capital have higher value for public goods and provide supporting empirical evidence from Italy 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 complements these works by directly examining the introduction of elections and policy outcomes and by showing consistent evidence from a very different context.¹¹

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; Knack and Keefer, 1997 and La Porta et al., 1997) and within countries (e.g. Baland and Platteau, 2000; Ichino and Maggi, 2000); and that its effects can be long-lasting (e.g., Tabellini, 2005; and Aghion et al., 2010).¹² In the attempt to establish causality, our study is most closely related to the recent work of Guiso et al. (2004) and Algan and Cahuc (2010).¹³ In attempting to distinguish the effects of generalized and personalized trust, our study builds on the recent work of Guiso et al. (2004, 2008).¹⁴ Our study is also related to the broader literature on the influences of culture on economic outcomes, which is reviewed by Guiso et al. (2006) and Fernandez (2010).¹⁵

Our study adds to the recent literature on elections and local public goods provision in China. In

¹¹Note 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).

¹²For works on social capital by sociologists, see for example Coleman (1998) and Gambetta (1988).

¹³Guiso et al. (2004) exploits variation in the level of social capital in the region of birth to find that higher social capital leads to more financial sophistication in Italy. Algan and Cahuc (2010) finds that changes in levels of trust of U.S. immigrants over time can explain a significant degree of growth differences across the immigrants' countries of origin.

¹⁴Guiso et al. (2004, 2008) use anonymous blood donations to construct regional measures of average generalized trust in Italy.

¹⁵For example, Barro and McCleary (2003) finds that religiosity is important for explaining cross-country growth, Botticini and Eckstein (2005) finds that cultural influences work occupation; Fernandez et al. (2004) and Fernandez and Fogli (2009) find that culture affects female labor supply and fertility decisions, and Tabellini (2005) provides evidence that culture is a key determinant to economic development across European countries.

a companion study, Martinez-Bravo et al. (2011) provides evidence that the introduction of elections successfully shifted leader accountability towards the preferences of the villagers.¹⁶ Several other studies (e.g., Zhang et al., 2004; Mu and Zhang, 2011) and another companion study, Martinez-Bravo et al. (2012), find that the introduction of elections increased total public goods expenditure and provision.¹⁷ This paper differs from all of the earlier studies in exploring the heterogeneous effects of elections. A potential exception is a recent study by Mu and Zhang (n.d.), which provides evidence that elected leaders are likely to target public expenditure to favor their own neighborhood. More generally, the detailed institutional and economic data we have constructed and the use of traditional objects to proxy for informal institutions may be generally useful and facilitate future research on informal and formal institutions in China, as the *World Value Surveys* have facilitated cross-country studies.¹⁸

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 results. Section 6 offers concluding remarks.

2 Background

2.1 Defining Social Capital

In a recent overview of the literature on social capital and economics, Guiso et al. (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 most commonly used in past studies across social science disciplines.¹⁹ However, motivated by Solow’s (1995) criticism of the literature, this definition is refined to have the following features. First, it identifies the cultural norms and beliefs that matter only for solving collective action problems for the community.²⁰ Second, it is very persistent over

¹⁶We showed that the introduction of elections caused leaders to reduce the enforcement of policies that the are preferred by the central government, but disliked by villagers (e.g. family planning and land expropriation).

¹⁷Also, see the two closely connected studies by Luo et al. (2007) and Luo et al. (2010).

¹⁸Our study is the first to use the presence of village temples to proxy for social capital and generalized trust, and the presence of ancestral halls and family trees to proxy for personalized trust. We provide a detailed description of these data to clearly illustrate the advantages and disadvantages of these measures, and show that the latter can be overcome by properly controlling for the correlates of these objects.

¹⁹For examples of well-known studies in disciplines other than economics, see Bourdieu (1986) and Coleman (1998) for works in sociology, Fukuyama (1995) and Putnam et al. (1994) in political science. Our 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 et al. (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.

²⁰According to this construction, social capital always has a positive economic payoff.

time and takes time to accumulate (e.g., transmission by parents, education and socialization).²¹ Third, social capital is not only about networks or values, but about values and norms that persist over time.

Guiso et al. (2011) also distinguishes their definition with two additional features: the process of investment is *social* such that it is a community (or teacher, parents) that instills beliefs and values in the individual; and values and beliefs do not represent social capital if community members do not share them. For example, if an American moved to China, the beliefs and norms instilled in him, which can be part of the investment in social capital in the United States, do not add to the social capital of his new home in China if the Chinese do not share them.²²

2.2 Measuring Social Capital

Our study uses the presence of village temples to proxy for social capital and assume that villages with village temples have a higher stock of social capital than other villages. Traditional Chinese religious practices (for most of the Han ethnic majority) involve a blend of the indigenous beliefs of 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). Thus, 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. During festivals and holidays, village temples gather money from villagers to organize parades, opera performances, movie showings and other ritual festivals (Cooper and Cooper, 2012; Huang, 1998).²³ Such festivals are typically also village-wide holidays and allow villagers to reinforce trust and social bonds via participation (e.g. Eberhard, 1952). Temple grounds are often used as a forum for discussion amongst villagers (Huang, 1998; Perry and Selden, 2003).

As a voluntary organization, it is non-controversial to use village temples to proxy for social

²¹See the studies referenced in the introduction for recent evidence supporting this view. Other explanations for the origins of social capital include one that theorizes that the presence of one powerful individual who can overcome coordination problems by forcing all citizens to participate, and thus foster social capital (Keohane, 2002). Alternatively, experimental evidence suggests that social capital can emerge spontaneously between otherwise uncooperative actors if they expect to interact again for an indefinite amount of times and value future payoffs (Axelrod, 2006).

²²Guiso et al. (2011) also distinguishes their definition with two additional features: the process of investment is *social* such that it is a community (or teacher, parents) that instills beliefs and values in the individual; and values and beliefs do not represent social capital if community members do not share them. For example, if an American moved to China, the beliefs and norms instilled in him, which can be part of the investment in social capital in the United States, do not add to the social capital of his new home in China if the Chinese do not share them. See their Guiso et al. (2011, p. 420) for a more detailed discussion of the different definitions of social capital.

²³For example, Huang (1998) documents that the temple council of a large village raised 3,000 RMB for a three-day festival by collecting 2 RMB per head from all villagers, 10 RMB per tractor and 30 RMB per truck from their proprietors Huang, 1998, p. 3338.

capital and to see that the presence of a temple is both an outcome of pre-existing social capital and further enhances social capital. On the one hand, the construction of a temple requires that villagers have the ability to create and sustain voluntary organizations, which depends on pre-existing norms of reciprocity (Boix and Posner, 1998). On the other hand, the 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).

A large body of qualitative evidence from studies of Chinese village temples show that village temples facilitate resolving collective action problems. For example, researchers have found that temples can play pivotal roles in coordinating villagers and 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 study, the temple councils, a group of villagers that volunteer to manage the temple, 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...”.²⁴

For our analysis, there are several additional facts to keep in mind. First, while village temples may be similar to religious organizations in many Western contexts in their function as a community

²⁴Note that our definition of social capital is conceptually related, but distinct from *solidarity groups*, a term that anthropologists and sinologists have used to include village temples as well as lineage groups (patrilineal kinship groups) (e.g., Sangren, 1984). However, since we are interested in the interaction effects of the introduction of village-wide elections and the solving of village-wide collective action problems, our measure of social capital is restricted to village temples, which include all villagers, rather than lineage groups, which only involve group members. Note that to the extent that trust is a major component of social capital, we assume that the presence of a village temple is positively correlated with *generalized* trust – i.e. trust that a given person has towards a generic member of a broader community, such as other villagers (Guiso et al., 2011). Later in the paper, after we present the main results, we will also examine the role of *personalized* trust, which is the trust that one has towards a well-identified individual—e.g., a cousin.

meeting place or in assisting in public goods provision, there are several important differences. Due to the blending of traditional religious practices, village temples do not exclude villagers based on beliefs.²⁵ Village temples also differ in that they are financed by villagers (or by the village government through villager contributions), and are not funded by individuals or specific groups.²⁶

Second, 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 (e.g., Huang, 1998, Tsai, 2007). In contrast, Christian churches are viewed as a potentially subversive force that can be used to mobilize people against the state (Spence, 1997).

Third, because of government opposition during the Maoist era, most of the temples in our villages are built (re-built) during the 1980s and 90s (Thornton, 2003). Although we collect data on the date of construction/re-construction, we do not know about historical temples that may have been destroyed, and 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. This captures the notion that the social capital correlated with the presence of village temples is deeply rooted and persistent over time. Later, we will supplement our data with another data set to show that the presence of temples today is positively correlated to the presence of historical temples (prior to the Communist Regime, 1949 –). Since our notion of social capital is long-run, the date of temple construction is not important for our study, as long as the construction of a temple is not an outcome of elections. We will show that this is true when we present the results.

Finally, as with most measures of social capital, village temples are correlated with other variables. In particular, their presence may be positively correlated with population, wealth and the religiosity of the villagers. These factors could confound our estimates if they influence the effect of elections on public goods beyond the social capital channel. To address this, we will examine the correlates of temples with the data and control for them directly in our analysis.

²⁵For example, traditional temples often display Bodhisattavas, Daoist immortals and in some places, even portraits or statues of Mao Zedong (Perry and Selden, p. 257).

²⁶See discussions by Huang (1998) and Thornton (2003) on the funding of village temples. In contrast, an individual wishing to aggrandize himself or his family would construct a hall for ancestral workshop. We discuss these kinship group objects in more detail later in the paper.

2.3 Village Government and Public Goods

Villages are the lowest level of administration in rural China. Village governments were first organized by the communist government during the early 1950s, with two groups of leaders in each village. The village committee, which typically comprises three to five members, is lead by the village chairman, henceforth VC. This position is also sometimes called the village chief or village head. The Chinese Communist Party (CCP) branch in the village is lead 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.²⁷ Since all levels of government above the village are dominated by the CCP, we will sometimes use the term *party* to refer to the village party branch and all the upper-levels of government as one body for simplicity.

The village government is extremely important for the well-being of its citizens and one of its main roles is to determine and finance village public goods (e.g., ?, 1994; Oi and Rozelle, 2000; Rozelle, 1994, Brandt and Turner, 2007; Whiting, 1996). The village government is responsible for determining the object of public goods investment as well as raising most of the funds required for the investment. 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 et al., 2004; Luo et al., 2007, 2010; Mu and Zhang, 2011).

Note that village governments do not have the legal authority to tax. Thus, they finance public goods by imposing *ad hoc* fees and levies. In our paper, we refer to these tariffs as *taxes* for simplicity.²⁸

2.4 Village Elections

Motivation The main motivation for the introduction of elections was to resolve information problems faced by the central government. China is a large, heterogeneous and quickly changing nation. There are almost 700,000 villages in China. Proponents argued that making local leaders accountable to villagers would impose checks on the VC's behavior and would also allow villagers to

²⁷The 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.

²⁸Such taxes can be controversial in cases when villagers believe them to be extortioner and misallocated by corrupt village governments. This led the central government to ban village taxes 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.

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. It was hoped that local leaders with a democratic mandate would better determine which public good investments were necessary and would better facilitate the local coordination necessary for providing them.

Opponents, however, retorted that making rural leaders accountable to villagers would disrupt the implementation of unpopular policies, such as the One Child Policy, and generally weaken hierarchical control in an increasingly heterogeneous country. In particular, regional governments voiced concerns about the effect of elections in two types of “problematic” villages: those that were already resisting unpopular policies and those that were dominated by a large kinship clan.²⁹

Thus, taking these potential costs into account, 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. 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. Moreover, the upper government maintained control of the democratization process and only gradually increased openness. Initially, the regional CCP nominated the candidates but was required by law to nominate more candidates than open positions. Only in a second wave of reforms were nominations opened to all villagers. This is commonly referred to as *haixuan*. Both reforms were irreversible – once elections or open nominations were introduced, they remained in place thereafter.

Timing 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. “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

²⁹In the latter case, the concern was that the elected position would be captured by the dominant clan, which would then implement policies for the benefit of its clan members at the cost of other villagers (O'Brien and Li, 2006: Ch. 3).

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).³⁰

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. Finally, a revision of the OLVC in 1998 made elections of VCs mandatory and required candidate nominations to be open to all villagers.

The top-down process of introducing elections means that differences in timing across villages are largely driven by the upper governments’ preferences of where to first introduce elections. Typically, elections would be first implemented in model villages, to test procedures and logistics. After that they would be rolled out to all villages. Anecdotal evidence from interviews that the authors conducted with county and province-level officials and the speed in which elections were rolled out within provinces suggest that the roll out was orthogonal to village characteristics for most villages. The only exceptions that we have encountered are the model villages mentioned earlier and elections that were sometimes delayed for “problematic” villages that had a history of non-compliance to unpopular central government policies (e.g., Oi and Rozelle, 2000; Han and O’Brien, 2009).

In a companion paper that uses the same sample of villages, we show that most village 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 (Martinez-Bravo et al., 2012).³¹ This timing and the fast roll-out of the elections is consistent with our belief that the introduction of elections was typically unrelated to village characteristics. In our companion paper, we perform a large number of exercises to establish that the timing of elections were quasi-random conditional on the baseline controls (note the baseline estimates in this paper controls for similar variables as in our companion paper).

³⁰Unger (2002) 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.

³¹Note that all of the villages in our study had introduced elections by the end of the sample in 2005, but only half had introduced open nominations.

3 Conceptual Framework

3.1 The Effect of Social Capital on Elections

To begin with, we consider how elections can affect public goods. Like social capital, the elections facilitate the aggregation of citizens preferences, which can improve the provision of public goods that are demanded by villagers. Moreover, the introduction of elections shift the accountability of the village government from being entirely to the party to being both to the party and to villagers. Since determining the object of public goods investment and raising the revenues for financing it requires significant effort from village leaders, the shift in accountability can increase leader effort and improve public goods provision.³²

Next, we consider how social capital can influence government-provided public goods. Like elections, social capital facilitates the aggregation of citizen preferences because active participation in community associations provide opportunities for citizens to discuss civic affairs, which increases their awareness of their preferences over policies, and provides a forum for articulating their demands (e.g., Olson, 1982, Ch.1-3). In this sense, social capital can be viewed as a substitute for elections. For example, if the introduction of elections only served to improve information aggregation, then we may expect that elections cause smaller improvements in public goods provision in villages with higher social capital (i.e., the interaction effect of social capital and the introduction of elections on public goods is negative). Similarly, Tsai (2002) argues that informal institutions are more likely to arise in villages where the formal institutions provide relatively low levels of public goods. In this case, one may also expect that an improvement of formal institutions may have a smaller impact in villages with better informal institutions.

However, social capital can affect governance and public goods in several additional ways. First, social capital can reduce the amount of time that a government spends on financing public goods and allow it to spend more time on other policies (e.g. determining the correct object of public investment). To minimize shirking and free-riding, governments must enforce the collection of taxes to finance public goods. Social capital reduces the needs for such enforcement by shaping the expectation citizens have about the behavior of others. If people expect their neighbors to pay

³²See Martinez-Bravo et al. (2011) for a formal description of how the introduction of elections in China increased leader accountability.

for public goods, then they will themselves be more willing to pay.³³ Second, as Tocqueville and proponents of “civic republicanism” argues, social capital can affect citizens’ preferences and shifts community tastes from individual interest to more community-oriented interests (Bellah, 1986; Drescher, 1968; Nannicini et al., 2010). Third, Olson (1982) argues that active participation in community associations provide opportunities for citizens to discuss government performance and knowing that the constituents are monitoring their behavior in such a way, elected leaders will exert more effort to govern effectively to avoid being voted out of office. For example, in the rural Chinese context, Jing (2003) document that attendance in village temples dramatically increase prior to villager petitions for better environmental regulation by the village government.

These three mechanisms provide examples of how social capital can enhance elections because as they only operate when the villager government is accountable to his constituents and incentivized to provide villagers’ preferred public goods (i.e., the interaction effect of social capital and the introduction of elections on public goods is positive). Note that taken literally, finding that the interaction effect is zero or negative can mean either that elections did not shift accountability or that social capital does not enhance elections. However, the first interpretation seems unlikely given the existing evidence that the introduction of elections successfully shifted accountability of leaders towards villagers’ preference (e.g., Brandt and Turner, 2007; Martinez-Bravo et al., 2011) and public goods on average (e.g., Luo et al., 2007, 2010; Martinez-Bravo et al., 2012; Mu and Zhang, 2011; Zhang et al., 2004). Therefore, we test the hypothesis that social capital enhances elections for public goods provision by examining whether the interaction effect is positive.

3.2 Identification

To estimate the effect that social capital has on the introduction of elections, we estimate the following equation:

$$y_{ijt} = \alpha_1 E_{ijt} + \alpha_2 (E_{ijt} \times S_{ij}) + \beta_1 O_{ijt} + \beta_2 (O_{ijt} \times S_{ij}) + \gamma X_{ijt} + \tau \theta_j + \delta_i + \rho_t + \varepsilon_{it}, \quad (1)$$

where the outcome of interest for village i in province j during year t is a function of: the interaction effect of a dummy for high social capital, S_{ij} , and the introduction of elections, E_{ijt} ; the interaction term of our social capital measure and the introduction of open nominations in each village, O_{ijt} ; the main effects of the introduction of elections and open nominations; a vector of village-year specific controls, X_{ijt} ; province-year trends, $\tau \theta_j$; village fixed effects, δ_i ; and year fixed effects, ρ_t .

³³Boix and Posner (1998) calls this the “Rule Compliance” model.

The standard errors are clustered at the village level.³⁴

In this equation, village fixed effects control for all differences across villages that are time-invariant (e.g., geography), and year fixed effects control for all changes over time that affect villages similarly (e.g., macro economic growth, economic liberalization). Moreover, the 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 become more Westernized).

The vector of controls, X_{ijt} , includes the correlates of the temple dummy, which are a time-varying measure of village population and three measures of religion: the average share of religious population, the average share of population that is Buddhist and the average share of the population that regularly participates in religious ceremonies, each interacted with the full set of year fixed effects. We control for the average of the population shares rather than a time-varying variable because the latter can be an outcome of the interaction of the presence of temples and elections, and also because our time-varying measure is only available for a few years of the sample (thus, computing a village average provides us with many more observations). We interact the average with year fixed effects to allow the variable to vary over time fully flexibly. We will motivate these controls when we present the descriptive statistics. In addition, we control for the interaction of the presence of a temple and year fixed effects. This controls for all differences between villages with temples and those without and allows the differences to evolve flexibly over time.

α_1 is the total effect of the introduction of elections for villages with low social capital, $S_i = 0$. $\alpha_1 + \alpha_2$ is the total effect of the introduction of elections for villages with high social capital, $S_i = 1$. α_2 is the differential effect of the introduction of elections for villages with high levels of social capital relative to villages with low levels of social capital. The hypothesis that social capital enhances elections is consistent with finding that $\hat{\alpha}_2 > 0$.

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 election to those that have not, and *iii*) between villages that

³⁴Given that the introduction of elections was initiated by the province-level government, we also clustered standard errors at the province level. However, these standard errors are smaller. Since we only have 29 provinces in our sample and the estimated standard errors may be biased by the small number of provinces, we present the more conservative standard errors that are clustered at the village level in the paper. The main estimate with the standard errors clustered at the province level is shown in Table A.4. The other estimates are available upon request.

have high social capital to villages with low social capital. Our identification strategy assumes that conditional 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. This assumption seems plausible given that our baseline equation directly controls for the correlates of social capital. Nevertheless, we will return to discuss this further and provide evidence against this concern after presenting our main results.

Another concern with our measure of social capital is that the presence of temples is an outcome of elections. Recall that the exact timing of construction does not affect our analysis because we assume that social capital, which is correlated with the construction and maintenance of a temple changes very slowly over time. However, it is important for us to establish that they are not outcomes of elections. In that case, the estimated interaction term will be very hard to interpret.

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) (Padro-Miquel et al., 2006; Padro-Miquel et al., 2011), which is a unique 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 the social organizations, activities and information about village leaders. Due to an administrative error, the 2011 survey randomly missed some villages from the first wave and only includes 195 villages. To avoid recall bias, our main variables are obtained from village records. Thus, they are not subject to reporting error. 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. The only main variables in our study that rely on these responses are those with regard to family trees. In the text, we will point out when a variable is based on survey response.

We supplement the VDS with annual data collected each year by the Ministry of Agriculture in the *National Fixed Point Survey* (NFS). This survey is nationally representative such that the villages are updated over time. It began in 1986 and is collected each year with the exception in 1992

and 94 for administrative reasons. The VDS is conducted in the same villages as the NFS so that the data from the two surveys can be merged. 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 household income, inequality, the share of population that is religious and many other variables.

The merged sample we use for estimating the main results comprises of a balanced panel of 217 villages for the years 1986-2005.

Our data have several advantages. First, these are the most comprehensive data on village-level reforms and village-level outcomes ever constructed. Our data cover a larger and more nationally representative sample and span a longer time horizon than any other existing data of rural China used for research. 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 for addressing the growing economic divergence across regions in China. The second advantage is the accuracy of the historical public expenditures data. These are based on administrative records and are therefore very accurate. Moreover, the Ministry of Agriculture required that each village record public goods expenditure by type and by the source of financing. This allows our analysis to be very detailed and the fact that all villages use the same book keeping rules means that our measures are directly comparable across villages.

Our 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.³⁵ Second, the variables that the NFS are interested in changed over time. Thus, not all variables are available for all years. In the text, we will note this when relevant for our analysis.

Note that government policy strictly limits permanent migration from rural areas.³⁶ Given the

³⁵The 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.

³⁶Workers 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 migration permanently away because that results in the loss of the right to farmland.

existing evidence that migrants import their cultural norms (e.g. Algan and Cahuc, 2010; Ichino and Maggi, 2000; Fernandez et al., 2004; Fernandez and Fogli, 2009) and the finding that high immigration rates can undermine civic virtue (Alesina and La Ferrara, 2002), this mitigates the concern that our social capital measures do not capture the beliefs of villagers due to high rates of migration.

4.2 Descriptive Statistics

In this section, we describe the variables that are relevant for this study.³⁷ Table 1 describes the means for the temple dummy variable and its potential correlates, as well as the source of the data.

Our main measure of social capital is a time-variant variable that equals one if a village has a temple during any year covered by the 2005 wave of the VDS survey (1982-2005). The survey records the presence of any traditional village temple. In our sample, 88 of the temples report as being mainly Buddhist while 21 percent report as being mainly Daoist.³⁸ Several facts emerge from the data in addition to the descriptive statistics shown in the table. First, the VDS show that forty percent of village temples in the sample are financed and constructed by villagers with no involvement of the village government. The construction of the remaining temples involve both villagers and the village government.³⁹ Second, we examine the extent to which the variation in the presence of temples is within provinces by aggregating the data to the village level and 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. Finally, we examine whether the temples in our sample are correlated with historical temples. To the best of our knowledge, there are no historical data on village temples. However, data exists for historical Buddhist temples at the county level from the *National Gazetteer* of the Qing Dynasty for 1820. Using these data, we find that a village is 21 percent more likely to have a temple that is mainly Buddhist in 2005 if there was a Buddhist temple in the same county in 1820.⁴⁰ This is consistent

³⁷For a more comprehensive discussion of the VDS data, see a companion study on the effect of the introduction of elections on economic policy by Martinez-Bravo et al. (2012).

³⁸Note that this definition is not strict since village temples are typically not exclusive to any particular practice. Column (1) shows that 33 percent of the observations have a temple.

³⁹We interpret all village temples as similar proxies for social capital because once present, temples contribute to building social capital regardless of how they were constructed. Moreover, since the main source of revenue used by the village government for financing temples are local taxes imposed on villagers, village government financing is similar to villager financing.

⁴⁰We obtain this from a bivariate regression. It is statistically significant at the 1% level. For a description of the his-

with our interpretation of village temples as a long run outcome.

The VDS also records whether a village has any village-wide social organizations or events in a given year from village administrative records.⁴¹ Social organizations and events are typically focused on cultural or entertainment activities. The organizations do not include economic cooperatives, or insurance or credit pools. Events include festivals, traditional opera performances, etc. Social events do not include religious ceremonies. The data show that there is on average one social organization per every seven village-year observations and one social event per every five village-year observations.

The average village has approximately 414 households.⁴² 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 we assume to be the average household size based on average households size of rural households in the *1990 Population Census*. This crude calculation shows that approximately six percent of villagers are religious, most of whom are Buddhist. Only two percent of the population report regularly attending religious ceremonies.

Next, we examine income for households on different parts of the within-village income distribution, and the village Gini coefficient. These are not deflated. In the regression, price changes are controlled for by year fixed effects and province-year trends. The data show that there is substantial income inequality within villages.

torical data, see http://www.fas.harvard.edu/~chgis/data/chgis/downloads/v4/docs/religious_sites_gazetteer.pdf.

⁴¹This was requested by the Ministry of Agriculture for the years 1986-2005. However, the NFS only reports these data for a few years. The VDS records the raw data from which the NFS data is constructed and covers all years. In our data, approximately one-third of organizations and events are solely organized and funded by villagers, and the rest are jointly organized and funded by villagers and the village government. Since both types of funding reflect civic capital and the voluntary participation of villagers, we do not distinguish between the two types of events for the sake of brevity.

⁴²This variable 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).

The VDS records the number of surnames and the number of households of each surname in 2006. We use this to calculate the fractionalization and polarization indices of kinship groups for each village, which we assume to be constant over time. The average village in our sample have relatively high fractionalization.

To measure human capital, we calculate the population share of high school graduates. The NFS reports this variable only for the years 1993, 1995-2005. On average, five percent of villagers have graduated from high school. In the VDS, we also recorded the level of education of the VC and the PS. On average, leaders have approximately eight years of education (e.g. middle school). A related variable is the presence of a primary or middle school (high schools are not located in villages). The data show that 83 percent of the sample have at least one school. Note that only four percent of the sample have a middle school. The high number of villages with primary schools is consistent with the fact that the upper government aims to provide universal primary education to rural children.

In our sample, the average village held its first election in 1988 and introduced open nominations in 1997. In addition to what is presented here, the data show that elections were mostly introduced during the late 1980s and early 1990s.⁴³

The data show that sixteen percent of the villages have an ancestral hall and 42% have at least one family that maintains a family tree. Note that both of these variables are time-invariant and equal one if a village has an ancestral hall or family tree during any year of our study period. Using the surname data, we create a time-invariant measure of the share of households that belong to the largest two kinship groups (e.g. clans) for each village. On average, fifty percent of village households belong to the two largest kinship groups.

In column (5), we aggregate the data to the village level to examine the correlates of our social capital measure. First, we find that the presence of a village temple is positively and significantly correlated with the presence of voluntary social organizations. Thus, this supports our claim 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 is likely to be partly due to 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. This is consistent with the belief

⁴³See Martinez-Bravo et al. for a detailed discussion of election roll-out timing.

that village temple act as a forum for further building social capital.

We find that the presence of a temple is positively and statistically significantly correlated with 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.⁴⁴

Note that the presence of temples is not correlated with kinship structure, average household incomes, inequality, human capital, or the timing of the elections. This suggests that our estimates are unlikely to be correlated with the confounding influences of these variables. Moreover, the data show that the presence of a temple is uncorrelated with the level of pre-election government expenditure on public goods. This goes against Tsai's (2002) conjecture that informal institutions such as temples arose in response to the lack of public goods provision by the village government. It is consistent with our interpretation of village temples as an embodiment of a set of social norms that have long-run historical origins and have persisted over time.

We discuss the correlates presented in column (6)-(7) later in the paper.

Table 2 describes the data on public goods expenditure. In our data, public goods include a set of objects determined by the Ministry of Agriculture: sanitation, roads, irrigation, education, the environment, and other. Panel A shows that approximately 70% of all public goods expenditures originate from villagers. The breakdown is similar for each item of public goods investment. Note that most observations in our sample have zero public expenditure. Therefore we do not examine each type of public goods separately. A comparison of panels B and C show the differences in public goods expenditure between villages where the social capital dummy equals zero (e.g., villages that do not have village temples, or families that maintain an ancestral temple or family tree) and villages where the social capital dummy equals one (e.g., villages that have at least one of these objects). Consistent with the findings of Tsai (2007) and the theory that social capital results in higher levels of public goods that we discussed in section 2, the means show that on average, villages with high social capital have higher public goods expenditure.

⁴⁴The presence of a village temple is also positively correlated with the presences of a school, ancestral hall and family tree. We discuss these variables later in the paper.

5 Results

5.1 Main Results

Elections and Temples Before presenting the main results, we first establish that the construction of temples is not an outcome of the introduction of elections by regressing the a time-varying dummy for the presence of a temple on the introduction of elections, the introduction of open nominations, province-year trends, village and year fixed effects. This is shown in Table 3 column (1). It shows that elections have no effect on the presence of a village temple. The estimates are near zero and statistically insignificant. Henceforth, all of our measures of temples will be a time-invariant dummy indicating that a temple is present during any of the years of our sample period.

Government Expenditure on Public Goods Our main outcome of interest is public goods expenditure. For brevity, we focus on the interaction of post-election and the presence of a temple.⁴⁵ In column (2), we do not include country fixed effects in order to display the main effect of the presence of a temple. The main effect is positive, but all of the estimates are very imprecise and statistically similar to zero. Columns (3)-(6) gradually introduce the controls in the baseline estimating equation. The full baseline specification is shown in column (7). The interaction effect of elections and social capital shows that elections have much more positive effects on public goods expenditure for villages with high social capital. It is statistically significant at the 1% level. It shows that relative to a village with low social capital, elections increase total public goods expenditure by 527,000 RMB more in a village with high social capital. This is consistent with our hypothesis that social capital enhances the ability of elected governments to provide public goods. The main effect for elections shows that elections have no effect for villages with low social capital. The estimate is small in magnitude and statistically insignificant.

Next, we examine public expenditure by source of funding. If social capital facilitates villager coordination and increases trust, then we should find that our main results on total public goods expenditure is driven by villager financing rather than financing from other sources. Column (8) shows that this is indeed the case. The interaction effect of the introduction of elections and open nominations with social capital is large and positive for financing from villagers. In contrast, column (9) shows that the estimated interaction term is much smaller in magnitude for financing

⁴⁵The effects of open nomination are shown in Appendix Table A.1.

from non-village sources.

The results on total public expenditure are consistent with the hypothesis that social capital enhances democracy's effect on public goods provision. However, expenditure does not necessarily need to correspond to increased provision as money can be misallocated. Moreover, one would like to know whether the increase corresponds to the demand of villagers. To address these concerns, we proxy for the demand for public goods and then examine whether the increase in public goods *provision* increased in a way that corresponds to *demand*. We are able to proxy for demand for two of the recorded public goods: irrigation and primary schools (the main schools in villages). We assume that villagers living in villages that rely more on farming will have higher demand for irrigation, and villagers living in villages with more primary school age children have higher demand for primary schools. Thus, our proxy for irrigation is the average logarithm of farmland in a village used for farming and our proxy for school demand is the average number of children age 7-13 in a village. Both of these variables are reported by the NFS. We then proxy for the provision of irrigation with the amount of village land that is arable. This is based on the logic that an increase in public investment in irrigation should lead to an increase in the amount of arable land. We proxy for the provision of schools with school enrollment rate. This follows the logic that since most of the public expenditure on schools goes towards the variable costs of operating a school (e.g. equipment maintenance) and should improve school quality, an increase in expenditure could lead to an increase in enrollment rate. Note that in rural China, the upper government provides most of the fixed costs of village schools such as materials for the building, while the village government provides most of the variable costs such as school supplies, equipment and building maintenance (e.g., Tsai, 2002).

The Provision of Public Goods and Demand The results for provision and demand are presented in Table 4. Since further interacting the main explanatory variables produce estimates that are difficult to interpret, we first divide the sample into villages with temples and villages without temples, and then estimate the interaction effect of the introduction of elections and our demand proxies, controlling for the main effect of the introduction of elections, the interaction effect of the introduction of open nominations, the main effect of open nominations, village population, the share of villagers that are religious, that are Buddhist and that participate regularly in religious

ceremonies. If our main results reflect an increase in provision that corresponds to villagers' demand, then the interaction effect of elections and the demand proxy should be positive in villages with high social capital and larger in magnitude than the interaction effect in villages with low social capital.

First, we examine the log of public expenditure on irrigation. For brevity, we focus on expenditure financed by villagers. This will be our main expenditure outcome henceforth in the paper.⁴⁶ The positive interaction effect in panel A column (1) shows that in villages with temples, elections increase arable land more for villages that rely more on farming. The negative main effect of elections show that in a village with no farmland (but has a temple), elections reduce the amount of arable land. The interaction effect is statistically significant at the 1% level. This is consistent with the effect of elections on public goods provision corresponding to the demand of villagers. Column (2) shows that in villages with no temples, the interaction effect and main effect are both very small in magnitude and statistically insignificant. In column (3), we estimate the triple interaction effect of the presence of a temple, the introduction of elections and the average log village farmland. This controls for all of the double interaction terms in addition to controls as before from columns (1) and (2). In column (4), we add the control of the interaction of the presence of a temple and year fixed effects so that we are controlling for all of the baseline controls from equation (1). The triple interaction term is positive but statistically insignificant.

To examine provision, we examine the log of arable land in a village. The positive interaction effect in column (5) shows that the introduction of elections increased arable land more in village that rely more on farming if there is a temple. This interaction effect is statistically significant at the 1% level. Thus, in villages with temples, the effect of elections on arable land correspond to demand. In column (6), we see that this is not the case in villages with no temples. The interaction effect is near zero and insignificant. In columns (7) and (8), we estimate the triple interaction effect. The estimate is positive and statistically significant at the 1% level.

In panel B, we repeat the exercise with public expenditure on schooling as financed by villagers and school enrollment rate. We find similar results. Our main results, the interaction effect of social capital and the introduction of elections on school enrollment are larger in magnitude in villages that have more school-age children. The triple interaction estimates in columns (7) and

⁴⁶The results for total expenditure from all sources of finances are similar and are available upon request.

(8) are statistically significant at the 1% level. Thus, we conclude that our findings are consistent with social capital enhancing elections' ability to provide public goods in a way that corresponds to demand.

The Timing of the Effect Next, we examine the timing of our estimated effects. We estimate the following equation

$$y_{it} = \sum_{\tau=-3}^4 \alpha_{\tau} e_{it\tau} + \sum_{\tau=-3}^4 \beta_{\tau} (e_{it\tau} \times S_i) + \sum_{\tau=-3}^4 \theta_{\tau} o_{it\tau} + \sum_{\tau=-3}^4 \lambda_{\tau} (o_{it\tau} \times S_i) \quad (2)$$

$$+ \gamma X_{ijt} + \tau \theta_j + \delta_{ij} + \rho_t + \varepsilon_{it},$$

where $e_{it\tau} = 1$ if village i in year t experienced the introduction of elections τ years ago, and $o_{it\tau} = 1$ if the same village experienced the introduction of open nominations τ years ago. The other variables have the same notation as in the baseline equation. Note that the timing of the reforms are staggered across villages and while we examine a similar window of time before and after each reform for consistency, we do not exclude any observations. Instead, we follow convention and group all of the observations that are more than four or more years prior to the first reform together; and similarly, we group all of the observations that are more than four or more years after the reform together. The reference group comprises of observations that are four years prior to the reform. These observations and their interaction terms are omitted from the estimate.

α_{τ} is a vector of coefficients for the dummy variables of the number of years since the first election for villages with low social capital ($S_i = 0$), β_{τ} is a vector of coefficients that reflect the differential effect of elections on villages with high and low social capital for each year since the election. θ_{τ} and λ_{τ} are the analogous estimates for the introduction of open nominations and social capital.

For our identification strategy, we would like to establish that there are no pre-trends in public goods expenditure in the years leading up to the first election for villages with high social capital relative to village with low social capital, but that the positive main result is driven by a positive trend break in the coefficients when elections are introduced. In other words, we would like to see that $\beta_{-3} \approx \beta_{-2} \approx \beta_{-1} < \beta_0, \beta_1, \beta_2, \beta_3$. It would be additionally reassuring to find that the changes over time are driven by the effect of elections in high social capital villages rather than low social capital villages such that $\alpha_{-3} \approx \alpha_{\tau}, \tau = [-2, 4]$.

The estimates for the number of years since the introduction of the first election and their

interactions with social capital are shown in Appendix Table A.3. The coefficients are also plotted in Figure 1. They show several facts. First, the interaction terms are always positive, but do not change over time until elections are introduced. Thus, there is no pre-trend in public goods expenditure in high social capital villages (relative to low social capital villages) in the years leading up to the first election. Second, the interaction effects increase in magnitude starting in the first year of the elections, which suggests that our main estimates are unlikely to be driven by spurious trends. Finally, the increase is mostly realized in the second and third year after the first election (the last two years of the term of the first elected VC). This suggests that elected leaders satisfied villagers’ latent demand for public goods very soon after elections were introduced.

5.2 Alternative Explanations

We interpret our main findings as evidence that social capital can enhance a democratically elected government’s ability to raise funds from citizens for financing public goods. In this section, we explore several alternative explanations for our main results, as motivated by the correlates of temple shown in Table 1 column (5) and the existing literature.

Religion First, we examine the potentially confounding influence of religion, which we showed to be correlated with the presence of village temples both in terms of the share of the population that is religious and the share of the population that regularly participates in religious ceremonies. The influence of religions on public goods depends on the type of religion. On the one hand, religion could build trust and help accumulate civic capital.⁴⁷ This is particularly true for less hierarchical religions that delegate decision rights to the local level.⁴⁸ On the other hand, religion can undermine the development of civic capital via its intolerance of non-believers.⁴⁹ Moreover, studies such as Barro and McCleary (2003) show that religiosity is negatively associated with economic growth across countries, which raises another possible channel through which religion may affect public goods provision.

To examine whether our main results reflect the influences of religion on elections, we control for

⁴⁷For example, Guiso et al. (2003) finds that people who have been raised religiously tend to trust other more and to have stronger moral values, independent of the religion they have been raised into.

⁴⁸For example, Putnam et al. (1994) argues that less hierarchical religions (such as Protestant religions) teach people to take responsibility and internalize the common good of their small community. By contrast, Catholicism and Islam do not share these features.

⁴⁹For example, Guiso et al. (2003) show that religious people are more intolerant of diversity than non-religious ones, regardless of the type of religion, albeit some religions are worse than others. This intolerance may represent an obstacle to the development of trust and common shared values in countries with different ethnicities.

the average population share of all religious individuals, Christians, Muslims, Buddhists, and those of other faiths, and the population share of individuals who attend religious ceremonies regularly, each interacted with the post-election dummy.⁵⁰ Conceptually, this 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 religion on elections. Column (1) of Table 5 re-states the baseline estimate for comparison purposes. Columns (2)-(7) introduces these controls one by one. Column (8) controls for all of them simultaneously. Our main result is very robust and statistically significant at the 1% level. This shows that it is not confounded by religiosity.

The interaction effects of all of the religious groups are negative (with the exception of the share of Muslim populations, which is positive, near zero in magnitude). The estimated interaction effects of the share of Christians, Buddhists and other religions are statistically significant at the 10% level. These results are consistent with the notion that religiosity can reduce social capital (e.g., Guiso et al., 2003, Putnam et al., 1994). We do not find obvious differences between hierarchical religions such as Christianity and Islam versus other religions.

Wealth, Inequality, Fractionalization and Human Capital We also consider the potentially confounding influences of several other factors. For example, elections may be more effective if households are richer because they can better afford to pay the local taxes necessary for financing the public goods. If the value of public goods vary 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 et al., 2010).⁵¹ Also, elections may be more or less effective in providing public goods in villages that are dominated by large kinship groups, depending on whether these kinship groups demand public goods. Finally, the education of the village leaders may partly determine the effect of elections since leaders with higher education may have more value for public goods and thus exert more effort towards their provision.

To investigate how these factors can affect elections in determining public goods and whether

⁵⁰Our data does not distinguish between different Christian denominations.

⁵¹For example, studies such as Aghion et al. (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)

our main estimates are confounded by their influences, we horse race our main estimates against 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 and polarization indices of kinship groups; human capital as the pre-election average population share of high school graduates and 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. In Table 6 columns (2)-(9), we introduce the additional factors one-by-one. In column (10), we control for all of them simultaneously. 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. This provides strong support for our interpretation that temples capture the effects of social capital and not the confounding influences of wealth, inequality, group disparity, human capital and clan dominance.

Note that the alternative factors are not statistically significant. However, the positive signs and large magnitude of the interaction of the fraction of high school graduates and the introduction of elections suggests that elections were more effective in providing human capital where villagers are more educated.

Another interesting result is the small and statistically insignificant estimate of the interaction of the presence of a school with the introduction of elections. Since schools can also be used as a meeting place for villagers if the village government allowed it, this zero estimate implies that the influences of village temples do not merely capture the fact village temples provide the village government with a venue for convening meetings for villagers. It supports our interpretation that temples capture the effects of social capital.

5.3 Robustness

In this section, we present additional robustness checks of our main results. First, we check that our estimate are robust to controlling for the influences of village population, which is positively correlated with the presence of a temple, over time. We interact village population with the full set of year fixed effects to allow the effects to vary flexibly over time. Table 7 column (2) shows that

the estimates with this control is very similar to the baseline, which we re-state in column (1). Note that the sample is smaller than the full sample due to the limited availability of some of the control variables. For consistency, we use the same sample for all columns.

In column (3), we control for the pre-election average government expenditure on all public goods (as financed by villagers) interacted with year fixed effects to address the possibility that villages with temples have different levels of public goods provision and hence different levels of demand for public goods when elections are introduced. In column (4), we control for a dummy variable for whether a village is near a city (in a suburb) interacted with year fixed effects to address the possibility that public goods provision in villages near urban areas evolved differently over time from villages that are more rural. In columns (5)-(6), we control for the interactions of the fractionalization and polarization of kinship groups and year fixed effects to address the possibility that public goods in villages that are more heterogeneous may evolve differently over time. In column (7), we control for the pre-election average incomes of households on the 10th, 50th and 90th percentiles of the village income distribution, each interacted with the full set of year dummy variables. In column (8), we control for the pre-election average Gini coefficient interacted with year fixed effects. The income and inequality controls address the possibility that villages that are able to construct temples are villages that are richer or have lower income inequality, which are able to then provide more public goods after the introduction of elections. In column (9), we control for the pre-election average fraction of high school graduates interacted with year fixed effects to control for the possibility that public goods may evolve differently depending on the human capital of citizens. In column (10), we 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. Finally, in column (11), we control for all of the additional variables simultaneously. The estimated interaction effect of the presence of a village temple and the introduction of elections is very robust across specifications and always statistically significant.⁵²

⁵²In addition, we also find that our main results are very robust to controlling of the pre-election average educational attainment of the VC and PS, and the pre-election average probability that there is a school, each interacted with year fixed effects. These estimates are available upon request.

Appendix Table A.4 presents additional robustness tests. 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. Column (2) shows that the interaction effect is imprecisely estimated, which is most likely due to the fact that we have many fewer observations. But the positive sign and large magnitude goes against the concern that our main result is driven by the zero observations. In columns (3) and (4), we omit different groups of provinces with large ethnic minority populations, which have very different cultural norms from

5.4 Mechanisms

Historical Persistence As discussed earlier, we interpret the social capital correlated with village temples as a long run concept. This is supported by the fact that the presence of village temples today is highly positively correlated with the presence of Buddhist temples in the same county in 1820. We can provide further evidence that our results capture the influences of historically persistent norms by directly estimating the interaction of a dummy for whether there was a Buddhist temple in the same county in 1820 and the introduction of elections, controlling for the interaction of the same dummy with the introduction of open nominations, and all of the baseline controls from equation (1). Table 8 column (2) presents these estimates. The interaction is large in magnitude and positive in sign, which is consistent with our assertions. However, compared to the effect of village temples in column (1) estimated on the same sample of villages with historical temple data, the influences of historical Buddhist temples in the same county are smaller in magnitude and less precisely estimated. This is not surprising since the historical data are observed at a higher level of geographic aggregation and are not perfectly correlated with present day village temples.

Generalized Trust A key component of social capital is *generalized* trust. One way to investigate the influences of this component is to contrast the effect of temples, voluntary organizations that includes all villagers, with the effect of voluntary organizations that include only part of the village, and which we use to proxy for *personalized* trust.⁵³

Our proxies for personalized trust are the presence of ancestral halls and family trees. 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.⁵⁴ 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, *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 Han Chinese (for whom are proxies for social capital are relevant) and have experienced different economic and political policies. 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. The estimate is significant at the 1% level, and the standard error is very similar to the one clustered at the village level shown in column (1).

⁵³While generalized trust is typically considered as a positive influence on social capital, some have argued that personalized trust can reduce social capital (e.g., Guiso et al., 2004; Putnam et al., 1994). Similarly, past studies have argued that high trust towards family members relative to trust towards people more generally can be taken as a weak norms index of generalized morality (e.g., Banfield and Banfield, 1958; Alesina and Giuliano, 2010).

⁵⁴A Chinese family tree, *jiapu*, links all past and future males of a kinship group. See Cohen (1990) for a detailed discussion.

the kinship groups and offers a place for clan members to worship their ancestors in exchange for blessings from these spirits. The 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 much more rare than family trees.

The presence of family trees and ancestral halls are correlated with personalized trust since the ability to construct and maintain such objects reflects a degree of trust and the ability to cooperate between kinship group members. Similarly, their continued maintenance or participating in the activities at the ancestral hall can further enhance trust amongst kinship group members. However, relative to village temples, they are less correlated with generalized trust because only members of the kinship group participate.⁵⁵

The fact that the presence of ancestral halls and family trees may be associated with generalized as well as personalized trust is consistent with finding that their presence is positively associated with the presence of a village temple and the presence of an ancestral hall is positively associated with the number of social activities (see Table 1 column (5)). However, our claim that ancestral halls and family trees are more correlated with personalized trust than village temples is consistent with the correlates presented in Table 1 columns (6)-(7). They show that the presence of ancestral temples and family trees are positively correlated with the population share of the two largest kinship groups and negatively correlated with the fractionalization of kinship groups. In contrast, column (5) shows that these variables are uncorrelated with the presence of a village temple.⁵⁶

Table 8 column (3) re-states our baseline estimates for the sample for which we have data for ancestral halls and family trees.⁵⁷ In columns (4) and (5), we separately estimate the interaction effects of the presence of ancestral halls and family trees with the introduction of elections. In column (6), we estimate all three interaction effects simultaneously to address any correlations that may exist between the three objects we examine. In column (7), we add the correlates of ancestral halls and family trees as controls: the incomes of households on the 10th, 50th and 90th percentiles of the

⁵⁵For discussions of the role of kinship groups and traditional objects maintained by the kinship group, see studies such as Huang (1998), 1998, Perry and Selden (2003), and Tsai (2007).

⁵⁶Using time-varying measures of the date of construct of an ancestral hall and the date of the last revision of a family tree, we show that these objects are not outcomes of the introduction of elections. These estimates are available upon request.

⁵⁷The sample is smaller than our full sample because we were unable to obtain data on the presence of family trees for all villages. We use the same sample in all columns for consistency.

village household income distribution, the fractionalization of kinship groups, and the population share of the largest two kinship groups, each interacted with the full set of year dummy variables.

The estimates in column (7) show that our main result for the interaction effect of temple is similar as in the baseline estimate in column (3) and still statistically significant at the 1% level. Hence, our main results are unlikely to be confounded by the association between village temples and kinship group objects. Moreover, the interaction effects of ancestral hall and family trees are much smaller in magnitude than the interaction effect with temple and statistically insignificant, which suggests that personalized trust enhances elections less than generalized trust in determining public goods provision.⁵⁸

6 Conclusion

The results of this paper provides novel and rigorous empirical evidence that social (civic) capital can significantly enhance the ability of a democratically elected government in providing public goods. Our study uses the the introduction of elections in rural China, where villages are largely fiscally autonomous, to provide novel evidence on the importance of social capital in resolving a democratically elected government’s difficulty in financing public goods. To do this, we collect a large and unique survey on the presence of village temples, the introduction of elections, as well as detailed data on public goods expenditure from village administrative records. Using this large panel data set, we estimate the differential effect of the introduction of elections in villages with high social capital and low social capital.

The results must be interpreted cautiously as the effect of the introduction of elections and partial democratization since the electoral reforms were only introduced locally to part of the village government. The communist-party continued to dominate all other levels of Chinese government. Also, many of the legal instruments for enforcement of tax payments available to national governments are not available to village governments, which mainly rely on peer pressure for enforcing taxation. We point out these facts to note potential the peculiarities of our context, and also because they highlight the starkness of our results – social capital can resolve a democratically elected

⁵⁸In addition to these results, we also examine the heterogeneous effects of social capital by estimating the triple interaction terms of the presence of a temple, the introduction of elections and variables that reflect factors such as pre-election government public goods expenditure, population, income, education, inequality, and kinship group fractionalization. For each of these variables, we construct a dummy that takes the value of one if the village is above the sample median. We find evidence that social capital has larger positive influences on elections in determining public goods in villages with higher median household income. See Appendix Table A.5.

government's difficulty in raising taxes (for public goods) even when the government has no legal instrument for enforcement and when democratization occurs only at a local level.

Our findings support a long line of studies that have argued that social capital is an important contributor to economic outcomes, and more specifically, that social capital can enhance democracy. For policy makers, the results shed light on why democratic reforms in many cases do not yield the same results as those experienced by Western countries during their historical democratization process.

A natural subject for future research is to understand how else social capital can enhance democracy. For example, in a companion study, the authors of this paper are examining the interaction effect of social capital and elections on redistribution. An equally important question is of course to understand the determinants of social capital. This has been the subject of several recent studies of the European context or the cross-country context.⁵⁹ In contrast, the Chinese context has received little attention.

⁵⁹This is related to recent studies on the origins of trust and culture. See Section 2 for references.

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Table 1: The Correlates of Social Capital

	Descriptive Statistics			Cross-Sectional Correlates		
	(1)	(2)	(3)	(4)	(5)	(7)
	Source	Obs	Mean	Std Dev	Temple Dummy	Ancestral Hall Dummy
Village Temple	VDS	4340	0.33	0.47		
Social Organizations (#)	VDS	3900	0.14	0.43	0.1548*	0.1404
Social Events (#)	VDS	3900	0.20	0.60	0.1808*	0.1701*
						0.055
						0.1365
Village Population (# Households)	NFS	4340	414.19	275.47	0.2148*	0.2912*
Religious Population Share (All Religions)	NFS	4340	0.06	0.19	0.1469*	0.1002
Christian	NFS	4340	0.01	0.05	0.0908	0.1102
Muslim	NFS	4340	0.02	0.13	-0.049	-0.0747
Buddhist	NFS	4340	0.04	0.11	0.2602*	0.2052*
Other	NFS	4340	0.01	0.01	0.0856	0.0992
Population Share that Participates in Religious Ceremonies	NFS	4340	0.02	0.06	0.1615*	0.0476
						0.0241
Pre-Election Public Goods Expenditure (10,000 RMB)	VDS	4340	7.76	31.94	0.0487	0.1095
Income of 10th Percentile HH (RMB)	NFS	3763	5083.15	3634.63	0.0651	0.3016*
Income of Median Household (RMB)	NFS	3763	10527.02	8363.16	0.0477	0.2955*
Income of 90th Percentile Household (RMB)	NFS	3763	24476.18	36831.50	0.0759	0.2298*
Gini Coefficient	NFS	3550	0.28	0.08	0.0298	0.0948
Kinship Group Fractionalization	VDS	3880	0.73	0.23	-0.0986	-0.2798*
Kinship Group Polarization	VDS	3880	0.43	0.22	0.0875	0.0757
						0.0955
Population Share of High School Graduates	NFS	1882	0.05	0.06	-0.0174	0.1011
Village Chariman's Years of Education	VDS	3666	8.02	2.68	-0.0547	0.1271
Party Secretary's Years of Education	VDS	3767	8.26	2.55	0.0257	0.1183
School (Dummy Var = 1 if present)	VDS	4340	0.83	0.38	0.2325*	0.063
						0.0981
Year of 1st Election	VDS	4340	1988.51	5.24	-0.0595	0.0668
Year of 1st Open Nomination	VDS	2780	1997.45	5.26	0.0409	0.1354
						-0.0034
Ancestral Hall	VDS	4340	0.16	0.36	0.2348*	
Family Tree	VDS	4340	0.42	0.49	0.2272*	0.4255*
Share of the two largest kinship groups	VDS	4340	0.50	0.28	0.0821	0.2813*
						0.2524*

Notes: In column (1), VDS indicates that the variable is reported by the Village Democracy Surveys (2006,2011). NFS indicates that the variable is reported by the National Fixed Point Survey. The cross-sectional correlation coefficients in columns (5)-(6) are estimated using data aggregated to the village level. * refers to estimates that are statistically significant at the 10% level.

Table 2: Public Goods Expenditure

	I. All			II. Temple=0			III. Temple=1			Diff. III - I	
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Mean	Mean
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(10)
A. Full Sample											
Total (10,000 RMB)	4340	14.28	135.47	1820	10.33	90.83	2520	17.13	160.10	6.81	6.81
Total Village Financing	4340	9.77	119.29	1820	7.27	80.38	2520	11.57	140.84	4.31	4.31
Taxes (Ad hoc fees and Levies)	4340	0.17	1.84	1820	0.21	2.05	2520	0.14	1.68	-0.07	-0.07
Additional Contributions from Villagers	4340	6.78	101.15	1820	5.34	78.14	2520	7.83	114.95	2.48	2.48
Other Village Government Revenues	4340	0.57	4.74	1820	0.39	3.67	2520	0.71	5.37	0.32	0.32
Total Non-Village Financing	4340	4.42	64.21	1820	2.95	42.46	2520	5.48	76.14	2.53	2.53
Special Aid	4340	1.55	49.78	1820	0.88	35.19	2520	2.04	58.08	1.15	1.15
Upper Government Other	4340	2.08	35.86	1820	1.66	22.15	2520	2.39	43.14	0.73	0.73
Villagers and Upper Government	4340	2.25	63.23	1820	1.33	18.60	2520	2.91	81.46	1.58	1.58
Other	4340	0.79	18.78	1820	0.41	5.93	2520	1.06	24.12	0.65	0.65
B. Pre 1st Election											
Total (10,000 RMB)	723	4.94	31.98	493	3.12	15.88	230	8.84	51.58	5.72	5.72
Total Village Financing	723	3.07	18.50	493	2.07	13.51	230	5.20	26.09	3.13	3.13
Taxes (Ad hoc fees and Levies)	723	0.12	1.65	493	0.17	1.99	230	0.03	0.35	-0.14	-0.14
Additional Contributions from Villagers	723	1.81	12.92	493	1.12	10.47	230	3.28	16.96	2.17	2.17
Other Village Government Revenues	723	0.20	1.88	493	0.25	2.24	230	0.09	0.58	-0.17	-0.17
Total Non-Village Financing	723	1.67	25.45	493	0.76	5.06	230	3.62	44.51	2.86	2.86
Special Aid	723	1.09	25.01	493	0.10	1.97	230	3.20	44.24	3.10	3.10
Upper Government Other	723	0.39	4.37	493	0.41	3.96	230	0.35	5.15	-0.06	-0.06
Villagers and Upper Government	723	0.94	12.76	493	0.54	7.07	230	1.80	20.13	1.27	1.27
Other	723	0.19	2.13	493	0.24	2.53	230	0.07	0.74	-0.18	-0.18
C. Post 1st Election											
Total (10,000 RMB)	3617	16.15	147.63	2407	11.15	84.82	1210	26.09	225.22	14.94	14.94
Total Village Financing	3617	11.11	130.36	2407	7.04	70.89	1210	19.21	201.82	12.17	12.17
Taxes (Ad hoc fees and Levies)	3617	0.18	1.88	2407	0.21	2.13	1210	0.11	1.24	-0.10	-0.10
Additional Contributions from Villagers	3617	7.78	110.63	2407	5.13	68.96	1210	13.06	164.62	7.93	7.93
Other Village Government Revenues	3617	0.65	5.12	2407	0.55	4.34	1210	0.85	6.38	0.30	0.30
Total Non-Village Financing	3617	4.97	69.40	2407	4.08	46.85	1210	6.74	100.17	2.65	2.65
Special Aid	3617	1.64	53.37	2407	0.72	30.64	1210	3.48	81.52	2.76	2.76
Upper Government Other	3617	2.42	39.23	2407	2.15	24.65	1210	2.95	58.25	0.79	0.79
Villagers and Upper Government	3617	2.51	69.03	2407	1.16	15.91	1210	5.20	117.20	4.04	4.04
Other	3617	0.91	20.55	2407	1.21	25.00	1210	0.31	4.25	-0.90	-0.90

Table 3: The Effect of *Social Capital* $\times$ *The Introduction of Elections* on Public Goods Expenditure

	Government Public Goods Expenditure									
	Temple		Total		Total		Total		Total	
	(Time Varying)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Dependent Variable Mean</i>		0.0719	14.28	14.28	14.28	14.28	14.28	14.28	9.77	4.42
Post Election x Temple (Time-Invariant)			-1.804 (9.421)	50.28 (24.13)	43.54 (21.13)	43.13 (21.19)	45.41 (21.76)	56.70 (25.90)	55.04 (24.90)	1.410 (6.664)
Post Election		-0.00764 (0.0145)	2.528 (3.601)	1.431 (3.531)	1.489 (3.905)	1.541 (3.915)	2.403 (3.996)	-0.701 (3.826)	0.408 (2.925)	-0.896 (2.448)
Temple			5.898 (4.060)							
Controls										
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Village FE	Y	N	N	Y	Y	Y	Y	Y	Y	Y
Post Open Nomination x Temple	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Province-Time Trends	Y	N	N	N	Y	Y	Y	Y	Y	Y
Village Population (# of Households)	Y	N	N	N	N	Y	Y	Y	Y	Y
Avg Religious Population Share x Year FE	N	N	N	N	N	N	Y	Y	Y	Y
Temple x Year FE	N	N	N	N	N	N	N	Y	Y	Y
Observations	4340	4340	4340	4340	4340	4340	4340	4340	4340	4340
R-squared	0.826	0.017	0.118	0.121	0.122	0.130	0.140	0.128	0.086	

Notes: "Y" = "Yes" and "N" = "No" for controls. The standard errors are clustered at the village level.

Table 4: The Effect of *Social Capital* $\times$ *The Introduction of Elections on Public Goods Provision*

Sample:	Dependent Variables							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Temple=1	Temple=0	All	All	Temple=1	Temple=0	All	All
A. Ln Gov Exp on Irrigation (Villager Funding)								
Post Election	-0.346 (0.230)	0.015 (0.263)	-0.113 (0.222)	-0.123 (0.231)	-4.631 (1.288)	0.003 (0.321)	-0.041 (0.317)	0.010 (0.315)
Post Election x Avg Ln Farmland	0.070 (0.033)	0.008 (0.036)	0.027 (0.030)	0.026 (0.032)	0.611 (0.168)	0.003 (0.042)	0.011 (0.041)	0.006 (0.040)
Post Election x Temple			-0.244 (0.315)	-0.220 (0.321)			-4.439 (1.369)	-4.500 (1.361)
Post Election x Temple x Avg Ln Farmland			0.041 (0.045)	0.043 (0.045)			0.584 (0.178)	0.588 (0.177)
Controls								
Post Open Nominations	Y	Y	Y	Y	Y	Y	Y	Y
x Avg Ln Farmland	Y	Y	Y	Y	Y	Y	Y	Y
x Temple	N	N	Y	Y	N	N	Y	Y
x Avg Ln Farmland x Temple	N	N	Y	Y	N	N	Y	Y
Temple x Year FE	N	N	Y	Y	N	N	Y	Y
Observations	1440	2900	4340	4340	1093	2198	3291	3291
R-squared	0.201	0.139	0.135	0.140	0.903	0.879	0.883	0.884
C. Ln Gov Exp on Schooling (Villager Funding)								
Post Election	-109.662 (53.804)	7.575 (15.618)	-3.958 (15.576)	1.671 (15.673)	-7.221 (3.632)	0.390 (2.001)	0.545 (1.822)	0.667 (1.931)
Post Election x Avg # Kids 7-13	0.327 (0.263)	0.011 (0.004)	0.011 (0.004)	0.012 (0.004)	0.026 (0.010)	0.000 (0.004)	0.000 (0.004)	0.000 (0.004)
Post Election x Temple			-98.174 (48.850)	-123.939 (50.037)			-8.130 (4.746)	-8.172 (5.085)
Post Election x Temple x Avg # Kids 7-13			0.371 (0.239)	0.387 (0.240)			0.025 (0.011)	0.025 (0.011)
Controls								
Post Open Nominations	Y	Y	Y	Y	Y	Y	Y	Y
x Avg # Kids Age 7-13	Y	Y	Y	Y	Y	Y	Y	Y
x Temple	N	N	Y	Y	N	N	Y	Y
x Avg Kids Age 7-13 x Temple	N	N	Y	Y	N	N	Y	Y
Temple x Year FE	N	N	Y	Y	N	N	Y	Y
Observations	1400	2820	4220	4220	893	1789	2682	2682
R-squared	0.243	0.089	0.117	0.121	0.346	0.340	0.318	0.319

Notes: All regressions control for village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x Year FE, province-year trends, village and year fixed effects. "Y" = "Yes" and "N" = "No" indicate additional controls for each column. The standard errors are clustered at the village level.

Table 5: The Effect of *Religiosity* $\times$ *The Introduction of Elections*

	Dependent Variable: Total Government Public Goods Expenditure (Villager Finance)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Baseline								
Post Election								
x Temple	55.04 (24.90)	56.08 (25.51)	57.10 (25.47)	55.88 (25.20)	60.80 (26.89)	55.99 (24.75)	57.88 (26.21)	61.40 (26.41)
x Share of Religious Population		-38.17 (47.66)						
x Share of Christian Population			-325.3 (278.3)					-484.5 (316.0)
x Share of Muslim Population				40.94 (33.77)				18.85 (60.23)
x Share of Buddhist Population					-206.8 (123.6)			-284.0 (182.2)
x Share of Other Religious Population						-934.0 (854.5)		-969.3 (775.8)
x Share of Population that Participates in Religious Ceremonies							-96.47 (101.0)	226.3 (215.8)
Post Election	0.408 (2.925)	1.679 (3.057)	3.746 (3.681)	-0.605 (2.998)	3.468 (3.053)	3.446 (3.727)	1.878 (3.139)	9.225 (5.197)
Observations	4340	4340	4340	4340	4340	4340	4340	4340
R-squared	0.128	0.128	0.129	0.128	0.130	0.129	0.128	0.133

Notes: All regressions control for the full set of baseline controls, which includes post-open nomination and its interaction with the temple dummy variable, village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x Year FE, province-year trends, village and year fixed effects. In columns (2)-(8), we additionally control for the interaction of post-open nomination and the share of all religious population, the share of Christians, the share of Muslims, the share of Buddhists, the share of other religious populations, and the share of the population that participates in religious ceremonies. In column (8), we control for the interactions terms of post-open nomination with all of these variables simultaneously. Standard errors are clustered at the village level.

Table 6: The Effect of Effects of *Income, Inequality, Human Capital, Fractionalization* $\times$ *The Introduction of Elections*

	Dependent Variable: Total Government Public Goods Expenditure (Villager Finance)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Post Election										
x Temple	58.30 (29.32)	55.79 (25.01)	58.38 (29.29)	56.30 (27.57)	61.41 (31.42)	59.33 (29.02)	58.41 (29.74)	57.10 (27.85)	57.22 (26.98)	56.40 (25.08)
x Pre-Election Income (10th Percentile)		0.0187 (0.0233)								0.0215 (0.0346)
x Pre-Election Income (50th Percentile)		-0.0171 (0.0184)								-0.0190 (0.0238)
x Pre-Election Income (90th Percentile)		0.00385 (0.00285)								0.00400 (0.00280)
x Pre-Election Gini			33.37 (71.13)							-20.27 (157.5)
x Surname Fractionalization				34.83 (30.17)						11.40 (106.8)
x Surname Polarization					-43.67 (49.20)					3.605 (58.73)
x Pre-Election HS Graduate Share						207.2 (168.2)				282.7 (179.6)
x Pre-Election Prob of School							-0.821 (5.579)			-13.37 (12.97)
x Population Share of the Largest Two Clans								-49.03 (45.59)		-31.56 (127.8)
x Pre-Election VC Education									1.621 (3.382)	-0.427 (3.164)
x Pre-Election PS Education									2.134 (3.254)	-1.143 (2.948)
Post Election	0.0517 (3.159)	-6.867 (11.27)	-9.151 (20.81)	-24.63 (22.46)	17.50 (19.10)	-10.51 (9.174)	0.754 (4.098)	27.65 (25.19)	-27.48 (20.63)	16.96 (136.4)
Observations	3760	3760	3760	3760	3760	3760	3760	3760	3760	3760
R-squared	0.165	0.179	0.166	0.166	0.166	0.165	0.165	0.166	0.167	0.181

Notes: All regressions control for the full set of baseline controls, which includes post-open nomination and its interaction with the temple dummy variable, village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x year FE, province-year trends, village and year fixed effects. Columns (2)-(10) additionally controls for the interaction of post-open nomination and the variable shown in the table. The standard errors are clustered at the village level.

Table 7: The Effect of *Social Capital* $\times$ *The Introduction of Elections* on Total Public Goods Expenditure – Robustness to Controls

	Dependent Variable: Total Government Public Goods Expenditure (Villager Finance)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Post Election x Temple	58.07 (29.48)	50.48 (23.16)	54.06 (28.31)	57.43 (29.12)	55.29 (28.30)	58.23 (29.32)	58.85 (29.37)	58.30 (29.38)	59.02 (29.48)	58.29 (29.11)	45.04 (23.32)
Post Election	0.146 (3.286)	0.442 (3.360)	5.898 (3.257)	0.721 (2.752)	0.869 (3.139)	-0.188 (3.288)	2.580 (3.861)	0.706 (3.206)	0.205 (3.244)	0.318 (3.286)	4.456 (3.784)
Post Tax and Fee x Temple										-62.97 (39.34)	-47.15 (38.89)
Post Tax and Fee										0.808 (3.296)	2.466 (7.733)
Controls											
Village Population x Year FE	N	Y	N	N	N	N	N	N	N	N	Y
*Total Public Exp x Year FE	N	N	Y	N	N	N	N	N	N	N	Y
Near City x Year FE	N	N	N	Y	N	N	N	N	N	N	Y
Fractionalization x Year FE	N	N	N	N	Y	N	N	N	N	N	Y
Polarization x Year FE	N	N	N	N	N	Y	N	N	N	N	Y
*Income x Year FE	N	N	N	N	N	N	Y	N	N	N	Y
*Gini x Year FE	N	N	N	N	N	N	N	Y	N	N	Y
*Highschool Grad x Year FE	N	N	N	N	N	N	N	N	Y	N	Y
Observations	3760	3760	3760	3760	3760	3760	3760	3760	3760	3760	3760
R-squared	0.166	0.223	0.306	0.172	0.170	0.172	0.211	0.170	0.168	0.170	0.408

Notes: All regressions control for the full set of baseline controls, which includes post-open nomination and its interaction with the temple dummy variable, village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x Year FE, province-year trends, village and year fixed effects. Additional controls are indicated at the bottom of the table: "Y" = "Yes", the inclusion of a set of controls; "N" = "No", the exclusion of a set of controls. * Indicates that the control variable is the pre-election average (interacted with year fixed effects). The controls for income are the pre-election average incomes of households on the 10th, 50th and 90th percentiles of the income distribution within villages, each interacted with year FEs. The controls for human capital are the pre-election averages of the fraction of adults that have graduated from high school interacted with year FEs. The standard errors are clustered at the village level.

Table 8: The Effects of *Ancestral Halls, Family Trees* $\times$ *The Introduction of Elections*

Dependent Variable: Total Government Public Goods Expenditure (Villager Finance)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Post Election							
x Temple	54.65 (25.09)		76.24 (31.54)			64.86 (26.43)	64.82 (26.92)
x Buddhist Temple in 1820		28.33 (17.08)					
x Ancestral Hall				29.09 (22.80)		10.31 (22.00)	9.349 (22.52)
x Family Tree					38.73 (17.56)	27.29 (16.29)	26.92 (16.98)
Post Election	0.704 (2.927)	8.743 (4.641)	-0.399 (3.215)	17.36 (10.04)	3.630 (4.891)	-11.21 (6.603)	-5.872 (7.077)
Observations	4340	4340	3880	3880	3880	3880	3880
R-squared	0.129	0.130	0.143	0.138	0.141	0.145	0.191

Notes: All regressions control for the full set of baseline controls, which includes post-open nomination and its interaction with the temple dummy variable, village population, share of religious population $\times$ Year FE, share of Buddhist population $\times$ Year FE, share of population that regularly participates in religious activities $\times$ Year FE, temple $\times$ Year FE, province-year trends, village and year fixed effects. Column (7) also controls for the population share of the largest two clans, the pre-election average levels of income for households at the 10th, 50th and 90th percentile of the village income distribution, the fractionalization of kinship groups, each interacted with the vector of year fixed effects. In columns (2, (4)-(7), we also controls for the interaction of post open nomination and the variables stated in the tables (historical temple, ancestral halls, family trees). Standard errors are clustered at the village level.

Figure 1: The Effect of *Social Capital* $\times$ *The Introduction of Elections* on Total Public Good Expenditures for Each Year Since the First Election

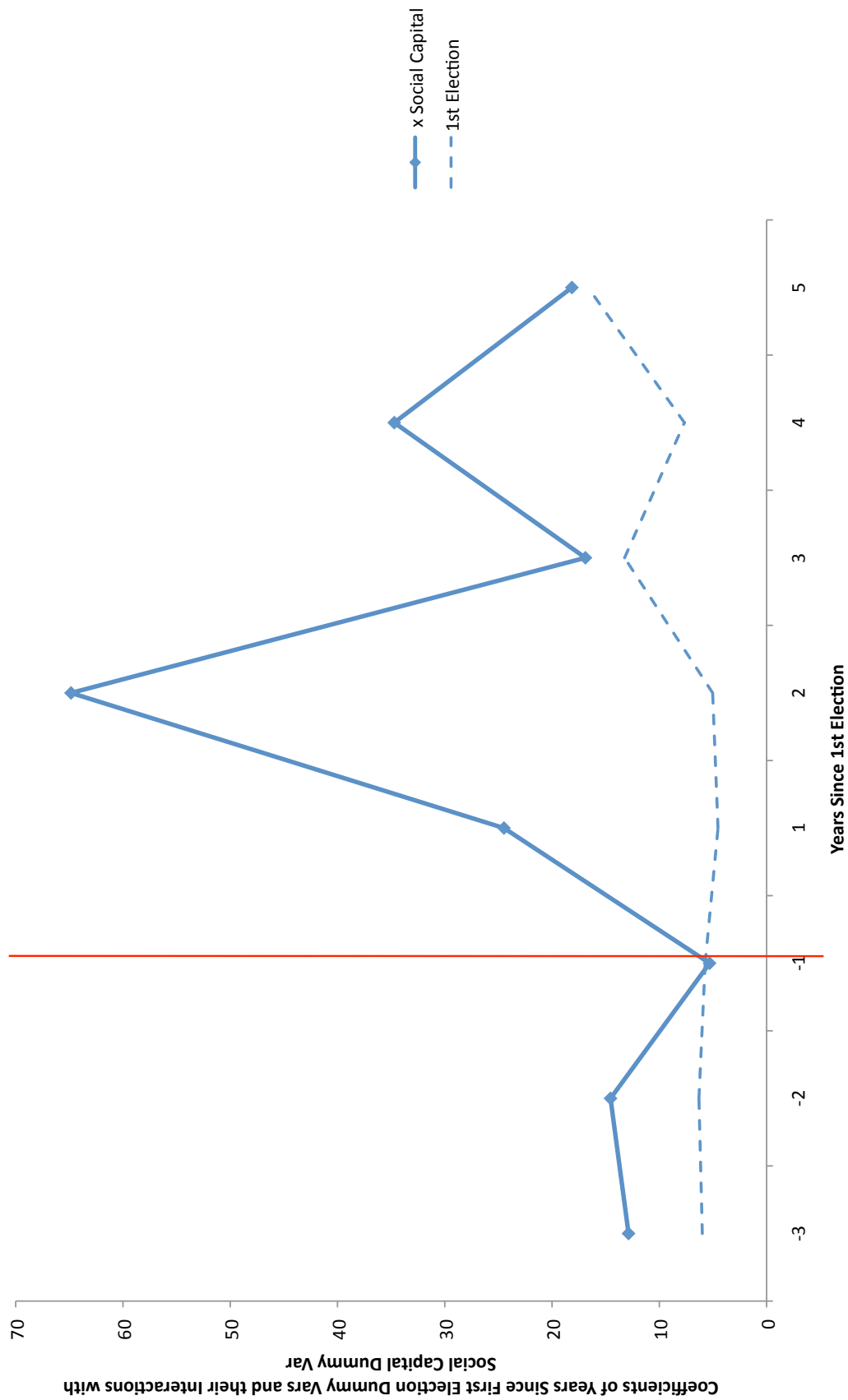


Table A.1: The Effect of *Social Capital* $\times$ *The Introduction of Open Nominations* on Public Goods Expenditure

Dependent Variable: Total Government Public Goods Expenditure			
	(1) Total	(2) Villagers	(3) Non Villagers
Post Election x Temple	56.70 (25.90)	55.04 (24.90)	1.410 (6.664)
Post Election	-0.701 (3.826)	0.408 (2.925)	-0.896 (2.448)
Post Open Nominations x Temple	40.48 (24.95)	29.31 (25.13)	10.95 (15.51)
Post Open Nominations	-7.966 (4.511)	-3.050 (4.027)	-4.702 (3.642)
Observations	4340	4340	4340
R-squared	0.140	0.128	0.086

Notes: All regressions control for the full set of baseline controls, which includes village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x Year FE, province-year trends, village and year fixed effects. Standard errors are clustered at the village level.

Table A.2: The Effect of *Social Capital* $\times$ *The Introduction of Elections* on Local Taxes

Dependent Variable: Household Local Tax Payments				
	(1) Sum of Taxes	(2) Ln Sum of Taxes	(3) Mean Tax	(4) Ln Mean Tax
Post Election x Temple	16742 (24968)	1.398 (1.333)	37.13 (51.72)	0.858 (0.712)
Post Election	4850 (13565)	0.0201 (0.574)	14.30 (29.01)	-0.0147 (0.320)
Observations	1227	1227	1300	1300
R-squared	0.581	0.539	0.592	0.571

Notes: All regressions control for the full set of baseline controls, which includes post-open nomination and its interaction with the temple dummy variable, village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x Year FE, province-year trends, village and year fixed effects. Standard errors are clustered at the village level.

Table A.3: The Effect of *Social Capital* $\times$ *The Introduction of Elections* on Total Public Good Expenditures for Each Year Since the First Election

Dependent Variable: Total Government Public Goods Expenditure (Villager Finance)					
	(1)	(2)		(3)	(4)
	coef	se		coef	se
<i>Social Capital Dummy x</i>			<i>Social Capital Dummy x</i>		
Year Since 1st Election = -3	12.87	(10.27)	Years Since 1st Open Nom = -3	3.801	(7.033)
Year Since 1st Election = -2	14.55	(9.212)	Years Since 1st Open Nom = -2	4.067	(4.979)
Year Since 1st Election = -1	5.314	(10.43)	Years Since 1st Open Nom = -1	37.7	(32.88)
Year Since 1st Election = -0	24.48	(11.43)	Years Since 1st Open Nom = -0	-0.91	(5.941)
Year Since 1st Election = -1	64.84	(38.83)	Years Since 1st Open Nom = -1	50.74	(52.15)
Year Since 1st Election = -2	16.89	(13.31)	Years Since 1st Open Nom = -2	1.038	(8.971)
Year Since 1st Election = -3	34.71	(21.45)	Years Since 1st Open Nom = -3	21.42	(26.89)
Year Since 1st Election = -4	18.15	(14.60)	Years Since 1st Open Nom = -4	20.1	(16.24)
Year Since 1st Election = -3	5.993	(4.545)	Years Since 1st Open Nom = -3	-5.593	(3.431)
Year Since 1st Election = -2	6.308	(5.732)	Years Since 1st Open Nom = -2	-5.286	(5.118)
Year Since 1st Election = -1	5.727	(6.933)	Years Since 1st Open Nom = -1	-10.11	(7.143)
Year Since 1st Election = -0	4.53	(7.306)	Years Since 1st Open Nom = -0	-0.857	(4.024)
Year Since 1st Election = -1	5.029	(6.944)	Years Since 1st Open Nom = -1	-5.551	(6.139)
Year Since 1st Election = -2	13.24	(8.069)	Years Since 1st Open Nom = -2	-11.49	(8.320)
Year Since 1st Election = -3	7.663	(7.273)	Years Since 1st Open Nom = -3	2.36	(6.022)
Year Since 1st Election = -4	16.65	(9.441)	Years Since 1st Open Nom = -4	-5.989	(9.656)
Observations	4340				
R-squared	0.143				

Notes: All regressions control for the full set of baseline controls, which includes village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x Year FE, province-year trends, village and year fixed effects. Standard errors are clustered at the village level.

Table A.4: The Effect of *Social Capital* $\times$ *The Introduction of Elections* on Total Public Goods Expenditure – Robustness to Sample Selection and Standard Error Corrections

Dependent Variable: Total Government Public Goods Expenditure (Villager Finance)					
	(1)	(2)	(3)	(4)	(5)
	Baseline	Omit if Public Goods Exp=0	Omit Inner Mongolia, Qinghai	Omit Inner Mongolia, Qinghai, Ningxia, Yunnan and Hainan	Cluster SE at Province Level
Post Election x Social Capital	55.04 (24.90)	169.5 (105.3)	56.47 (25.47)	55.42 (25.71)	55.04 (21.91)
Post Election	0.408 (2.925)	-16.24 (31.09)	0.350 (3.147)	1.133 (3.102)	0.408 (2.389)
Observations	4340	719	4220	3940	4340
R-squared	0.128	0.483	0.133	0.163	0.128

Notes: All regressions control for the full set of baseline controls, which includes post-open nomination and its interaction with the temple dummy variable, village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x Year FE, province-year trends, village and year fixed effects. Columns (2)-(10) additionally controls for the interaction of post-open nomination and the variable shown in the table. Standard errors are clustered at the village level in columns (1)-(4).

Table A.5: The Heterogeneous Effects of Social Capital $\times$ The Introduction of Elections

	Dependent Variable: Total Government Public Goods Expenditure (Villager Finance)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Post Election x Temple	55.04 (24.90)	20.78 (16.98)	7.288 (9.121)	30.97 (19.96)	35.14 (28.00)	22.56 (18.77)	81.04 (33.24)	71.68 (51.71)	44.05 (31.76)	4.228 (79.40)
Post Election x Temple x Pre-Election Public Goods Exp		71.35 (45.44)								-1.873 (38.90)
x Pre-Election High Village Population Dummy			71.90 (32.82)							18.32 (41.37)
x Pre-Election High Income Dummy (10th)				44.39 (92.48)						139.0 (115.9)
x Pre-Election High Income Dummy (50th)				163.6 (80.82)						181.5 (91.32)
x Pre-Election High Income Dummy (90th)				-65.13 (57.71)						-123.7 (89.00)
x Pre-Election High Fraction of HS Graduates Dummy					42.01 (38.84)					16.60 (39.92)
x Pre-Election High Gini Dummy						64.59 (41.85)				59.93 (48.09)
x Pre-Election High Fractionalization Dummy							-48.06 (34.35)			-20.94 (59.40)
x Pre-Election High Polarization Dummy								-24.90 (51.94)		-104.8 (75.07)
x Pre-Election High Large Clan Size Share Dummy									21.69 (39.04)	100.8 (87.13)
Observations	4340	4340	4340	4340	4340	4340	4340	4340	4340	4340
R-squared	0.128	0.133	0.133	0.135	0.130	0.134	0.129	0.128	0.129	0.149

Notes: All regressions control for post-election and the full set of baseline controls, which includes post-open nomination and its interaction with the temple dummy variable, village population, share of religious population x Year FE, share of Buddhist population x Year FE, share of population that regularly participates in religious activities x Year FE, temple x Year FE, province-year trends, village and year fixed effects. In addition, columns (2)-(10) controls for the interaction of post-open nomination and the variable stated in the table and the triple interaction of post-open nomination, temple and the variable stated in the table. The standard errors are clustered at the village level.